



SEATTLE CITY COUNCIL

Sustainability, City Light, Arts and Culture Committee

Agenda

Public Hearing

Friday, September 5, 2025

9:30 AM

Council Chamber, City Hall
600 4th Avenue
Seattle, WA 98104

Alexis Mercedes Rinck, Chair
Debora Juarez, Vice-Chair
Rob Saka, Member
Mark Solomon, Member
Dan Strauss, Member

Chair Info: 206-684-8808; AlexisMercedes.Rinck@seattle.gov

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Committee Website:

<https://www.seattle.gov/council/committees/sustainability-city-light-arts-and-culture>

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Please Note: Times listed are estimated

A. Call To Order

B. Approval of the Agenda

C. Public Comment

D. Items of Business

1. [Res 32176](#) **A RESOLUTION relating to the City Light Department; acknowledging and approving the City Light Department's adoption of a biennial energy conservation target for 2026-2027 and ten-year conservation potential.**

Attachments: [Att A - 2026 Demand-Side Management Potential Assessment v2](#)

Supporting

Documents: [Summary and Fiscal Note](#)
[Presentation \(9/5/25\)](#)

Public Hearing, Briefing, Discussion, and Possible Vote (20 min)

Presenters: Dawn Lindell, General Manager and CEO, Craig Smith, Joe Fernandi, and Jennifer Finnigan, Seattle City Light (SCL)

2. [Res 32181](#) **A RESOLUTION** relating to the City Light Department; approving the City Light Department's 2026-2029 Clean Energy Implementation Plan as required by Washington State's Clean Energy Transformation Act (CETA), chapter 19.405 RCW.

Attachments: [Att 1 - SCL 2026-2029 Clean Energy Implementation Plan Report](#)
[Att 1 Ex A - SCL 2026-2029 Clean Energy Implementation Plan](#)

Supporting
Documents: [Summary and Fiscal Note](#)
[Presentation](#)

Public Hearing, Briefing, Discussion, and Possible Vote (45 min)

Presenters: Dawn Lindell, General Manager and CEO, Mike Haynes, and Grecia Elenes, SCL

3. [CB 121063](#) **AN ORDINANCE** relating to the City Light Department; authorizing the Department to develop programs, enter into agreements with customers and other parties, and provide incentives for modifications to customer electricity consumption; and amending Section 21.49.130 of the Seattle Municipal Code.

Supporting
Documents: [Summary and Fiscal Note](#)
[Presentation](#)

Briefing, Discussion, and Possible Vote (30 min)

Presenters: Dawn Lindell, General Manager and CEO, Craig Smith, Joe Fernandi, and Karen Liu, SCL

4. [CB 121062](#) **AN ORDINANCE relating to the City Light Department; authorizing the execution of a 16-year power purchase agreement with the Bonneville Power Administration and related agreements.**

Attachments: [Att A - Memo BPA 2028 Provider of Choice Contract Status for Legislation](#)
 [Att B - BPA Provider of Choice Slice Block Power Sales Agreement Contract Template](#)
 [Att C - BPA Creditworthiness Agreement Template](#)

Supporting
Documents: [Summary and Fiscal Note](#)
 [Presentation](#)
 [Central Staff Memo](#)

Briefing, Discussion, and Possible Vote (25 min)

Presenters: Dawn Lindell, General Manager and CEO, Siobhan Doherty, and Josh Walter, SCL

E. Adjournment



Legislation Text

File #: Res 32176, **Version:** 1

CITY OF SEATTLE

RESOLUTION _____

A RESOLUTION relating to the City Light Department; acknowledging and approving the City Light Department's adoption of a biennial energy conservation target for 2026-2027 and ten-year conservation potential.

WHEREAS, Ballot Initiative 937 ("I-937"), also known as the Energy Independence Act, was passed by

Washington State voters on November 7, 2006, which requires qualifying electric utilities to obtain new renewable resources and undertake cost-effective energy conservation; and

WHEREAS, I-937 was codified in chapter 19.285 of the Revised Code of Washington (RCW); and

WHEREAS, RCW 19.285.040 calls for each qualifying utility to pursue all available conservation that is cost-effective, reliable, and feasible, including requiring the development of conservation potential and biennial conservation targets; and

WHEREAS, Washington Administrative Code (WAC) 194-37-070 requires that each qualifying utility "must document the methodologies and inputs used in the development of its ten-year potential and biennial target and must document that its ten-year potential and biennial target are consistent with the requirements of RCW 19.285.040(1)"; and

WHEREAS, City Light undertook a Demand Side Management Potential Assessment study to develop its ten-year conservation potential and biennial target, which was consistent with the methodologies set forth in RCW 19.285.040 and WAC 194-37-070; and

WHEREAS, the Demand Side Management Potential Assessment identifies a ten-year conservation potential of 78 average megawatts (aMW) starting in 2026, and a biennial energy conservation target of 16 aMW for City Light in 2026-2027; and

WHEREAS, City Light anticipates meeting or exceeding the energy conservation target for 2026 and 2027, and updating its Demand Side Management Potential Assessment by the year 2028; and

WHEREAS, WAC 194-37-070 requires that each utility must establish its ten-year potential and biennial target by action of the utility's governing board, after public notice and opportunity for comment; NOW, THEREFORE,

**BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SEATTLE, THE MAYOR
CONCURRING, THAT:**

Section 1. Pursuant to chapter 19.285 of the Revised Code of Washington (RCW) and corresponding Washington Administrative Code (WAC) 194-37-070 regulations, and after public hearing, the City Council acknowledges and approves the City Light Department's ("City Light") adoption of a biennial energy conservation target of 16 aMW for 2026-2027 and a ten-year conservation potential of 78 aMW starting in 2026. City Light's biennial energy conservation target and ten-year conservation potential are based upon a Demand Side Management Potential Assessment conducted using methodologies consistent with those used by the Pacific Northwest Electric Power and Conservation Planning Council in order for City Light to pursue all available conservation that is cost-effective, reliable, and feasible.

Section 2. The City Council further acknowledges that City Light anticipates meeting or exceeding the biennial energy conservation target with its adopted 2026 budget and future 2027 budget.

Adopted by the City Council the _____ day of _____, 2025, and signed by me in open session in authentication of its adoption this _____ day of _____, 2025.

President _____ of the City Council

The Mayor concurred the _____ day of _____, 2025.

Bruce A. Harrell, Mayor

Filed by me this _____ day of _____, 2025.

Scheereen Dedman, City Clerk

(Seal)

Attachments:

Attachment A - 2026 Demand-Side Management Potential Assessment



2026 Demand-Side Management Potential Assessment

Project Leads: Margaret Frey, Jennifer Finnigan, and Verene Martin, Seattle City Light
Prepared by: Aquila Velonis, Jesse Emge, PhD, Craig Bird, Andrew Grant, Taylor Bettine,
Lily Mosher, and Callahan Seitz, Cadmus
Sophia Spencer, Nauvoo Solutions
July 2025

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Definition of Terms

aMW	Average megawatt	kWh	Kilowatt-hour
AC	Air conditioning	LED	Light-emitting diode
BPA	Bonneville Power Administration	MACA	Multivariate Adaptive Constructed Analogs
CBECS	Commercial Buildings Energy Consumption Survey	Mid-C	Mid-Columbia
CBSA	Commercial Building Stock Assessment	MW	Megawatt
CEIP	Clean Energy Implementation Plan	MWh	Megawatt-hour
CETA	Clean Energy Transformation Act	NEEA	Northwest Energy Efficiency Alliance
COB	California-Oregon Border	NREL	National Renewable Energy Laboratory
Council	Northwest Power and Conservation Council	NWPCC	Northwest Power & Conservation Council
CPA	Conservation Potential Assessment	O&M	Operations and maintenance
DSM	Demand-Side Management	PV	Photovoltaic
DSMPA	Demand-Side Management Potential Assessment	RARE	Resource Adequacy Renewable Energy
ECM	Energy conservation measure	RBSA	Residential Building Stock Assessment
EHD	Environmental Health Disparities	RCW	Revised Code of Washington
ELCC	Effective Load-Carrying Capacity	REC	Renewable Energy Credits
EIM	Energy Imbalance Market	RFP	Request for Proposals
EPRI	Electric Power Research Institute	RTF	Regional Technical Forum
EUL	Effective useful life	RUL	Remaining useful life
EV	Electric vehicle	S&P	Standard & Poor
FPT	Flow Plan Tool	SEC	Seattle Energy Code
GHG	Greenhouse Gas	T&D	Transmission and Distribution
GCM	General Circulation Model	TRC	Total resource cost
HVAC	Heating, Ventilation, and Air Conditioning	UEC	Unit energy consumption
I-937	Initiative 937	UES	Unit energy savings
ICE	Intercontinental Exchange	WAC	Washington Administrative Code
IRP	Integrated Resource Plan		

Acknowledgements

The authors would like to thank the Seattle City Light staff who provided invaluable guidance and support, especially Margaret Frey, Jennifer Finnigan, Verene Martin, Mike Hamilton, Katie Ewing, Rebecca Klein, and Alan Bach. The study required compiling a large amount of data from many sources, including several divisions at City Light.

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1. Executive Summary

1.1. Overview

Seattle City Light (City Light) engaged Cadmus to complete a Demand-Side Management Potential Assessment (DSMPA) to produce rigorous estimates of the magnitude, timing, and costs of conservation (henceforth referred to as “conservation” or “energy efficiency”) and demand response resources in its service territory over the next 20 years, beginning in 2026.

The DSMPA analysis includes the conservation potential assessment (CPA) and demand response potential assessment (DRPA).¹ The DSMPA identifies energy efficiency and demand response potential in City Light’s major customer sectors—residential, commercial, and industrial—while accounting for the impacts of climate change and building electrification.² This study accomplishes several objectives:

- Fulfills statutory requirements of Chapter 194-37 of the Washington Administrative Code (WAC), Energy Independence Act (I-937). The WAC requires that City Light identify all achievable, cost-effective conservation potential for the upcoming 10 years.³ The WAC also specifies that City Light’s public biennial conservation target should be no less than the pro rata share of conservation potential over the first 10 years. The study fulfills regulatory requirements by establishing City Light’s energy conservation targets for the 2026-2027 biennium.
- Supports City Light’s compliance with Washington State’s Clean Energy Transformation Act (CETA), passed as Senate Bill 5116 in April 2019, to inform City Light’s energy efficiency and demand response short- and long-term targets.⁴ In addition, this study informs City Light’s near-term interim targets for its Clean Energy Implementation Plan (CEIP) as required by CETA. This study, more broadly, supports City Light’s Clean Energy Action Plan, a 10-year action plan described in the 2024 IRP Progress Report to meet CETA requirements.
- Develops up-to-date estimates of energy conservation measure (ECM) datasets for the residential, commercial, and industrial market sectors using measures consistent with the Northwest Power and Conservation Council’s (Council) 2021 Power Plan, the Regional Technical Forum (RTF), and other data sources.

¹ Complete details of the DRPA can be found in Appendix E of this report.

² For this study, Cadmus estimated demand response potential for managed electric vehicle (EV) charging and conservation potential for efficient, residential EV chargers. We did not estimate conservation potential for efficient EV chargers in the commercial sector.

³ Washington State Legislature. *Energy Independence Act*. Washington Administrative Code Chapter 194-37.

⁴ CETA requires proposing interim targets for meeting the standard under RCW 19.405.040(1) during the years prior to 2030 and between 2030 and 2045. This study estimates potential over 20 years, from 2026 through 2045.

- Provides inputs into City Light’s IRP and progress update reports, which is completed every two years in accordance with the Revised Code of Washington (RCW) 19.280.⁵ City Light’s IRP determines the mixture of supply-side and demand-side resources required over the next 20 years to meet customer demand and looks ahead to how City Light plans to meet the 2045 100% non-emitting standard of CETA. The DSMPA study period aligns with the timeline for City Light’s 2026 IRP and provides direct inputs into that analysis. The IRP requires a thorough analysis of conservation potential to properly assess the reliability, cost, risk, and environmental impact of different resource portfolios for power generation, as well as to assess other demand-side resources that are not part of the CPA.
- Informs City Light’s planning and budget setting for customer programs and City Light’s load forecast.

Cadmus relied on City Light–specific data compiled from the 2022 Northwest Energy Efficiency Alliance (NEEA) Residential Building Stock Assessment (RBSA),⁶ NEEA’s 2019 Commercial Building Stock Assessment (CBSA),⁷ and other regional data sources. Our analyses use methodology consistent with the supply curve workbooks of the Council’s 2021 Power Plan, published in March 2022.⁸ We also incorporated savings and costs for all ECMs in the Council’s 2021 Power Plan⁹ workbooks and selected unit energy savings (UES) workbooks from the RTF.¹⁰ The *Detailed Methodology* section of this report describes the sources and data used in greater detail.

Cadmus also calculated estimates of the demand response potential that align with the Council’s demand response methodology and provided City Light with the data it needs to meet Washington State’s CETA

⁵ Under RCW 19.280, electric utilities with more than 25,000 customers that are not full requirements customers must provide progress reports on their IRPs every two years. Additionally, these utilities are required to develop and submit an updated IRP at least every four years.

⁶ Northwest Energy Efficiency Alliance. *2022 Residential Building Stock Assessment*.

⁷ Northwest Energy Efficiency Alliance. *2019 Commercial Building Stock Assessment*.

⁸ The 2021 Power Plan is a regional plan that provides guidance on resources to ensure a reliable and economical regional power system from 2022 to 2041. The Council develops supply curves covering a variety of supply- and demand-side resources, considers how to best meet the region’s power needs across a range of future scenarios (balancing cost and risk), develops a draft plan, and gathers public input before releasing the final version.

⁹ Cadmus did not include results from the Council’s Ninth Power Plan as the planned completion will be in fall 2026. However, Cadmus did include draft Ninth Power Plan data where applicable, such as updated regional transmission and distribution avoided costs and program administration cost factors.

¹⁰ RCW 19.285.040 requires CPAs to use methodologies consistent with those used by the Council’s most recent regional power plan.

requirements. The methodology and findings of the Demand Response Potential Assessment are presented in Appendix E.

City Light's DSMPA analysis, with its new GridPath model framework (also referred to in this report as the IRP model), used the solar photovoltaic (PV) and battery potential results from the 2024 DSMPA; therefore, Cadmus did not repeat this analysis as part of the 2026 DSMPA. For a summary of solar PV and battery potential, see the 2024 DSMPA report appendices. Cadmus used the battery potential (adoption) from the 2024 DSMPA as the basis to assess the demand response opportunities of batteries within the 2026 DRPA.

Cadmus completed the analysis under a condensed timeline by focusing on the following updates from the prior 2024 DSMPA:

- Added five new conservation measures: window heat pump, HVAC sizing, multifamily packaged terminal heat pump, heat pump with gas back-up, and electric vehicle (EV) chargers
- Updated to the latest RTF data for 10 high-impact measures
- Updated residential equipment, end-use saturations, and fuel shares with the most recent 2022 RBSA
- Revised the regional avoided transmission and distribution costs and program administration cost factors based on the draft Council Ninth Power Plan data
- Incorporated City Light's recent evaluation data for ductless heat pumps and heat pump water heaters
- Removed selected measures based on discussions with City Light program staff
- Updated savings potential to reflect changes to codes and standards and recent programmatic accomplishments
- Adjusted achievable technical potential adoption rates to reflect the two-year timestep since the previous DSMPA
- Removed acceleration of achievable technical potential adoption for commercial building types that were least likely to be adopted rapidly due to the Washington State Clean Building Performance Standard (CBPS)¹¹
- Added four new demand response products: commercial EV supply equipment direct load control, commercial time-of-use, residential opt-out time-of-use, and residential non-incentivized behavioral measures

In addition, City Light updated the IRP modeling tools and analyses. See the Long-Term Resource Planning Model for DSMPA section of this report for additional details.

¹¹ City Light has seen limited programmatic adoption from these initiatives so far and in addition, there remains some uncertainty in the commercial market as well as uncertainty in number of customers who may opt for non-compliance (prior study assumed 100% compliance).

Table 1-1 shows the results from this study, representing the 20-year technical, achievable technical, and achievable economic potential for each resource considered. Appendix E includes the complete details of the DRPA.

Table 1-1. Summary of Energy Savings and Demand Reduction Potential, Cumulative 2045

Resource	Energy (aMW)			Winter Coincident Peak Capacity (MW)		
	Technical Potential	Achievable Technical Potential	Achievable Economic Potential	Technical Potential	Achievable Technical Potential	Achievable Economic Potential
Energy Efficiency	245	202	103	279	228	108
Demand Response	N/A	N/A	N/A	N/A	193	14

This study characterizes conservation potential in terms of an average megawatt (aMW), which is commonly used in the Northwest to represent the amount of conservation potential. An average megawatt is equivalent to the energy produced by the continuous operation of one megawatt of capacity for a period of one year.¹²

1.2. Scope of Analysis

For this study, Cadmus analyzed three sectors—residential, commercial, and industrial—and, where applicable, considered multiple market segments, construction vintages (new and existing), and end uses:

- **Residential:** Eight segments, including single-family and multifamily homes (including low-rise, mid-rise, and high-rise) and highly impacted¹³ single-family and multifamily homes (including low-rise, mid-rise, and high-rise)
- **Commercial:** 20 major commercial segments (including offices, retail, and other segments)
- **Industrial:** Eight segments, including energy-intensive manufacturing, primarily process-driven customers, and water and wastewater treatment plants¹⁴

For each sector, Cadmus developed a baseline end-use load forecast that assumed no new future programmatic conservation, accounted for the effects of climate change,¹⁵ and building electrification.

¹² Northwest Power and Conservation Council definition of an aMW.

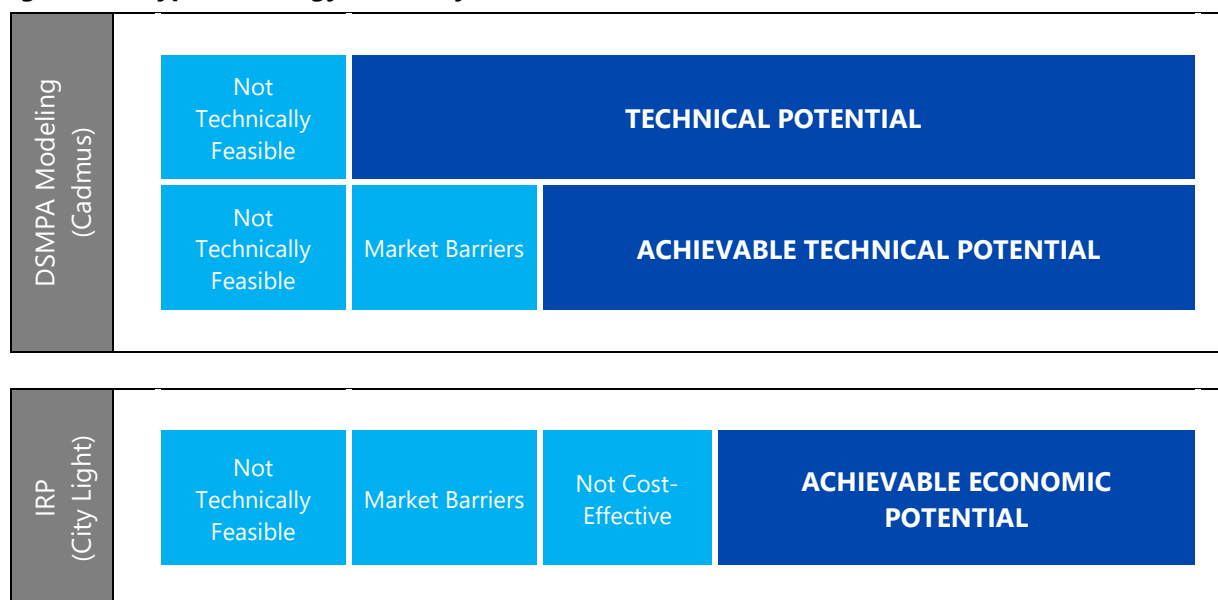
¹³ Highly impacted communities are defined by the Washington State Department of Health based on a census tract ranking of 9 or 10 on the Environmental Health Disparities (EHD) Map. This ranking considers 19 factors, such as environmental exposures and effects, socioeconomic factors, and sensitive populations. More details on the definition and how Cadmus disaggregated the data are provided in section 1.3.5 of this report.

¹⁴ In addition to these eight segments, the load forecast included industrial district steam, spot loads, and streetlighting loads provided by City Light. However, Cadmus did not estimate conservation or demand response potential in these segments, so they are excluded from this report.

¹⁵ Cadmus did not account for the effects of climate change on the industrial sector.

The baseline forecast largely captured savings from building energy codes, equipment standards, and other naturally occurring market forces. Cadmus calculated the additional energy efficiency potential of each conservation measure relative to the baseline forecast. As a result, the conservation potential estimates presented in this report represent potential savings in addition to savings as a result of codes and standards and naturally occurring adoption. Consistent with the WAC requirements, Cadmus considered two types of energy efficiency potential, as shown in Figure 1-1. City Light determined a third potential—achievable economic—through the IRP’s optimization modeling.

Figure 1-1. Types of Energy Efficiency Potential



These three types of potential are described as follows:

Technical potential: This is the total amount of energy efficiency that could be achieved within City Light’s service territory, assuming that all feasible resource opportunities can be captured regardless of cost and market barriers, such as customer willingness to adopt. The potential is only limited by physical and operational constraints.

Achievable technical potential: This is the portion of technical potential that could realistically be realized during the study’s period, considering market barriers such as customer awareness, willingness to adopt measures, and historical program participation rates. It includes savings, regardless of the acquisition mechanism, that may be acquired through utility programs, improved codes and standards, and market transformation without considering cost-effectiveness.

Achievable economic potential: This is the portion of achievable technical potential determined to be cost-effective by the IRP’s optimization modeling, in which either bundles or individual energy efficiency measures are selected based on cost and savings. The cumulative potential for these selected bundles constitutes achievable economic potential.

Cadmus provided City Light resource planning staff and their IRP modeling consultant, Sylvan Energy Analytics, with forecasts of achievable technical potential, which City Light then entered as variables in the IRP's optimization model to determine achievable economic potential.

To be consistent with WAC requirements of relying on cost-effective energy efficiency, Cadmus bundled the resulting forecasts of achievable technical potential by levelized cost bins for the IRP modeling team. The IRP modeling team then determined the amount of cost-effective energy efficiency that could be considered as a resource within the IRP. See Long-Term Resource Planning Model for DSMPA section and Appendix D. Measure Details for more information.

1.3. Conservation Summary of Results

The study found 124 average megawatts (aMW) of achievable technical conservation potential in the first 10 years (cumulative in 2035) in City Light's service territory.¹⁶ To inform I-937 and CEIP energy efficiency targets, Cadmus calculated two-year and four-year cumulative achievable technical potential. Cumulative achievable technical potential equals 29 aMW in the first two years and 54 aMW in the first four years.

Furthermore, City Light used its IRP optimization model to select energy efficiency measures based on the levelized total resource cost (TRC) over a 20-year period. Overall, the cumulative 20-year achievable economic potential is 103 aMW, with 78 aMW acquired in the first 10 years. The *pro rata* share (20% of 10-year achievable economic potential), which represents City Light's minimum biennial target, equals 16 aMW. All estimates of potential in this report are presented at the generator, which means they include line losses.¹⁷

1.3.1. Technical Potential

Table 1- shows the cumulative technical potential for each sector in 2045.¹⁸ Overall, Cadmus identified 245 aMW of technically feasible conservation potential by 2045, the equivalent of 16% of forecasted baseline sales. The study results are presented as a percentage of forecasted baseline sales, which provides a useful benchmark for comparison against City Light's previous studies. The baseline sales reported in the subsequent tables include City Light's EV forecasts for the commercial and residential sectors. They do not include industrial forecasts for spot loads or district steam since these categories require custom engineering work that does not conform to the standard efficiency measures in the

¹⁶ An aMW refers to a unit of measure that represent one million watts (MW) delivered continuously 24 hours a day for each day of the year (for a total of 8,760 hours in non-leap years). A detailed description of MW and aMW can be found on the Council's website: <https://www.nwcouncil.org/reports/columbia-river-history/megawatt>

¹⁷ City Light estimates transmission and distribution line losses to be 8.31%, so the minimum biennial target at a customer site is 14.3 aMW.

¹⁸ City Light selected the year 2045 as the final year for the DSMPA analysis to align with its long-term planning (IRP model) timeline and to comply with CETA's requirement for 100% clean electricity by 2045.

industrial sector. Similarly, streetlighting is not included in the baseline sales data because City Light has installed all efficient measures in this segment, and there is no remaining potential. The residential, commercial, and industrial sectors account for 19%, 15%, and 8% of the 20-year technical potential, respectively. Please note that due to rounding, some values presented in the tables and figures may not sum precisely.

Table 1-2. Cumulative Technical Potential by Sector (2026–2045)

Sector	Baseline Sales– 20-Year (aMW)	Technical Potential– 20-Year (aMW)	Technical Potential as % of Baseline Sales
Residential	512	97	19%
Commercial	908	138	15%
Industrial	109	9	8%
Total	1,530	245	16%

1.3.2. Achievable Technical Potential

Table 1- shows the cumulative achievable technical potential for each sector in 2045. Overall, Cadmus identified 202 aMW of technically feasible achievable potential by 2045—the equivalent of 13% of forecasted baseline sales. The residential, commercial, and industrial sectors account for 16%, 12%, and 7% of the cumulative achievable technical potential, respectively.

Table 1-3. Cumulative Achievable Technical Potential by Sector (2026–2045)

Sector	Baseline Sales– 20-Year (aMW)	Achievable Technical Potential– 20-Year (aMW)	Achievable Technical Potential as % of Baseline Sales
Residential	512	81	16%
Commercial	908	113	12%
Industrial	109	8	7%
Total	1,530	202	13%

Table 1- provides two-year, four-year, 10-year, 20-year, and pro rata share (20% of the 10-year potential) of the cumulative achievable technical potential by sector.¹⁹ These time increments align with regulatory reporting cycles, support short- and long-term planning needs, and correspond to key milestone years for energy conservation goals and utility resource planning. The commercial sector provides the majority of the cumulative achievable technical potential. This is due to the commercial sector’s higher baseline sales compared with those of the residential and industrial sectors.

¹⁹ Under Chapter 194-37 of the WAC Energy Independence Act, City Light’s public biennial conservation target must be no less than 20% of the 10-year potential—representing its *pro rata* share. The CEIP requires a four-year planning roadmap.

Table 1-4. Cumulative Achievable Technical Potential by Sector and Time Period

Sector	Achievable Technical Potential (aMW)				
	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	20-Year (2026-2045)	20% of 10-Year Potential
Residential	7	13	35	81	7
Commercial	20	38	82	113	16
Industrial	1	3	6	8	1
Total	29	54	124	202	25

Table 1- provides the winter and summer technical, achievable technical, and achievable economic capacity savings from energy efficiency by sector in 2045 in megawatts (MW). Capacity savings represent the average demand reduction for each season based on City Light's peak period definitions. City Light uses this information to plan for seasonal demand reductions, optimize resource allocation, and ensure a reliable electricity supply during peak periods while meeting long-term energy efficiency and clean energy goals. The commercial sector accounts for the majority of the total cumulative winter and summer capacity, achievable technical and economic potential. The residential sector accounts for 51% of the winter capacity achievable technical potential but only 25% of the summer capacity achievable technical potential, which reflects the relatively higher saturation of residential electric space heating loads compared with residential cooling loads.

Table 1-5. Cumulative Winter and Summer Capacity (MW) Savings by Sector (2026-2045)

Sector	Technical Potential		Achievable Technical Potential		Achievable Economic Potential	
	Winter MW	Summer MW	Winter MW	Summer MW	Winter MW	Summer MW
Residential	140	86	116	73	17	11
Commercial	130	248	104	208	82	135
Industrial	9	10	8	8	8	8
Total	279	344	228	289	108	154

Table 1- provides the two-year, four-year, and 10-year summer and winter capacity savings by sector. In the first 10 years of the study period, the cumulative winter achievable technical capacity savings are 138 MW, which is 61% of the 20-year cumulative winter achievable technical capacity savings. The 10-year cumulative summer achievable technical capacity savings are 200 MW, which is 69% of the 20-year cumulative summer achievable technical capacity savings.

Table 1-6. Cumulative Winter and Summer Capacity (MW) Savings by Sector and Time Period

Sector	Cumulative Winter Achievable Technical Potential (MW)			Cumulative Summer Achievable Technical Potential (MW)		
	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)
Residential	10	19	51	6	11	31
Commercial	21	38	76	33	63	148
Industrial	1	3	6	2	3	7
Total	32	60	134	40	77	186

1.3.3. Technical and Achievable Technical Potential Comparison to the 2024 DSMPA

The 2026 DSMPA identified 245 aMW of cumulative, final-year technical potential, compared with 263 aMW in the 2024 DSMPA, as shown in Table 1-. The 7% decrease in cumulative, final-year technical potential is due to several key factors:

- The study horizon for the 2024 DSMPA was 22 years, while the 2026 DSMPA uses a 20-year horizon to align the final study year, 2045, with the CETA requirement for a complete transition to clean electricity by that year.

Both studies incorporate the impacts of building electrification and climate change in the baseline forecast. The 2026 DSMPA used updated projections from City Light.²⁰

- Cadmus updated residential fuel shares and saturations based on the most recent (2022) NEEA RBSA site data. The 2024 DSMPA used the 2017 RBSA.
- Cadmus incorporated updates to codes and standards since the 2024 DSMPA, such as the 2029 residential federal standard for heat pump water heaters and RCW 70A.230.020 prohibiting fluorescent lighting sales.
- Based on discussions with City Light program staff, Cadmus removed measures for streetlighting and controls, residential wastewater impacts, spas, fryers, and refrigerator and freezer recycling.

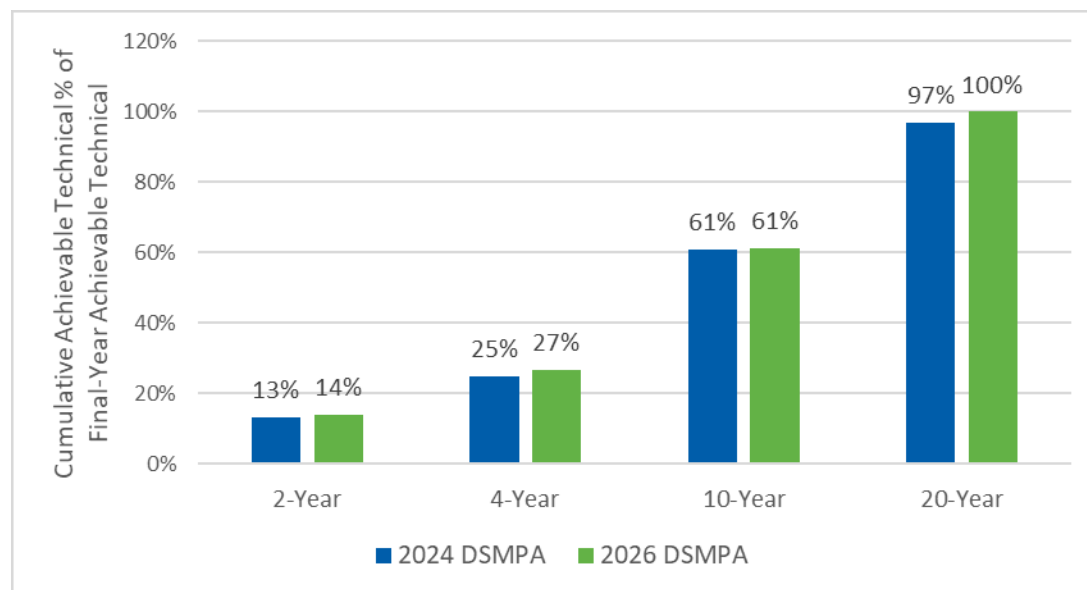
²⁰ Electrification forecast and climate change impacts provided by City Light and based on prior City Light modeling and research.

Table 1-7. Final Year Cumulative Technical Potential Comparison by Sector

Sector	2026 DSMPA			2024 DSMPA		
	Baseline Sales– 20 Year* (aMW)	Technical Potential– 20 Year (aMW)	Technical Potential as % of Baseline Sales	Baseline Sales– 22 Year* (aMW)	Technical Potential – 22 Year (aMW)	Technical Potential as % of Baseline Sales
Residential	439	97	22%	398	95	24%
Commercial	698	138	20%	718	155	22%
Industrial	109	9	8%	124	13	11%
Total	1,246	245	20%	1,240	263	21%

*Note: The baseline sales do not include EV sales in the residential and commercial sectors for both the 2026 and 2024 DSMPA values

Figure 1-2 illustrates that the 2026 DSMPA realized a higher proportion of total achievable technical potential in the initial years of the study. This is because the 2026 DSMPA has a 20-year study horizon, whereas the 2024 DSMPA has a 22-year horizon. The two additional years in the 2024 DSMPA's study horizon allow for more achievable technical potential.

Figure 1-2. Cumulative Achievable Technical Potential as a Percentage of Total Achievable Technical Potential

To estimate the annual acquisition rate of energy efficiency potential in both the 2024 and 2026 DSMPA, Cadmus used assumptions from the 2021 Power Plan. The 2021 Power Plan identifies ramp rates, also known as adoption curves, for all energy efficiency measures. These ramp rates estimate annual adoption of the measure based on market readiness, barriers, and infrastructure.

The 2021 Power Plan ramp rates cover the 20-year period from 2022 to 2041. Since the study period for both the 2024 and 2026 DSMPA extends to 2045, Cadmus extrapolated these ramp rates to cover the additional years. This is detailed in the *6.2.2 Achievable Technical Potential* section). In addition, Cadmus

adjusted the starting point for the ramp rates to 2024 for the 2026 DSMPA and 2022 for the 2024 DSMPA to reflect the adoption of efficiency measures since the publication of the 2021 Power Plan. These adjustments contribute to a higher percentage of overall potential in the initial years of the study period.

Similar to the prior DSMPA, this study shows the savings are front-loaded in the earlier part of the study, with the 10-year estimate representing 61% of the 20-year achievable technical potential. This reflects the assumption (consistent with the Council ramp rates) that the most market-ready retrofit measures and easily adopted energy-efficient equipment will be adopted faster in the first 10 years. In the later years, the remaining potential consists of equipment stock that has long turn-over periods (e.g., long effective-useful lives), as well as the rate of adoption slows for the remaining retrofit measures as the measure approaches full market saturation, making it more challenging to implement. Additional detail on ramp rates can be found in the *6.2.2 Achievable Technical Potential* section.

The industrial sector in the 2026 DSMPA included measures and savings methodologies based on the 2021 Power Plan, such as HVAC measures, forklift battery chargers, compressors, fans, pumps, and other motor-driven systems. Similar to the prior DSMPA, Cadmus included non-Council measures, such as industrial generator block heaters, retro-commissioning, and welder system upgrades. Due to following a similar methodology, the potential in the industrial sector did not change significantly compared with the 2024 DSMPA. This is further detailed in the *5.1.3. Changes in Industrial Technical Potential* section.

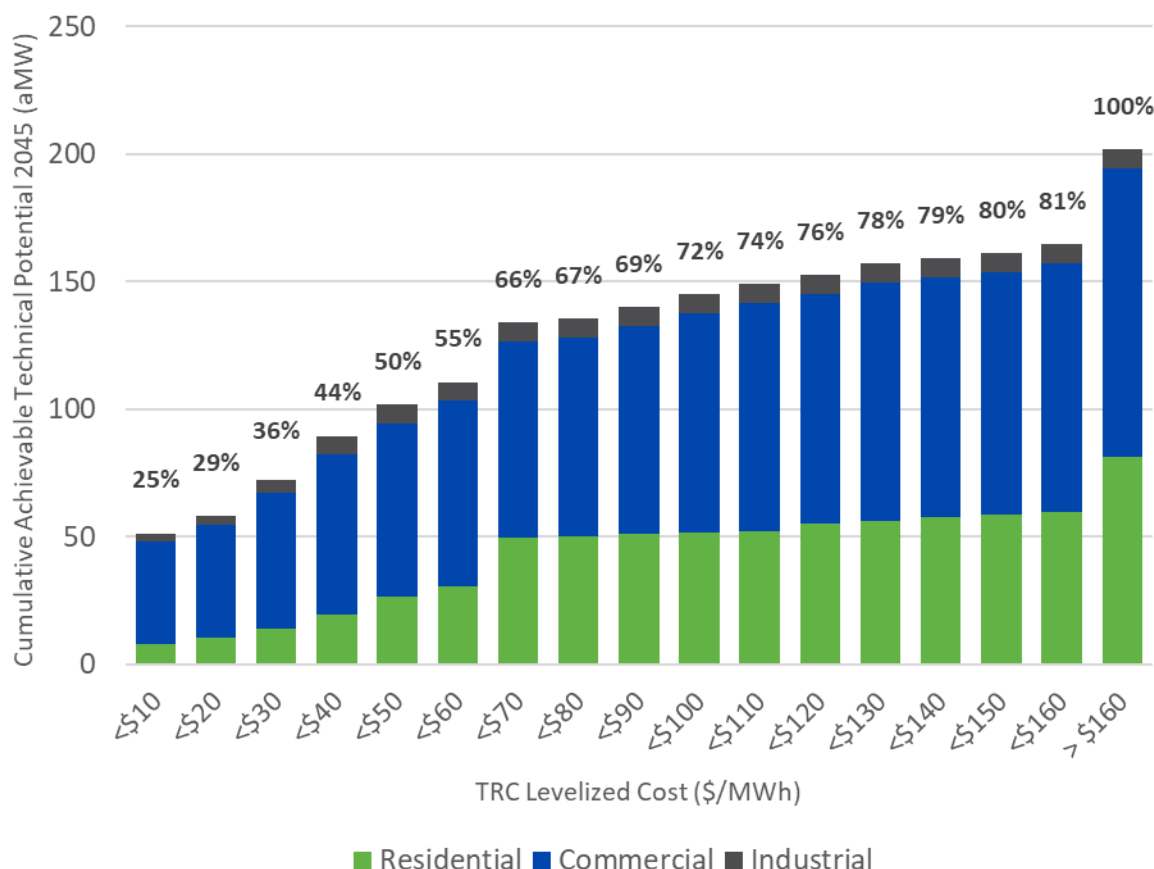
1.3.4. Incorporating Conservation into City Light's IRP Model

Cadmus summarized the achievable technical potential for energy efficiency, described above, by the levelized cost groups (bins)²¹ of conserved energy by customer class for inclusion in City Light's IRP model.²² We calculated these costs over a 20-year program life; the *Long-Term Resource Planning Model for DSMPA* section provides additional detail on the levelized cost methodology.

Table 1-8 shows the total achievable technical potential available over the 20-year study period, presented in \$10 levelized cost increments. For example, 72 aMW, or 36% of the cumulative 2045 achievable technical potential, has a levelized cost of less than or equal to \$30 per megawatt-hour. Additionally, the figure shows that 19% of the total achievable technical potential has a levelized cost of greater than \$160 per megawatt-hour.

²¹ Levelized cost groups or "bins" identify a group of measures with similar costs based on a cost per MWh range (e.g., \$20 per MWh to \$29 per MWh). These bins help planners select groups of energy efficient measures in the IRP.

²² The customer class the IRP model (GridPath) used to group measures included sector, highly impacted community status (for residential customers), and commercial building size status (small or large). It also included a weather sensitivity designation depending on the type of measure being evaluated.

Table 1-8. Electric Supply Curve – Cumulative 20-Year Achievable Technical Potential (Levelized Cost Bins)

1.3.5. Achievable Economic Potential

After incorporating the achievable technical levelized cost of conserved energy bins, the IRP model identified an optimal amount of annual conservation. Bundling resources into distinct cost groups allowed the portfolio optimization model to select the combination of conservation cost bundles by sector that provided City Light with the least-cost portfolio alongside renewable resources while also achieving resource adequacy targets, I-937 requirements, and CETA requirements. Details of resource adequacy can be found in the *Resource Adequacy* section. By integrating conservation choices alongside renewable supply options into the portfolio optimization model, City Light captured the different value streams from all resources within the same analytical framework.

The resulting IRP analysis selected 103 aMW of achievable economic potential by 2045, with sector-specific selections shown in Table 1-. Cumulative 20-year achievable economic potential accounted for 7% of the total baseline sales in 2045. The commercial sector had the greatest achievable economic potential relative to baseline sales, accounting for 9% of the 2045 commercial baseline sales. This was followed by the industrial sector's cumulative achievable economic potential, which accounted for 7% of the 2045

commercial baseline sales. Finally, the residential sector’s cumulative achievable economic potential made up 2% of the 2045 residential baseline sales.

The IRP portfolio optimization model differentiated the levelized TRC by sector, allowing it to select the specific energy efficiency cost bins that best fit City Light’s portfolio and minimize overall costs. The model also recognized that the conservation supply curves for each sector have different shapes, limits, and elasticities. As shown in Table 1-9, the achievable economic potential represented a levelized TRC of \$30 or less per megawatt-hour for residential, \$160 or less per megawatt-hour for commercial, and \$70 or less per megawatt-hour for industrial.

Table 1-9. Cumulative Achievable Economic Potential by Sector (2026–2045)

Sector	Levelized TRC (\$/MWh)	Baseline Sales 20-Year (aMW)	20-Year Achievable Economic Potential (aMW)	Achievable Economic Potential as % of Baseline Sales
Residential	30	512	13	2%
Commercial	160	908	82	9%
Industrial	70	109	8	7%
Total	N/A	1,530	103	7%

Table 1-10 provides the two-, four-, 10-, and 20-year cumulative achievable economic potential estimates by sector. The final column shows the pro rata share of the achievable economic potential, which represents the lower limit for the biennial conservation target (as defined by I-937). Overall, 20% of the total 20-year achievable economic potential is achieved in the first two years, and 76% is achieved in the first 10 years.

Table 1-10. Cumulative Achievable Economic Potential by Sector and Time Period

Sector	Achievable Economic Potential – aMW				
	2-Year (2026–2027)	4-Year (2026–2029)	10-Year (2026–2035)	20-Year (2026–2045)	20% of 10-Year Potential
Residential	3	5	9	13	2
Commercial	17	31	62	82	12
Industrial	1	3	6	8	1
Total	21	39	78	103	16

In Seattle, the 2021 Seattle Energy Code requires new construction buildings to meet stringent energy efficiency standards, particularly for insulation, HVAC systems, lighting, and water heating. These rules are designed to reduce energy use and carbon emissions, often necessitating the use of electric systems over fossil fuels and compliance with advanced performance metrics. Due to these changes in new construction building codes, it is important for City Light to understand how much energy can be saved from new buildings over time, since these savings affect future electricity needs and help meet clean

energy goals. Table 1-11 details the achievable economic potential attributed to new construction buildings in the residential and commercial sectors at several timesteps in the study.²³

Table 1-11. Cumulative Achievable Economic New Construction Potential by Sector and Time Period

Sector	Achievable Economic Potential – aMW			
	2-Year (2026–2027)	4-Year (2026–2029)	10-Year (2026– 2035)	20-Year (2026– 2045)
Residential	0.1	0.2	0.6	1.3
Commercial	0.05	0.1	0.3	0.9
Total	0.2	0.3	0.9	2.2

Additionally, new construction buildings can add to the peak Summer and Winter demand, so Cadmus quantified the capacity savings for these buildings to inform City Light’s long-term planning strategy to reduce peak demand and reduce, delay, or eliminate the need to invest in new utility system infrastructure. Table 1-12 provides achievable economic potential estimates of the two-, four-, and 10-year summer and winter capacity savings by sector.

Table 1-12. Cumulative Winter and Summer Capacity (MW) Savings by Sector and Time Period

Sector	Cumulative Winter Achievable Economic Potential (MW)			Cumulative Summer Achievable Economic Potential (MW)		
	2-Year (2026–2027)	4-Year (2026–2029)	10-Year (2026–2035)	2-Year (2026–2027)	4-Year (2026–2029)	10-Year (2026–2035)
Residential	4	7	14	2	4	8
Commercial	19	34	63	23	44	99
Industrial	1	3	6	2	3	7
Total	24	44	83	27	51	114

Compared to the 2024 DSMPA, the IRP model identified 22% less achievable economic potential. The 2026 DSMPA model selected residential measures with a total resource cost of less than \$30/MWh, whereas the 2024 DSMPA included all residential measures with levelized costs less than \$160/MWh. The commercial sector includes slightly more potential in 2026 due to the inclusion of measures with higher total resource costs (up to \$160/MWh) than the 2024 DSMPA (up to \$40/MWh).

The change in residential and commercial achievable economic potential in this DSMPA, compared to the last study, was primarily driven by additional flexibility added to the model that allowed it to select measures based not only on costs, but also temporal alignment with energy savings. The model was able to identify the additional value of high-priced commercial measures due to the timing of energy savings. Furthermore, the IRP model’s enhanced flexibility allowed for the selection of high-cost measures without

²³ The potential study did not include any new industrial buildings in City Light’s service area that would offer energy efficiency savings opportunities during the study period.

also being forced to choose all of the measures of lesser cost (as was the case in the 2024 IRP model). Section 7.6 provides details on the updated IRP modeling framework.

The industrial achievable economic potential has decreased slightly as a result of the decrease in overall industrial technical achievable potential identified from the 2024 DSMPA to the 2026 DSMPA. Table 1-13 provides the sector-level achievable economic potential identified in the 2024 and 2026 studies.

Table 1-13. Final Year Cumulative Achievable Economic Potential Comparison by Sector

Sector	2026 DSMPA			2024 DSMPA		
	Baseline Sales – 20-Year (aMW)	Achievable Economic Potential – 20-Year (aMW)	Achievable Economic Potential as % of Baseline Sales	Baseline Sales – 22-Year (aMW)	Achievable Economic Potential – 22-Year (aMW)	Achievable Economic Potential as % of Baseline Sales
Residential	439	13	3%	398	50	13
Commercial	698	82	12%	718	72	10
Industrial	109	8	7%	124	10	8
Total	1,246	103	8%	1,240	132	11%

**Note: The baseline sales do not include EV sales in the residential and commercial sectors for both the 2026 and 2024 DSMPA values*

1.4. Organization of This Report

This report presents the study findings in three volumes. Volume I—this document—presents the methodologies and findings of the energy efficiency potential assessment. Volume II contains appendices and provides methodologies and detailed results of demand response potential assessment, along with supplemental materials..

Volume I includes the following chapters:

- *Methodology* provides an overview of the methodology Cadmus and City Light used to estimate technical, achievable technical, and achievable economic potential.
- *Baseline Forecast* provides detailed sector-level results for Cadmus' baseline end-use forecasts.
- *Energy Efficiency Potential* provides detailed sector, segment, and end-use specific estimates of conservation potential as well as a discussion of top-saving measures in each sector. It also provides potential estimates for scenarios.
- *Comparison to* shows how this study's results (the 2026 DSMPA) compare with City Light's prior DSMPA.
- *Detailed Methodology* describes Cadmus' combined top-down/bottom-up modeling approach through several sections.
 - *Developing Baseline Forecasts* provides an overview of Cadmus' approach to producing baseline end-use forecasts for each sector.
 - *Measure Characterization* describes Cadmus' approach to developing a database of ECMs, deriving from the estimates of conservation potential. This section discusses how Cadmus

adapted measure data from the 2021 Power Plan, the RTF, the RBSA, the CBSA, and other sources for this study.

- *Estimating Conservation Potential* discusses assumptions and underlying equations used to calculate technical and achievable technical potential.
- *Long-Term Resource Planning Model for DSMPA* describes the DSMPA modeling approach, inputs, and how it informs the forthcoming IRP.

Volume II contains these appendices:

- Appendix A. Washington Initiative 937 (I-937) Compliance Documentation
- Appendix B. Baseline Data

Appendix C. Detailed Assumptions and Energy Efficiency Potential

Appendix D. Measure Details²⁴

- Appendix E. Demand Response Potential Assessment

²⁴ Appendix D includes sector, end-use group, and measure-level results by technical, achievable technical, and the IRP model selected potential (achievable economic potential).

2. Methodology

This chapter provides an overview of the methodology Cadmus used in the 2026 DSMPA, followed by an explanation of the considerations for the design of this potential study. The methodology is described in greater detail in the 6. *Detailed Methodology* section.

2.1. Overview

Estimating conservation potential draws upon a sequential analysis of various ECMs in terms of technical feasibility (technical potential), expected market acceptance, and the normal barriers that could impede measure implementation (achievable technical potential).

For this assessment, Cadmus followed three primary steps:

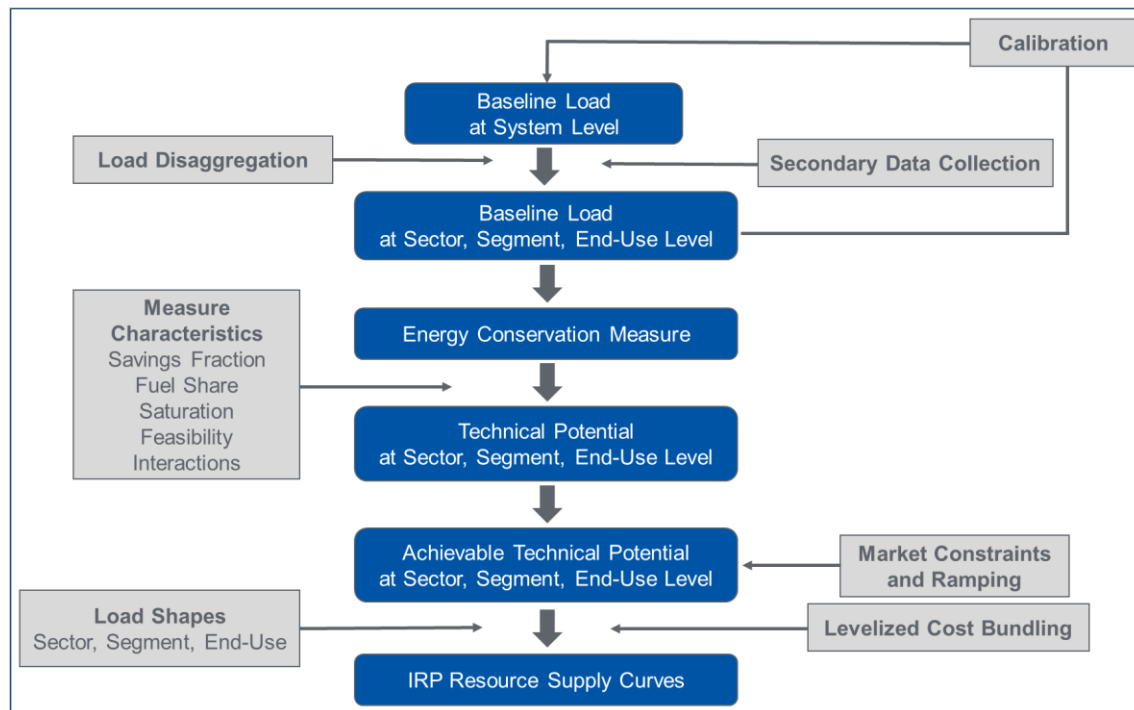
1. Developed the baseline forecast, which involved determining the 20-year future energy consumption by sector, market segment, and end use. We calibrated the base year (2025) to City Light's sector-level corporate load forecast produced in 2024. Baseline forecasts in this report included estimated impacts of market-driven efficiency and codes and standards. Forecasts also included the impacts of building electrification and climate change. Cadmus worked with the City Light's load forecast team to determine all of these impacts.
2. Estimated technical potential based on the incremental difference between the baseline load forecast and an alternative forecast reflecting the technical impacts of specific energy efficiency measures.
3. Estimated achievable technical potential by applying ramp rates and achievability percentages to technical potential, which is described in greater detail later in this section.

This approach offered two advantages:

Savings estimates were driven by a baseline forecast that is consistent with the assumptions used in City Light's adopted 2024 corporate load forecast. The approach had consistency among all assumptions underlying the baseline and alternative forecasts—technical and achievable technical potential. The alternative forecasts changed relevant inputs at the end-use level to reflect ECM impacts. Because estimated savings represented the difference between baseline and alternative forecasts, they could be directly attributed to specific changes made to analysis inputs.

Cadmus' general methodology can be best described as a combined top-down/bottom-up approach. As shown in Figure 2-1, the top-down component began with the most current load forecast, adjusting for enacted building codes, equipment efficiency standards, climate change, and market trends, including building electrification. We then disaggregated this load forecast into its constituent customer sectors, customer segments, and end-use components.

The bottom-up component estimated electric consumption for each major building end-use and applied the potential technical impacts of various ECMs to each end use. The analysis included assumptions of end-use equipment saturations, fuel shares, ECM technical feasibility, ECM cost, and engineering estimates of ECM unit energy consumption (UEC) and savings. A detailed description of the methodology can be found in the 6. *Detailed Methodology* section.

Figure 2-1. Overall Methodology for Assessment of Demand Side Management Potential

In the final step, Cadmus developed energy efficiency supply curves so City Light’s IRP portfolio optimization model could identify the amount of cost-effective energy efficiency. The portfolio optimization model required hourly forecasts of electric energy efficiency potential. To produce these hourly forecasts, Cadmus applied hourly end-use load profiles to annual estimates of achievable technical potential for each measure. These profiles are similar to the load shapes the Council used in its 2021 Power Plan supply curves and to those in the RTF’s UES measure workbooks. Additionally, Cadmus incorporated a select set of commercial sector end-use load shapes from National Renewable Energy Laboratory’s ComStock database.²⁵

2.2. Considerations and Limitations

This study provides insights into which measures City Light could offer in future programs and aims to guide program targets. However, various design considerations for this study may lead to differences between future program plans and the study results:

- This potential study uses broad assumptions about the adoption of energy efficiency measures. Program design, however, requires a more detailed examination of historical participation and

²⁵ Parker, Andrew, Henry Horsey, Matthew Dahlhausen, Marlena Praprost, Christopher CaraDonna, Amy LeBar, and Lauren Klun. March 2023. *ComStock Reference Documentation: Version 1*. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5500-83819. <https://www.nrel.gov/docs/fy23osti/83819.pdf>

incentive levels on a measure-by-measure basis. The study can inform planning for measures City Light has not historically offered or can focus the program design on areas with remaining amounts of potential identified in this study.

- This potential study does not consider program implementation barriers. Though it includes a robust, comprehensive set of efficiency measures, it does not examine whether these measures can be delivered through incentive programs or what incentive rate is appropriate. Many programs require strong trade ally networks or must overcome market barriers to succeed.
- This potential study cannot predict market changes over time. Though it accounts for changes in codes and standards as they are enacted today, the study cannot predict future changes in policies, pending or backsliding codes and standards, and which new technologies may become commercially available. City Light programs are not static and have the flexibility to address changes in the marketplace, whereas the potential study estimates use information collected at a single point in time.
- This potential study does not attempt to forecast or otherwise predict future changes in energy efficiency measure costs. The study includes Council and RTF incremental energy efficiency measure costs, including equipment, labor, and operations and maintenance (O&M), but it does not attempt to forecast changes to these costs during the course of the study (except where the Council makes adjustments). For example, changes in incremental costs may impact some emerging technologies, which may then impact both the speed of adoption and the levelized cost of that measure (impacting the IRP levelized cost bundles). Similarly, this study does not take into account pending tariffs.
- This study estimated the potential for highly impacted communities separately. Because of the lack of data on program and administrative costs, Cadmus used the same program and administration costs across the DSMPA. While this study did use higher incentive costs for highly impacted communities as part of the utility cost analysis, this may not reflect the total cost needed to support this customer group. City Light has reason to believe that these costs would be significantly higher for customers in highly impacted communities compared with customers not in highly impacted communities. City Light continues to refine these assumptions and provide the best service to highly impacted communities.
- Like the prior DSMPA, commercial UEC relies on NEEA's CBSA data, which is supplemented by data from the U.S. EIA's Commercial Buildings Energy Consumption Survey (CBECS). However, these data may not reflect the type of commercial facilities in City Light's territory and have an inherent level of uncertainty. On May 28, 2021, the Council's Conservation Resources Advisory Committee reiterated that additional research for the region is needed to develop more reliable energy use intensity data for commercial buildings. In addition, Seattle contains many large multifamily buildings with insufficient primary data (such as baseline stock characteristics). For example, this potential study assessed the impacts of the 2021 Seattle Energy Code and incorporated the code as best as possible. Data were limited on the natural gas fuel shares of equipment in multifamily construction; therefore, it was difficult to correctly estimate the impact of this 2021 code. As a result, this potential study has limited insight into the remaining potential in this segment and highlights the need for further research.

- This study uses City Light’s nonresidential database to identify sales and the number of customers for each commercial market segment. This includes historical sales and the number of customers for nonresidential buildings, as well as annual forecasts of commercial square footage for each commercial market segment.
- This study applied accelerated ramp rates to approximate the impact of the Inflation Reduction Act (IRA), state, and local initiatives under the current (early 2025) landscape. However, there is inherent uncertainty in how policy changes may evolve over the 20-year study horizon.
- This study modeled the impacts of climate change by increasing the cooling load and decreasing the heating load over time. The study assumes cooling loads steadily increase year after year and heating loads steadily decrease. In reality, year-to-year weather fluctuations mean that cooling loads will increase and decrease year-to-year, while the overall trend is increasing cooling loads over time. In addition, this study uses a prediction of weather changes and acknowledges a level of uncertainty in such predictions.

Though these considerations and limitations impact the DSMPA, it is worth noting that Chapter 194-37 of the WAC requires City Light to complete and update a CPA every two years. City Light can then address some of these considerations over time and mitigate short- and mid-term uncertainties by continually revising DSMPA assumptions to reflect changes in the market.

3. Baseline Forecast

An assessment of demand-side management potential begins with developing baseline end-use load forecasts, followed by calibrating results to City Light’s corporate load forecast in the base year (2025). This chapter briefly describes the methodology used in this analysis, which is then followed by the results presented by sector.

3.1. Scope of Analysis

Cadmus started the analysis by developing separate baseline end-use load forecasts over a 20-year (2026 to 2045) planning horizon for each of the three sectors: residential, commercial, and industrial. We then calibrated these forecasts to City Light’s corporate load forecast in the base year (2025). The forecasts do not include future programmatic conservation, but they do account for enacted equipment standards and building energy codes, building electrification, and climate change. The City Light electrification forecast component accounts for market and policy advancement of electrification adoption consistent with goals and policies. The City Light electrification forecast intent is to account for policies promoting electrification directly and indirectly. This includes goals and policies within the Seattle Climate Action Plan and Seattle Office of Sustainability carbon-based benchmarking requirements. The City Light electrification forecast also indirectly accounts for general policies that contribute to electrification, such as the Building Energy Performance Standards (BEPS) or the Commercial Building Performance Standard (CBPS), since these performance standards do promote some level of electrification for existing buildings as a mechanism to reduce consumptions and emissions.

For each sector, Cadmus further distinguished the results by building segments, facility types, and applicable end uses:

- Sixteen residential segments of existing and new construction:
 - Single-family, single-family highly impacted
 - Multifamily low-rise, multifamily low-rise highly impacted, multifamily mid-rise, multifamily mid-rise highly impacted, multifamily high-rise, multifamily high-rise highly impacted²⁶

²⁶ Multifamily low-rise is defined as multifamily buildings with one to three floors, while mid-rise is defined as buildings with four to six floors and high-rise is defined as buildings with more than six floors. The multifamily common area is treated within the commercial sector.

- Forty commercial segments, which include new and existing construction for 20 standard commercial segments

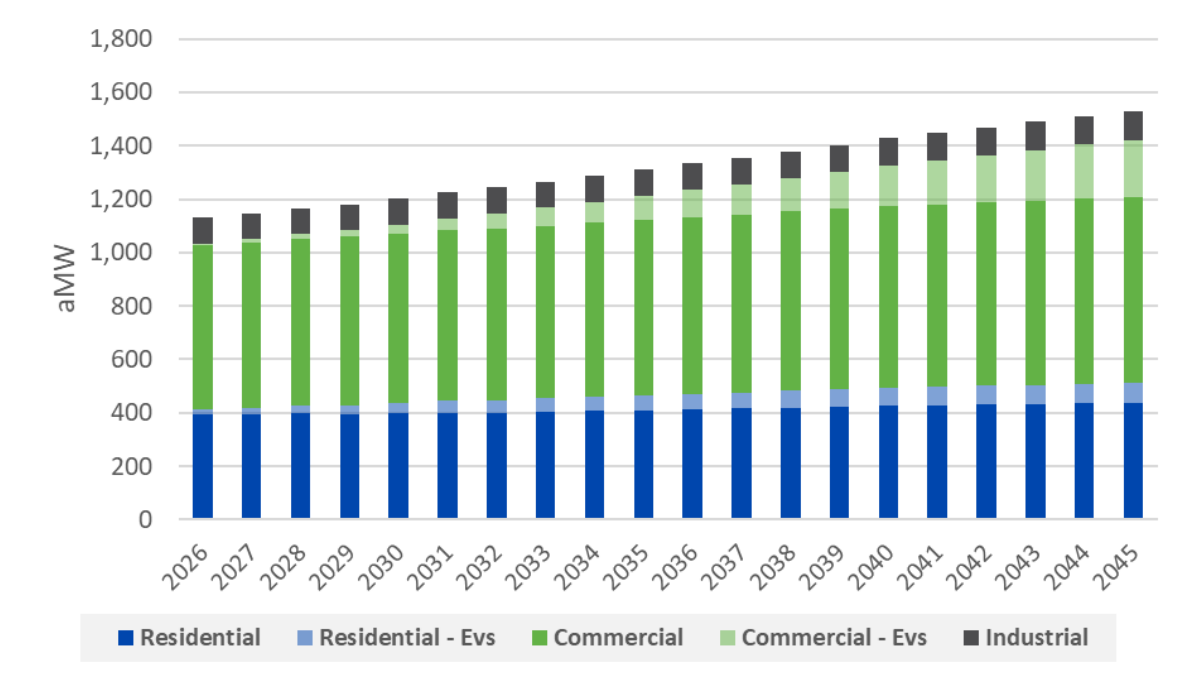
Eight industrial segments (existing construction only), including water and wastewater treatment segments^{27,28}

Cadmus and City Light's load forecast team worked together to develop a baseline forecast that aligned with City Light's 2024 adopted corporate load forecast. To achieve this, Cadmus modified the residential baseline forecast to include assumptions about building electrification (based on City Light's prior research and analysis) and climate change (by changing heating and cooling UECs and cooling equipment saturations over time). These changes are detailed in the following section, as well as in the *6. Detailed Methodology* section.

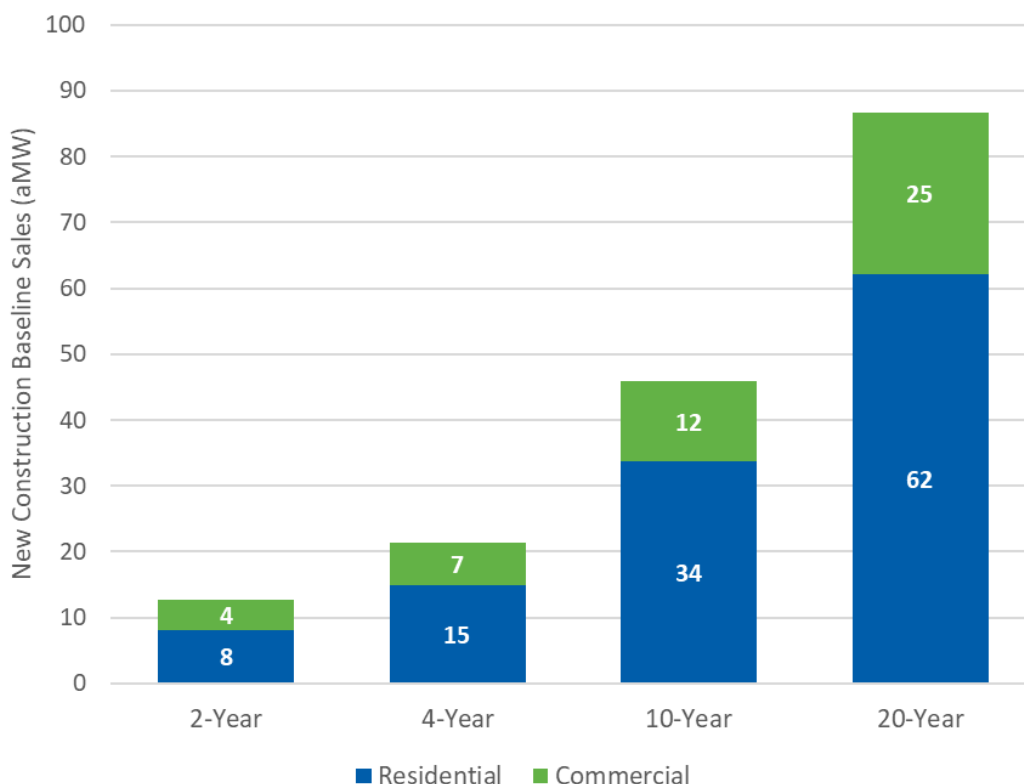
Figure 3-1 shows the distribution of projected sales by sector from 2026 through 2045, with EV forecasts displayed independently of the overall sector totals. In 2045, the commercial sector (excluding EVs) will account for roughly 42% of projected sales, while the residential (excluding EVs) and industrial sectors (excluding EVs) will account for 27% and 7%, respectively. The combined EV forecast makes up 17% of the 2045 baseline sales.

²⁷ Although City Light's internal classification system considers water and wastewater treatment segments as part of the commercial sector, to align with 2021 Northwest Power Plan, Cadmus included these two segments in the industrial sector. As such, Cadmus removed water and wastewater treatment plants' sales (including the sales of King County Wastewater Treatment Plant and Seattle Public Utilities) from commercial sales and added it to industrial sales.

²⁸ This report does not include industrial district steam, spot loads, and streetlighting in the industrial baseline forecast.

Figure 3-1. Annual Baseline Sales by Sector (2026–2045)

Given the differing building requirements and regulations for new construction buildings, Cadmus separated the baseline sales for commercial and residential into construction vintages to indicate if the sales were associated with new or existing buildings. Figure 3-2 shows the total sales attributed to new construction in both the residential and commercial sectors. The industrial sector does not include any new construction buildings; all sales growth in that sector is assumed to be for existing buildings. By the final year of the study, new construction buildings (those built after 2025) will account for 87 aMW of City Light sales.

Figure 3-2. New Construction Baseline Sales by Time Period and Sector

3.2. Residential

Cadmus considered eight residential segments with 42 end uses. Figure 3-3 lists the residential segments and end uses considered, as well as the broad end-use groups used in this study. Overall, the residential sector accounted for approximately 34% of total baseline sales.

Cadmus used City Light’s 2024 residential household forecast in the baseline forecast, disaggregating these households into non-highly impacted and highly impacted segments.

Aligning with the prior 2024 DSMPA, Cadmus first defined equity to represent the vulnerable populations and highly impacted communities within City Light’s service area, as described below:

Vulnerable populations are “population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to: (i) Adverse socioeconomic factors, such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health

outcomes and increase vulnerability to the effects of environmental harms; and (ii) sensitivity factors, such as low birth weight and higher rates of hospitalization.”²⁹

Highly impacted communities are defined as “the census tract ranks a 9 or 10 on the EHD Map, as designated by the Washington State Department of Health”. They also include the census tracts “covered or partially covered by ‘Indian Country’ as defined in and designated by statute.”³⁰ The EHD contains 19 criteria, which are grouped under environmental exposures (including fossil fuel pollution and vulnerability to climate change impacts that contribute to health inequities), environmental effects, socioeconomic factors, and sensitive populations.

Between the two equity descriptions, Cadmus selected highly impacted communities because of the data granularity available for the DSMPA. In addition, the highly impacted community framework incorporates climate change impacts, which is consistent with other assumptions in the DSMPA. Cadmus conducted the highly impacted disaggregation based on income qualification in the City Light Utility Discount Program and Washington EHD index for income-qualified customers.^{31,32} Thus, we only considered customers with a household income equal to or less than 70% of the state median income, by household size, and with an EHD rank of 9 and higher as highly impacted for the analysis.

Cadmus combined the highly impacted communities’ distributions by building type with residential household forecasts, estimates of end-use saturations, fuel shares, efficiency shares, and UEC to produce a sales forecast through 2045. This approach is described in the 6.1. *Developing Baseline Forecasts* section.

²⁹ Washington State Legislature. RCW 70A.02.010. “Revised Code of Washington. Title 70A Environmental Health and Safety” <https://app.leg.wa.gov/RCW/default.aspx?cite=70A.02.010>

³⁰ Washington State Department of Health. Accessed June 2023. “Instructions for Utilities to Identify Highly Impacted Communities.” <https://doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/climate-projections/clean-energy-transformation-act/ceta-utility-instructions>

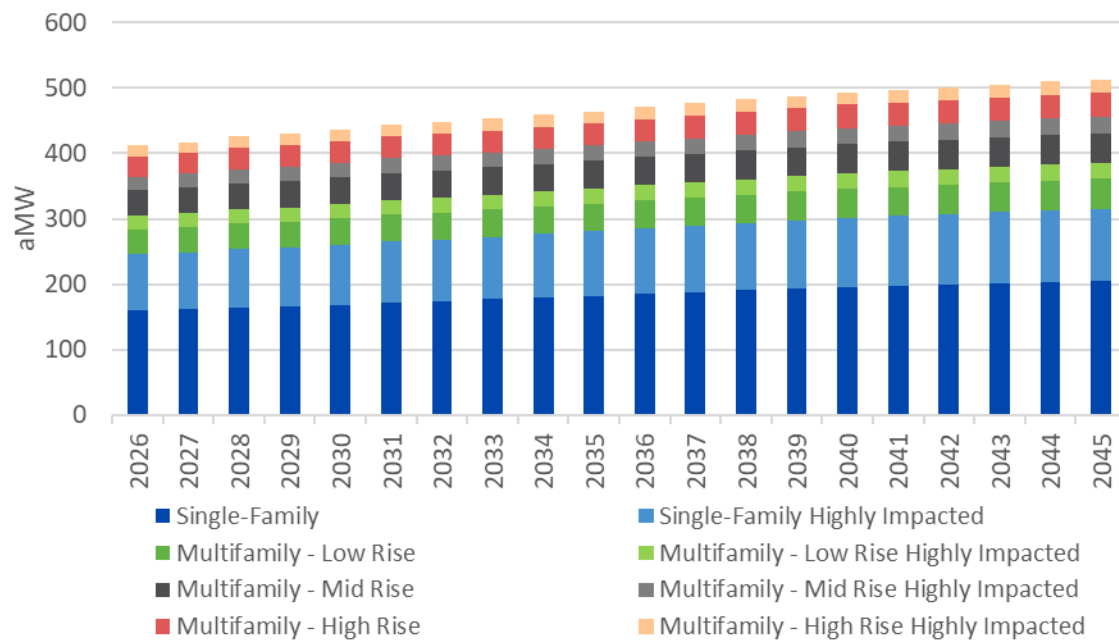
³¹ City of Seattle, Seattle Public Utilities. Accessed June 2023. “Utility Discount Program.” <https://www.seattle.gov/utilities/your-services/discounts-and-incentives/utility-discount-program>

³² Washington State Department of Health. Accessed June 2023. “Washington Environmental Health Disparities Map.” <https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map>

Figure 3-3. Residential Segments and End Uses

Segments	End-Use Group	End Uses
Single-Family Multifamily – High-Rise Multifamily – Mid-Rise Multifamily – Low-Rise Single-Family – Highly impacted Multifamily – High-Rise Highly impacted Multifamily – Mid-Rise Highly impacted Multifamily – Low-Rise Highly impacted	Appliances	Cooking Oven Cooking Range Dryer Freezer Refrigerator
	Cooling	Cool Central Cool Room
	Electronics	Computer – Desktop Monitor
		Computer – Laptop Multifunction Device
		Copier Plug Load (Other)
		DVD Player Printer
	Exterior Lighting	Home Audio System Set-Top Box
		Microwave Television
	Heating	Lighting Exterior Standard
		Air-Source Heat Pump with Back-Up Circulation – Domestic Hot Water
		Ductless Heat Pump – Central Heat Circulation – Hydronic Heating
		Ductless Heat Pump – Central Heat with Back-Up
		Ductless Heat Pump – Room Heat Heat Central
		Ductless Heat Pump – Room Heat with Back-Up Heat Pump
		Packaged Terminal Heat Pump (PTHP) Heat Room
		Ventilation – Air
	Interior Lighting	Lighting Interior Linear Fluorescent Lighting Interior Specialty Lighting Interior Standard
	Miscellaneous	Air Purifier Wastewater
		Other Pool Pump
	Water Heating	Water Heat GT 55 Gallon Water Heat LE 55 Gallon
	Electric Vehicles	Electric Vehicles

Figure 3-4 shows residential sales by segment for each year of the study horizon. City Light projects that more than 85,000 new housing units will be built by 2045. New multifamily units account for about 50% of new residential construction, so both multifamily and single-family segment baseline sales are expected to increase at a similar rate (Table 3-).

Figure 3-4. Annual Residential Baseline Sales by Segment (2026–2045)**Table 3-1. Residential Baseline Sales and Housing Units by Segment**

Sector	Sales (aMW)		Housing Units	
	2026	2045	2026	2045
Single-Family	160	205	161,528	188,285
Single-Family Highly Impacted	86	110	86,975	101,382
Multifamily – Low-Rise	38	45	46,208	54,992
Multifamily – Low-Rise Highly Impacted	21	24	24,881	29,610
Multifamily – Mid-Rise	39	46	49,616	59,047
Multifamily – Mid-Rise Highly Impacted	21	25	26,715	31,794
Multifamily – High-Rise	31	37	40,318	47,982
Multifamily – High-Rise Highly Impacted	17	20	21,709	25,836
Total	412	512	457,950	538,927

In the base year (2025), Cadmus calibrated baseline forecasts to City Light’s load forecast, ensuring that the study’s starting point aligned with the starting point of City Light’s forecasts. We then produced a residential forecast.

Figure 3-5 shows the residential baseline forecast by end use. Overall, City Light’s residential forecast will increase by approximately 24% over the 20-year horizon. The growth is driven by several factors, including the rising adoption of EVs and heat pumps (due to electrification), increased use of air conditioning (based on climate change assumptions), new housing development, and population growth. Heating and appliances are the two largest consuming end-use groups, together accounting for 50% of residential

consumption. The next three highest forecasted end-use groups are electronics (14%), EVs (14%), and water heating (13%).

Figure 3-5. Annual Residential Baseline Forecast by End-Use Group (2026–2045)

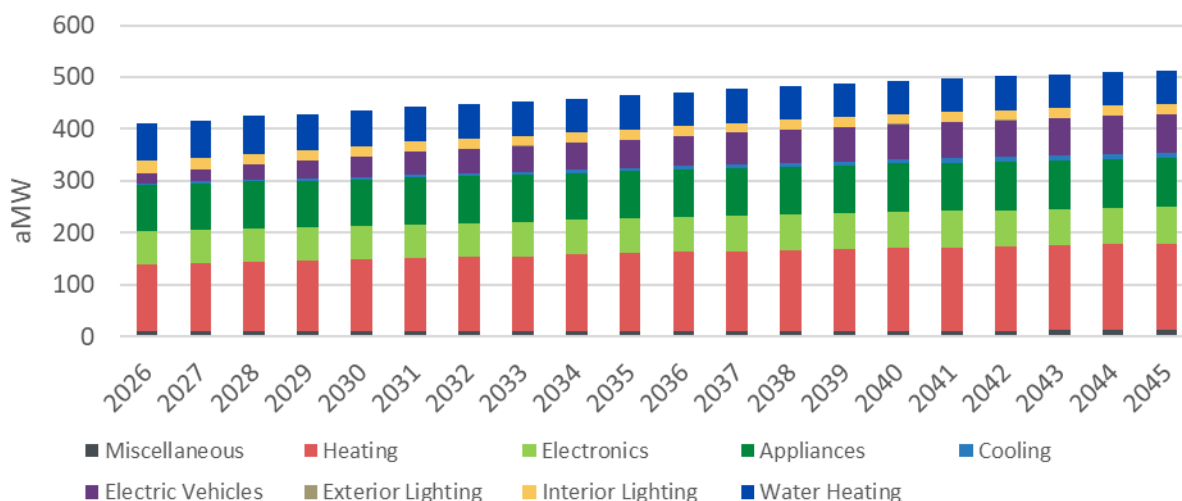


Table 3- shows the assumed average electric consumption per household for each residential segment in 2045. Differences in the average consumption for each segment drive either differences in UEC, saturations, fuel shares,³³ or any combination of differences. Appendix B includes detailed baseline data for the residential sector.

Table 3-2. Per Household Baseline Sales (kWh/Home) by Sector and End-Use Group – 2045

End-Use	Single-Family	Multifamily – Low-Rise	Multifamily – Mid-Rise	Multifamily – High-Rise
Miscellaneous	250	172	126	123
Heating	2,926	2,542	2,412	2,380
Electronics	1,498	776	787	699
Appliances	1,812	1,244	1,191	1,214
Cooling	180	137	132	131
Electric Vehicles	1,196	1,199	1,176	1,176
Exterior Lighting	13	1	1	1
Interior Lighting	493	106	143	94
Water Heating	1,176	1,042	827	884
Total	9,543	7,218	6,795	6,703

Note: Highly impacted kilowatt-hour per home values are equivalent to those for non-highly impacted homes.

³³ Fuel shares refer to the percentage of end-use equipment that is electric for end uses where customers have the option of electricity or another fuel. Residential end uses where multiple fuels are an option include central furnace space heating, water heating, cooking, and dryers.

Table 3- shows the electric end-use group distributions of the baseline consumption in 2045 by building type. For each building type, heating makes up 30% or greater of the building type consumption in 2045 and is the end-use group with the largest consumption.

Table 3-3. Residential Consumption End-Use Group Distributions by Segment – 2045

End-Use	Single-Family	Multifamily – Low-Rise	Multifamily – Mid-Rise	Multifamily – High-Rise
Miscellaneous	3%	2%	2%	2%
Heating	31%	35%	35%	36%
Electronics	16%	11%	12%	10%
Appliances	19%	17%	18%	18%
Cooling	2%	2%	2%	2%
Electric Vehicles	13%	17%	17%	18%
Exterior Lighting	0.13%	0.01%	0.01%	0.01%
Interior Lighting	5%	1%	2%	1%
Water Heating	12%	14%	12%	13%
Total	100%	100%	100%	100%

Note: Highly impacted end-use percentage distribution values are equivalent to the non-highly impacted.

Figure 3-6 shows forecasted residential sales by construction vintage over the study horizon. Study results indicate that approximately 12% of 2045 sales will derive from new construction homes.

Figure 3-6. Annual Residential Baseline Sales by Construction Vintage (2026–2045)



3.3. Commercial

Cadmus considered 21 commercial building segments and 19 end uses. Table 3- shows the commercial segments and end uses considered in this study, as well as the corresponding segment and end-use groups presented in this report. We chose commercial segments for consistency with the 2021 Power Plan, with one exception: the multifamily common area was not a standalone segment in the 2021 Power Plan. Overall, the commercial sector accounts for 908 aMW or 59% of total baseline sales in 2045. While this study captures the commercial sector EVs load, it does not identify any conservation potential for EVs within this sector.

Table 3-4. Commercial Segments and End Uses

Segment Group	Segment	End-Use Group	End-Uses
Assembly	Assembly	Cooking	Cooking
Data Center	Data Center		Cooling Chiller
Electric Vehicles ^b	Electric Vehicles	Cooling	Cooling Direct Expansion
Hospital	Hospital		Data Center
Large Grocery	Supermarket	Data Center	Server
	Large Office	Electric Vehicles ^b	Electric Vehicles
	Medium Office	Heat Pump	Heat Pump
Lodging	Lodging	Heating	Space Heat
Multifamily Common Area	Multifamily Common Area		Exterior Lighting
Miscellaneous	Other	Lighting	Interior Lighting
Other Health	Residential Care		Computer – Desktop
Restaurant	Restaurant		Computer – Laptop
	Large Retail	Miscellaneous	Other ^a
	Medium Retail		Plug Load (Other)
	Small Retail		Wastewater
	Extra Large Retail	Refrigeration	Refrigeration
School	School K–12	Ventilation and Circulation	Ventilation and Circulation
Small Grocery	Mini Mart		Water Heat GT 55 Gallon
Small Office	Small Office	Water Heat	Water Heat LE 55 Gallon
University	University		
Warehouse	Warehouse		

^a Other end uses include all undefined loads, such as elevators, automatic doors, and process loads.

^b In the commercial sector, the EVs segment and end use includes public and workplace charging equipment for personal EVs.

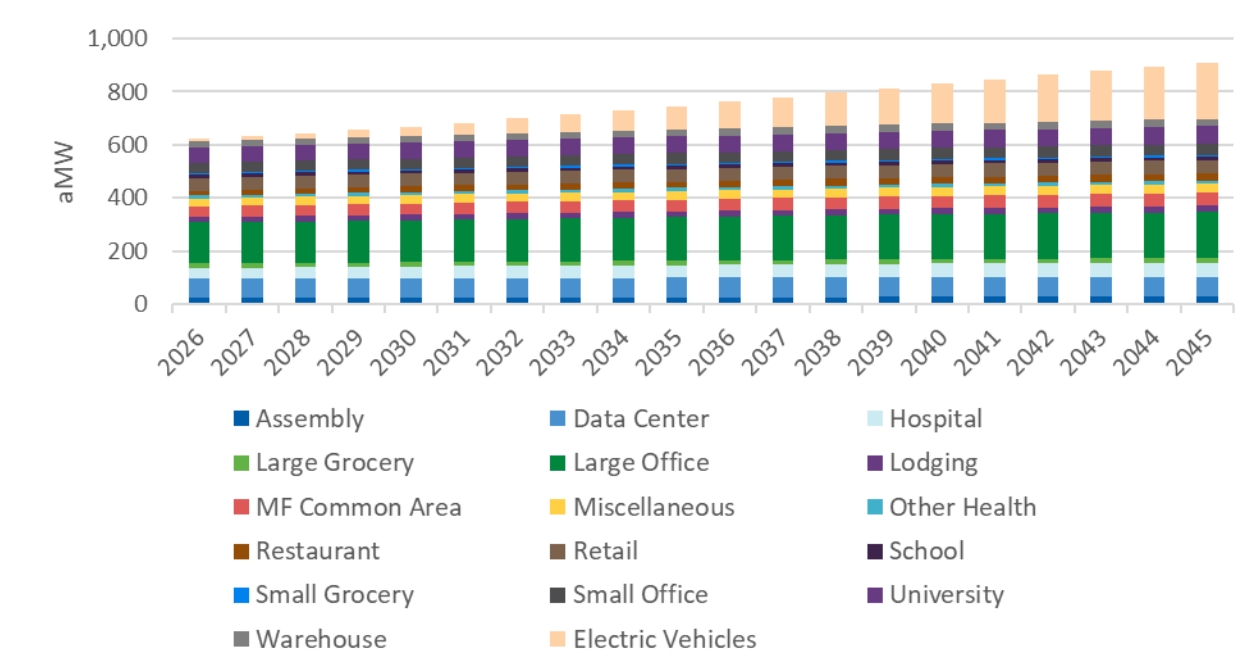
Cadmus used the same segmentation assumptions from the 2024 DSMPA that relied on City Light’s nonresidential database to identify sales and the number of customers for each commercial market segment. The database combined City Light’s billing data with King County Assessor data, as well as with other secondary data sources, to identify the customer segment and consumption for each nonresidential customer. These data served as the basis for Cadmus’ segmentation of the commercial sector.

Cadmus also classified customers as commercial or industrial based on City Light’s premise-level nonresidential customer database, mapping commercial customers to the segments listed in Table 3-. (Refer to Table 3-, shown in the 3.4. *Industrial* section, for a mapping of industrial customers to their respective segments.)

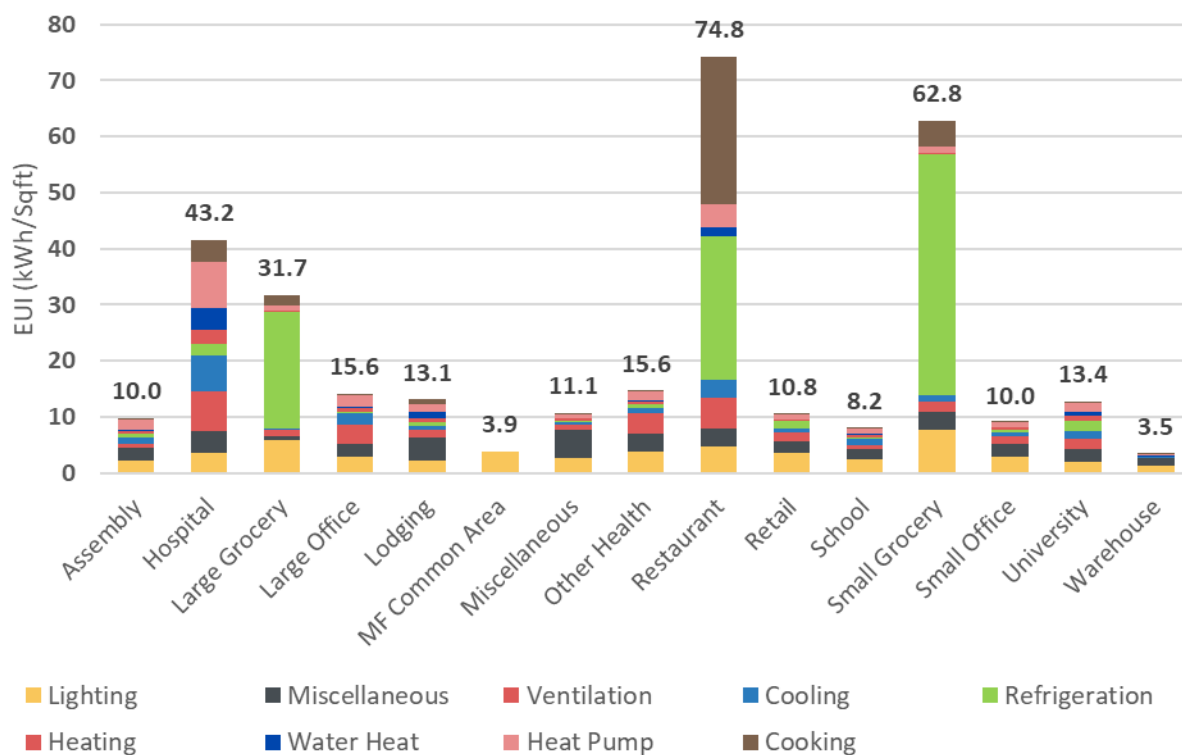
To align with the commercial building square footage in City Light’s load forecast, Cadmus adjusted the commercial building counts per segment based on the average square footage per building type from the 2024 DSMPA.

Figure 3-7 shows the distribution of baseline commercial energy consumption by segment for each year of the study. EVs accounted for 23% of commercial baseline sales. Large offices, data centers, and universities accounted for 19%, 8%, and 7% of baseline sales, respectively. Together, these segments represent more than half of all 2045 commercial-sector sales.

Figure 3-7. Annual Commercial Baseline Sales by Segment (2026–2045)



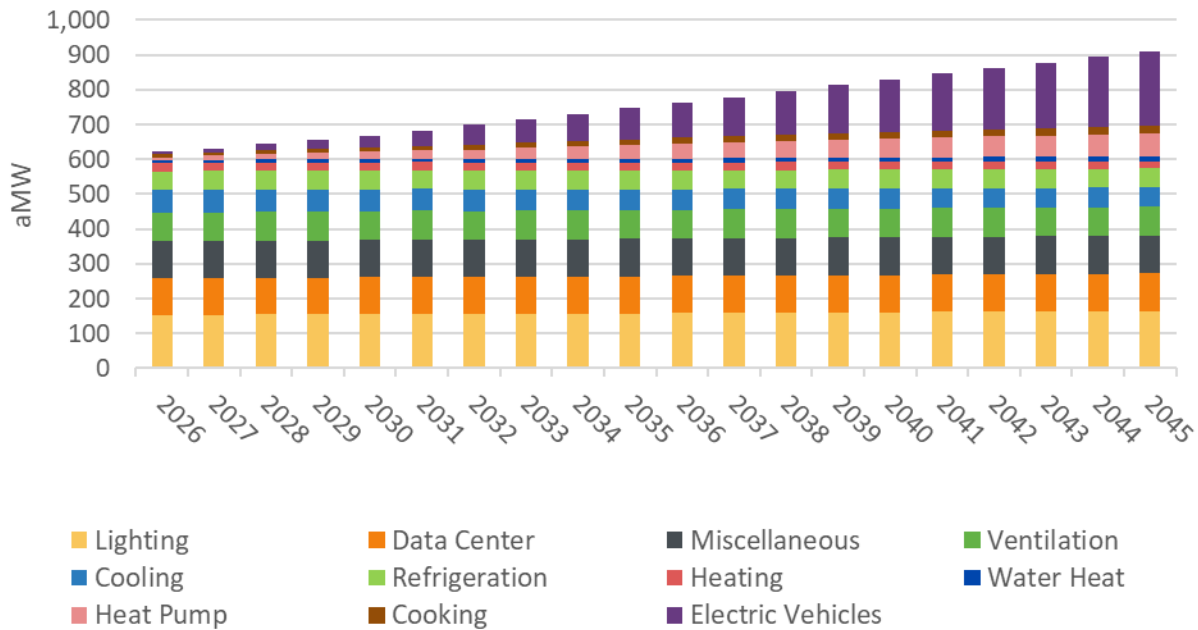
Cadmus developed the whole-building electric energy intensities (total kilowatt-hours per building square feet) based on NEEA’s CBSA IV. To develop the end-use intensities, we used the CBSA, the CBECS, and other Cadmus research. Further details are provided in the 6.1 *Developing Baseline Forecasts* section. Figure 3-8 shows energy use intensities for each building type and end-use group.

Figure 3-8. Commercial End-Use Group Intensities by Building Type – 2045

Note: The data center segment energy use intensity of 177.8 kWh per square foot is not included due to scaling. Additionally, all the consumption for the data center segment appears in the data center end-use group.

Figure 3-9 shows the commercial baseline forecast by end-use group. The forecast shows a load growth of commercial sales by roughly 2% on average per year over the study horizon. The highest-consuming end-use group was EVs, accounting for 23% of projected commercial consumption in 2045. The lighting,³⁴ miscellaneous, and data center end-use groups also account for a large share of consumption at 18%, 12%, and 12% of projected commercial sales in 2045, respectively. Appendix B includes detailed baseline data for the commercial sector.

³⁴ Due to the timing of the analysis, this study's forecast does not include the impact of Washington State House Bill 1185 (RCW 70A.230.020) limiting the sales of commercial linear fluorescent lamps. However, the energy efficiency potential analysis did account for House Bill 1185.

Figure 3-9. Annual Commercial Forecast by End-Use Group (2026–2045)

Note: The Miscellaneous end-use group includes laptops, desktops, and all other plug load and secondary measure savings from wastewater.

From 2026 to 2045, commercial sector sales are forecasted to increase by 2% year-over-year. This growth is primarily driven by EV adoption, which increases at an average year-over-year rate of 20%—rising from 8 aMW in the early years to 211 aMW of commercial sales in 2045. Additional growth can be attributed to new commercial floor space and electrification in the sector. By 2045, new construction is expected to account for 3% of the forecasted load. Figure 3-10 shows the commercial baseline forecast by construction vintage.

Figure 3-10. Annual Commercial Forecast by Construction Vintage (2026–2045)



3.4. Industrial

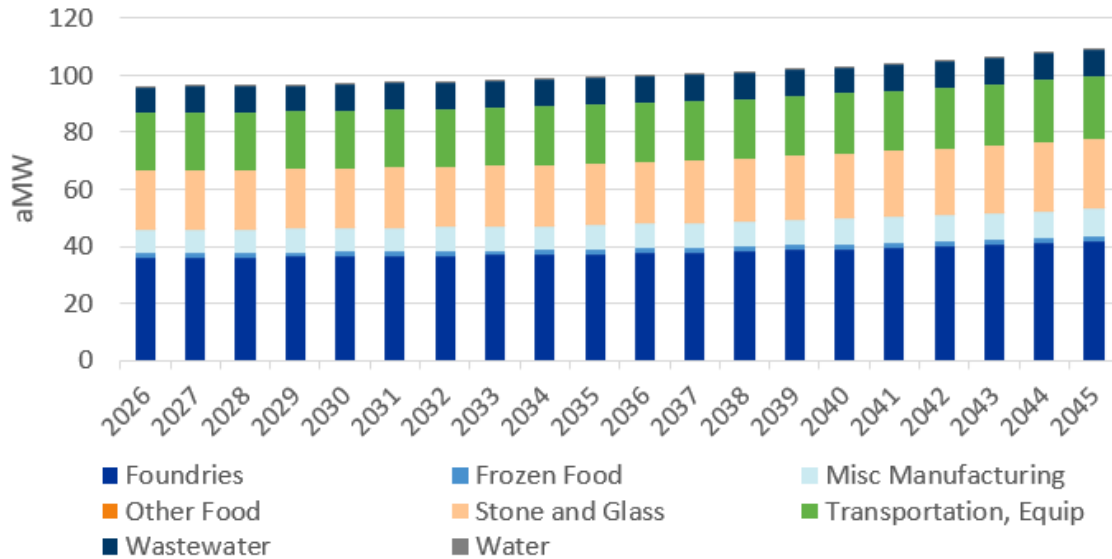
Cadmus disaggregated City Light’s forecasted industrial sales into eight facility types (segments) and 11 end uses, as shown in Table 3-. Overall, the industrial sector accounted for 109 aMW, or 7% of City Light’s overall forecasted baseline sales in 2045. The sector includes City Light’s customers with known industrial processes, as well as those contributing to wastewater and water treatment loads.

Table 3-5. Industrial Segments and End Uses

Segments	End Uses
Foundries Frozen Food Miscellaneous Manufacturing Other Food Stone and Glass Transportation, Equipment Wastewater Water	Process Air Compressor
	Lighting
	Fan
	Pump
	Motors (Other)
	Process (Other)
	Process Heat
	HVAC
	Other
	Process Electro Chemical
	Process Refrigeration

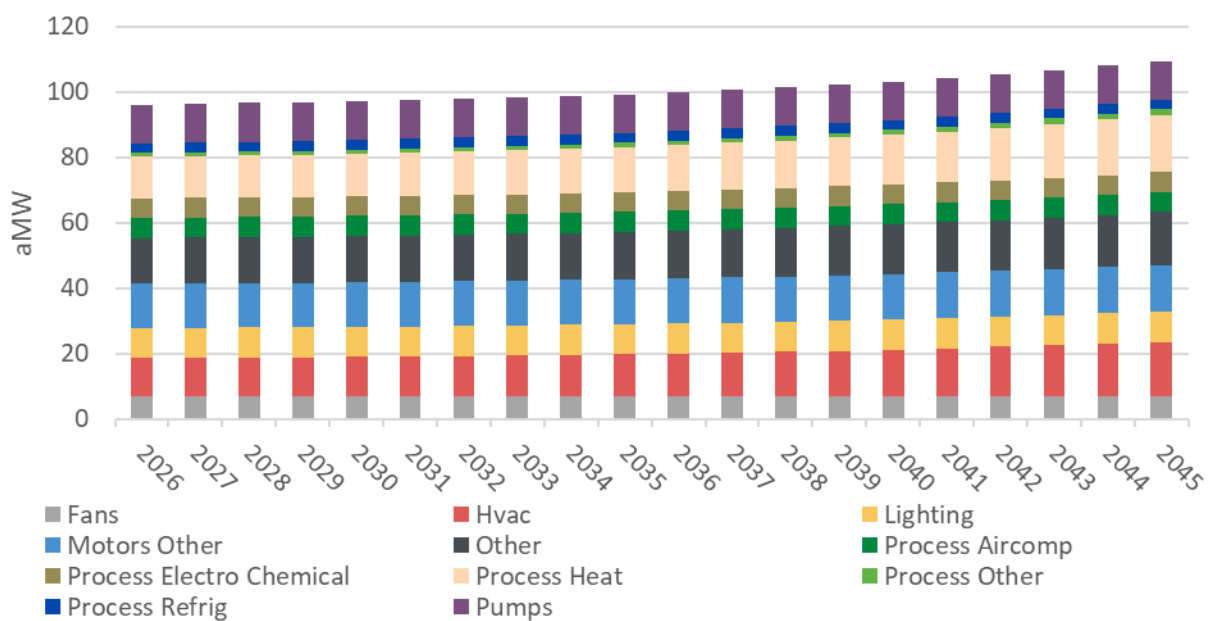
Similar to the commercial sector, Cadmus relied on City Light’s nonresidential customer database to determine the distribution of baseline sales by segment. Foundries account for almost 40% of industrial baseline sales, followed by stone and glass (23%) and transportation equipment (20%) (Figure 3-11).

Figure 3-11. Annual Industrial Baseline Sales by Segment (2026–2045)



Cadmus relied on end-use distributions provided in the 2021 Power Plan’s industrial tool and the U.S. EIA’s Manufacturing Energy Consumption Survey (MECS) to disaggregate segment-specific consumption into end uses. Figure 3-12 shows the industrial baseline sales forecast by end use. The end uses that make up the largest portion of baseline sales in 2045 are process heat (16%) and HVAC (15%),

Figure 3-12. Annual Industrial Baseline Sales by End-Use (2026–2045)



4. Energy Efficiency Potential

City Light requires accurate estimates of technically achievable energy efficiency potential, which are essential for its IRP and program planning efforts. These potentials are then bundled based on the levelized cost of conserved energy so that the IRP model can select the optimal amount of energy efficiency potential.

To support these efforts, Cadmus performed an in-depth assessment of technical potential and achievable technical potential in three sectors: residential, commercial, and industrial. This chapter presents the detailed results of this assessment.

4.1. Overview

This study included a comprehensive set of conservation measures, including those assessed by the Council in the 2021 Power Plan and by the RTF. In consultation with City Light staff, Cadmus also included five new conservation measures: window heat pump, HVAC sizing, multifamily packaged terminal heat pump, heat pump with gas back-up, and EV chargers. Cadmus began its analysis by assessing the technical potential of hundreds of unique conservation measures applicable to each sector, segment, and construction vintage (as discussed in the *Baseline Forecast* section).

Cadmus evaluated 7,189 different combinations—or permutations—of energy conservation measures covering a broad range of technologies and applications. Each permutation represents a unique combination of factors: the specific energy-saving measure, the market sector (such as residential or commercial), customer segment, energy end use (like heating or lighting), building age (new or existing construction), and the type of baseline used for comparison. We only included combinations that offer technical potential for energy savings and excluded those that fell below current efficiency standards.

For example, an ENERGY STAR® air purifier installed in a newly built single-family home is considered a different permutation than the same model installed in an existing single-family home, even if all other factors remain the same. Table 4-1 lists the number of conservation measures and permutations by sector considered in this study.

Table 4-1. Measures and Permutations

Sector	Measures	Permutations
Residential	131	2,152
Commercial	927	4,890
Industrial	29	147
Total	1,087	7,189

Table 4-2 shows baseline sales and cumulative technical and achievable technical potential by sector. Study results indicate that 245 aMW of technically feasible conservation potential—16% of baseline sales—will be available by 2045 and that 83% of that amount (202 aMW) is considered achievable in 2045. The achievable technical potential corresponds to 13% of baseline sales.

The results in this report account for line losses and represent cumulative energy savings at the generator (unless specified).

Table 4-2. Cumulative Technical and Achievable Technical Potential by Sector (2026-2045)

Sector	Baseline Sales (aMW)	Technical Potential		Achievable Technical Potential	
		aMW	% of Baseline Sales	aMW	% of Baseline Sales
Residential	512	97	19%	81	16%
Commercial	908	138	15%	113	12%
Industrial	109	9	8%	7.6	7%
Total	1,530	245	16%	202	13%

Note: Industrial sales exclude district steam, spot loads, and streetlighting

The commercial sector represents nearly 60% of baseline energy use and 20-year achievable technical potential, as shown in Figure 4-1. The residential and industrial sectors account for 40% and 4% of the cumulative achievable technical potential in 2045, respectively.

Figure 4-1. 20-Year Achievable Technical Potential by Sector

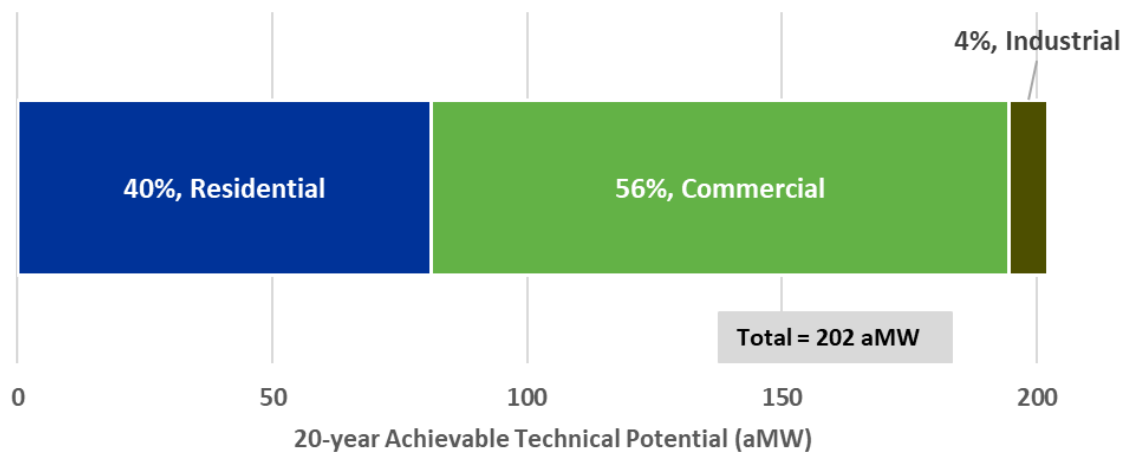
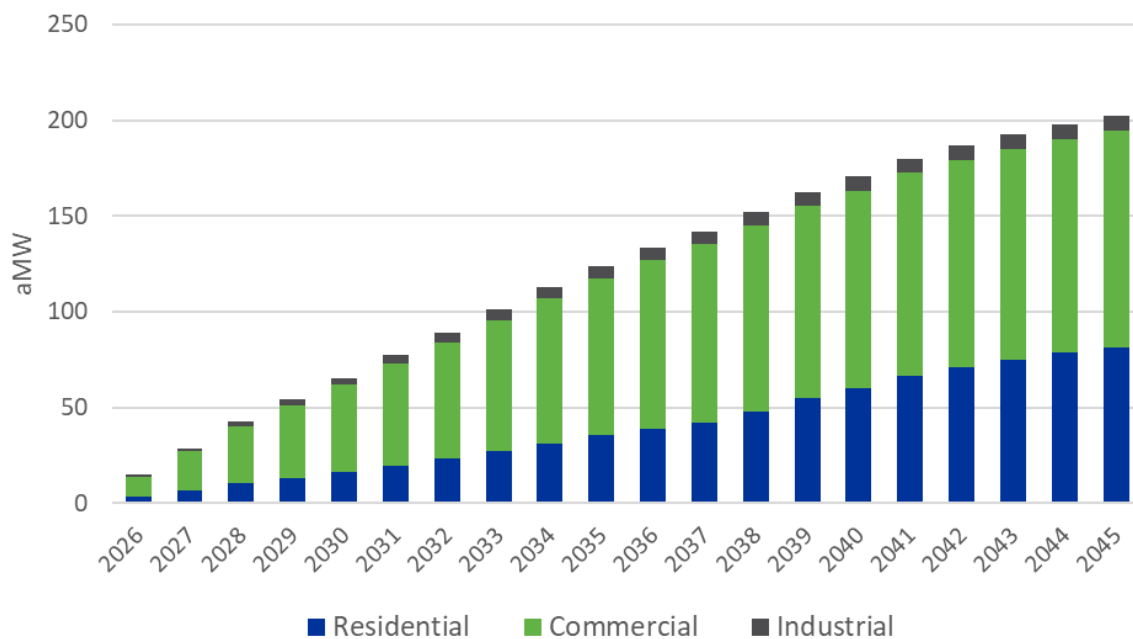


Table 4- shows cumulative two-year, four-year, 10-year, and 20-year, as well as 20% of the 10-year achievable technical potential.

Table 4-3. Cumulative Achievable Technical Potential by Sector and Time Period

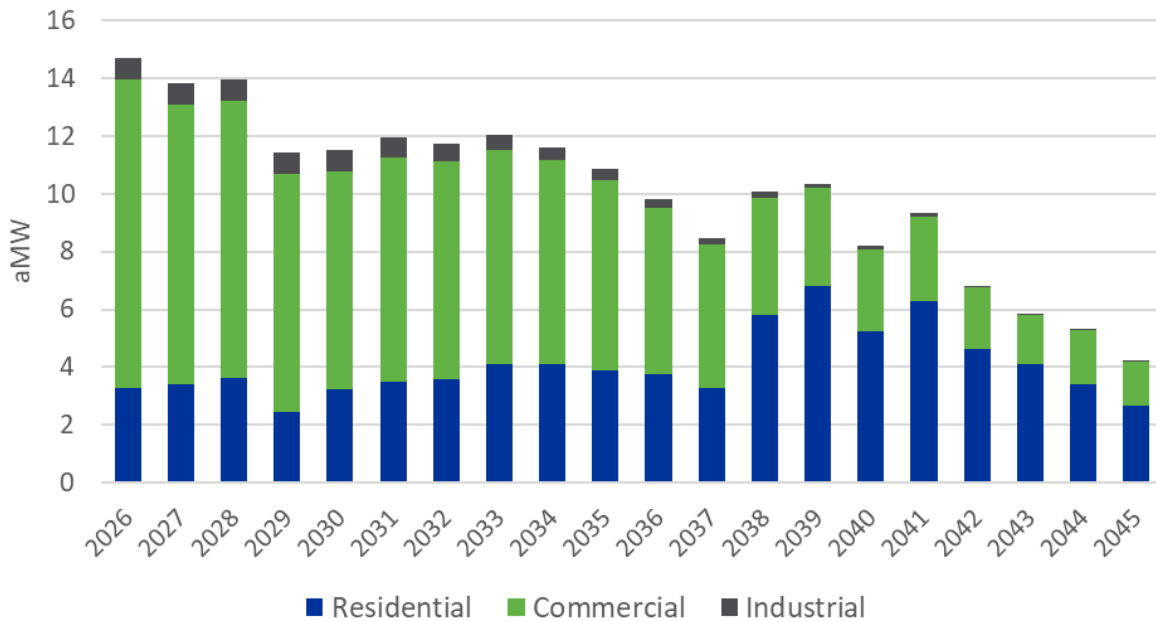
Sector	Achievable Technical Potential – aMW				
	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	20-Year (2026-2045)	20% of 10-Year
Residential	7	13	35	81	7
Commercial	20	38	82	113	16
Industrial	1	3	6	8	1
Total	29	54	124	202	25

Figure 4-2 presents the cumulative achievable technical potential across the study horizon.

Figure 4-2. Cumulative Achievable Technical Potential by Sector (2026–2045)

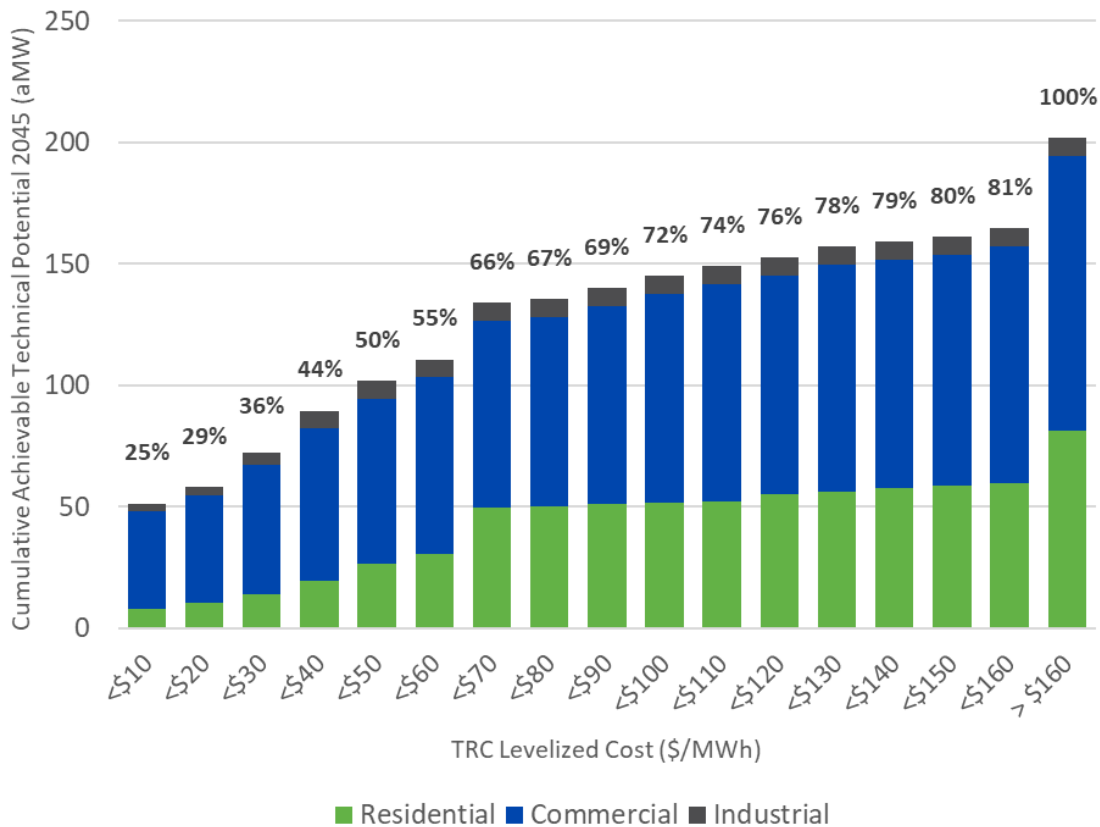
Of the cumulative 20-year achievable potential, approximately 27% is acquired in the first four years, and 61% is acquired in the first 10 years. Refer to the 6. *Detailed Methodology* section of this report for details of the adoption rates.

Cadmus determined incremental achievable technical potential in each year of the study horizon using natural equipment turnover rates and measure-specific ramp rates. Figure 4-3 illustrates this incremental achievable potential. The increase in savings in 2038 is due to the ramp rates applied and the 12-year measure life for the top saving residential measure, heat pump dryers. In 2038, residential market average dryers installed in 2026 will need to be replaced, given their 12-year measure life. Based on the ramp rate in the replacement year (2038), a proportion of these dryers will be replaced by heat pump dryers. Since heat pump dryers are a high-saving measure, there is a large increase in residential incremental achievable potential in 2038.

Figure 4-3. Annual Incremental Achievable Technical Potential (2026–2045)

The conservation supply curve in Figure 4-4 shows cumulative achievable potential in \$10 per megawatt-hour levelized cost increments, where each bar includes all measures with a levelized cost less than the listed amount. The percentage label on the graphic indicates the portion of 20-year achievable technical potential that can be acquired based on a TRC value at or below cost on the x-axis. For example, the analysis revealed that 55% (110 aMW) of the cumulative 2045 achievable technical potential could be acquired at less than or equal to \$60 per megawatt-hour.³⁵ The amount of available achievable technical potential begins to level off at less than or equal to \$70 per megawatt-hour, excluding measures that cost more than \$160 per megawatt-hour. The 2045 achievable technical potential with a levelized cost of greater than \$160 per megawatt-hour makes up 19% of the cumulative achievable technical potential. Many of these costly measures are for emerging technology equipment, heat pumps, and weatherization in the residential and commercial sectors.

³⁵ The levelized cost bundle of less than or equal to \$60 per megawatt-hour represents an example value.

Figure 4-4. All Sectors Supply Curve – Cumulative Achievable Technical Potential in 2045 by Levelized Cost

City Light's IRP model selected an achievable economic potential of 103 aMW by 2045.

Table 4-4 shows the cumulative 20-year achievable economic potential by sector, along with the maximum levelized cost for measure permutations within each sector. For example, all residential achievable economic potential can be obtained at a levelized cost of less than or equal to \$30 per megawatt-hour. Refer to the 6. *Detailed Methodology* chapter for details on the methodology used to determine achievable economic potential.

Table 4-4. Cumulative Achievable Economic Potential by Sector (2026–2045)

Sector	Levelized TRC (\$/MWh)	20-Year Achievable Economic Potential (aMW)
Residential	30	13
Commercial	160	82
Industrial	70	8
Total	N/A	103

Appendix D shows detailed measure-level results, including levelized costs and technical and achievable technical conservation potential for each measure. The remainder of this chapter provides detailed results of technical, achievable technical, and achievable economic potential by sector.

4.2. Residential

Residential customers in City Light’s service territory account for 34% of 2045 total baseline sales and 40% of total achievable technical potential. This sector, which is made up of non-highly impacted and highly impacted single-family and multifamily customers, has a variety of sources for potential savings, including equipment efficiency upgrades (such as water heaters and appliances) and improvements to building shells (such as windows, insulation, and air sealing).

Based on the resources in this assessment, Cadmus estimated residential cumulative achievable technical potential of 81 aMW over 20 years, which corresponds to 16% of the forecasted residential load in 2045. Table 4-5 shows the cumulative 20-year residential conservation potential by segment.

Table 4-5. Cumulative Residential Technical, Achievable Technical, and Achievable Economic Potential by Segment in 2045

Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Single-Family	205	41	20%	34	83%	6	14%
Single-Family Highly Impacted	110	22	20%	18	83%	2	11%
Multifamily – Low-Rise	45	9	19%	7	83%	2	18%
Multifamily – Low-Rise Highly Impacted	24	5	19%	4	83%	1	15%
Multifamily – Mid-Rise	46	8	17%	7	84%	1	13%
Multifamily – Mid-Rise Highly Impacted	25	4	17%	4	84%	1	12%
Multifamily – High-Rise	37	6	17%	5	84%	1	10%
Multifamily – High-Rise Highly Impacted	20	3	17%	3	84%	0.3	9%
Total	512	97	19%	81	83%	13	13%

As shown in Figure 4-5, single-family homes account for 64% (52 aMW) of total achievable technical potential, followed by multifamily low-rise (11 aMW), multifamily mid-rise (10 aMW), and multifamily high-rise (8 aMW). The total achievable technical potential for highly impacted customers is 28 aMW or 35%. This distribution is primarily driven by each home type’s proportion of baseline sales, but segment-specific end-use saturations and fuel shares have an effect as well. Appendix B includes detailed data on

saturation and fuel shares for each segment.³⁶ Appendix C includes a detailed summary of achievable technical potential by segment and end use for each segment.

Figure 4-5. Residential Cumulative Achievable Technical Potential by Segment (2026–2045)

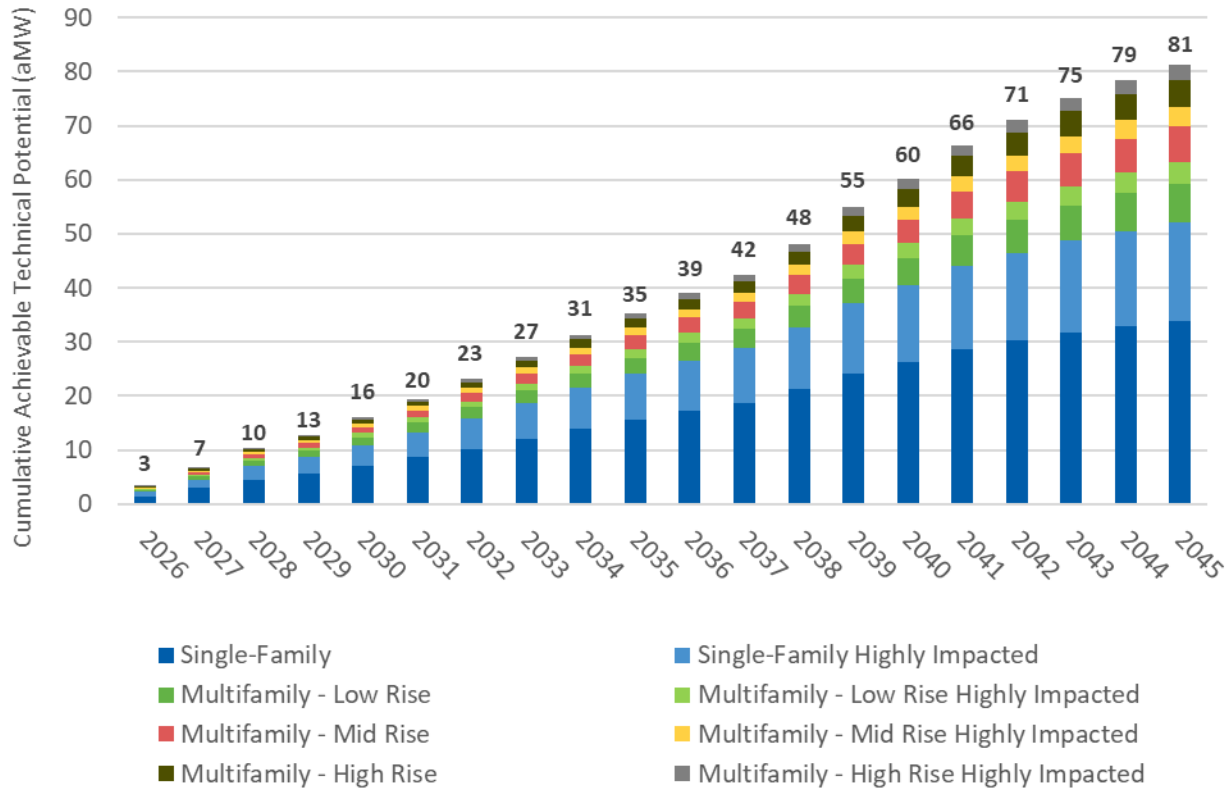


Figure 4-6 presents the cumulative achievable technical potential by construction type for the residential sector. Existing construction represents the majority of achievable technical potential, particularly in the early years of the study, accounting for 94% of the potential in the first four years (2026 through 2029). By the final year of the study period (2045), new construction accounts for 11% of the total cumulative residential achievable technical potential. This is because of the increase in new construction, from roughly 4,931 households in 2026 to over 85,000 households constructed between 2024 and 2045.

³⁶ The scope of this study does not distinguish differences in end-use saturations and fuel shares between the highly impacted and non-highly impacted segments. Potential for these classifications is defined by customer segmentation. (Refer to Appendix C for potential results by segment, including the highly impacted versus non-highly impacted classification and end use.)

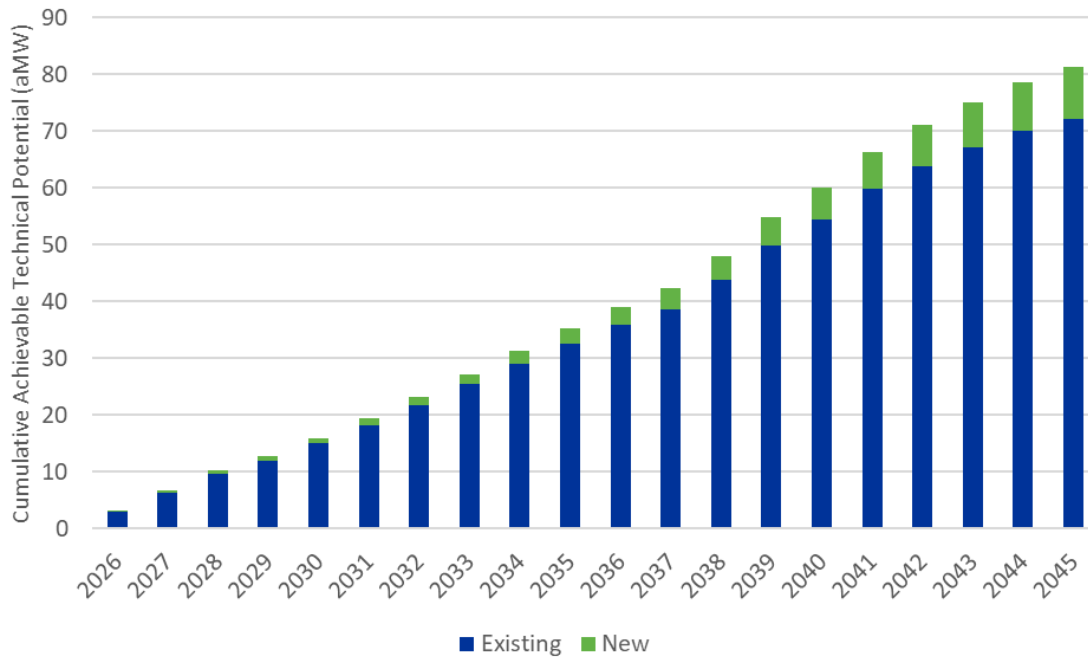
Figure 4-6. Residential Cumulative Achievable Technical Potential by Construction Type (2026–2045)

Table 4-6 shows the residential baseline sales and technical and achievable technical potential by end-use group. Heating savings make up the greatest proportion of cumulative achievable technical potential, at 36%. Appliance measures contribute 30% of the total achievable technical potential, followed by water heating measures (21%). Overall, 83% of the technical potential is considered achievable based on adoption patterns from the 2021 Power Plan and adjusted for City Light’s historical program success.

Table 4-6. Residential Cumulative Technical, Achievable Technical, and Achievable Economic Potential by End-Use Group in 2045

Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Appliances	95	29	30%	24	84%	0.4	24%
Cooling	10	2	21%	2	80%	0.1	7%
Electronics	71	8	11%	7	93%	5	58%
Electric Vehicles	73	0.2	0.3%	0.2	95%	0	0%
Exterior Lighting	0.44	0.02	6%	0.02	84%	0	0%
Heating	166	36	22%	29	81%	4	10%
Interior Lighting	20	1	5%	1	84%	0.1	11%
Miscellaneous	12	1	9%	1	92%	0.3	24%
Water Heating	65	20	31%	17	83%	3	17%
Total	512	97	19%	81	83%	13	13%

Incremental and cumulative potential over the 20-year study horizon varies by end-use group due to the application of ramp rates. Cadmus assigned ramp rates to each measure based on factors such as availability, existing program activity, and market trends. We used the same ramp rates for each measure, as assigned by the Council in the 2021 Power Plan, with some adjustments based on City Light's historical program success, as discussed in the *5.2. Achievable Technical Potential and Ramp Rate Comparison* section. Figure 4-7 shows cumulative residential achievable potential by end use.

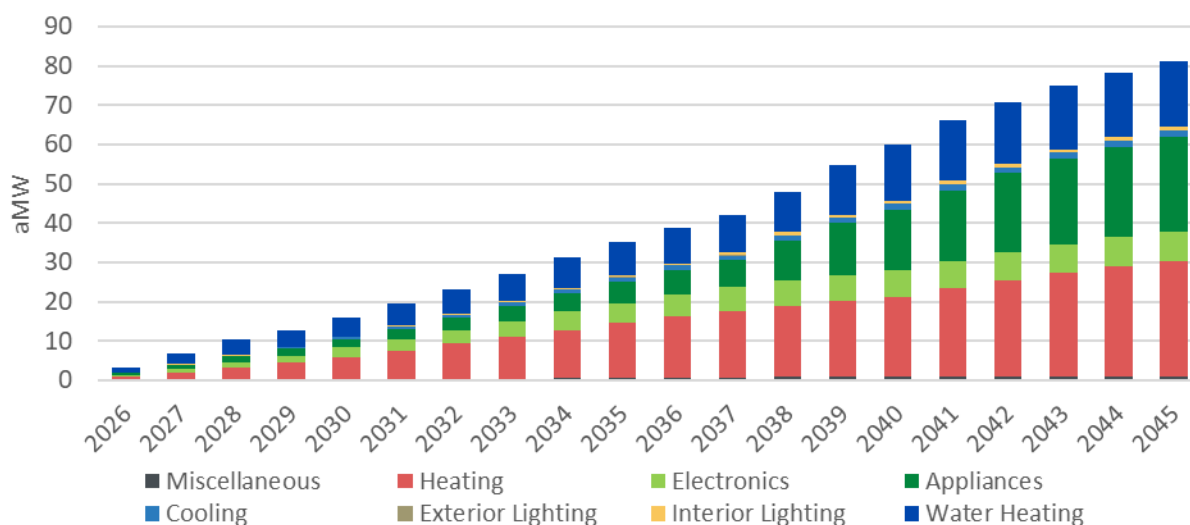
Figure 4-7. Residential Cumulative Achievable Technical Potential by End Use (2026–2045)

Figure 4-8 shows incremental residential achievable potential. Cadmus used measure ramp rates and effective useful life (EUL)—only for equipment replacement measures—to determine the timing of these savings. The increase in appliance savings in 2038 is due to the high proportion of market average dryers being replaced with more efficient heat pump dryers at the end of their 12-year measure life.

Figure 4-8. Residential Incremental Achievable Technical Potential by End Use (2026–2045)

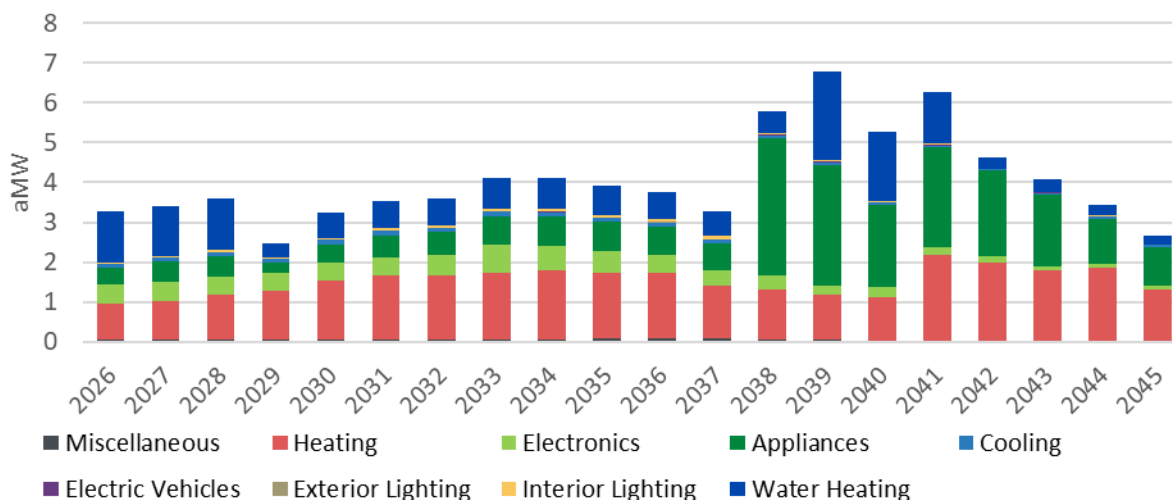


Table 4-7 lists the 15 highest-saving residential measures sorted by 20-year achievable technical potential. These measures make up 76% of the total residential achievable technical potential. The table also includes the weighted average levelized costs for these measures,³⁷ which represent the economic equipment and administrative costs while still accounting for energy and non-energy benefits. The measure with the highest cumulative achievable technical potential—heat pump dryers—has a levelized cost of \$60 per megawatt-hour. Other measures with potential high savings are window heat pumps, heat pump water heaters, and networked automation controls. Of the highest-savings measures, the least costly are ENERGY STAR TVs and ENERGY STAR printers.

³⁷ The levelized cost value represents a weighted average across all iterations, including segment and end use. As a result, some permutations of a measure may have a low levelized cost while other permutations have a high levelized cost.

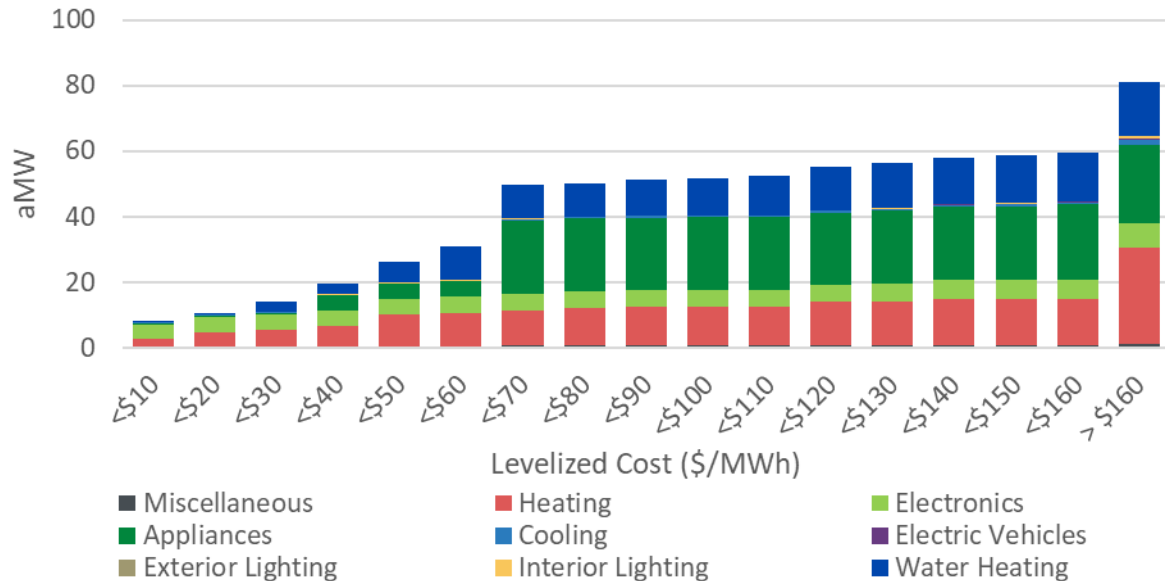
Table 4-7. Top-Saving Residential Measures

Measure Name	Cumulative Achievable Technical Potential (aMW)					Weighted Average Levelized TRC (\$/MWh)
	2-Year	4-Year	10-Year	20-Year	% of Total (20-Year)	
Heat Pump Dryer	0.15	0.41	2.25	17.37	21%	\$60.51
Window Heat Pump (19 SEER2, 9.3 HSPF)	0.13	0.47	2.94	12.15	15%	\$165.40
Heat Pump Water Heater - Tier 4	0.67	1.08	1.94	4.34	5%	\$61.35
Networked Automation Controls	0.05	0.21	1.96	3.80	5%	\$4,239.03
Heat Pump Water Heater - Tier 3	0.69	1.10	1.54	3.47	4%	\$56.78
Refrigerator and Refrigerator-Freezer – Consortium for Energy Efficiency Tier 3	0.59	0.93	1.56	3.19	4%	\$34.23
Front Load ENERGY STAR Washer (w/Electric Dryer)	1.03	1.56	2.49	3.06	4%	\$20.90
Single-Family Weatherization – Wall Insulation (R-0 to R-11 Heating Zone 1)	0.58	1.15	2.31	2.63	3%	\$25.73
ENERGY STAR Office Printer	0.61	1.10	2.04	2.48	3%	\$0.00
Convert Electric Forced Air Furnace with Central AC to Heat Pump	0.16	0.37	1.01	1.89	2%	\$265.67
ENERGY STAR Ultra-High Definition TV	0.10	0.23	1.16	1.87	2%	\$0.00
55-Gallon Heat Pump Water Heater – (2029 Federal Standard)	0.19	0.31	0.31	1.36	2%	\$134.55
Residential Retail Valve, Electric Resistance Domestic Hot Water	0.02	0.08	0.70	1.35	2%	\$51.37
Clothes Dryer with Heat Recovery	0.02	0.07	0.68	1.27	2%	\$35.88
Duct Sealing	0.02	0.07	0.67	1.17	1%	\$50.62

^a When the net expenses (costs and benefits) are less than zero, the resulting levelized TRC is shown as \$0.00 per megawatt-hour and can be considered cost-effective.

Overall, 16% of residential conservation potential is achievable within the first four years, and 43% is achievable in the first 10 years. Figure 4-9 shows 20-year cumulative residential potential by levelized cost in \$10 per megawatt-hour increments.

Figure 4-9. Residential Supply Curve – Cumulative Achievable Technical Potential in 2045 by Levelized Cost



Twenty-seven percent of the residential achievable technical potential is from measures with a levelized cost of over \$160 per megawatt-hour. This is partially because the second-highest savings measure—window heat pumps—has a levelized cost greater than \$160 per megawatt-hour.

City Light's IRP model selected an economic achievable potential of 13 aMW for the residential sector by 2045. Figure 4-10 shows the cumulative 20-year achievable economic potential for the residential sector by end-use group. The two end-use groups with the greatest achievable economic potential are heating and electronics, which collectively represent 67% of the total residential 20-year cumulative achievable economic potential.

Figure 4-10. Residential Cumulative Achievable Economic Potential in 2045 by End-Use Group

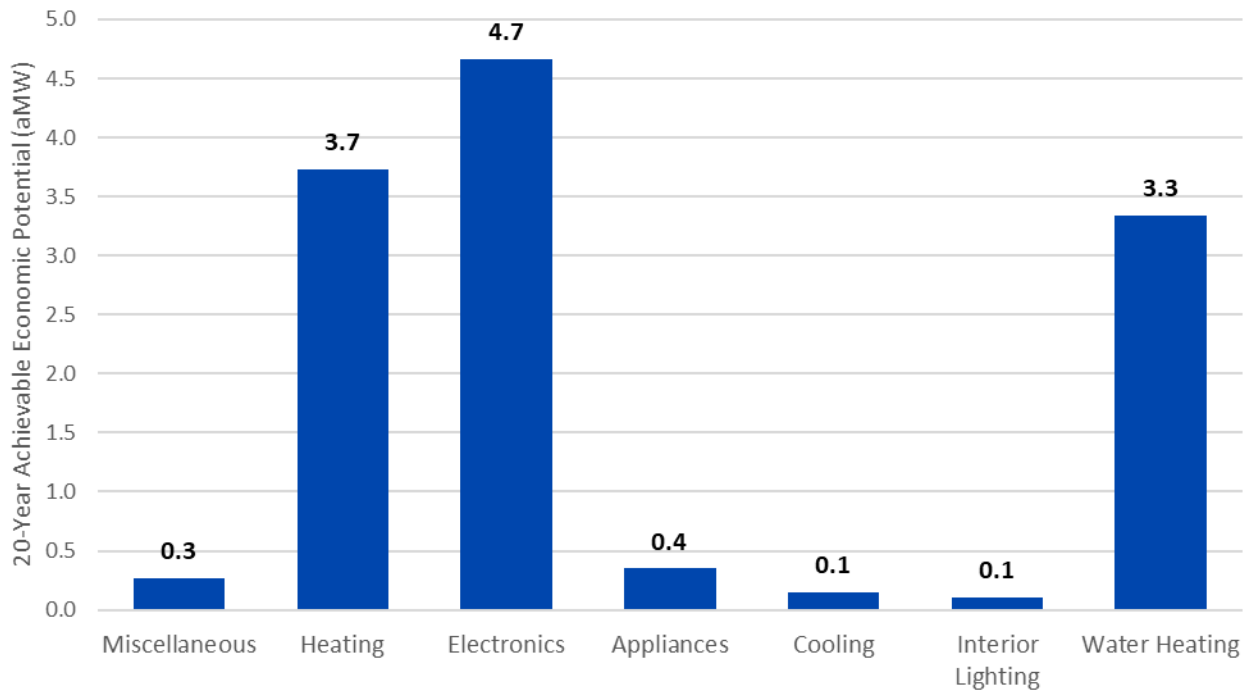


Table 4-8 lists City Light’s 15 highest-saving IRP-selected residential measures. These measure permutations all have a levelized cost of less than or equal to \$30 per megawatt-hour and make up 95% of the cumulative 20-year achievable economic potential for the residential sector.

Table 4-8. Top-Saving Residential Measures Selected by IRP Model

Measure Name	Cumulative Achievable Economic Potential (aMW) – Less than or Equal to \$30/MWh				% of Cumulative 20-Year Achievable Economic Potential
	2-Year	4-Year	10-Year	20-Year	
Front Load ENERGY STAR Washer (w/Electric Dryer)	1.03	1.56	2.49	3.06	24%
ENERGY STAR Office Printer	0.61	1.10	2.04	2.48	20%
ENERGY STAR Ultra-High Definition TV	0.10	0.23	1.16	1.87	15%
Single-Family Weatherization – Wall Insulation (R-0 to R-11 Heating Zone 1)	0.24	0.48	0.96	1.10	9%
Wall Insulation (R-0 to R-11 Heating Zone 1)	0.22	0.45	0.90	1.02	8%
Air Source Heat Pump Upgrade (Advanced) - with Back-up	0.00	0.03	0.27	0.74	6%
Heat Pump Water Heater - Tier 3	0.12	0.20	0.20	0.47	4%
Cooking Range - Federal Standard 2028	0.10	0.10	0.10	0.25	2%
ENERGY STAR Laptops	0.05	0.09	0.14	0.15	1%
ENERGY STAR Home Audio System	0.01	0.02	0.10	0.15	1%
Indirect Evaporative Cooler, 2.5 tons	0.00	0.01	0.06	0.15	1%
Multifamily Door Sweep — Direct Install (Heating Zone 1, CFM50 Air-Leakage Reduction)	0.01	0.03	0.12	0.14	1%
Floor Insulation (R-0 to R-30 Heating Zone 1)	0.03	0.05	0.11	0.12	1%
TLED Linear Fluorescent Lamp Retrofit	0.06	0.11	0.11	0.11	1%
Low-E Storm Window – Double-Pane Metal Frame (Heating Zone 1)	0.01	0.02	0.09	0.10	1%

4.2.1. Highly Impacted Communities

Highly Impacted Communities

Cadmus estimated potential impacts for highly impacted communities within the City Light service area. We used the same approach used in the 2024 DSMPA, which considered equity by including highly impacted communities in the study segmentation. The Washington State Department of Health defines a highly impacted community as “the census tract ranks a 9 or 10 on the Environmental Health Disparities (EHD) Map”.³⁸ They also include the census tracts “covered or partially covered by ‘Indian Country’ as

³⁸ The September 2024 EHD data was used for this analysis. This version used 2010 Census tract definitions.

defined in and designated by statute.”³⁹ The EHD contains 19 criteria, which are grouped under environmental exposures (including fossil fuel pollution and vulnerability to climate change impacts that contribute to health inequities), environmental effects, socioeconomic factors, and sensitive populations. Cadmus selected highly impacted communities as the equity metric because of the data granularity available.

Cadmus disaggregated highly impacted customers within the DSMPA based on income qualification in the City Light Utility Discount Program and the Washington EHD index for income-qualified customers.^{40,41} Thus, only customers with a household income equal to or less than 70% of the state median income, by household size, and with an EHD rank of 9 and higher were considered highly impacted for the study.

Table 4-9 shows the achievable economic potential for the highly impacted communities. The 20-year cumulative, achievable economic potential for these communities represents 31% of the total residential sector’s achievable economic potential.

Table 4-9. Highly Impacted Community Achievable Economic Potential by Segment and Time Period

Highly Impacted Segment	Highly Impacted Achievable Economic Potential (aMW)			
	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	20-Year (2026-2045)
Single-family	0.5	0.8	1.6	2.4
Multifamily Low-rise	0.2	0.3	0.6	0.7
Multifamily Mid-rise	0.1	0.2	0.4	0.5
Multifamily High-rise	0.1	0.1	0.2	0.3
Total	0.8	1.4	2.8	3.9

As shown in Figure 4-11, highly impacted community segments constituted 35% (28 aMW) of the total residential achievable technical potential. As noted earlier, this distribution is primarily driven by each home type’s proportion of baseline sales, but segment-specific end-use saturations and fuel shares have an effect as well.

³⁹ Washington State Department of Health. Accessed June 2023. “Instructions for Utilities to Identify Highly Impacted Communities.” <https://doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/climate-projections/clean-energy-transformation-act/ceta-utility-instructions>

⁴⁰ City of Seattle, Seattle Public Utilities. Accessed June 2023. “Utility Discount Program.” <https://www.seattle.gov/utilities/your-services/discounts-and-incentives/utility-discount-program>

⁴¹ Washington State Department of Health. Accessed June 2023. “Washington Environmental Health Disparities Map.” <https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map>

City Light's IRP model selected an economic achievable potential of nearly 4 aMW in highly impacted communities by 2045. Figure 4-11 shows the cumulative 20-year achievable economic potential in highly impacted communities by end-use group. The two end-use groups with the greatest achievable economic potential are water heating and electronics, which collectively represent 72% of the total 20-year cumulative achievable economic potential in highly impacted communities.

Figure 4-11. Highly Impacted Communities Cumulative Achievable Economic Potential in 2045 by End-Use Group

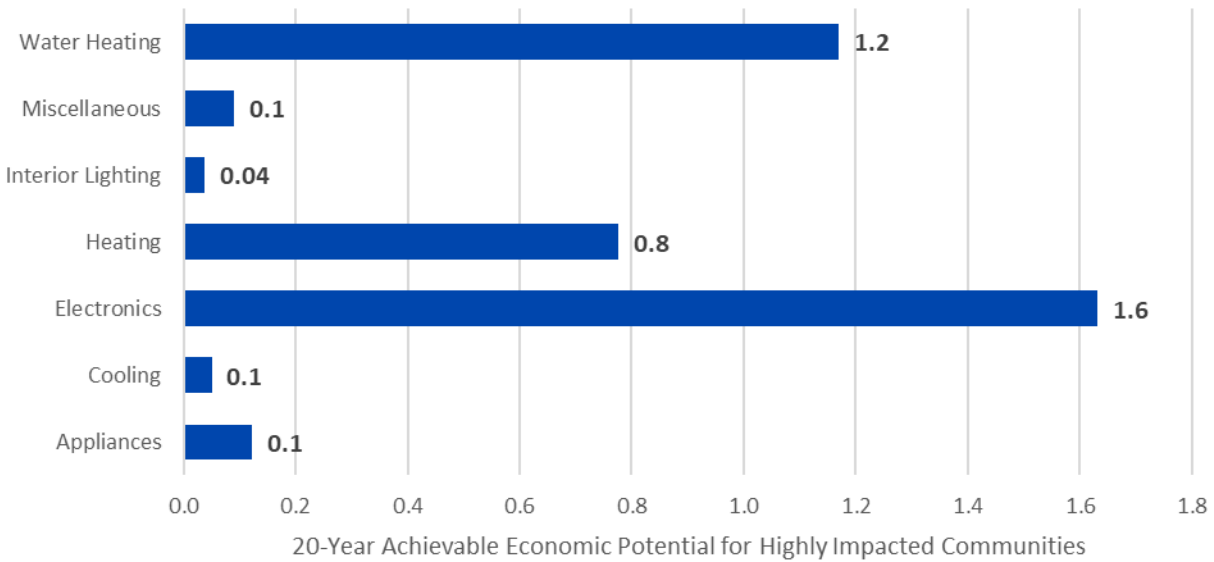


Table 4-10 lists the 15 highest-saving measures City Light's IRP model selected in highly impacted communities. These measure permutations all have a levelized cost of less than or equal to \$30 per megawatt-hour and make up 97% of the cumulative 20-year achievable economic potential available for highly impacted communities.

Table 4-10. Top-Saving Residential Measures in Highly Impacted Communities Selected by IRP Model

Measure Name	Cumulative Achievable Economic Potential (aMW) – Less than or Equal to \$30/MWh				% of Cumulative 20-year Achievable Economic Potential
	2-Year	4-Year	10-Year	20-Year	
Front Load ENERGY STAR Washer (w/Electric Dryer)	0.36	0.55	0.87	1.07	28%
ENERGY STAR Office Printer	0.21	0.39	0.72	0.87	22%
ENERGY STAR Ultra-High Definition TV	0.03	0.08	0.41	0.65	17%
Single-Family Weatherization – Wall Insulation (R-0 to R-11 Heating Zone 1)	0.08	0.16	0.31	0.36	9%
Air Source Heat Pump Upgrade (Advanced) - with Back-up	0.00	0.01	0.09	0.26	7%
Heat Pump Water Heater - Tier 3	0.04	0.07	0.07	0.17	4%
Cooking Range - Federal Standard 2028	0.03	0.03	0.03	0.09	2%
ENERGY STAR Laptops	0.02	0.03	0.05	0.05	1%
ENERGY STAR Home Audio System	0.00	0.01	0.03	0.05	1%
Indirect Evaporative Cooler, 2.5 tons	0.00	0.00	0.02	0.05	1%
Floor Insulation_(R-0 to R-30_Heating Zone 1)	0.01	0.02	0.04	0.04	1%
TLED Linear Fluorescent Lamp -	0.02	0.04	0.04	0.04	1%
Low-E Storm Window – Double-Pane Metal Frame (Heating Zone 1)	0.00	0.01	0.03	0.03	1%
Double Pane Windows (U22_Heating Zone 1)	0.00	0.01	0.02	0.02	1%
Double Pane Windows (U30_Heating Zone 1)	0.00	0.01	0.02	0.02	0%

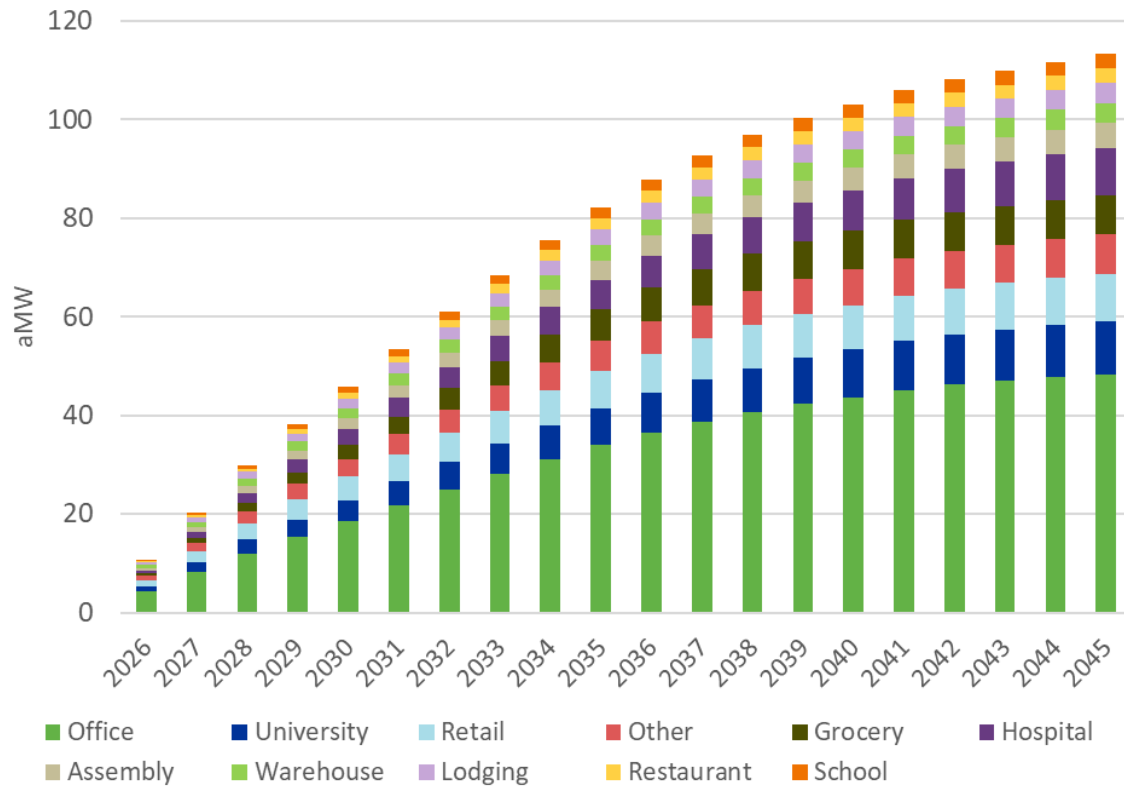
4.3. Commercial

City Light's commercial sector accounts for 59% of its baseline sales in 2045 and 56% of total achievable technical potential. Cadmus estimated the potential for the 20 commercial segments listed above in Table 3- (grouped into 16 segments for this report). Table 4-11 summarizes the 20-year cumulative technical and achievable technical potential by commercial segment. Cadmus did not include an efficiency charger measure for commercial EVs, considering the limited applicability for this conservation measure within the commercial sector, but the City Light commercial EV forecast is included in the commercial baseline sales reporting.

Table 4-11. Commercial Cumulative Technical and Achievable Technical Potential by Segment in 2045

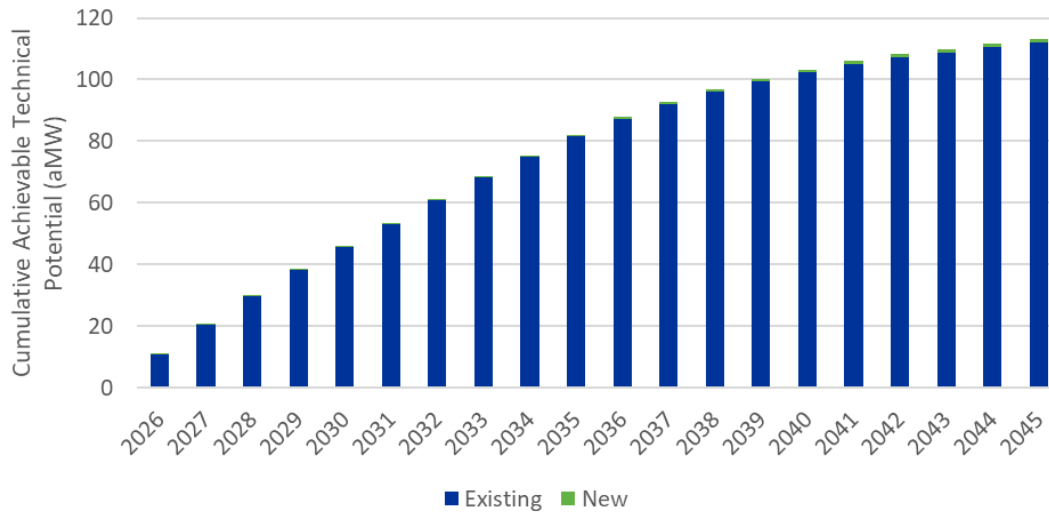
Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Assembly	28	6	23%	5	80%	3	47%
Data Center	74	0.3	0.5%	0.3	85%	0.3	85%
Electric Vehicles	211	0	0%	0	N/A	0.0	0%
Hospital	54	12	22%	10	82%	9	80%
Large Grocery	17	7	43%	6	87%	6	77%
Large Office	173	43	25%	36	84%	28	66%
Lodging	23	5	21%	4	82%	3	51%
MF Common Area	50	0	0%	0	N/A	0	N/A
Miscellaneous	34	7	20%	6	83%	4	53%
Other Health	13	3	21%	2	80%	1	50%
Restaurant	26	3	13%	3	84%	2	70%
Retail	50	12	25%	10	78%	7	57%
School	14	4	27%	3	82%	2	48%
Small Grocery	7	2	27%	1	83%	1	66%
Small Office	41	15	37%	12	80%	6	42%
University	67	13	20%	11	81%	7	50%
Warehouse	28	5	20%	4	75%	3	55%
Total	908	138	15%	113	82%	82	60%

Approximately 32% of the 20-year commercial achievable technical potential is from the large office segment, as shown in Figure 4-12. Together, large and small offices (shown as “office” in Figure 4-12) account for 43% of the 20-year commercial achievable technical potential. The large grocery segment has the highest technical potential savings relative to baseline sales due to the high potential associated with refrigeration equipment.

Figure 4-12. Commercial Cumulative Achievable Technical Potential by Segment (2026–2045)

Note: The "Other" segment includes data centers, miscellaneous, and other health.

Figure 4-13 presents the cumulative achievable technical potential by construction vintage for the commercial sector. Existing construction represents the majority of achievable technical potential, particularly in the early years of the study, and accounts for 99.7% of the potential in the first two years (2026 and 2027).

Figure 4-13. Commercial Cumulative Achievable Technical Potential by Construction Type (2026–2045)

Across all end uses, lighting accounts for 20% of total achievable technical potential. Table 4-12 shows the 20-year cumulative commercial potential by end use.

Table 4-12. Commercial Cumulative Technical, Achievable Technical, and Achievable Economic Potential by End-Use Group in 2045

Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Cooking	22	1	6%	1.2	85%	1.2	82%
Cooling ^a	56	26	47%	22	83%	12.2	46%
Data Center	107	5	5%	4.6	90%	4.6	90%
Electric Vehicles	211	0	0%	0	N/A	0.0	0%
Heat Pump ^b	67	19	28%	16	87%	9.2	50%
Heating ^c	22	8	35%	6.5	85%	5.4	71%
Lighting	165	33	20%	22	67%	21.8	66%
Miscellaneous	108	4	4%	3.9	88%	2.4	55%
Refrigeration	54	14	25%	13	91%	10.2	74%

Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Ventilation	83	24	28%	22	91%	12.9	55%
Water Heating	13	4	32%	3.1	73%	2.6	60%
Total	908	138	15%	113	82%	82	60%

^a The cooling end-use group refers to cooling direct expansion, chiller equipment, and related retrofit measures.

^b The heat pump end-use group includes air-source heat pumps and related retrofit measures. This differs from heat pump water heaters, which are included in the water heating end-use group.

^c The heating end-use group refers to non-heat pump electric space heating equipment (such as electric resistance heating).

Compared to the residential sector, a larger proportion of the achievable technical potential is realized in the first 10 years of the study, with 72% of the 20-year cumulative achievable technical potential in the first 10 years (versus 43% for residential sector) and 34% in the first four years (versus 16% for residential sector). Figure 4-14 and Figure 4-15 show cumulative and incremental achievable potential for the commercial sector by end use, respectively. The drop in incremental potential for lighting is due to the incorporation of RCW 70A.230.020 prohibiting fluorescent lighting sales after July 2029.

Figure 4-14. Commercial Cumulative Achievable Technical Potential by End Use (2026–2045)

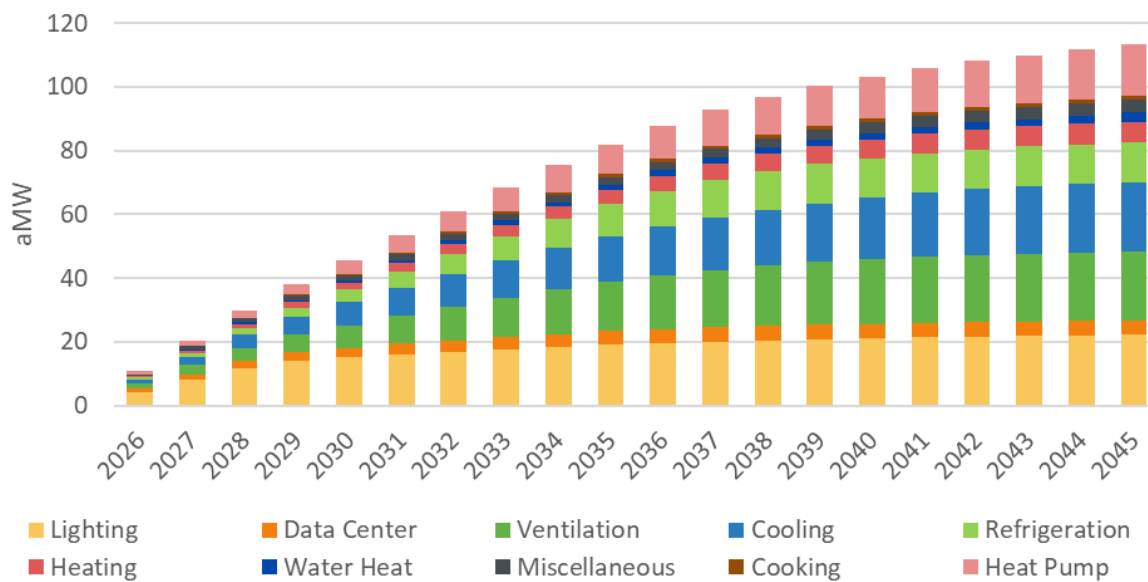


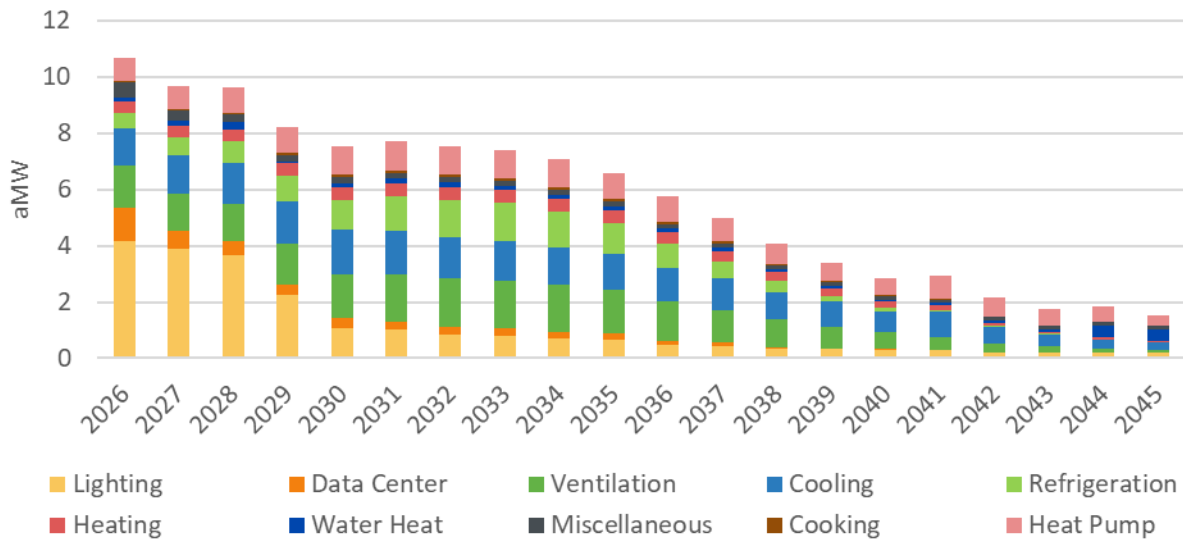
Figure 4-15. Commercial Incremental Achievable Technical Potential by End Use (2026–2045)

Table 4-13 shows the top 15 commercial measures and their average levelized costs,⁴² sorted by 20-year achievable technical potential. Together, these measures represent 41% of the commercial cumulative 2045 achievable technical potential. The highest-saving measure is HVAC retro-commissioning with 7.4 aMW, or 7%, of achievable technical potential. Depending on the application, this measure can also be costly and may not be considered economical, with a weighted average levelized TRC of \$159 per megawatt-hour.

⁴² The levelized cost value represents a weighted average across all iterations, including segment and end use. As a result, some permutations of a measure may have a low levelized cost while other permutations have a high levelized cost.

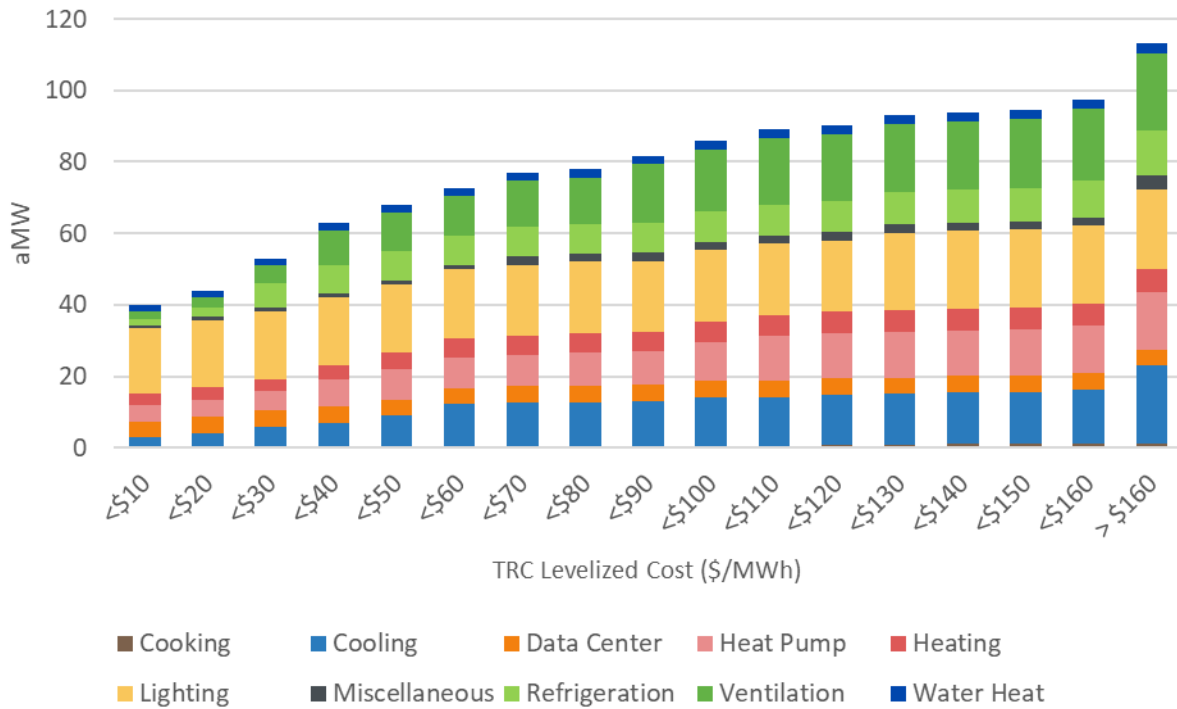
Table 4-13. Top-Saving Commercial Measures

Measure Name	Cumulative Achievable Technical Potential (aMW)					Weighted Average Levelized TRC (\$/MWh) ^a
	2-Year	4-Year	10-Year	20-Year	% of Total (20-Year)	
HVAC Retrocommissioning	1.67	3.28	6.51	7.40	7%	\$158.59
Building Automation System Upgrades	1.53	3.01	5.97	6.81	6%	\$25.58
Strategic Energy Management	0.05	0.19	2.04	5.98	5%	\$194.58
Air Source Heat Pump, 240,000 to 759,999 Btu/h, Above Code	0.10	0.29	1.37	3.39	3%	\$24.61
New Display Case - Replacement	0.32	0.78	2.79	3.33	3%	\$24.52
Air Source Heat Pump, 135,000 to 240,000 Btu/h, Above Code	0.07	0.21	1.03	2.57	2%	\$142.49
Thin Triple-Glazed Windows for Large Office with Gas Heating	0.02	0.07	0.77	2.28	2%	\$39.69
ENERGY STAR Server	1.40	1.89	2.14	2.16	2%	-\$10.99
Server Virtualization	0.20	0.49	1.76	2.11	2%	\$4.23
Chiller - Above Code (Air/Water)	0.21	0.51	1.41	1.95	2%	\$50.49
Outside Air Economizer	0.44	0.86	1.70	1.93	2%	-\$2.03
Circulation Pump with ECM Motor and Advanced Speed Controls	0.45	0.86	1.67	1.89	2%	\$83.24
Circulation Pump with ECM Motor and Advanced Run Hour Controls	0.40	0.79	1.57	1.79	2%	\$64.72
Double-Sided LED Exit Sign	0.18	0.41	1.30	1.72	2%	\$124.93
Large Refrigerator	0.15	0.37	1.32	1.58	1%	\$338.10

^a The average levelized TRC value represents a weighted average across all iterations, including segment and end use. As a result, some permutations of a measure may have a low levelized cost while other permutations have a high levelized cost.

Approximately 72% of 20-year commercial achievable technical potential falls within the first 10 years of the study horizon. Much of the commercial retrofit potential for existing buildings occurs within the first 10 years, largely due to the ramp rates associated with these measures. Additionally, the majority of lighting potential must be acquired prior to July of 2029 to comply with RCW 70A.230.020 and is therefore captured early in the study period.

Figure 4-16 illustrates that the commercial levelized cost distributions for the achievable technical potential are similar to those for the residential sector. However, 14% of the achievable technical potential has costs exceeding \$160 per megawatt-hour. This is primarily due to the high costs associated with HVAC retro-commissioning and weatherization measures, such as thin triple-pane window replacements, which offer large savings opportunities.

Figure 4-16. Commercial Supply Curve – Cumulative Achievable Technical Potential in 2045 by Levelized Cost

City Light's IRP model selected an achievable economic potential for the commercial sector of 82 aMW by 2045. Figure 4-17 shows the cumulative 20-year achievable economic potential for the commercial sector by end-use group. Achievable economic potential for lighting makes up 26% of the commercial achievable economic potential, followed by ventilation (16%) and cooling (15%).

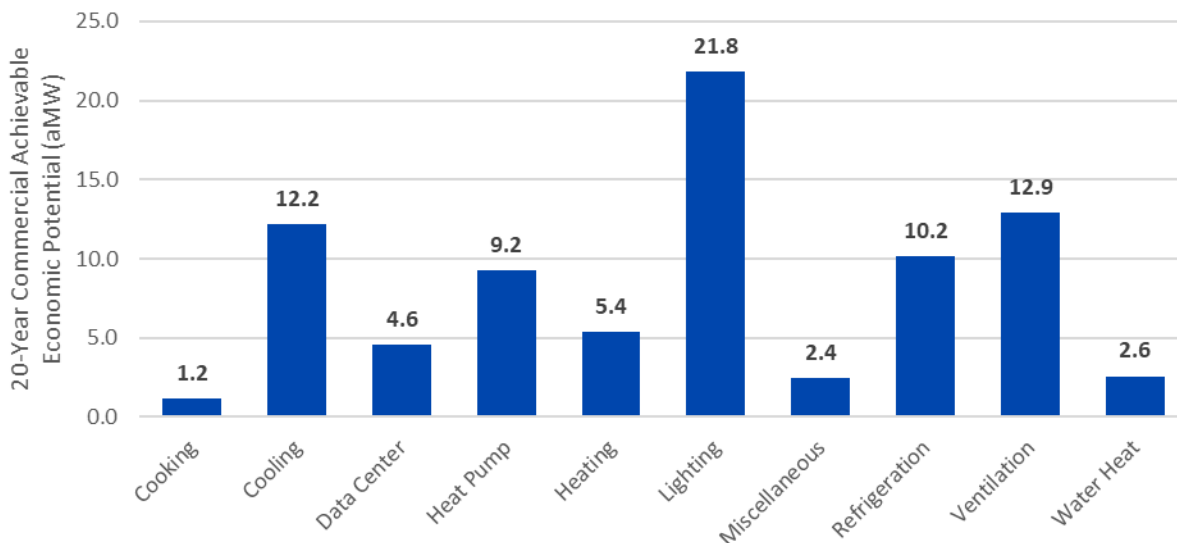
Figure 4-17. Commercial Cumulative Achievable Economic Potential in 2045 by End-Use Group

Table 4-14 lists the 15 highest-saving commercial measures City Light’s IRP model selected. These commercial achievable economic measure permutations have a levelized cost of less than or equal to \$160 per megawatt-hour and make up 44% of the commercial cumulative 20-year achievable economic potential.

Table 4-14. Top-Saving Commercial Measures Selected by IRP Model

Measure Name	Cumulative Achievable Economic Potential (aMW) – Less than or Equal to \$160/MWh				% of Cumulative 20-year Achievable Economic Potential
	2-Year	4-Year	10-Year	20-year	
Building Automation System Upgrades	1.42	2.78	5.52	6.30	8%
Air Source Heat Pump, 240,000 to 759,999 Btu/h, Above Code	0.10	0.29	1.37	3.39	4%
New Replacement Display Case	0.32	0.78	2.79	3.33	4%
HVAC Retro-commissioning	0.68	1.37	2.74	3.12	4%
Thin Triple-Glazed Windows for Large Office with Gas Heating	0.02	0.07	0.77	2.28	3%
ENERGY STAR Server	1.40	1.89	2.14	2.16	3%
Server Virtualization	0.20	0.49	1.76	2.11	3%
Strategic Energy Management	0.02	0.06	0.69	2.04	2%
Chiller - Above Code (Air/Water) Heat Pump Water Heater Less than 55 Gallons - Tier 3	0.21	0.51	1.41	1.95	2%
Outside Air Economizer	0.44	0.86	1.70	1.93	2%
Circulation Pump with ECM Motor and Advanced Run Hour Controls	0.40	0.79	1.57	1.79	2%
Double-Sided LED Exit Sign	0.18	0.41	1.30	1.72	2%
Advanced Air-to-water Heat Pump	0.02	0.09	0.86	1.50	2%
Large Office – Linear Fixture Retrofit: Fluorescent Tube to LED Panel	0.53	0.99	1.17	1.37	2%
Web-Enabled Power Monitoring for Small and Medium Businesses	0.02	0.08	0.77	1.36	2%

4.4. Industrial

Cadmus estimated conservation potential for the industrial sector using the Council’s 2021 Power Plan analysis tool. The conservation potential addressed eight industrial segments in City Light’s service territory based on allocations developed from City Light’s nonresidential database. The assessment identified approximately 7.6 aMW of achievable technical potential by 2045. Table 4-15 shows the cumulative industrial potential by segment in 2045.

Table 4-15. Industrial Cumulative Technical and Achievable Technical Potential by Segment in 2045

Segment	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential
Foundries	42	3	8%	2.8	85%
Frozen Food	2	0	10%	0.1	83%
Miscellaneous Manufacturing	10	1	9%	0.7	84%
Other Food	0.03	0	11%	<0.01	84%
Stone and Glass	25	0	0%	0	N/A
Transportation Equipment	22	3	11%	2.1	82%
Wastewater	9	2	23%	1.8	85%
Water	0.3	0	8%	0.02	85%
Total	109	9	8%	8	84%

Figure 4-18 shows the industrial cumulative achievable technical potential by segment and year. Similar to baseline sales, the foundries segment has the largest share (37%) of 20-year industrial achievable technical potential, amounting to 3 aMW. This is followed by transportation equipment and wastewater, which each account for approximately 2 aMW of the total achievable technical potential.

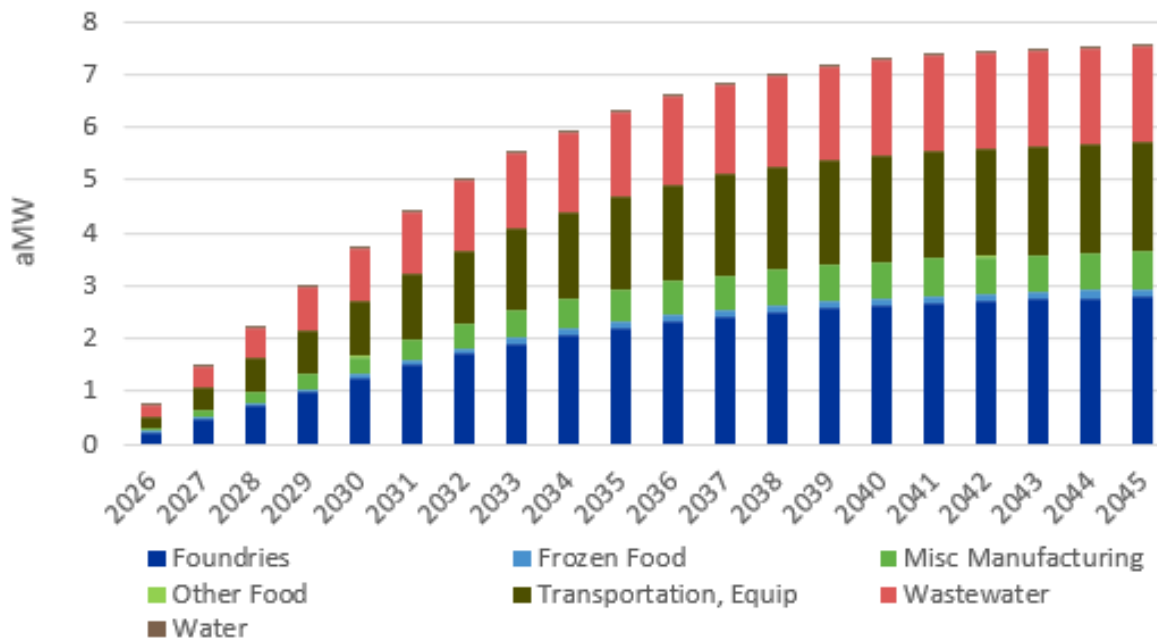
Figure 4-18. Industrial Cumulative Achievable Technical Potential by Segment (2026–2045)

Table 4-16 shows the 20-year potential by industrial end use. The three end uses with the highest industrial achievable technical potential are other, fans, and pumps. The “Other” end-use category includes forklift battery chargers and welder systems, which represent a small portion of the potential, and wastewater and water supply, which represent the majority of potential within the end-use category.

Table 4-16. Industrial Cumulative Technical, Achievable Technical, and Achievable Economic Potential by End Use in 2045

End-Use Category	Baseline Sales (aMW)	20-Year Technical Potential		20-Year Achievable Technical Potential		20-Year Achievable Economic Potential	
		aMW	% of Baseline Sales	aMW	% of Technical Potential	aMW	% of Technical Potential
Fans	7	1.5	21%	1.2	85%	1.2	85%
HVAC	17	0.9	6%	0.8	85%	0.8	85%
Lighting	9	1.3	14%	0.9	73%	0.9	73%
Motors (Other)	14	0.5	4%	0.5	85%	0.5	85%
Other	16	2.2	13%	1.8	85%	1.8	85%
Process Air Compressor	6	0.9	15%	0.8	92%	0.8	92%
Process Electro Chemical	6	0.2	4%	0.2	85%	0.2	85%
Process Heat	17	0.0	0%	0.0	0%	0.0	0%
Process (Other)	2	0.0	0%	0.0	0%	0.0	0%
Process Refrigeration	3	0.1	3%	0.1	85%	0.1	85%
Pumps	12	1.4	12%	1.2	85%	1.2	85%
Total	109	9.0	8%	7.6	84%	7.6	84%

Figure 4-19 and Figure 4-20 show cumulative and incremental achievable technical potential by end use over the 20-year study horizon, respectively.

Figure 4-19. Industrial Cumulative Achievable Technical Potential by End Use (2026–2045)

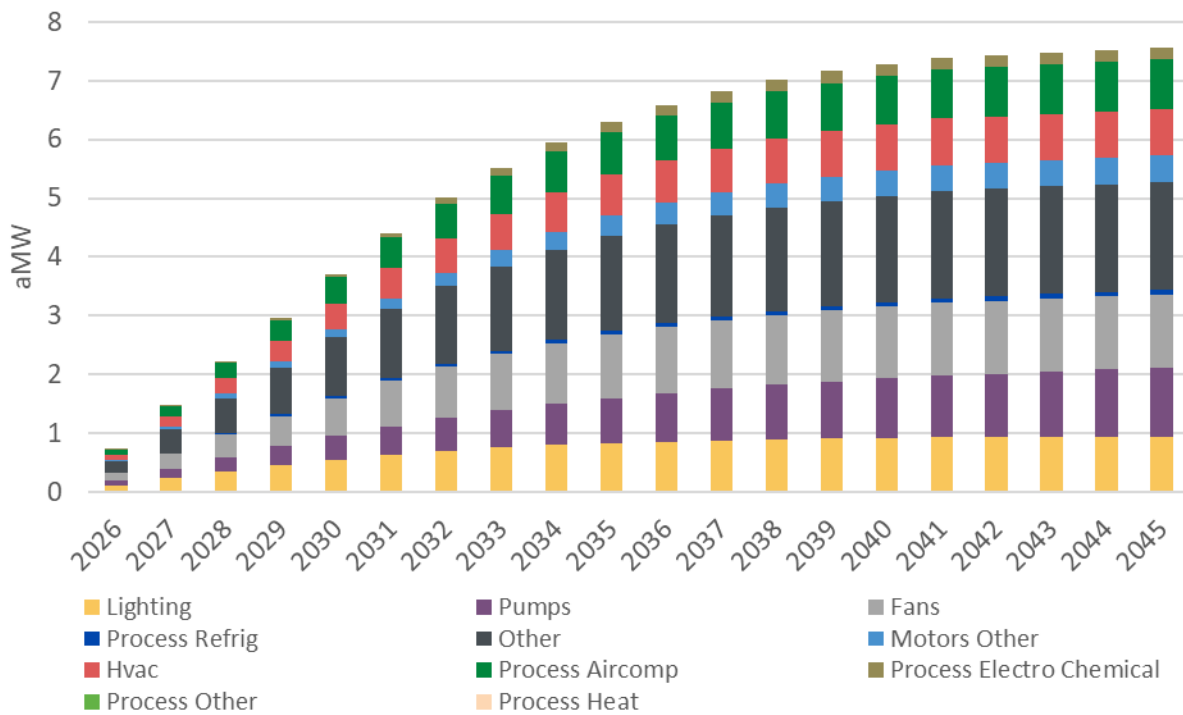


Figure 4-20. Industrial Incremental Achievable Technical Potential by End Use (2026–2045)

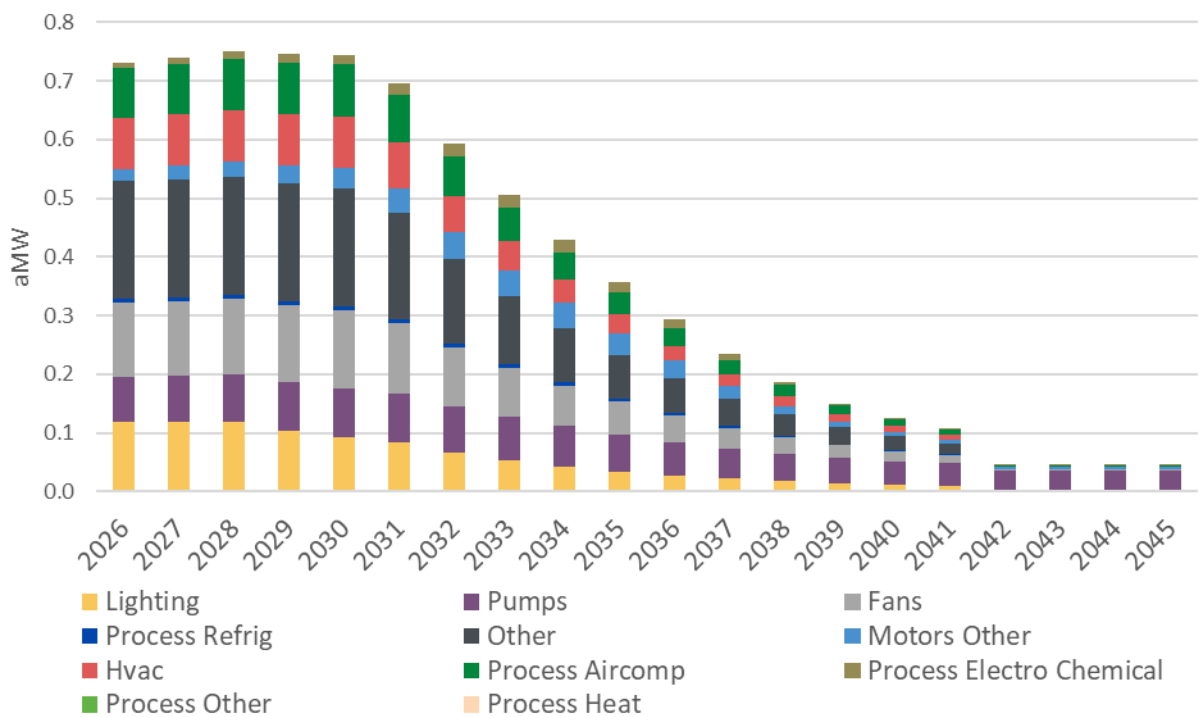


Table 4-17 shows the top-saving industrial measures and their weighted average levelized costs. Collectively, these 15 measures represent 92% of industrial 20-year cumulative achievable technical potential.

Table 4-17. Top-Saving Industrial Measures

Measure Name	Cumulative Achievable Technical Potential (aMW)					Weighted Average Levelized TRC (\$/MWh) ^{a,c}
	2-Year	4-Year	10-Year	20-Year	% of Total (20-Year)	
Wastewater	0.39	0.79	1.58	1.80	24%	\$34.47
Lighting Controls	0.18	0.36	0.72	0.82	11%	\$20.72
HVAC	0.17	0.35	0.70	0.79	11%	\$0.00
Energy Management ^b	0.05	0.13	0.45	0.54	7%	\$6.13
Fan Equipment Upgrade	0.11	0.22	0.45	0.51	7%	\$0.00
Pump Optimization	0.05	0.10	0.24	0.49	6%	\$0.00
Air Compressor Equipment	0.09	0.17	0.34	0.39	5%	\$40.11
Fan Optimization	0.07	0.14	0.29	0.32	4%	\$17.58
Energy Management ^{2b}	0.03	0.05	0.13	0.26	3%	\$27.79
Air Compressor Variable Speed	0.04	0.09	0.18	0.20	3%	\$34.84
Advanced Motors - Material Handling	0.02	0.05	0.17	0.20	3%	\$0.00
Advanced Motors - Material Processing	0.02	0.05	0.17	0.20	3%	\$0.00
Pump Variable Speed Trim	0.04	0.07	0.14	0.16	2%	\$68.25
Pump Variable Speed	0.03	0.07	0.14	0.15	2%	\$0.00
Air Compressor (Large) System Optimization	0.03	0.07	0.13	0.15	2%	\$5.08

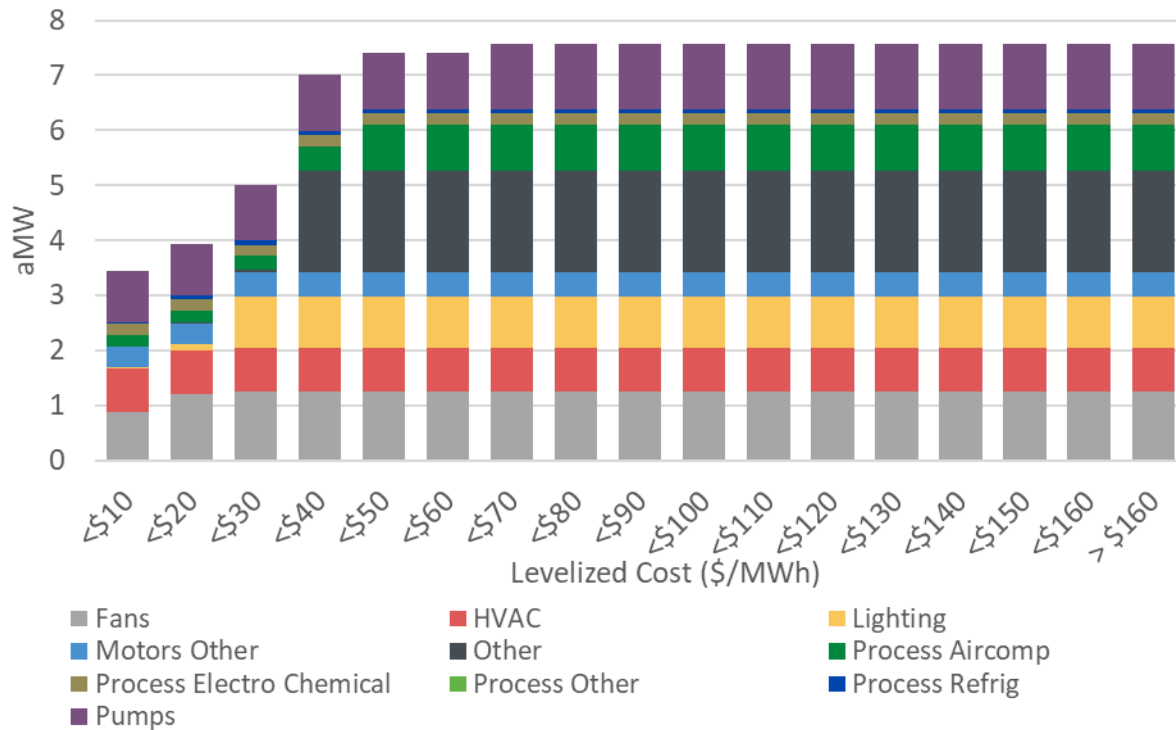
^a The average levelized TRC value represents a weighted average across all iterations, including segment and end use. As a result, some permutations of a measure may have a low levelized cost while other permutations have a high levelized cost.

^b The Council separated the Energy Management measures into two tiers: Level 1 and Level 2. Level 1 represents the standard strategic energy management applied in mostly large industrial facilities. Level 2 represents a share of strategic energy management potential likely found in smaller facilities, which is, therefore, more difficult to achieve. The cost of Level 2 is twice the cost of Level 1 and has half the savings.

^c When net expenses (costs and benefits) are less than zero, the levelized TRC is shown as \$0.00 (per megawatt-hour) and can be considered cost-effective.

Consistent with the Council's approach to the industrial sector, Cadmus modeled all industrial measures as retrofits and did not distinguish between new and existing construction. After applying ramp rates, approximately 83% of 20-year achievable technical potential is realized within the first 10 years.

Industrial measures are generally low cost, so the industrial achievable technical potential by levelized cost distribution does not have the same peak at greater than \$160 per megawatt-hour as that for the residential and commercial sectors. In fact, all 7.6 aMW of industrial potential can be achieved at a levelized cost of less than or equal to \$70 per megawatt-hour. Figure 4-21 shows cumulative achievable technical potential in 2045 for different levelized cost thresholds.

Figure 4-21. Industrial Supply Curve — Cumulative Achievable Technical Potential in 2045 by Levelized Cost

City Light's portfolio modeling selected all industrial measures for inclusion in the achievable economic potential portfolio. Therefore, the 20-year cumulative achievable economic potential for the industrial sector is 7.6 aMW at a levelized cost of less than or equal to \$70 per megawatt-hour. The 15 highest-savings industrial measures the IRP model selected are the same as those reported for achievable technical potential.

5. Comparison to 2024 DSMPA

The 2026 DSMPA focused on final-year cumulative estimates of technical potential and incremental estimates of achievable technical potential. Cadmus defines the final-year cumulative technical potential as the total average megawatt savings that are technically feasible to achieve over the study horizon. For the 2024 DSMPA, that horizon was 2024 through 2045 (22 years), while for the 2026 DSMPA, it is 2024 through 2045 (20 years). The final year of each study aligns with the CETA commitment year for achieving greenhouse gas-free emissions. Overall, the 2026 DSMPA identified lower final-year cumulative technical potential and achievable technical potential compared with the 2024 DSMPA. This is partially due to the shorter study horizon but also because of the incorporation of new data sources, codes and standards, as well as the removal of certain measures, which all decreased the cumulative 2045 potential savings. Furthermore, Cadmus adjusted adoption rates to reflect market activity in the past two years that resulted in lower savings in the earlier years of the study. This chapter presents Cadmus' comparison of technical, achievable technical, and achievable economic potential results from these two assessments and details the reasons for the differences in results. In the subsequent tables, the baseline sales for the residential and commercial sectors in the 2026 DSMPA do not include City Light's EV forecasts. This is consistent with the 2024 DSMPA results, which also did not account for EV conservation measures or sales values.

5.1. Technical Potential Comparison

The 2026 DSMPA identified 245 aMW of technical potential in the final year, compared with 263 aMW in the 2024 DSMPA. The 7% decrease in cumulative final-year technical potential is heavily influenced by the shorter study horizon, new codes and standards, removal of measures with more savings than those added, and updated market and customer characterization data based on the 2022 RB SA. Table 5-1 shows a comparison of cumulative technical potential by sector from the 2024 and 2026 DSMPAs.

Table 5-1. Final Year Cumulative Technical Potential Comparison by Sector

Sector	2026 DSMPA			2024 DSMPA			Percentage Change in Technical Potential
	Baseline Sales—20 Year (aMW)	Technical Potential—20 Year (aMW)	Technical Potential as % of Baseline Sales	Baseline Sales—22 Year (aMW)	Technical Potential—22 Year (aMW)	Technical Potential as % of Baseline Sales	
Residential	439	97	22%	398	95	24%	3%
Commercial	698	138	20%	718	155	22%	-11%
Industrial	109	9	8%	124	13	11%	-31%
Total	1,246	245	20%	1,240	263	21%	-7%

The following sections detail the differences between the 2026 DSMPA and the 2024 DSMPA by sector.

5.1.1. Changes in Residential Technical Potential

The residential sector technical potential increased from 95 aMW in the final year in the 2024 DSMPA to 97 aMW in the 2026 DSMPA, which is a 3% increase. In the 2026 DSMPA, several factors affected the potential in positive or negative ways and resulted in an overall increase. The factors contributing to increasing potential are an increase in certain appliance saturations based on the incorporation of updated data from the 2022 RBSA, the addition of window heat pumps, and the decrease in the study timeline. In addition, the 2026 DSMPA includes the EV end use and associated potential, unlike the 2024 DSMPA. However, the technical potential due to EVs accounts for only 0.2 aMW in the 2026 DSMPA. Table 5-2 provides a comparison of baseline sales and technical potential and explains the reasons for the differences.

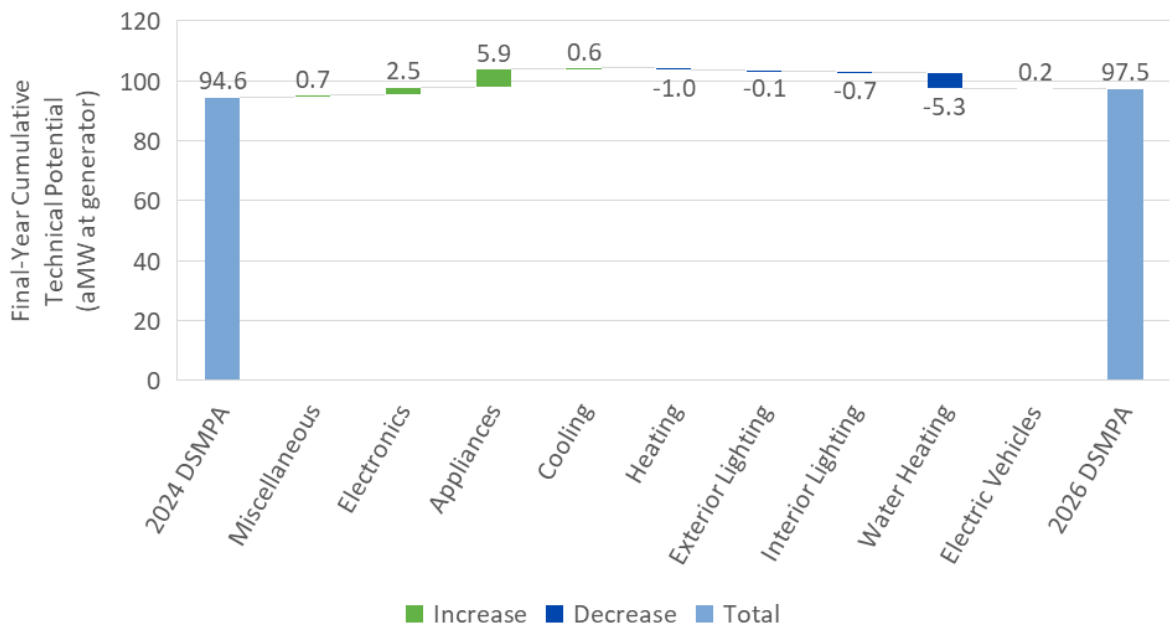
Table 5-2. Residential Cumulative Technical Potential Comparison

Component	2026 DSMPA 20-Year (aMW)	2024 DSMPA 22-Year (aMW)	Percentage Change	Reason for Change
Baseline Sales (aMW)	439	398	10%	Updated sales forecast from City Light with adjustments for building electrification, climate change, and codes and standards. The 2026 DSMPA sales forecast did include electrification in the base forecast and did not include adjustments for COVID-19 (as was done in the 2024 DSMPA).
Technical Potential (aMW)	97	95	3%	Increase in appliance saturations for high savings measures, such as heat pump dryers and TVs, and the addition of window heat pumps
Technical Potential as % of Baseline	22%	24%	N/A	

Note: This comparison does not include EVs

Figure 5-1 shows a comparison of residential technical potential by end-use group. The blue bars indicate all end-use groups that had a decrease in technical potential from the 2024 DSMPA to the 2026 DSMPA. The green bars indicate all end-use groups that had an increase in technical potential. The most significant increase, nearly 6 aMW, comes from the appliances end-use group, which is driven by increased saturations and RTF measure assumptions for appliances such as dryers. Other relatively smaller increases in potential come from electronics due to updated RBSA saturation data. The increase in EV technical potential is due to the addition of EV chargers as a measure. Water heating technical potential decreased by 5.3 aMW from the 2024 DSMPA to the 2026 DSMPA following the incorporation of the 2029 heat pump water heater federal standard.

Figure 5-1. Change in Cumulative Residential Technical Potential by End-Use Group



5.1.2. Changes in Commercial Technical Potential

Several factors resulted in the 2026 DSMPA identifying lower final-year cumulative technical potential than the 2024 DSMPA. These factors include the new commercial load forecast being 3% lower in the 2024 DSMPA and the incorporation of new codes and standards that preclude City Light from capturing potential through efficiency programs for lighting and water heating (Table 5-3).

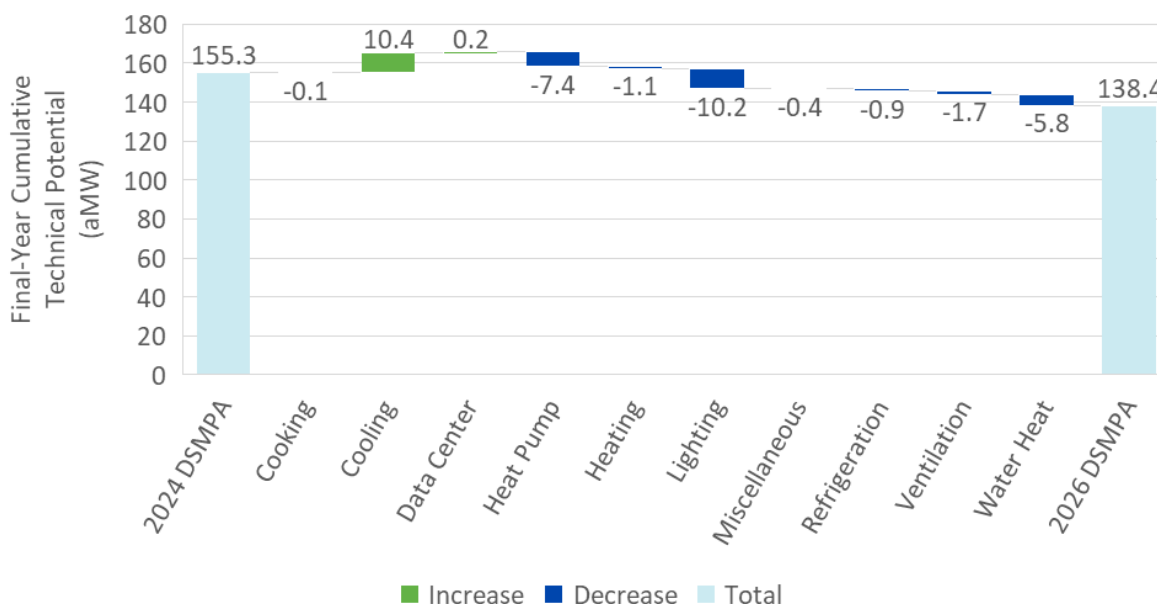
Table 5-3. Commercial Cumulative Technical Potential Comparison

Component	2026 DSMPA 20-Year (aMW)	2024 DSMPA 22-Year (aMW)	Percentage Change	Reason for Change
Baseline Sales (aMW)	698	718	-3%	Updated sales forecast from City Light with adjustments for building electrification, climate change, and codes and standards. The 2026 DSMPA sales forecast did not include adjustments for COVID-19 (as was done in the 2024 DSMPA).
Technical Potential (aMW)	138	155	-11%	Decreased lighting and water heating potential as a result of 2029 Washington codes and federal standards, respectively.
Technical Potential as % of Baseline	20%	22%	N/A	

Figure 5-2 illustrates the change in the commercial technical potential between the 2024 DSMPA and 2026 DSMPA by end-use group. End-use groups with a decrease in technical potential in the 2026 DSMPA include lighting and water heating. The reduction in lighting technical potential reflects the impact of a

halt in LED savings beginning in July 2029, when RCW 70A.230.020 takes effect and prohibits fluorescent lighting sales. Savings for lighting measures after 2029 will primarily come from lighting controls. The decrease in water heating potential is due to the 2029 federal standard for heat pump water heaters. Additionally, updates to the RTF's chiller characterization result in higher cooling savings compared to the 2024 DSMPA.

Figure 5-2. Change in Commercial Cumulative Technical Potential by End-Use Group



5.1.3. Changes in Industrial Technical Potential

For the industrial sector, Cadmus did not incorporate any new measures into the 2026 DSMPA based on the 2021 Power Plan; as a result, there were no major changes in the industrial sector's potential compared with the 2022 CPA. The 2026 DSMPA, like the 2024 DSMPA, accounts for building electrification, which increases the opportunity for additional energy efficiency potential.

5.2. Achievable Technical Potential and Ramp Rate Comparison

The 2026 DSMPA shows a lower cumulative achievable technical potential compared to the 2024 DSMPA. This reduction is due to the final-year cumulative achievable technical potential being a subset of technical potential and influenced by the same factors that lowered technical potential. Specifically, the new commercial load forecast being 3% lower in the 2024 DSMPA, and the incorporation of new codes and standards preclude City Light from capturing potential through efficiency programs for lighting and water heating in the latter years of the study period.

The following figures show incremental achievable technical potential from the 2026 DSMPA (Figure 5-3) and the 2024 DSMPA (Figure 5-4). While the 2045 cumulative potential is 11% lower in the 2026 DSMPA compared to the 2024 DSMPA, the near-term potential is more consistent between the two studies. Specifically, the cumulative achievable technical potential in the first two years of the 2026 DSMPA is only

5% lower than that in the first two years of the 2024 DSMPA. This slight decrease is a result of the abbreviated study period and the incorporation of adjusted ramp rates from the 2021 Power Plan.

Figure 5-3. Incremental Achievable Technical Potential – 2026 DSMPA

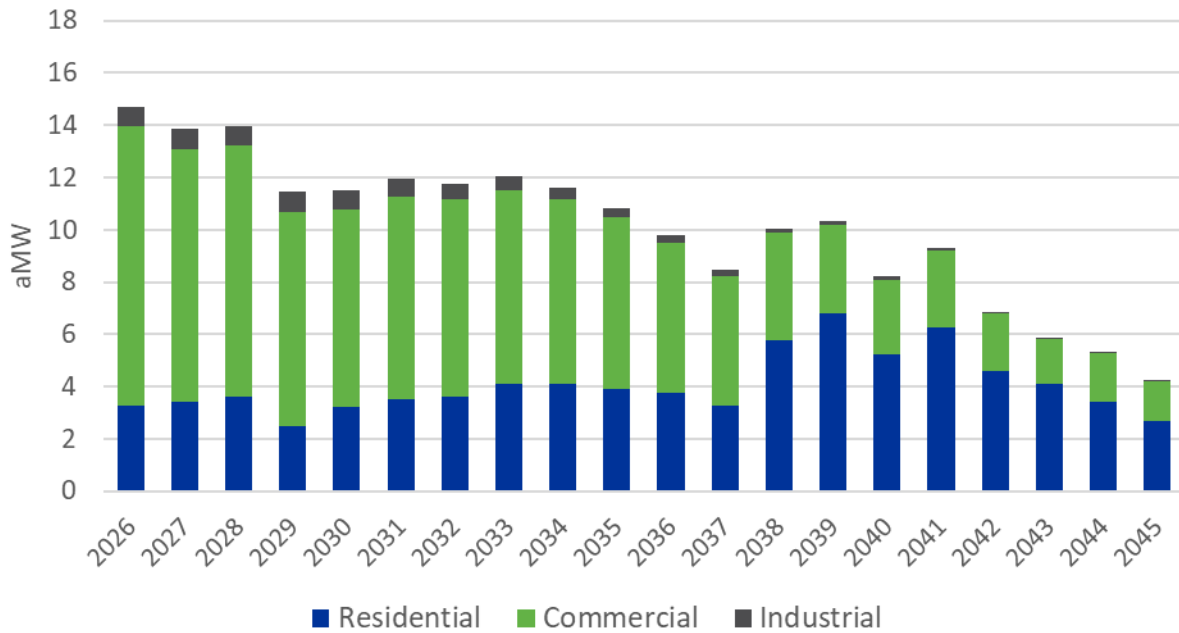
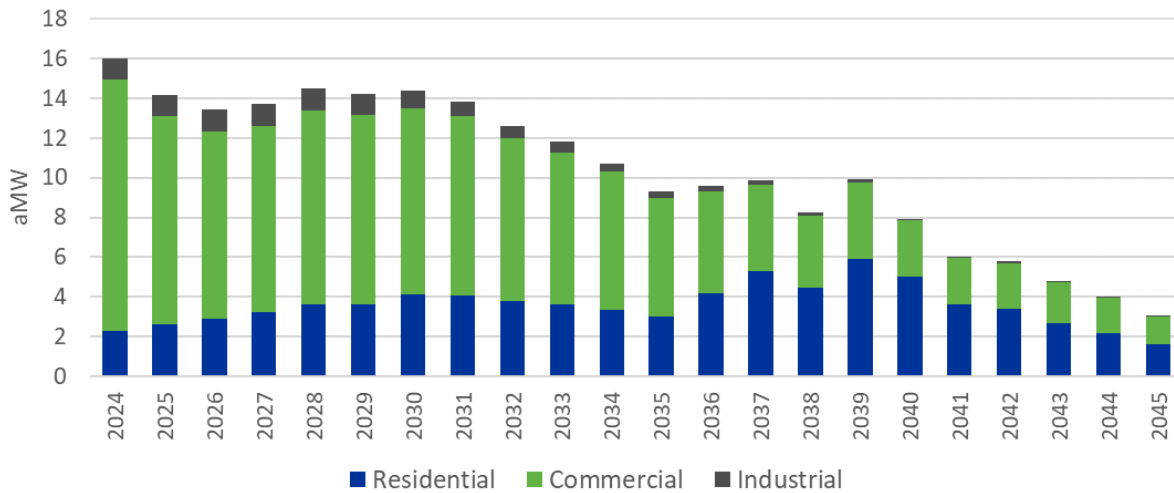


Figure 5-4. Incremental Achievable Technical Potential – 2024 DSMPA



Note that the figures above show the impact of codes and standards that begin taking effect in 2029 and reduce the potential for the remainder of the study period. The two-year achievable potential in the 2024 DSMPA is equal to approximately 13% of the total 22-year achievable technical potential, whereas the

two-year achievable potential in the 2026 DSMPA is equal to approximately 14% of the total 20-year achievable technical potential.

5.3. IRP Achievable Economic Potential Comparison

Both the 2024 DSMPA and 2026 DSMPA used the IRP optimization modeling to determine how much energy efficiency, as a resource, is cost-effective compared with other competing resources over the study horizon. For the 2026 DSMPA, City Light updated the IRP optimization modeling process using a new tool. Details of this modeling framework can be found in *Long-Term Resource Planning Model for DSMPA* section. Table 5-4 shows a comparison of the achievable (economic) potential between the two studies. While both the 2024 DSMPA and the 2026 DSMPA load forecasts accounted for climate change and increased building electrification loads, the 2026 DSMPA did not include adjustments for COVID-19 that were incorporated in the 2024 DSMPA load forecast. The two studies also have different demand-side potentials and associated costs.

Table 5-4. Economic Cumulative Potential Comparison

Sector	2026 DSMPA			2024 DSMPA		
	Baseline Sales – 20-Year (aMW)	Achievable Economic Potential – 20-Year (aMW)	Achievable Economic Potential as % of Baseline Sales	Baseline Sales – 22-Year (aMW)	Achievable Economic Potential – 22-Year (aMW)	Achievable Economic Potential as % of Baseline Sales
Residential	439	13	3%	398	50	13
Commercial	698	82	12%	718	72	10
Industrial	109	8	7%	124	10	8
Total	1,246	103	8%	1,240	132	11%

The 2026 DSMPA 20-year residential sector achievable economic potential increased by nearly 75% compared with the 2024 DSMPA. The 2024 DSMPA selected nearly all measures, mostly due to their effectiveness at reducing winter loads, whereas the 2026 DSMPA selected fewer residential conservation measures than the 2024 DSMPA. The residential conservation measures consisted of only measures that were at or below \$30 per MWh. The 2026 residential excluded many of the high-savings measures that were included in the previous DSMPA.

Conversely, the IRP model, GridPath, selected more higher cost measures in the commercial sector than in the 2024 DSMPA, which led to a 15% increase in 20-year achievable economic potential. This was possible due to the change in the way City Light bundled the measures for inclusion as candidate resources in GridPath, as described in *Section 7.6.1* below. GridPath identified higher cost commercial sector measures as having higher value to the utility due to the alignment in timing of when those measures provided savings and when City Light had the greatest energy needs, as compared to lower cost measures. The 2026 DSMPA industrial sector's achievable economic potential is very similar to that of the 2024 DSMPA, with a slight decrease as a result of lower achievable technical potential.

6. Detailed Methodology

Cadmus' general methodology can be best described as a combined top-down/bottom-up approach. We began the top-down component with City Light's most current load forecast. Cadmus adjusted this forecast for building energy codes, equipment efficiency standards, building electrification, and climate change that was not already accounted for through the forecast. We then disaggregated this load forecast into its constituent customer sectors, customer segments, and end-use components and projected the results out 20 years. We also calibrated the base year (2025) to City Light's sector-load forecasts.

For the bottom-up component, Cadmus considered the potential technical impacts of various ECMs and practices on each end use. We then estimated impacts based on engineering calculations, accounting for fuel shares, current market saturations, technical feasibility, and costs. The technical potential presents an alternative forecast that reflects the technical impacts of specific energy efficiency measures. We then determined the achievable technical potential by applying ramp rates and achievability percentages to technical potential. This chapter describes the CPA methodology in detail.

6.1. Developing Baseline Forecasts

City Light's sector-level sales and customer forecasts provided the basis for assessing energy efficiency potential. Prior to estimating potential, Cadmus disaggregated sector-level load forecasts by customer segment (business, dwelling, or facility types), building vintage (existing structures and new construction), and end uses (all applicable end uses in each customer sector and segment).

To develop the baseline forecasts, Cadmus first identified the appropriate customer segments in each sector. For these designations, we used categories from the study's key data sources—primarily City Light's nonresidential customer database for the commercial and industrial sectors and the U.S. Census Bureau's American Community Survey for the residential sector. We then mapped the appropriate end uses to relevant customer segments.

Next, Cadmus produced the baseline end-use load forecasts by integrating current and forecasted customer counts with key market and equipment usage data.

For the commercial and residential sectors, we calculated the total baseline annual consumption for each end use in each customer segment using the following equation:

$$EUSE_{ij} = \sum_e ACCTS_i \times UPA_i \times SAT_{ij} \times FSH_{ij} \times ESH_{ije} \times EUI_{ije}$$

Where:

- $EUSE_{ij}$ = total electric energy consumption for end-use j in customer segment i
- $ACCTS_i$ = number of accounts/customers in customer segment i
- UPA_i = units per account in customer segment i (UPA_i generally equals the average square feet per customer in commercial segments, and equals 1.0 in residential dwellings, assessed at the whole-home level)

SAT_{ij}	=	share of customers in customer segment i with end-use j
FSH_{ij}	=	share of end-use j of customer segment i served by electricity
ESH_{ije}	=	market share of efficiency level in equipment for customer segment i and end use j
EUI_{ije}	=	end-use intensity: electric energy consumption per unit (per square foot for commercial) for the electric equipment configuration ije

For each sector, we determined the total annual electric consumption as the sum of $EUSE_{ij}$ across the end uses and customer segments.

Consistent with other conservation potential studies and commensurate with industrial UEC data (which varied widely in quality), we allocated the industrial sector's loads to end uses in various segments based on data available from the U.S. EIA.⁴³

6.1.1. Derivation of End-Use Consumption

End-use electric energy consumption estimates by segment, end use, and efficiency level (EUI_{ije}) provided one of the most important components in developing a baseline forecast. In the residential sector, Cadmus used estimates of UEC, representing annual electric energy consumption associated with an end use and represented by a specific type of equipment, such as a central AC or heat pump. We derived the basis for the UEC values from savings in the latest RTF workbooks, the Council's 2021 Power Plan workbooks, and savings analyses to calculate accurate consumption wherever possible for all efficiency levels of end-use technology. When Council workbooks did not exist for certain end uses, we used results from NEEA's 2022 RBSA or City Light's oversample, or we conducted other research (for example, U.S. Department of Energy, ENERGY STAR).

For the commercial sector, Cadmus treated consumption estimates as end-use intensities that represented annual electric energy consumption per square foot served. To develop the end-use intensities, Cadmus developed electric energy intensities (total kilowatt-hours per building square foot) based on NEEA's 2019 CBSA IV. We then benchmarked these electric energy intensities against various other data sources, including the CBSA III, historical forecasted and potential study data from City Light, and historical end-use intensities developed by the Council and NEEA.

To distribute the electric energy intensities to end-use intensities, Cadmus used assumptions specific to each building segment and end use and applied the following methods:

Lighting. To determine lighting end-use, Cadmus analyzed the CBSA IV's lighting power density (lighting wattage per square foot). We then multiplied this by the Council's interior lighting hours of use by building type. After calculating lighting end-use intensity, we subtracted this portion of the load from the

⁴³ U.S. Department of Energy, Energy Information Administration. 2010. *Manufacturing Energy Consumption Survey*.

total CBSA electric energy intensities (for example, to estimate non-lighting intensities). **Non-lighting.** To distribute the remaining non-lighting CBSA electric energy intensities into end uses, Cadmus used 2012 CBECS microdata to calculate percentages of end-use intensities across various end-use groups by building types as defined by the Council. We then used the CBSA fuel shares and end-use saturations to adjust the distributions of CBECS end-use intensities to better represent City Light’s commercial service territory. These finalized CBECS end-use intensities—adjusted with CBSA values where possible—were the basis for most of the end-use intensities in the commercial sector.

- **Computers and servers.** Cadmus developed energy intensities by building type for computers (desktops and laptops) and servers end uses. Using the CBECS data, Cadmus determined the number of units per square foot and then multiplied this by the consumption per unit.
- **University.** The CBSA IV data lacked information on university building type, and the schools building type represented only K–12, as designated by the Council. To develop a more accurate electric energy intensity specific to universities, Cadmus calculated a ratio between the CBECS’s university and school K–12 building types. We then used the CBSA school K–12 lighting power density and applied the Council’s university lighting hours of use. Finally, Cadmus verified the reasonableness of the result by benchmarking the university lighting end-use intensity developed for City Light against the ratio of CBECS university and school K–12 lighting loads.
- **Retail.** Low CBSA respondent counts and matching varying definitions of building type in Council and CBECS data caused concern, especially for the large and extra-large retail building types. To address this, Cadmus combined the large and extra-large retail building types for the CBSA electric energy intensities and lighting power density. Similarly, Cadmus combined small and medium retail building types because the counts and definitions were insufficient.

For the industrial sector, end-use electric energy consumption represented the total annual industry consumption by end use, as allocated by the secondary data described above.

6.1.2. City Light Forecast Adjustments

Cadmus worked with the City Light load forecast team to adjust the baseline forecast to account for climate change, equipment standards, building energy codes, and building electrification.

To account for the impacts of climate change, Cadmus used Multivariate Adaptive Constructed Analogs (MACA) scalar-adjusted heating degree days and cooling degree days data provided by City Light. Cadmus applied annual heating and cooling degree days adjustment ratios (called climate change adjustment factors) to cooling, heating, and heat pump UECs for the residential and commercial sectors. Table 6-1 presents the climate change adjustment factors for the heating, cooling, and heat pump end uses for each year.

Table 6-1. Climate Change Adjustment Factors for Residential and Commercial Heating, Cooling, and Heat Pump End Uses for Each Year

Year	Residential and Commercial Heating End-Use Multiplier	Residential and Commercial Cooling End-Use Multiplier	Residential Heat Pump End-Use Multiplier	Average Commercial Heat Pump End-Use Multiplier ^a
2025	0.99	1.02	0.99	1.00
2026	0.98	1.03	0.99	1.00
2027	0.98	1.05	0.98	1.01
2028	0.98	1.06	0.98	1.02
2029	0.97	1.09	0.97	1.02
2030	0.96	1.11	0.97	1.03
2031	0.96	1.12	0.97	1.03
2032	0.96	1.15	0.97	1.05
2033	0.95	1.17	0.96	1.05
2034	0.95	1.20	0.95	1.06
2035	0.94	1.22	0.95	1.06
2036	0.94	1.24	0.95	1.07
2037	0.93	1.27	0.94	1.08
2038	0.92	1.29	0.94	1.09
2039	0.92	1.31	0.93	1.10
2040	0.92	1.34	0.94	1.11
2041	0.91	1.36	0.93	1.11
2042	0.90	1.39	0.92	1.12
2043	0.90	1.41	0.92	1.13
2044	0.90	1.44	0.92	1.14
2045	0.89	1.46	0.91	1.14

^a Since the heat pump heating/cooling ratio of heat pumps varies by type of commercial building, commercial heat pump consumptions vary by building type. The numbers presented in this table are average multipliers.

For each end use, Cadmus multiplied the base year (2025) UEC by the multipliers shown in the table above to calculate the climate change-adjusted UEC. For example, for cooling, the climate adjustment factor was 1.46 in 2045, and therefore, we multiplied the base year (2025) cooling consumption by 146% in 2045.

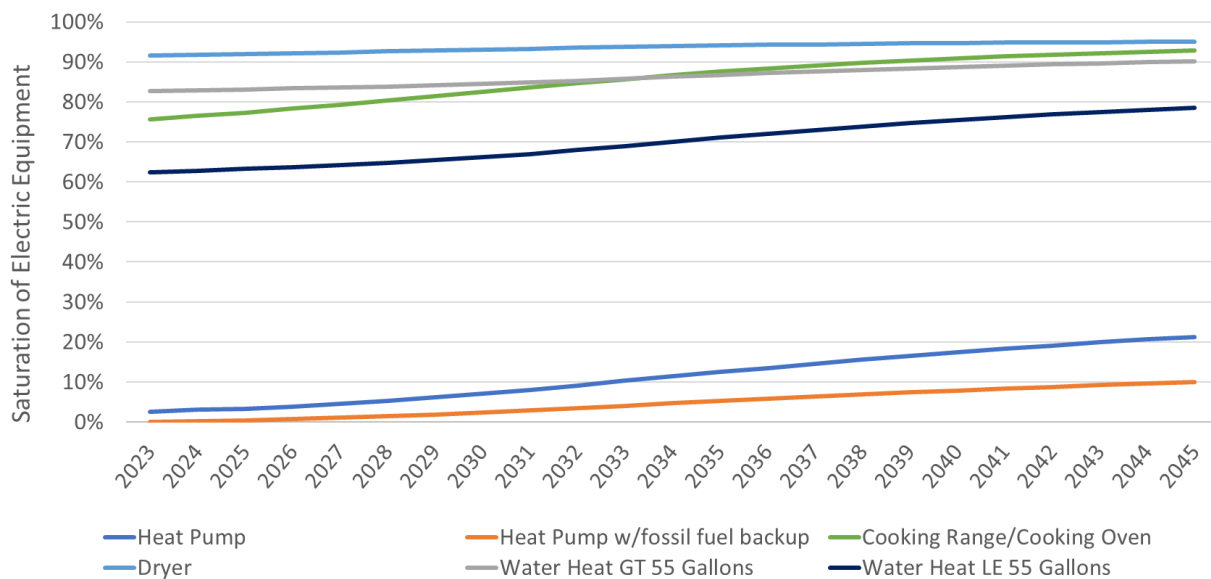
For the commercial sector, heat pump consumptions vary by building type because the heat pump heating/cooling ratio of heat pumps varies by the type of commercial building. On average, we multiplied the base year commercial heat pump consumptions by 114% in 2045. For the residential sector, based on observed increases in the adoption of heat pumps and AC spurred by the 2021 heat dome, Cadmus assumed that future cooling saturation (heat pump plus AC) would reach 70% by 2045. Cadmus implemented this assumption by linearly interpolating between base year (2025) saturation and final year (2045) saturation.

Cadmus further tailored the load forecast embedded with climate change adjustments for the impacts of city and state codes and federal standards that were on the books as of November 2024. We describe the treatment of codes and standards in the 2026 DSMPA in the *Incorporating Federal Standards and State and Local Codes and Policies* section.

Furthermore, Cadmus made adjustments for building electrification based on a 2022 Electric Power Research Institute (EPRI) study.⁴⁴ For this 2026 DSMPA, Cadmus applied the EPRI study's moderate market advancement scenario data to account for the impacts of electrification. This scenario is the closest to a "business-as-usual" scenario, where electric transportation adoption continues to grow based on past trajectories. Additionally, the electrification of buildings and industry is driven by customer choice as well as relative economics. The building stock and end-use saturation assumptions of the moderate market advancement scenario are generally consistent with City Light's 2024 load forecast and the 2024 CPA.

Based on moderate market advancement scenario data, Cadmus increased the fuel shares and equipment saturations for the residential sector. This involved converting cooking, dryer, and water heater fuel to electric, which led to an increase in heat pump equipment saturations as non-electric space heating equipment was converted to heat pumps. Figure 6-1 illustrates the change in saturation of electric equipment for cooking, water heating, and HVAC heat pumps with and without fossil fuel backup over the study horizon for single-family houses (existing construction).

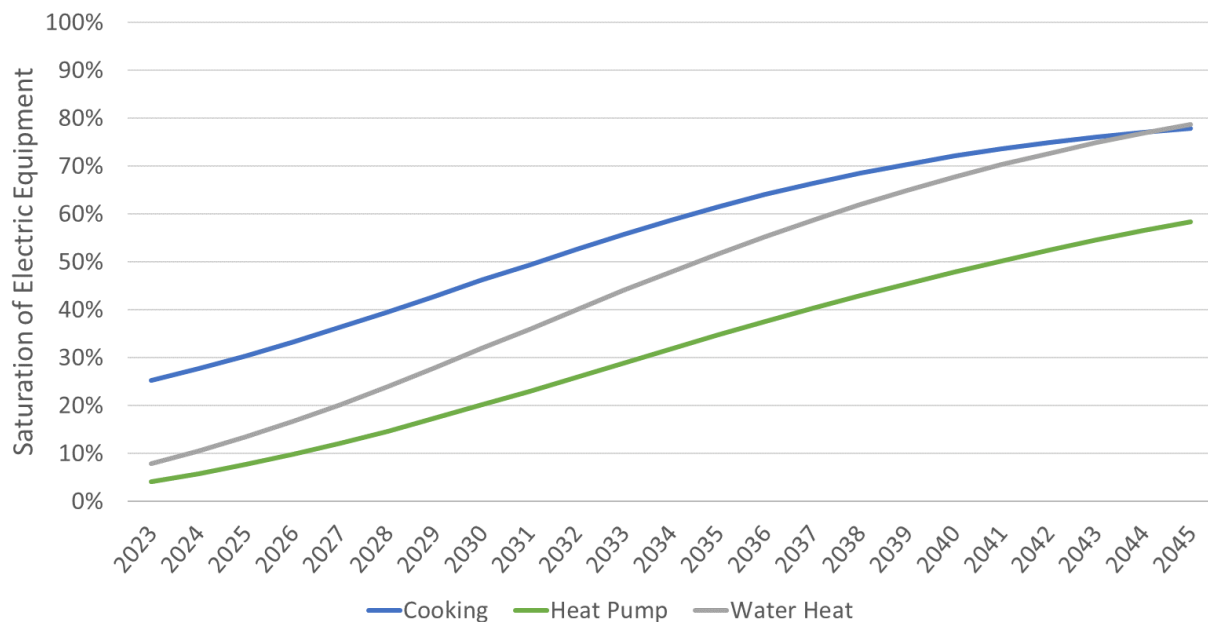
Figure 6-1. Cooking, Water Heating, Heat Pump, and Heat Pump with Fossil Fuel Backup Saturations in Single-Family Houses (Existing Construction)



⁴⁴ Electric Power Research Institute. January 2022. *Seattle City Light Electrification Assessment, Final Report*.

Similarly, for the commercial sector, the saturation of cooking, water heater, and HVAC heat pump electric equipment increased. As an example, Figure 6-2 illustrates the change in cooking, water heating, and heat pump saturation of electric equipment over the study horizon for restaurants (existing construction).

Figure 6-2. Cooking, Water Heating, and Heat Pump Saturations in Restaurants (Existing Construction)



In this study, all these adjustments occur naturally and do not represent energy efficiency potential.

6.1.3. Measure Characterization

Because technical potential relies on an alternative forecast that includes installations of all technically feasible measures, Cadmus chose the most robust set of appropriate ECMs. We developed a comprehensive database of technical and market data for these ECMs, applicable to all end uses across various market segments.

The database included the following measures:

- All measures in the Council's 2021 Power Plan conservation supply curve workbooks.
- Active UES measures from the RTF, updated to the latest RTF data for 10 high-impact measures.
- Technologies of interest to City Light and included in the 2026 DMSPA, including window heat pump, HVAC sizing, multifamily packaged terminal heat pump, heat pump with gas back-up, and EV chargers.
- Commercial technologies of interest to City Light and included in the 2022 CPA, such as airflow management (data center), building automation system upgrades, computer room AC, cooling towers, economizer (outside air), economizer (water side), freezer (lab grade), heat pump (water

source), heat recovery improvements, HVAC retro-commissioning, LED sign lighting, server (virtualization), and water heater controls.

- Emerging technology measures that are near commercialization or that may become cost-effective within the next five years and can help bridge the gap in declining potential from current technologies:

Residential sector

- Induction cooktop, 2-element
- Induction cooktop, 4-element
- Vinyl siding, insulated
- Structural insulated panels panel framing
- Networked automation controls
- Smart electrical panel
- Smart outlets
- Indirect evaporative cooler, 2.5 tons
- Indirect evaporative cooler, 1.0 tons
- Clothes dryer with heat recovery
- Advanced air-to-water heat pump

Commercial sector

- Induction cooktop
- Commercial/industrial carbon dioxide heat pumps
- Central heat pump water heater with load controls
- Aerofoil outfitted shelving
- Advanced air-to-water heat pump
- Web-enabled power monitoring for small- and medium-sized businesses
- Food truck, efficient electric cooking
- Low global warming potential freezers and refrigerator cases

Cadmus only included the Council and RTF measures applicable to sectors and market segments in City Light's service territory. For example, we did not characterize measures for the agriculture sector or the residential manufactured home segment, as these sectors are a small fraction of City Light's customer mix. We added measures if the RTF workbooks were not included in the Council's 2021 Power Plan or if the RTF workbooks have been updated since the Council's 2021 Power Plan workbooks.

Cadmus classified the electric energy efficiency measures applicable to City Light's service territories into two categories:

- **High-efficiency equipment (lost opportunity) measures** directly affecting end-use equipment (such as high-efficiency domestic water heaters), which follow normal replacement patterns based on expected lifetimes.
- **Non-equipment (retrofit) measures** affecting UEC without replacing end-use equipment (such as insulation). Such measures do not include timing constraints from equipment turnover—except for new construction—and should be considered discretionary, given that savings can be acquired at any point over the planning horizon.

Each measure type had several relevant inputs:

- **Equipment and non-equipment measures**
 - Energy savings: average annual savings attributable to installing the measure, in absolute and/or percentage terms

- Equipment cost: full or incremental, depending on the nature of the measure and the application
- Labor cost: the expense of installing the measure, accounting for differences in labor rates by region and other variables
- Technical feasibility: the percentage of buildings where customers can install this measure, accounting for physical constraints
- Measure life: the expected life of the measure equipment
- **Non-equipment measures only**
 - Percentage incomplete: the percentage of buildings where customers have not installed the measure but where its installation is technically feasible; this equals 1.0 minus the measure's current saturation
 - Measure competition: for mutually exclusive measures, accounting for the percentage of each measure likely installed to avoid double-counting savings
 - Measure interaction: accounting for end-use interactions (for example, a decrease in lighting power density causing heating loads to increase)

Among various sources, Cadmus primarily derived these inputs from four resources:

NEEA CBSA IV, including Puget Sound Energy's oversample, where applicable⁴⁵

- NEEA RBSA III with City Light's oversample
- The Council's 2021 Power Plan conservation supply curve workbooks
- The RTF UES measure workbooks

Cadmus reviewed a variety of sources for many equipment and non-equipment inputs. To determine which source to use for this study, Cadmus developed a hierarchy for costs and savings (also shown in Table 6-2):

1. RTF UES measure workbooks, where a more recent version is available than what the Council's 2021 Power Plan used
2. The Council's 2021 Power Plan conservation supply curve workbooks
3. Secondary sources, such as American Council for an Energy-Efficient Economy work papers, Simple Energy and Enthalpy Model building simulations, or various technical reference manuals

Cadmus also developed a hierarchy to determine the source for various applicability factors, such as the technical feasibility and the percentage incomplete. This hierarchy differed slightly for residential and commercial measure lists.

⁴⁵ City Light did not have an oversample conducted as part of CBSA IV. To better represent the Seattle area (compared with regional values), Cadmus incorporated Puget Sound Energy's CBSA oversample data.

RBSA Methodology

For residential estimates, Cadmus relied on City Light sites in NEEA's RBSA III (2022). If City Light's subset did not have at least five observations to use for analysis, then we based the analysis on the RBSA Urban Washington building subset. For instances where the data from the 2022 RBSA was not sufficient, Cadmus used historical RBSA II values for City Light's oversample. If we could not calculate applicability factors from NEEA's RBSA, we used applicability factors from the Council's 2021 Power Plan conservation supply curve workbooks. The resulting estimates reflect averages for the Northwest region and were not necessarily specific to City Light's service territory.

CBSA Methodology

For the commercial sector, Cadmus first used the subset of City Light's customers, including Puget Sound Energy's oversample, in NEEA's CBSA IV (2019).

The original CBSA IV weights were constructed to represent the Council's regional building counts. To represent City Light's building counts, Cadmus re-analyzed the CBSA weights based on City Light's totals of building square footage for specific building types. We only included the CBSA data and Puget Sound Energy's oversample in the Council's defined climate heating zone 1. While reviewing whether to only include urban sites in these analyses, Cadmus found that for the heating zone 1 subset, 92% of the buildings were urban, and 95% of the building square footage was urban. Due to the limited rural impact for all sites in the heating zone 1 subset, Cadmus did not make any further adjustments in the overall analysis.

After finalizing City Light's CBSA weights to match City Light's total building square footage by building type, we used these weights for all CBSA analyses in this study. Where respondent counts were sufficient for specific CBSA analyses, we used building type names as defined by the Council to produce more granular results.

If NEEA's CBSA did not have sufficient data to estimate a particular value (for example, applicability factors) for a given measure, Cadmus relied on factors from the Council's 2021 Power Plan conservation supply curve workbooks.

Measure Data Sources

Table 6-2 lists the primary sources referenced in the study by data input.

Table 6-2. Key Measure Data Sources

Data	Residential Source	Commercial Source	Industrial Source
Energy Savings	City Light's recent evaluation data for ductless heat pumps and heat pump water heaters; 2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; Cadmus research
Equipment and Labor Costs	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; Cadmus research
Measure Life	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; Cadmus research
Technical Feasibility	NEEA RBSA; Cadmus research	NEEA CBSA; Cadmus research	Cadmus research; Council industrial data
Percentage Incomplete	NEEA RBSA; City Lights program accomplishments; Cadmus research	NEEA CBSA; City Lights program accomplishments; Cadmus research	Cadmus research; Council industrial data
Measure Interaction	2021 Power Plan supply curve workbooks; RTF; Cadmus research	2021 Power Plan supply curve workbooks; RTF; Cadmus research	Cadmus research

6.1.4. Incorporating Federal Standards and State and Local Codes and Policies

Cadmus' assessment accounted for changes in codes, standards, and policies over the planning horizon. These changes not only affected customers' energy-consumption patterns and behaviors, but they also revealed which energy efficiency measures would continue to produce savings over minimum requirements. We captured current efficiency requirements, including those enacted but not yet in effect as of November 2024.

Cadmus reviewed all local and state codes, federal standards, and local and state policy initiatives that could impact this potential study and that were on the books as of November 2024. For the residential and commercial sectors, the potential study considered the local energy codes (2021 Seattle Energy Code with amendments, 2021 Washington State Energy Code, and 2021 RCW) as well as current and pending federal standards. We also assessed if, how, and when Washington State and Seattle City legislation impacted the potential study. This legislation included Seattle's Energy Benchmarking Program (SMC 22.920), Washington's Clean Buildings bill (E3S House Bill 1257), House Bill 1589 and Initiative 2066, and the CETA (194-40-330).

Cadmus reviewed many codes, standards, and policy initiatives:

Federal standards. All technology standards for heating and cooling equipment, lighting, water heating, motors, and other appliances not covered in or superseded by state and local codes.⁴⁶

2021 Seattle Energy Code. The code requires all new commercial buildings and large multifamily buildings above three stories to use the most efficient technologies for space and water heating, which are *de facto* electric heat pumps in most cases. These latest updates to the energy code also apply to HVAC and water heating equipment replacements in existing buildings; however, there are several exemptions such that the impact of this provision on load forecasts is projected to be negligible (regarding existing buildings). All other code provisions took effect on March 15, 2024.⁴⁷

2021 Washington State Energy Code. The code provides requirements for residential and commercial new construction buildings, except in cases where the 2021 Seattle Energy Code supersedes the Washington code. The effective date was March 15, 2024.⁴⁸

Seattle's Energy Benchmarking Program (SMC 22.920). This program requires owners of commercial and multifamily buildings (20,000 square feet or larger) to track and report energy performance annually to the City of Seattle. Though in effect since 2016, full enforcement of the program began on January 1, 2021.⁴⁹

2021 RCW 19.260.040. These codes set minimum efficiency standards for specific types of products, including computers, monitors, showerheads, faucets, residential ventilation fans, general service lamps, air compressors, uninterruptible power supplies, water coolers, portable ACs, high color rendering index fluorescent lamps, commercial dishwashers, steam cookers, hot food holding cabinets, and fryers. The effective dates varied by product, with the 2021 RCW signed on July 28, 2019.⁵⁰

Clean Buildings Bill (E3S House Bill 1257). The law requires the Washington State Department of Commerce to develop and implement an energy performance standard for the state's existing buildings, especially large commercial buildings (based on building square feet), and provide incentives to

⁴⁶ Office of Energy Efficiency & Renewable Energy. Accessed November 2024. "Standards and Test Procedures." <https://www.energy.gov/eere/buildings/standards-and-test-procedures>

⁴⁷ City of Seattle, Department of Construction & Inspections. February 1, 2021. "Energy Code - Overview" [https://www.seattle.gov/sdci/codes/codes-we-enforce-\(a-z\)/energy-code](https://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/energy-code)

⁴⁸ Washington State Building Code Council. Accessed November 2024. <https://sbcc.wa.gov/state-codes-regulations-guidelines/state-building-code/energy-code>

⁴⁹ City of Seattle, Office of Sustainability and Environment. Accessed June 2021. "Energy Benchmarking." [https://www.seattle.gov/environment/climate-change/buildings-and-energy/energy-benchmarking#:~:text=Seattle's%20Energy%20Benchmarking%20Program%20\(SMC,to%20the%20City%20of%20Seattle.&text=Compare%20your%20building's%20energy%20performance,started%20saving%20energy%20and%20money.](https://www.seattle.gov/environment/climate-change/buildings-and-energy/energy-benchmarking#:~:text=Seattle's%20Energy%20Benchmarking%20Program%20(SMC,to%20the%20City%20of%20Seattle.&text=Compare%20your%20building's%20energy%20performance,started%20saving%20energy%20and%20money.)

⁵⁰ Washington State Legislature. Revised Code of Washington. December 7, 2020. "RCW 19.260.050 Limit on Sale or Installation of Products Required to Meet or Exceed Standards in RCW 19.260.040." <https://app.leg.wa.gov/rcw/default.aspx?cite=19.260.050>

encourage efficiency improvements. The effective date was July 28, 2019, with the building compliance schedule set to begin on June 1, 2026. Early adopter incentive applications began in July 2021.⁵¹

CETA (194-40-330). This act applies to all electric utilities serving retail customers in Washington and sets specific milestones to reach the required 100% clean electricity supply. The first milestone was in 2022, when each utility was required to have prepared and published a CEIP with its own four-year targets for energy efficiency, demand response, and renewable energy.⁵²

Shoreline’s Ordinance No. 948.⁵³ This ordinance promotes energy efficiency and the decarbonization of commercial and large multifamily buildings, like the Seattle Building Energy Code.

House Bill 1589 and Initiative 2066. House Bill 1589 requires Puget Sound Energy to accelerate the transition away from natural gas, impacting City Light’s overlapping service territory. In November of 2024, voters of Initiative 2066 overturned parts of the bill. Then, in March of 2025, Washington’s Superior Court found Initiative 2066 unconstitutional. This initiative continues to be challenged in the courts. While this DSPMA did not directly model the impact of this house bill, in part due to the uncertainty during the development of this study, City Light does capture electrification within the load forecast.

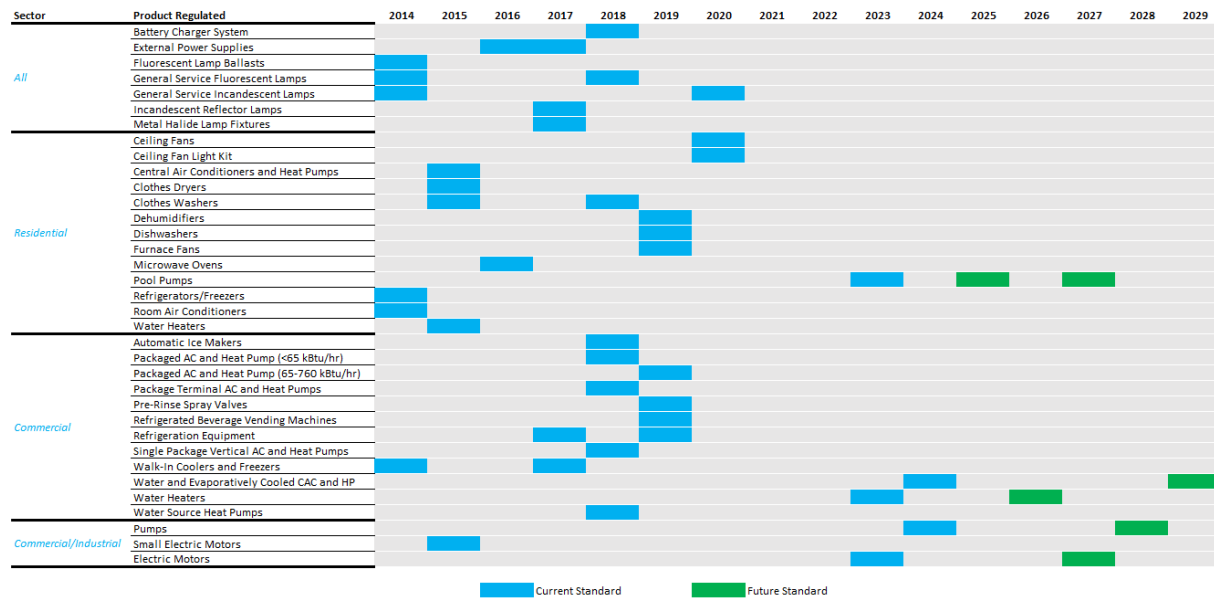
Applying Federal Standards

Cadmus explicitly accounted for federal codes and standards within the DSMPA modeling. For the residential sector, these included appliance, HVAC, and water heating standards. For the commercial sector, these included appliance, HVAC, lighting, motor, and water heating standards. Figure 6-3 provides a comprehensive list of equipment standards considered in the study. Bars indicate the year in which a new equipment standard was or will be enacted. It is important to note that Cadmus did not attempt to predict how energy standards might change in the future. At the time we finalized the measure list for this study, there were no federal appliance standards pending after 2023. Cadmus completed this study’s assessment of the federal standard in November 2024. In February 2025, the current administration has put a hold on or is potentially rolling back energy efficiency standards. This study kept the known standards in place and did not assume any rollbacks in efficiency standards.

⁵¹ Washington State Department of Commerce. Accessed June 2023. “Clean Buildings.” <https://www.commerce.wa.gov/growing-the-economy/energy/buildings/>

⁵² Washington State Department of Commerce. Accessed June 2023. “Clean Energy Transformation Act (CETA).” <https://www.commerce.wa.gov/growing-the-economy/energy/ceta/>

⁵³ Ordinance No. 948 “Ordinance of the City of Shoreline, Washington Amending Chapter 15.05, Construction and Building Codes, of the Shoreline Municipal Code, to Provide Amendments to the Washington State Energy Code – Commercial, as Adopted by the State of Washington” took effect on July 1, 2022.

Figure 6-3. Equipment Standards Considered (as of Nov. 2024)

Treatment of State and Local Codes and Initiatives

Cadmus identified each type of code (local and state) and initiative (local and state) that would impact measures in the DSMPA. Cadmus sorted each impact into three main categories:

Measure applicability or savings adjustment. Cadmus adjusted measure characterization inputs to account for local and state energy codes (2021 Washington State Energy Code and 2021 RCW 19.27A.160). Where appropriate, we revised measure applicability, savings, and costs to reflect the impact of the code. For example, we removed measures entirely or over time (applicability set to zero) if code baselines were more efficient than the baseline data found in the RTF or Council workbooks (such as for showerheads, fryers, steam cookers, and new construction homes). Notably, the Washington State Energy Code (RCW 19.27A.160) states “...residential and nonresidential construction permitted under the 2031 state energy code must achieve a 70% reduction in annual net energy consumption, using the adopted 2006 Washington state energy code as a baseline.” For this purpose, Cadmus adjusted the new construction load forecast periodically so that by 2031, the new construction load would meet the requirement. RCW 19.27A.160 also mandates that the Council report its progress every three years, so we incrementally adjusted the code every three years until 2031 to account for future state codes that meet the requirement of RCW 19.27A.160. Cadmus did not predict exactly how each end use would be impacted; rather, we opted for a general reduction to building energy use for new construction across all end uses. Much of the net energy reduction is expected to be achieved through electrification of thermal end uses, an expectation which this study does not fully reflect. That said, we partially capture this expectation by modeling increasing heat pump saturation (and decreasing fossil fuel saturations) in accordance with the moderate electrification scenario from the 2022 EPRI study. We also accounted for these adjustments in the baseline forecast, as mentioned in the *City Light Forecast Adjustments* section.

Equipment saturation adjustment. Cadmus adjusted equipment saturations by year to account for the 2021 Seattle Energy Code (this code largely matches the 2021 Washington State Energy Code). At the time of this study, Cadmus used the draft 2021 Seattle Energy Code version (viewed September/October of 2024). In addition, Cadmus adjusted the space heating equipment saturations for new construction, commercial, and large multifamily buildings to align with this code (such as for ductless heat pumps and air-source heat pumps). We also accounted for these adjustments in the baseline forecast, as mentioned in the *City Light Forecast Adjustments* section.

Adoption ramp rate adjustment. Cadmus reviewed and adjusted the prescribed ramp rates in the Council's 2021 Power Plan, where necessary, to better reflect the expected adoption timelines of impacted measure groups. Changing the ramp rates (in most cases) will not impact the cumulative potential; rather, it changes the timing of when the potential occurs. For measures currently included in City Light's residential programs, Cadmus increased the Council's assigned ramp rates by one tier—for example, adjusting a slow ramp to a medium ramp—to reflect more aggressive uptake..

In the commercial sector, Cadmus worked with City Light to determine the appropriate Council ramp rates so that City Light's program measures better align with historical program acquisition as well as with local and state policies promoting energy efficiency. The intent behind shifting the ramp rates is to account for initiatives and policies that promote energy efficiency through customer incentives, penalties, or feedback on energy use, such as Seattle's Energy Benchmarking Program, Building Energy Performance Standards (BEPS), and the WA State Clean Building Performance Standard (CBPS).⁵⁴ City Light can claim energy impacts through these initiatives and policies; therefore, removing measures or adjusting baselines may not be appropriate within the context of the DSMPA. These initiatives and policies encourage existing customers to conserve energy, thereby accelerating the rate of adoption of energy efficiency through energy reduction requirements.

In the 2026 DSMPA, Cadmus updated the ramp rate acceleration adjustments (from the prior DSMPA) to account for limited historical programmatic adoption related to these initiatives, the uncertainty in the commercial market, and the uncertainty around compliance with these initiatives.⁵⁵ To make these updates, Cadmus made targeted adjustments based on the commercial building type. For instance, rather than adjusting ramp rates across the entire sector, Cadmus worked with City Light to align adjustments with program activity based on building type. As a result, we increased ramp rates for data center and lodging measures using the same tiered approach as in the residential sector. Ramp rates for other commercial building types remained aligned with the original 2021 Power Plan assignments. In some cases, no adjustment was needed (already accounted for in the existing data). For example, the Council's 2021 Power Plan workbooks and Cadmus' equipment characterization may have already accounted for the federal standards and, in some cases, the 2021 RCW. Therefore, Cadmus did not make additional adjustments to those measures.

⁵⁴ This includes CETA in setting statewide goals that require City Light to establish performance targets.

⁵⁵ The 2024 DSMPA assumed 100% compliance with commercial building codes and standards impacting City Light's service area.

Additional Codes and Standards Considerations

Cadmus identified three considerations around codes and standards that impact the characterization of this potential study.

First, starting with residential lighting, Cadmus reviewed the codes and standards as well as assessed the current saturation of LED lighting in the residential sector. The Council's 2021 Power Plan and RTF residential lighting workbooks account for the Washington State Code requirement (House Bill 1444) of the Energy Independence and Security Act backstop provision. Originally adopted from the federal standard, the Act's backstop provision requires higher-efficiency technologies (45 lumens per watt or better). The savings in the most recent RTF lighting workbook use an LED baseline (for Washington only).

After reviewing the Council and RTF workbooks, Cadmus concluded that the 2026 DSMPA should use an LED baseline. Currently, there are no lighting technologies on the market that meet the 45 lumens per watt requirement other than CFLs or LEDs. Furthermore, major manufacturers have phased out the production of CFLs. The market is rapidly adopting LEDs (according to the RBSA saturations and Council and RTF projections), which are becoming the *de facto* baseline. Considering that LEDs are the only viable technology that meets the Washington code, Cadmus used LEDs as the baseline for all non-highly impacted applications, but for highly impacted homes, assumed a small amount of available potential remaining. This adjustment to the lighting loads is effectively accounted for in City Light's baseline forecast and the 2026 DSMPA.

Secondly, the 2021 Washington State Energy Code includes new construction prescriptive and performance path requirement options for both residential and commercial. The DSMPA characterizes efficiency improvements on a measure basis that aligns with the prescriptive path. The performance path includes the HVAC total system performance ratio requirement, defined as the ratio of the sum of a building's annual heating and cooling load compared with the sum of the annual carbon emissions from the energy consumption of the building's HVAC systems. The variability in the HVAC total system performance ratio from building to building cannot be easily captured in the DSMPA; so, for this study, Cadmus followed the prescriptive requirements in the 2021 Washington State Energy Code.

As part of the 2026 DSMPA, Cadmus developed a codes and standards forecast for City Light to understand the impact of naturally occurring savings derived from codes and standards over the study timeframe. To quantify expected savings from naturally occurring potential, Cadmus produced two baseline forecasts—one with naturally occurring potential embedded into the forecast, and one without. Our approach essentially turned off how we model turnover and changes in codes and standards to determine an alternative forecast without naturally occurring savings. The net difference between these two forecasts results in the naturally occurring potential.

Our analysis accounts for naturally occurring conservation in two ways:

- Cadmus assumes gradual increases in efficiency due to retiring older equipment in existing buildings and homes and replacing them with units meeting or exceeding minimum standards at the time of replacement (e.g., stock turnover). For example, the existing single-family residential building construction stock includes several central air conditioning units that do not meet

current minimum federal efficiency standards. The baseline forecast assumes gradual replacement with units that meet those standards.

- Cadmus accounts for pending improvements to equipment efficiency standards that will take effect during the planning horizon. As well as accounting for future changes in state and local codes for new construction buildings.⁵⁶
 - **Federal standards.** All technology standards for heating and cooling equipment, lighting, water heating, motors, and other appliances not covered in or superseded by state and local codes. These federal standards include 2028 cooking range, 2026 Room AC, 2028 dryer, 2029 freezer and refrigerator, and 2029 heat pump water heater standards.
 - **2021 Seattle Energy Code (SEC).** The code regulates the energy-use features of new commercial and large multifamily buildings above three stories, including building envelope, heating and cooling, water heating, lighting, metering, plug load controls, transformers and motors.
 - **2021 Washington State Energy Code (WSEC).** The code provides requirements for residential and commercial new construction buildings, except in cases where the 2021 Seattle Energy Code supersedes the Washington code.⁵⁷ Tightening new construction codes over time through 2031 (RCW 19.27A.160) impacts the load forecast as a reduction in new construction load forecast.
 - **Shoreline’s Ordinance 948.** This ordinance promotes energy efficiency and the decarbonization of commercial and large multifamily buildings like the Seattle Building Energy Code.

To produce a codes and standards forecast, Cadmus developed an alignment between the load forecast and WSEC (RCW 19.27A.160) which requires “... residential and nonresidential construction permitted under the 2031 state energy code achieve a 70% reduction in annual net energy consumption, using the adopted 2006 Washington state energy code as a baseline.” Cadmus adjusted the new construction load forecast annually so that by 2031 the new construction load meets the requirement. According to RCW 19.27A.160, “The Council shall report its progress ... every three years...”.⁵⁸ Since the length of code cycle is three years, Cadmus changed the magnitude of impact for every three years until 2031 accounting for future state codes that meet the requirement of RCW 19.27A.160.

Additionally, Cadmus provided alignment between the load forecast and 2021 SEC over WSEC, Cadmus used the information from “Seattle Energy Code Savings and Attribution Analysis” report prepared for City

⁵⁶ City/State Initiatives such as the Seattle’s Energy Benchmarking program, the Clean Buildings bill, and CETA are not considered energy codes as utilities can still claim savings but will inherently speed up the rate of the adoption of energy efficiency through energy reduction requirements.

⁵⁷ Washington State Building Code Council, <https://sbcc.wa.gov/>

⁵⁸ The Council referred to in RCW 19.27A.160 is the Washington State Building Code Council.

Light by Ecotopia and A2 Efficiency and adjusted the equipment saturations in new construction multifamily mid-rise and multifamily high-rise buildings.

6.1.5. Adapting Measures from the RTF and 2021 Power Plan

To ensure consistency with methodologies employed by the Council and to fulfill requirements of WAC 194-37-070, Cadmus relied on ECM workbooks developed by the RTF and the Council to estimate measure savings, costs, and interactions. In adapting these ECMs for this study, we adhered to two principles:

Deemed ECM savings in RTF or Council workbooks must be preserved: City Light relies on deemed savings estimates provided by the Bonneville Power Administration (BPA) that largely remain consistent with savings in RTF workbooks in demonstrating compliance with I-937 targets. Therefore, Cadmus sought to preserve these deemed savings in the potential study to avoid possible inconsistencies among estimates of potential, targets, and reported savings.

Use inputs specific to City Light’s service territory: Some Council and RTF workbooks relied on regional estimates of saturations, equipment characteristics, and building characteristics derived from the RBSA and CBSA. Cadmus updated regional inputs with estimates calculated from City Light’s oversample of CBSA and RBSA or from estimates affecting the broader Puget Sound area. This approach preserved consistency with Council methodologies while incorporating Seattle-specific data.

Cadmus’ approach to adapting the Council’s and RTF’s workbooks varied by sector, as described in the following sections.

Residential and Commercial

Cadmus reviewed each residential Council workbook and extracted savings, costs, and measure lives for inclusion in this study. We largely used applicability factors (such as the current saturation of an ECM) from City Light’s oversample of RBSA, adjusting them for City Light’s program accomplishments. If we could not develop a City Light–specific applicability factor from the RBSA, we used the Council’s regional value.

In addition to extracting key measure characteristics, Cadmus identified each measure as an equipment replacement measure or a retrofit measure. There are two key distinctions between these two types of measures:

Equipment replacement (i.e., lost opportunity): We calculated savings for equipment replacement measures as the difference between measure consumption and baseline consumption. For instance, for the heat pump water heater measure, Cadmus estimated the baseline consumption of an average market water heater and used the Council’s deemed savings to calculate the consumption for a heat pump water heater. This approach preserved the deemed savings in the Council’s workbooks.

Retrofit (i.e., discretionary): We calculated savings for retrofit measures in percentage terms relative to the baseline UEC but reflected the Council’s and RTF’s deemed values. For instance, if the Council’s deemed savings were 1,000 kWh per home for a given retrofit measure and Cadmus estimated the baseline consumption for the applicable end use as 10,000 kWh, relative savings for the measure were

10%. We did not apply relative savings from the Council’s workbooks to baseline UEC because doing so would lead to per-unit estimates that differed from Council and RTF values.

Cadmus also accounted for interactive effects presented in Council and RTF workbooks. For instance, the Council estimated water heating, heating, and cooling savings for residential heat pump water heaters, with the heating and cooling savings as the interactive savings. Because the installation of a heat pump water heater represents a single installation, Cadmus employed a stock accounting model, which combined interactive and primary end-use effects into one savings estimate. Though we recognize that this approach could lead to overstating or understating savings in an end use, in aggregate—across end-uses—savings matched the Council’s deemed values.

Cadmus generally followed the same approach with the commercial sector; however, because of the mixture of lighting measures considered in the Council’s 2021 Power Plan, we chose to model all commercial lighting measures as retrofits and none as equipment replacements. Savings and costs for these measures reflected this decision.

Industrial

Cadmus adapted measures from the Council’s *Industrial_Tool_2021P_v08* and *IND_AllMeasures_2021P_V8* workbooks for inclusion in this study for four key industrial measure inputs:

- Measure savings (expressed as end-use percentage savings)
- Measure costs (expressed in dollars per kilowatt-hour saved)
- Measure lifetimes (expressed in years)
- Measure applicability (percentage)

Cadmus mapped each Council industry type to industries found in City Light’s service territory: these included foundries, miscellaneous manufacturing, stone and glass, transportation equipment manufacturing, other food, frozen food, water, and wastewater. We identified applicable end uses using the Council’s assumed distribution of UEC in each industry. Table 6-3 shows the distribution of end-use consumption and the list of industries considered in this study.

Table 6-3. Distribution of End Use Consumption by Segment

Segment	Process Air Comp	Lighting	Fans	Pumps	Motors Other	Process Other	Process Heat	HVAC	Other	Process Electro-Chemical	Process Refrigeration
Foundries	7%	9%	10%	18%	15%	0%	21%	9%	5%	6%	0%
Frozen Food	4%	8%	4%	4%	12%	0%	4%	7%	1%	3%	53%
Misc. Manufacturing	7%	11%	7%	10%	16%	0%	11%	17%	9%	6%	6%
Other Food	12%	4%	2%	8%	11%	0%	0%	9%	8%	2%	44%
Transportation Equipment	6%	20%	6%	8%	11%	0%	0%	28%	7%	14%	0%
Wastewater	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Water	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%
Stone and Glass	8%	5%	7%	13%	21%	6%	20%	6%	3%	2%	8%

To incorporate broader secondary data, Cadmus aggregated some Council end uses into broader end uses. Table 6-4 shows the mapping of Council end uses to Cadmus end uses.

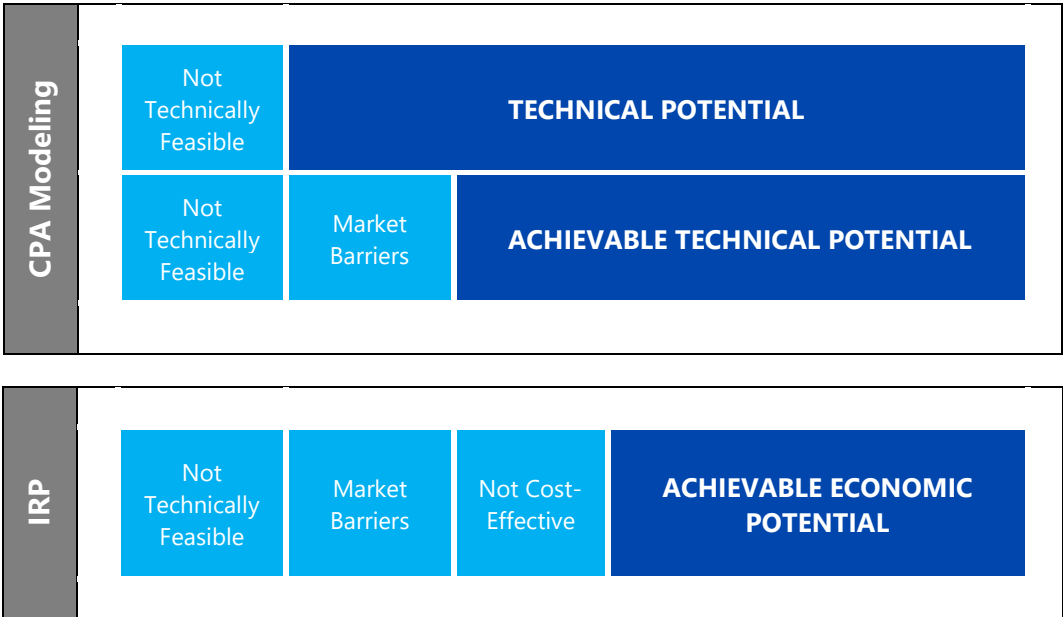
Table 6-4. Council and Cadmus End Uses

Council End Use	Cadmus End Use
Pumps	Pumps
Fans and Blowers	Fans
Compressed Air	Process Air Compressor
Material Handling	Process Electrochemical
Material Processing	Motors Other
Low Temp Refer	Process Refrigeration
Med Temp Refer	Process Refrigeration
Pollution Control	Other
Other Motors	Motors Other
Drying and Curing	Process Heat
Heat Treating	Process Heat
Heating	Process Heat
Melting and Casting	Process Heat
HVAC	HVAC
Lighting	Lighting
Other	Other

6.2. Estimating Conservation Potential

As discussed, Cadmus estimated two types of conservation potential, and City Light determined a third potential—achievable economic—through the IRP’s optimization modeling, as shown in Figure 6-4.

Figure 6-4. Types of Conservation Potential



Technical potential is the total amount of energy efficiency that could be achieved within City Light’s service territory, assuming that all feasible resource opportunities can be captured regardless of cost and market barriers, such as customer willingness to adopt. The potential is only limited by physical and operational constraints.

Achievable technical potential is the portion of technical potential assumed to be achievable during the study’s forecast, regardless of the acquisition mechanism. For example, savings may be acquired through utility programs, improved codes and standards, and market transformation. The achievable technical potential considers market barriers such as customer awareness, willingness to adopt measures, and historical program participation. However, it is not constrained by cost-effectiveness considerations.

Achievable economic potential is the portion of achievable technical potential determined to be cost-effective by the IRP’s optimization modeling, in which either bundles or individual energy efficiency measures are selected based on cost, savings, and timing. The cumulative potential for these selected bundles constitutes achievable economic potential.

The following sections describe Cadmus’ approach to estimating technical and achievable technical potential as well as to developing the conservation IRP inputs. The last section of this chapter explains the approach City Light used to estimate achievable economic potential.

6.2.1. Technical Potential

Technical potential includes all technically feasible ECMs, regardless of costs or market barriers and is divided into two classes: discretionary (retrofit) and lost opportunity (new construction and replacement of equipment on burnout).

Another important aspect in assessing technical potential is, wherever possible, to assume installations of the highest-efficiency equipment that is commercially available. For example, this study examined central air conditioners of varying efficiencies in residential applications, including SEER 20 and SEER 18 air conditioners. In assessing technical potential, Cadmus assumed that, as equipment fails or new homes are built, customers will install SEER 20 air conditioners wherever technically feasible, regardless of cost. Where applicable, we assumed SEER 18 would be installed in homes where the SEER 20 equipment was not feasible. Cadmus treated competing non-equipment measures in the same way, assuming installation of the highest-saving measures where technically feasible.

In estimating technical potential, it is inappropriate to merely sum up savings from individual measure installations. Significant interactive effects can result from the installation of complementary measures. For example, upgrading a heat pump in a home where insulation measures have already been installed can produce less savings than upgrades in an uninsulated home. Cadmus' analysis of technical potential accounts for two types of interactions:

Interactions between equipment and non-equipment measures: As equipment burns out, technical potential assumes it will be replaced with higher-efficiency equipment, reducing average consumption across all customers. Reduced consumption causes non-equipment measures to save less than they would if the equipment had remained at a constant average efficiency. Similarly, savings realized by replacing equipment decrease upon installation of non-equipment measures.

Interactions between non-equipment measures: Two non-equipment measures applying to the same end use may not affect each other's savings. For example, installing a low-flow showerhead does not affect savings realized from installing a faucet aerator. Insulating hot water pipes, however, causes the water heater to operate more efficiently, thus reducing savings from the water heater. Cadmus accounted for such interactions by stacking interactive measures, iteratively reducing baseline consumption as measures were installed, thus lowering savings from subsequent measures.

Although, theoretically, all retrofit opportunities in existing construction—often called discretionary resources—could be acquired in the study's first year, this would skew the potential for equipment measures and provide an inaccurate picture of measure-level potential. Therefore, Cadmus assumed that these opportunities would be realized in equal annual amounts over the 20-year planning horizon. By applying this assumption, natural equipment turnover rates, and other adjustments described above, we could estimate the annual incremental and cumulative potential by sector, segment, construction vintage, end use, and measure.

To estimate technical potential, Cadmus drew upon best-practice research methods and standard utility industry analytic techniques. Such techniques remained consistent with the conceptual approaches and methodologies used by other planning entities (such as the Council in developing regional energy efficiency potential) and remained consistent with methods used in City Light's previous potential assessments.

6.2.2. Achievable Technical Potential

The achievable technical potential summarized in this report is a subset of the technical potential that accounts for market barriers such as customer awareness, market or infrastructure readiness, and product availability. However, the achievable technical potential does not account for certain real-world constraints that can affect program implementation. These can include factors such as contractor and workforce limitations, behavioral inertia, or the influence of media or policy signals. Because the impacts of these barriers can be challenging to predict and quantify, they are not explicitly considered in the analysis.

To refine the technical potential into achievable technical potential, Cadmus followed the Council's approach and employed two factors:

Maximum achievability factors that represent the maximum proportion of technical potential that can be acquired over the study horizon.

Ramp rates that are annual percentage values representing the proportion of cumulative 20-year technical potential that can be acquired in a given year (discretionary measures) or the proportion of technical annual potential that can be acquired in a given year (lost opportunity measures).

Achievable technical potential combines technical potential and both the maximum achievability factor and the ramp rate percentage. Cadmus assigned maximum achievability factors to measures based on the Council's 2021 Power Plan supply curves. We based the measure-specific ramp rates on the ramp rates developed for the Council's 2021 Power Plan supply curves, accelerating them based on City Light's program accomplishments.

Cadmus applied measure ramp rates to lost opportunity and discretionary resources, although the interpretation and application of these rates differed for each class, as described below. We based measure ramp rates on the Council's 2021 Power Plan. As described above in *Treatment of State and Local Codes and Initiatives* section, Cadmus accounted for initiatives and legislation that promote energy efficiency through customer incentives or penalties (Seattle's Energy Benchmarking Program and Clean Buildings Bill, as well as the federal Inflation Reduction Act) by accelerating ramp rates for measures that are offered by City Light programs for residential buildings and certain commercial buildings. These initiatives and legislation (including CETA) are viewed as mechanisms to speed up the adoption of energy efficiency.

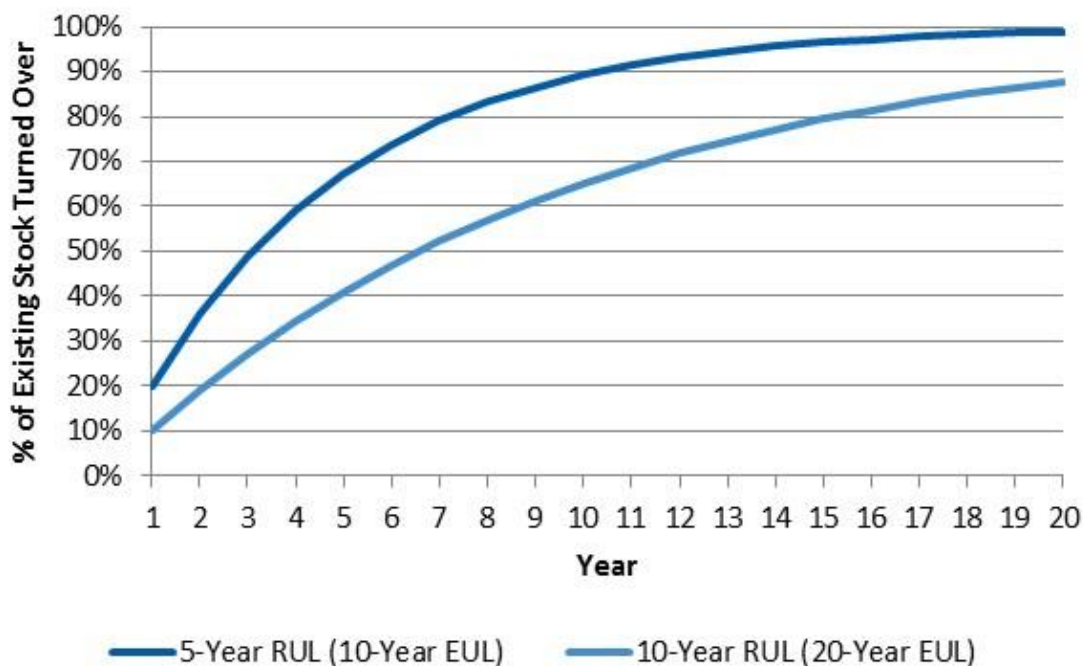
For measures not specified in the 2021 Power Plan, Cadmus assigned an appropriate ramp rate for that technology (for example, using the same ramp rate as similar measures in the 2021 Power Plan).

Lost Opportunity Resources

To quantify achievable technical potential for lost opportunity resources each year, Cadmus determined the potential technically available through new construction and natural equipment turnover. We used new construction rates from City Light's customer forecast and developed equipment turnover rates by dividing units into each year by the measure life. For example, if 100 units initially had a 10-year life, one-tenth of units (10) would be replaced. The following year, 90 units would remain, and one-tenth of these (9) would be replaced, and so on over the study timeline.

As the mix of existing equipment stock ages, the remaining useful life (RUL) would equal—on average—one-half of the EUL. The fraction of equipment turning over each year would be a function of this RUL; thus, technical potential for lost opportunity measures would have an annual shape before applying ramp rates, as shown in Figure 6-5. This same concept applied to new construction, where opportunities became available only during home or building construction. In addition to showing an annual shape, demonstrates that the amount of equipment turnover during the study period was a function of the RUL: the shorter the RUL, the higher the percentage of assumed equipment turnover.

Figure 6-5. Existing Equipment Turnover for Two Remaining Useful Life Scenarios



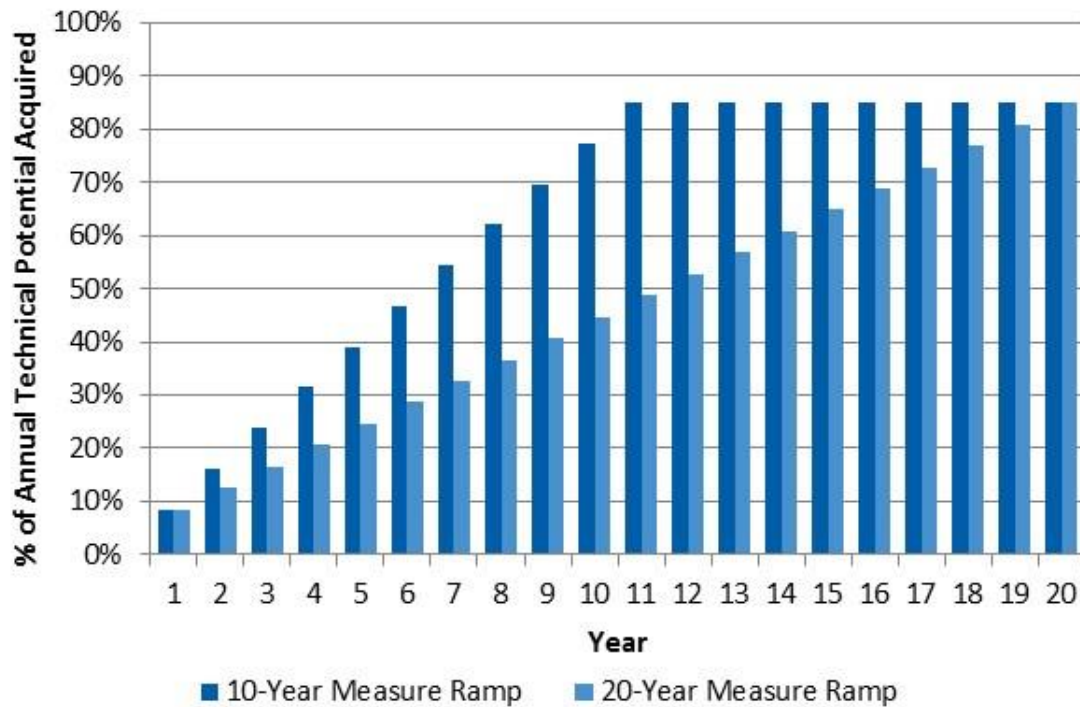
In addition to natural timing constraints of equipment turnover and new construction rates, Cadmus applied measure ramp rates to reflect other resource acquisition limitations (such as market availability over the study's horizon). For lost opportunity measures, we used the same ramp rates as those developed by the Council for its 2021 Power Plan supply curves. However, since the 2021 Power Plan ramp rates cover the 2022 to 2041 timeline, we first took these ramp rates beginning in 2024 and applied them for the first 18 years of the study (from 2026 to 2043), extrapolating them to extend from 2043 to the final year of the study (2045) following the last three years' trend. Figure 6-6 presents two examples of how Cadmus converted 2021 Power Plan ramp rates (e.g., lost opportunity 12 medium and lost opportunity 5 medium) for this study. The values (12 and 5 medium) represent the maximum pace of acquisition in conjunction with the annual unit count. As such, 12 medium starts higher on the curve and has a faster pace than 5 medium.

Figure 6-6. 2021 Power Plan Ramp Rate Conversion for 2026 DSMPA

Year	LO12Med (Lost Opportunity 12 Medium)		LO5Med (Lost Opportunity 5 Medium)	
	2021 Power Plan	2026 DSMPA	2021 Power Plan	2026 DSMPA
2022	10.9%	N/A	4.3%	N/A
2023	21.9%	N/A	9.6%	N/A
2024	32.8%	N/A	16.0%	N/A
2025	43.7%	N/A	23.5%	N/A
2026	54.7%	32.8%	32.1%	16.0%
2027	64.5%	43.7%	42.1%	23.5%
2028	72.4%	54.7%	53.1%	32.1%
2029	78.7%	64.5%	64.3%	42.1%
2030	83.7%	72.4%	74.8%	53.1%
2031	87.8%	78.7%	83.9%	64.3%
2032	91.0%	83.7%	90.9%	74.8%
2033	93.6%	87.8%	95.8%	83.9%
2034	95.6%	91.0%	98.7%	90.9%
2035	97.3%	93.6%	100.0%	95.8%
2036	98.6%	95.6%	100.0%	98.7%
2037	99.7%	97.3%	100.0%	100.0%
2038	99.7%	98.6%	100.0%	100.0%
2039	99.7%	99.7%	100.0%	100.0%
2040	99.7%	99.7%	100.0%	100.0%
2041	99.7%	99.7%	100.0%	100.0%
2042	N/A	99.7%	N/A	100.0%
2043	N/A	99.7%	N/A	100.0%
2044	N/A	99.7%	N/A	100.0%
2045	N/A	99.7%	N/A	100.0%

Study Period

Figure 6-7 shows a measure with a maximum achievability of 85% that ramps up over 10 years (for example, XXY measure). This measure would reach full market maturity—85% of annual technical potential—by the end of that period, while another measure (for example, ABB measure) might take 20 years to reach full maturity. Measures that Cadmus ramped over 20 years in this study included some newer technologies, such as heat pump dryers, dedicated outside air systems, and emerging technology measures as listed in the 6.1.3. *Measure Characterization* section. On the other hand, measures that Cadmus ramped over a shorter time period included more mature and accepted technologies, such as ENERGY STAR computers and laptops, and ENERGY STAR office equipment.

Figure 6-7. Examples of Lost Opportunity Ramp Rates

To calculate annual achievable technical potential for each lost opportunity measure, Cadmus multiplied technical resource availability and measure ramping effects together, consistent with the Council's methodology. In the early years of the study horizon, a gap occurs between assumed acquisition and the maximum achievability. These lost resources can be considered unavailable until the measure's EUL elapses. Therefore, depending on EUL and measure ramp rate assumptions, some potential may be pushed beyond the 20th year, and the total lost opportunity achievable economic potential may be less than the maximum achievable percentage of the technical potential.

Figure 6-8 shows a case for a measure with a five-year RUL and 10-year EUL. The spike in achievable technical potential starting in Year 11—after the measure's EUL—results from the acquisition of opportunities missed at the beginning of the study period.

Figure 6-8. Example of Combined Effects of Resource Availability and Measure Ramping Based on 10-Year EUL

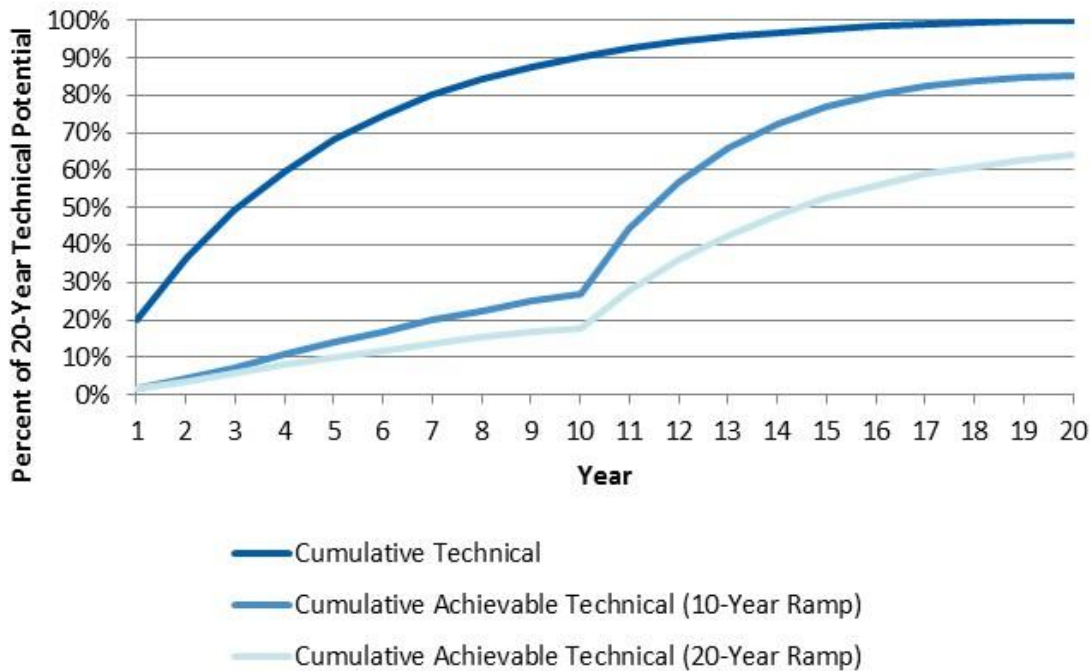


Table 6-5 illustrates this method, based on the same five-year RUL and 10-year EUL measures, with a 10-year ramp rate (the light blue line in Figure 6-8), assuming that 1,000 inefficient units would be in place by Year 1. In the first 10 years, lost opportunities would accumulate as the measure ramp-up rate caps the availability of high-efficiency equipment. Starting in the eleventh year, the opportunities lost during the previous 10 years become available again. Figure 6-8 also shows that this EUL and measure ramp rate combination results in 85% of technical potential being achieved by the end of the study period.

As described, amounts of achievable potential are a function of the EUL and measure ramp rate. The same 10-year EUL measure, on a slower 20-year ramp rate, would achieve less of its 20-year technical potential. Across all lost opportunity measures in this study, approximately 83% of technical potential appears achievable over the 20-year study period.

Table 6-5. Example of Lost Opportunity Treatment: 10-Year EUL Measure on a 10-Year Ramp

Study Year	Incremental Stock Equipment Turnover (Units)	Cumulative Stock Equipment Turnover (Units)	Measure Ramp Rate	Installed High-Efficiency Units	Missed Opportunities for Acquisition in Later Years (Units)	Missed Opportunities Acquired (Units)	Cumulative Units Installed	Cumulative Percentage of Technical Achieved
1	200	200	9%	17	180	0	17	9%
2	160	360	16%	26	130	0	43	12%
3	128	488	24%	30	92	0	73	15%
4	102	590	31%	32	65	0	106	18%
5	82	672	39%	32	44	0	138	20%
6	66	738	47%	31	29	0	168	23%
7	52	790	54%	29	19	0	197	25%
8	42	832	62%	26	11	0	223	27%
9	34	866	70%	23	6	0	246	28%
10	27	893	77%	21	2	0	267	30%
11	21	914	85%	18	0	153	438	48%
12	17	931	85%	15	0	110	563	60%
13	14	945	85%	12	0	78	653	69%
14	11	956	85%	9	0	55	717	75%
15	9	965	85%	7	0	38	762	79%
16	7	972	85%	6	0	25	793	82%
17	6	977	85%	5	0	16	814	83%
18	5	982	85%	4	0	10	828	84%
19	4	986	85%	3	0	5	836	85%
20	3	988	85%	2	0	2	840	85%

Discretionary Resources

Discretionary resources differ from lost opportunity resources due to their acquisition availability at any point within the study horizon. From a theoretical perspective, this suggests that all achievable technical potential for discretionary resources could be acquired in the study's first year. From a practical perspective, however, this outcome is realistically impossible due to infrastructure and budgetary constraints and customer considerations.

Furthermore, due to interactive effects between discretionary and lost opportunity resources, immediate acquisition distorts the potential for lost opportunity resources. For example, if one assumes that all homes are weatherized in the program's first year, potentially available high-efficiency HVAC equipment

would decrease significantly (for example, a high-efficiency heat pump would save less energy in a fully weatherized home).

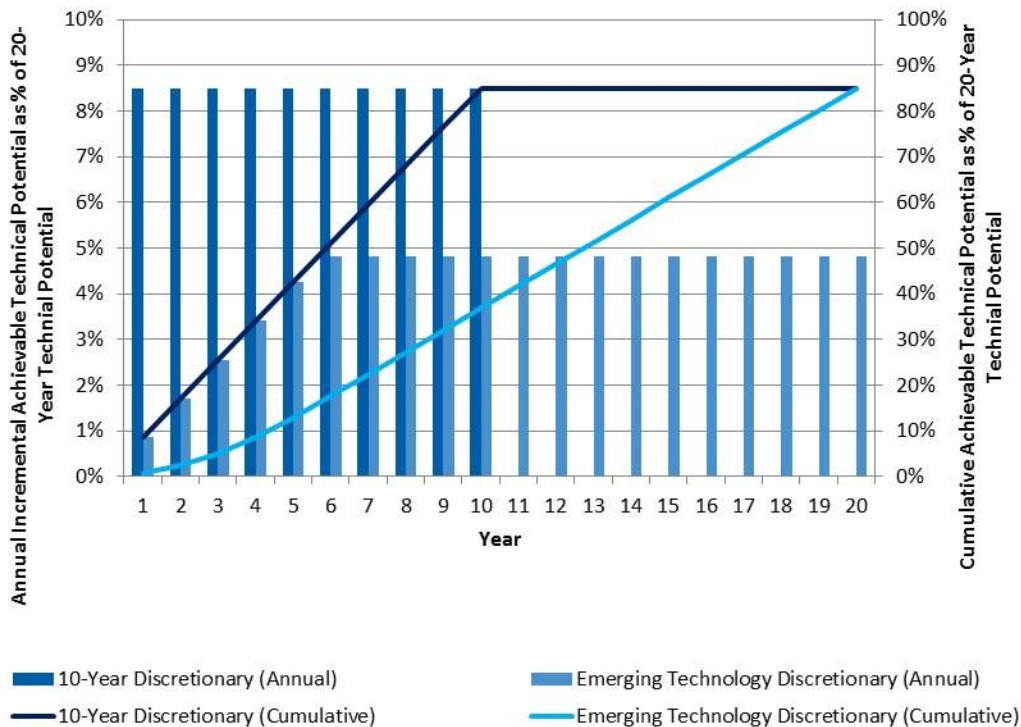
Consequently, Cadmus addressed discretionary resources via two steps:

1. Developed a 20-year estimate of discretionary resource technical potential, assuming that technically feasible measure installations would occur equally (at 5% of the total available) for each year of the study, avoiding the distortion of interactions between discretionary and lost opportunity resources previously described.
2. Overlayed a measure ramp rate to specify the timing of achievable discretionary resource potential, thus transforming a 20-year cumulative technical value into annual, incremental achievable technical values.

The discretionary measure ramp rates specify only the timing of resource acquisition and do not affect the portion of the 20-year technical potential achievable over the study period.

Figure 6-9 shows incremental (bars) and cumulative (lines) acquisitions for two different discretionary ramp rates. A measure with an 85% maximum achievability on the 10-year discretionary ramp rate reaches full maturity in 10 years, with market penetration increasing in equal increments each year. A measure with an 85% maximum achievability on the emerging technology discretionary ramp rate would take longer to reach full maturity, though also gaining 85% of the total technical potential. Ultimately, it would arrive at the same cumulative savings as the measure on the 10-year ramp rate.

Figure 6-9. Examples of Discretionary Measure Ramp Rates



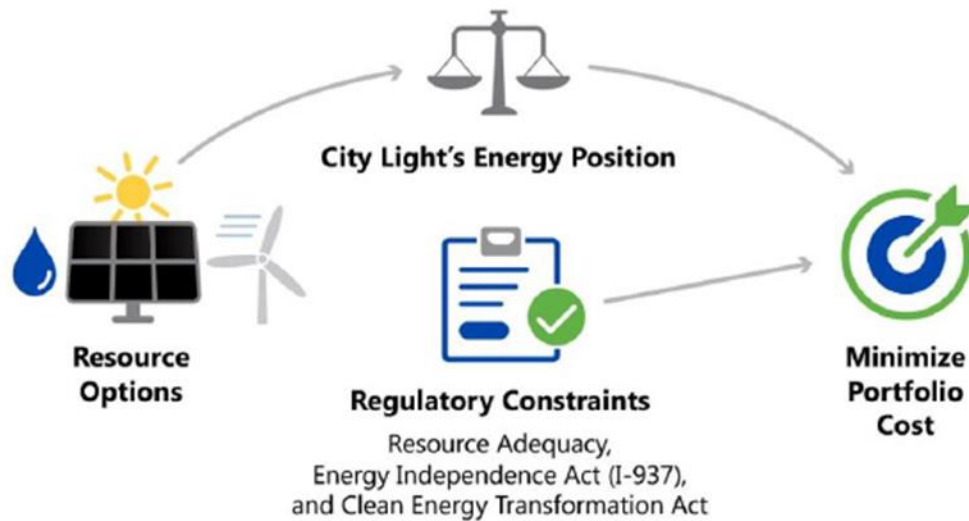
7. Long-Term Resource Planning Model for DSMPA

City Light uses long-term resource planning studies, such as the DSMPA, to identify the least-cost candidate resource portfolio, given a portfolio of existing resources, available resource options, available wholesale market depth, reliability requirements, and operational and policy constraints. Per WAC 194-37-070, City Light must perform a long-term resource planning study that includes candidate demand-side management (DSM, previously known as conservation) resources, with up-to-date estimates of those resources' energy or capacity potentials and demand-side resource valuations based on avoided costs of equivalent wholesale energy market purchases.

Similar to City Light's 2022 CPA and 2024 DSMPA study methodologies, City Light used a mathematical optimization modeling framework for the 2026 DSMPA to identify the most cost-effective (economic) demand-side resources. These demand-side resources comprise energy efficiency measures and demand response programs to supplement City Light's existing power supply portfolio. The 2026 DSMPA study used City Light's system load forecast and model constraints representing policy requirements through the 20-year study period, 2026 through 2045. These demand-side resources also competed for selection by the model with supply-side candidate resources, providing further insight into the optimal demand- and supply-side resource mix that would enable City Light to keep rates as low as possible for its customer-owners.

7.1. DSMPA Model Framework

City Light collaborated with Sylvan Energy Analytics (Sylvan) to model City Light's existing resource portfolio, operational constraints, candidate demand- and supply-side resources, wholesale energy market prices, and applicable environmental policy requirements in Grid Path, an open-source long-term resource planning model framework. Sylvan then used the City Light instance of Grid Path to select the most economic demand-side resource additions to City Light's portfolio to meet expected future loads reliably through the 20-year study period. Figure 7-1 shows a high-level overview of City Light's resource planning model framework.

Figure 7-1. High-Level Overview of Resource Planning Model Framework**Goal:** Design best mix of resources to meet City Light's needs over next 20 years

7.1.1. New Model Framework: Grid Path

City Light worked closely with Sylvan to model City Light's resource portfolio, modernizing City Light's previous model framework to better support the utility's decision-making processes in the rapidly evolving energy landscape. City Light, in collaboration with Sylvan, used Grid Path for the 2026 DSMPA study to determine the economic potential of demand-side resources provided by Cadmus. For the 2026 IRP modeling work scheduled to take place in late 2025 and early 2026, Sylvan and City Light will again use GridPath, with a focus on candidate supply-side resource additions to City Light's portfolio. By using GridPath for both the 2026 DSMPA and 2026 IRP modeling, as well as to support other simultaneous long-term resource portfolio decision-making internally at the utility, City Light will maintain consistency among long-term resource planning activities.

GridPath presents some notable advantages for modeling City Light's resource portfolio and candidate demand- and supply-side resource selections compared to the model framework used in prior DSMPAs and IRPs at City Light. First, GridPath dynamically dispatches generation from flexible resources both within City Light's existing resource portfolio and from flexible candidate resources. For example, the model can adjust the rate of discharge at the Skagit and Boundary hydroelectric projects as needed (within modeled operating constraints), thereby shifting the use of water for additional electricity generation between hours within a day or between days within a one- or two-week period. GridPath similarly takes advantage of the flexibility of other dispatchable candidate resources like demand response programs or utility-scale short-term battery energy storage systems. This ensures guidance from the model provides maximum reliability of candidate portfolios and reduces the risk of capacity overbuilds by the model. By contrast, the previous model framework could only dynamically dispatch Skagit and Boundary generation on an hourly basis within five-day intervals.

Secondly, GridPath’s capacity expansion model utilizes hourly capacity profiles of available resources, contracts, and market purchases to build optimal candidate portfolios. The previous 2024 model framework could not incorporate capacity profiles at an hourly resolution and instead relied on single-value effective load-carrying capacities (ELCCs) for each candidate resource considered in the model. The previous methodology utilizing ELCCs was computationally expensive and prone to underestimating resource requirements needed to meet resource adequacy thresholds based on the capacity expansion model’s optimal candidate portfolios.

Thirdly, GridPath’s zonal transmission module uses physics-based constraints at key flowgates in the region, which more realistically constrains available market depth and cost-effective wholesale energy marketing activity. The previous 2024 model framework was not able to effectively model transmission-based constraints and could only account for transmission costs through sensitivity analyses; for the 2024 DSMPA, the model framework was run 20 times, resulting in 20 distinct “optimal” portfolios for each transmission-cost threshold. By incorporating both candidate resources and the commensurate transmission required to meet reliability thresholds through the study period, GridPath eliminated the need for modeling multiple distinct transmission-cost sensitivities.

Finally, in modeling the reliability and portfolio values of demand-side resources to City Light, the new model framework using GridPath allows wholesale energy market arbitrage. This reflects more realistic operations and recognizes any additional value from demand-side resources to City Light ratepayers. There were some limitations on modeled arbitrage opportunities into and out of California, including participation in the Energy Imbalance Market (EIM). To account for these limitations, GridPath applies estimates that will conservatively overestimate the costs of the optimized candidate portfolios. The next section discusses in more depth the development of market price scenarios at Mid-Columbia (Mid-C) and California-Oregon Border (COB) market settlement points used in the GridPath DSMPA study.

7.1.2. Wholesale Market Price Forecasts

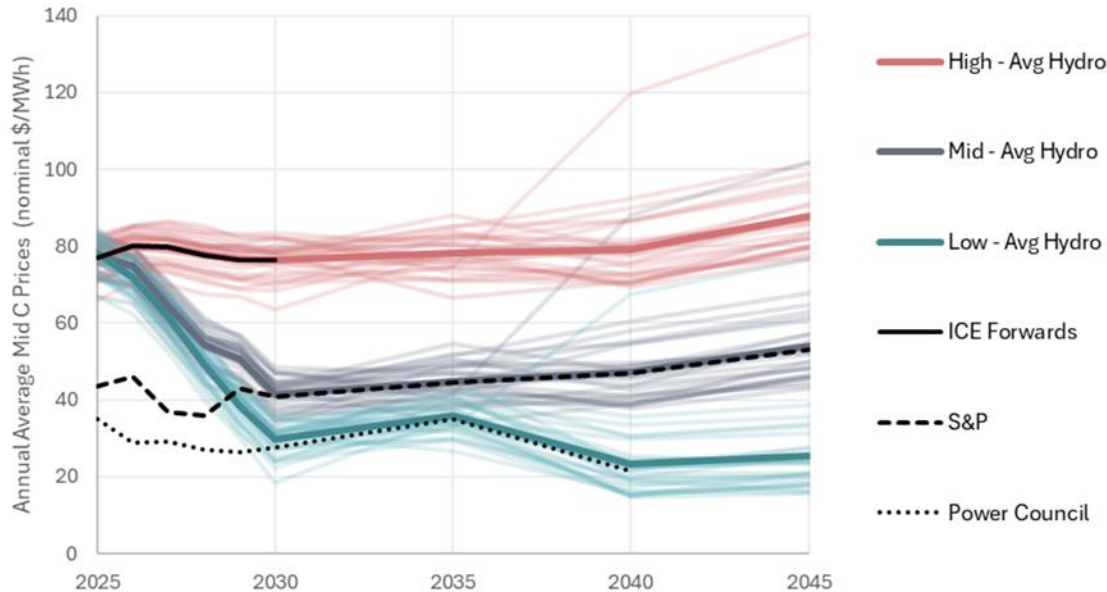
Sylvan developed three scenarios (low, mid, and high) for hourly wholesale price forecasts at the Mid-C market settlement point. All three price scenarios used a different entity’s hourly market price forecast as a starting point (discussed below), but City Light made adjustments to develop 30 distinct hydro traces in each of the low-, mid-, and high-price scenarios. The Council’s 2021 Power Plan developed these market price adjustments by hydro year. Sylvan applied price adders for each trace based on the monthly average price deviation in the Council’s modeling for that hydro future.

- The mid-market price ensemble forecast reflects near-term market scarcity and long-term expectations that align with Standard & Poor’s (S&P’s) market price forecasts prior to adjustment by hydro year future.
- The low scenario reflects near-term market scarcity and long-term expectations that align with the Council’s price forecast ensemble rather than S&P.

The high scenario reflects persistent scarcity into the future by using the 2030 Mid-C Intercontinental Exchange (ICE) forward prices as the basis of the forecast through the end of the study period, rather than S&P.

Since S&P price forecasts employ a floor of \$0, it was necessary for City Light to apply this same price floor to each hourly price scenario trace after making all other adjustments. Figure 7-2 shows the monthly average aggregations of the resulting price forecasts.

Figure 7-2. Mid-C Prices across Hydro Futures



Equivalent hourly price forecasts for the same horizons were not available for the COB market settlement point or the EIM. However, Sylvan was able to develop reasonable hourly COB prices by extrapolating from the Mid-C price traces described above based on historical relationships. Because the S&P hourly price forecasts for Mid-C employed a price floor of \$0/MWh, Sylvan had to apply the same price floor to COB prices. Thus, the actual typical midday negative pricing at COB due to surplus solar generation in California was not captured in the price forecast traces for COB. The underrepresentation of opportunity for negative pricing arbitrage at COB by City Light results in more conservative (lower) market revenues than recognized by the model, compared to if the COB price forecasts include actual negative midday pricing.

Sylvan also allowed the model to purchase month-long capacity products from the wholesale market on days when wholesale energy was assumed unavailable on the spot market (more discussion on this topic in the City Light's Modeled Existing Portfolio section below). Monthly capacity products represent capacity purchased on a forward basis. Sylvan set the prices of these capacity products in the model to equal the BPA demand rate. This assumes BPA sets forward capacity pricing on a competitive basis with the market. Based on internal analysis at City Light, BPA's demand rate may currently be low-biased on an expected basis through the study period, making capacity products look slightly more attractive to the model. However, other capacity pricing through the study period was not readily available.

7.2. City Light's Modeled Existing Portfolio

City Light's instance of GridPath models the existing power supply portfolio, including system load forecast, owned large hydroelectric generation assets and transmission, and long-term resource (energy, capacity, and transmission) contracts.

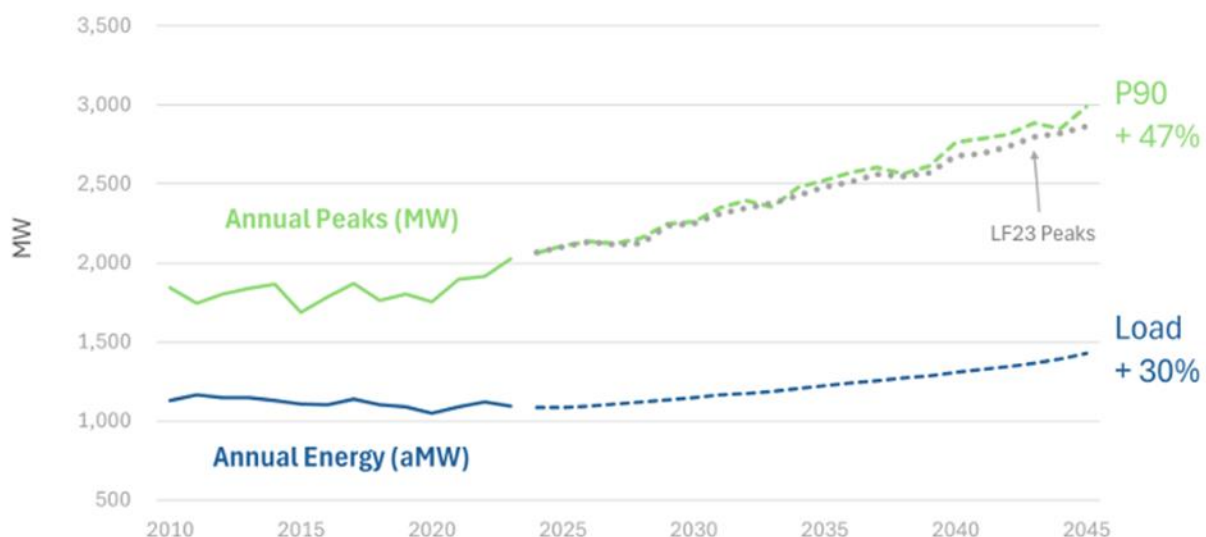
7.2.1. Load Forecast

An end-use model developed City Light's system load forecast, which extends from the present through 2045. Each target year of the forecast comprises an ensemble of 30 weather-normalized historical years.

To account for the impact of climate change on Seattle's load over the study period, City Light created linear regression models for each calendar month, fit using multiple general circulation models (GCMs) that cover Seattle's balancing area. City Light then used those models to apply scale factors to temperatures in each forecast month and combined these base temperatures with the end-use load forecasts to arrive at a final load forecast for the balancing area.

City Light's system load forecast shows increasing loads over the 20-year DSMPA study period, primarily driven by building and transportation electrification. City Light expects annual peak loads to grow at a faster rate over the study period than annual average loads, as shown in Figure 7-3. The growth rate of annual peak loads represents a slight increase over the previous year's load forecast peak load (LF23 Peaks in the figure below) growth rate. This is consistent with the findings of many other load-serving entities across the Pacific Northwest and presents a particular challenge for these entities, including City Light, to procure a higher ratio of firm capacity to energy than expected based on previous load forecast iterations.

Figure 7-3. 2024 Peak Forecast



7.2.2. Large Hydro Projects

The Council's model data supporting the Ninth Power Plan includes weather-driven models of regional conditions for 30 water years under three different spatially downscaled GCMs.^{59, 60} The Council used its 30 years of modeled weather to drive regional hydro conditions, subsequent operations of regional hydroelectric projects, and corresponding wholesale energy market prices at Mid-C. Sylvan and City Light obtained hourly Council model data for City Light's Skagit and Boundary projects, as well as Mid-C price data, at an hourly granularity, for use in City Light's DSMPA modeling.

To alleviate some computational expense, City Light used the modeled natural inflows into City Light's Skagit project to calculate daily average discharge flows at Ross, Diablo, and Gorge, using an internally developed operations planning tool called the Flow Plan Tool (FPT). The FPT incorporates the many operational constraints at the Skagit project set out in the project's Federal Energy Regulatory Commission (FERC) license #533, Fisheries Settlement Agreement for the protection of fish habitats, mitigation of flood risk, and facilitation of summer recreation at Ross Reservoir. However, the FERC license for the Skagit expired in April 2025; City Light expects the new license to go into effect by the late 2020s and will prescribe updated operations requirements. One such update will allow Ross Reservoir to have a summer operating range from 1594.5 ft to 1602.5 ft, which is significantly more flexible than the previous summer operating range from 1600.0 to 1602.5 ft permitted. This update increases City Light's ability to meet resource adequacy needs in the summer months and was incorporated into both the FPT and GridPath.

After the FPT model meets seasonal operational requirements, the output of the FPT provides weekly (or biweekly) water budgets for GridPath to optimize Skagit project operations at an hourly granularity for load service and to participate in wholesale energy and capacity markets. To avoid over-fitting Skagit generation to short-term fluctuations in modeled market prices, Sylvan applied additional ramping constraints to the hydro generators, which ensured modeled operations were realistic; this can also be viewed as simulating imperfect foresight of wholesale market prices within GridPath.

7.2.3. BPA Products

Under City Light's current BPA contract, effective through the end of September 2028 (the end of water year 2028), City Light purchases BPA's Diurnal Block product. As a part of the DSMPA study, Sylvan modeled City Light as taking the Diurnal Block product through the end of September 2028. Beginning in October 2028 (the start of water year 2029), City Light will start a new contract with BPA and will purchase the Monthly Block/Slice product.

The Provider of Choice contracts extend only through water year 2044, but Sylvan continued use of the Monthly Block/Slice product through the last DSMPA study year (water year 2045). This models the

⁵⁹ A water year is the consecutive 12-month period from October through the following September. The water year number is equal to the calendar year in the latter nine months of the water year. For example, water year 2026 spans October 2025 through September 2026.

⁶⁰ CanESM2, CCSM4, and CNRM-CM5, all using emissions scenario RCP 8.5.

assumption that City Light would engage with BPA in an equivalent product choice under the subsequent contract. This assumption was the most reasonable option for modeling the last year of the DSMPA study period, given the lack of information about the nature of a BPA product contract for preference customers after water year 2044.

7.3. Environmental Policy Compliance in GridPath

City Light's long-term resource plans are subject to several legislative requirements, as described below.

7.3.1. Washington Energy Independence Act (I-937)

In 2006, Washington voters approved Initiative 937 (I-937), which requires that major utilities invest in all cost-effective energy efficiency measures and sets targets for adding Northwest renewable energy as a percentage of load. I-937 requires City Light to identify all achievable, cost-effective conservation potential for the upcoming 10 years and to specify that City Light's public biennial conservation target should be no less than the pro rata share of conservation potential over the first 10 years. Previously, City Light followed the I-937 no load growth compliance pathway, but due to City Light's current and forecasted future load growth, City Light must now comply with the applicable regulations for load growth utilities.

7.3.2. Washington Clean Energy Transformation Act (CETA)

Approved by the Washington State legislature in 2019, CETA provides electric utilities in Washington with a clear mandate to phase out greenhouse gas emissions. CETA requires that utilities eliminate the use of coal-fired resources after December 31, 2025. Additionally, all electricity sold to customers must be greenhouse gas- (GHG-) neutral by January 1, 2030. To qualify as GHG-neutral, a utility must supply at least 80% of its load with a combination of renewable and non-emitting resources. Utilities may use alternative compliance options for no more than 20% of the load. CETA requires utilities to serve load with 100% GHG-free (renewable or non-emitting resources) by January 1, 2045.

GridPath was set up to assume that City Light retains the environmental attributes, renewable energy credits (RECs), or carbon-free credits associated with all eligible generation in its portfolio (see below for REC price forecast). City Light did not include a mechanism in the GridPath model to distinguish specified from unspecified wholesale energy market purchases;⁶¹ this allows the model to realistically simulate dispatch decisions in response to market prices but leaves the problem of calculating GHG emissions associated with City Light's marketing activities. For the purposes of modeling compliance with emissions-related legislation, GridPath assumed all market purchases simulated in GridPath were unspecified. GridPath ensures portfolios adhere to emissions requirements set out by CETA, and ensures emissions limitations do not exceed City Light's allowances set out by the Department of Ecology.

⁶¹ An unspecified energy market purchase is a market purchase without specific detail of which generator produced the electricity. This is important for emissions accounting because an unspecified market purchase cannot be assumed to have been produced from a non-emitting resource.

CETA also requires utilities to ensure that the clean energy transition benefits highly impacted communities (HIC). City Light ensured that its DSMPA benefits HIC in two ways. First, the GridPath model includes programs that specifically benefit HIC as candidate resources. Second, after the model selected its portfolios, City Light evaluated the programs that were just above the cutoff of the highest cost program (on a \$/MWh basis). If any of these programs above the cutoff were focused on highly impacted communities, City Light considered swapping the program with a similar program selected by the model that does not specifically benefit highly impacted communities.

When the most cost-effective option becomes available, the GridPath model allows City Light to purchase RECs at the prices shown in Table 7-1.

Table 7-1. REC Price Forecast

Year	E3 REC Price Forecast (2023\$)
2024	\$14.64
2025	\$16.83
2026	\$18.09
2027	\$19.32
2028	\$20.26
2029	\$19.94
2030	\$19.39
2031	\$18.79
2032	\$18.14
2033	\$17.55
2034	\$16.95
2035	\$16.44
2036	\$16.09
2037	\$15.95
2038	\$15.97
2039	\$16.31
2040	\$16.99
2041	\$17.83
2042	\$18.66
2043	\$19.29
2044	\$19.79
2045	\$20.31

7.3.3. Washington Climate Commitment Act (CCA)

Approved in 2021, the CCA creates a cap on carbon emissions in Washington’s most polluting industries. City Light and other utilities must purchase carbon allowances to cover the potential emissions from its electricity imports from other states. Per regulations specified by the CCA, for each year throughout the duration of the 2026 DSMPA study period, the Washington State Department of Ecology will grant City Light no-cost carbon allowances to limit the cost impacts of the CCA on City Light’s customers⁶². In 2026, City Light’s no-cost carbon allowance allocation is 251,767 metric tons of CO₂ equivalent⁶³.

7.4. GridPath Set Up for DSMPA

7.4.1. Supply-Side Candidate Resources

A key change in the 2026 DSMPA model framework compared to previous cycles is that supply-side resources are allowed to compete with demand-side resources in the capacity expansion model. This enables candidate portfolios to be more highly optimized compared to previous model results produced by City Light, which retained the supply-side candidate resources selected by the prior IRP and only chose the optimal demand-side resources to fill the remaining resource gap.

To avoid introducing highly uncertain price, performance, and commercial availability assumptions around emerging utility-scale resource technologies, Sylvan and City Light only allowed established and presently commercially available resource technologies to be selected within GridPath’s capacity expansion functionality. These established technologies are onshore wind farms, solar PV plants, and short-duration battery storage systems. Table 7-2 provides more details on the model’s supply-side candidate resources.

Table 7-2. Modeled Supply-Side Candidate Resources

Technology	Location(s)	Data Sources and Notes
Onshore Wind	Gorge (WA/OR border)	NREL-based wind shapes
	Idaho	RARE renewable dataset
	Montana	RFP responses
		NREL ATB
Solar PV	Central WA	NREL-based solar shapes
	Gorge (WA/OR border)	RFP responses
	Idaho	NREL ATB
Battery storage	On-system	RFP responses
	On BPA’s system	NREL ATB
	Co-located with renewables	85% round-trip efficiency
		Duration selected by model (4-hr min)

⁶² <https://app.leg.wa.gov/bills/summary?BillNumber=5126&Initiative=false&Year=2021>

⁶³ <https://ecology.wa.gov/air-climate/climate-commitment-act/cap-and-invest/no-cost-allowances>

7.4.2. Capacity Expansion Model

Sylvan identified the combination of one water year trace from the Council model data and one load forecast trace from City Light’s system load forecast that resulted in approximately median conditions over the 20-year 2026 DSMPA study period. Sylvan used this synthetic median year as the basis for solving for the optimal mix of demand- and supply-side candidate resources.

Sylvan modeled study years 2026 to 2030, 2035, 2040, and 2045 explicitly in GridPath, using price, hydro, load, and weather simulations based on the identified median year conditions. Results for years not explicitly modeled were linearly interpolated between explicitly modeled years. Since forecast uncertainty increases significantly with an increasing forecast horizon, City Light expects this extrapolation to have minimal impact on key near-term results.

Cadmus provided hourly shapes for representative weeks by calendar month for non-dispatchable demand-side resources. Cadmus also provided season-specific potentials for dispatchable demand-response resources for each year in the study period. Additional details about the modeled demand-side resources are discussed below. Modeling a typical year in GridPath creates a size and computational issue; therefore, to reduce the size problem, the modeling used 12 typical weeks per year. To further reduce computational complexity, Sylvan selected one representative weekday and one representative weekend day from each of the unique 12 weeks to be modeled explicitly in GridPath.

7.4.3. Resource Adequacy

Sylvan assumed energy would be available to purchase through wholesale energy markets during all modeled hours except on explicitly defined resource adequacy-constrained days. Sylvan referred to the 2024 Western Assessment of Resource Adequacy report produced by the Western Electricity Coordination Council to determine the number of resource adequacy-constrained days to add to each year explicitly modeled in GridPath.⁶⁴ The number of resource adequacy-constrained days incorporated into the GridPath model originated from the Western Assessment of Resource Adequacy’s 55% demand at risk scenario as the most conservative scenario available in the reported results. Representative weekdays, representative weekend days, and resource adequacy-constrained days were assigned weights in GridPath proportional to their presence in each modeled year. To meet load in all hours of all modeled study years, Sylvan allowed GridPath to select demand-side candidate resources provided by Cadmus (described in more detail in the next section), commercially established supply-side candidate resources (solar PV, wind, and short-term batteries), wholesale energy marketing on non-resource adequacy-constrained days, and monthly capacity products priced at the BPA demand rate.

7.5. Development of DSM GridPath Model Inputs

Cadmus worked with City Light to determine the format for inputs into the DSM GridPath model. This potential study provided the demand-side candidate resources for the DSMPA model framework

⁶⁴ WECC. 2024. *Wester Assessment of Resource Adequacy 2024*. [WARA 2024 Demand-at-Risk Hours by Subregion \(1\).pdf](#)

described above. Cadmus compiled DSM potential into the levelized costs bundles to be used within the GridPath model to determine the preferred resource at a given cost.

7.5.1. Levelized Cost of Energy

Cadmus calculated the levelized cost of energy as the net present value of a given resource or portfolio over the entire study period, divided by (or “levelized” by) the total amount of energy provided by that resource over the study period. In the following calculation, Cadmus discounted the energy provided by the resource at the same rate as was used to discount costs in the calculation of net present value.

Cadmus derived the levelized cost of energy for each measure using the following formula.

$$LCOE = \frac{\sum_{t=0}^n \frac{\text{Expenses}_t}{(1+i)^t}}{\sum_{t=0}^n \frac{E_t}{(1+i)^t}}$$

Where:

LCOE	=	levelized cost of conserved energy for a measure
E_t	=	energy conserved in year t
n	=	lifetime of the analysis (20 years)
Expenses_t	=	all net expenses in the year t for a measure using the costs and benefits
i	=	discount rate

Cadmus grouped the energy efficiency measures by levelized cost over the 20-year study period, allowing GridPath to select the optimal energy efficiency potential bundles, given various assumptions regarding future resource requirements and costs. The 20-year total resource levelized cost calculation incorporates numerous factors, which are consistent with the expense components shown in Table 7-3.

Table 7-3. Levelized Cost Components

Type	Component
Costs	Incremental Measure Equipment and Labor Cost
	Incremental O&M Cost
	Administrative Adder
Benefits	Present Value of Non-Energy Benefits
	Present Value of Transmission and Distribution Deferrals
	Secondary Energy Benefits
	10% Conservation Credit

7.5.2. Candidate DSM Resource Present Value Components

Cadmus used the economic inputs shown in Table 7-4 to model DSM product performances, parameters, and costs through the 20-year DSMPA study period, with all costs reported in 2026 U.S. dollars.

Table 7-4. Economic Inputs

7.5.3. Economic Inputs Included	
Discount Rate	3.00%
Inflation Rate	2.53%
Line Loss Rate	8.31%
T&D Deferral Costs (\$/kW-yr) (\$2026)	\$41.08

T&D = Transmission and Distribution

The costs and benefits (equivalent to negative costs) of demand-side resources calculated by Cadmus incorporated several components, described in more detail below.

7.5.4. Costs

Incremental technology costs: The present value of a demand-side resource cost as compared to the baseline technologies (such as an energy-efficient heat pump versus a cheaper, but less energy-efficient heat pump).

Administrative adder: Program administrative costs based on the draft Ninth Power Plan, representing the cost to convert energy (\$0.18 per kWh for residential, \$0.12 per kWh for commercial, and \$0.07 per kWh for industrial).

Incremental O&M costs: The present value of each demand-side resource includes typical costs for any required operations and maintenance, such as reduced operational costs from a reduction in water usage.

7.5.5. Benefits

Non-energy benefits: Treated as a reduction in demand-side resource costs commensurate with the dollar value of non-energy-related savings. For example, the installation of a low-flow showerhead would reduce the demand-side resource's cost by the value of the conserved water. The Council's RTF workbooks provided measure-level non-energy benefit assumptions that Cadmus applied in this DSMPA study.

T&D deferrals: Treated as a reduction in the cost of demand-side resources by \$41.08/kW-yr, based on the value of the deferred need for additional transmission and distribution procurement that would have been required for supply-side resource additions. City Light calculated the value of the T&D deferral rate, incorporating the following:

- Annual social cost of GHG from the Washington State Utilities and Transportation Commission (adjusted to 2026 U.S. dollars)
- Monthly REC prices forecasted by E3, purchased by City Light
- Monthly energy prices forecasted S&P, purchased by City Light
- Monthly expected costs of purchasing transmission on BPA's transmission system

10% conservation credit: Energy efficiency measures received a credit in the form of a flat reduction of 10% of the present costs. This credit is intended to account for other unquantified external benefits from conservation when compared with alternative resources and is consistent with the Northwest Power Act and the Council's Power Plans.

Secondary energy benefits: Treated as a benefit, as a reduction in levelized costs for demand-side resources that save energy on secondary fuels. For example, consider the cost for R-11 wall insulation for a home with an electric central cooling system and a natural gas furnace. For the central cooling end-use, Cadmus considered the energy savings that R-11 insulation produces for natural gas furnace systems, conditioned on the presence of electric central cooling, as a secondary benefit that reduces the levelized cost of the measure. This adjustment impacts only the measure's levelized costs; the magnitude of energy savings for the R-11 measure on the electric supply curve is not impacted by considering secondary energy benefits.

7.5.6. Other Adjustments to Present Value

End-effects: If the useful life of a DSM resource did not extend through the end of the study, Cadmus incorporated an end effect to the total cost by treating the resource's levelized cost over its useful life as an annual reinstallation cost for the remainder of the study period. If a resource's useful life extended beyond the study period, Cadmus levelized resource costs over the resource's useful life and treated as annual costs within the study period. This approach is consistent with the Council's approach and consistent with the approach employed in City Light's previous IRP and DSMPA studies.

7.6. Modeling DSM Candidate Resources in GridPath

Cadmus provided two types of candidate demand-side resources for input into GridPath: dispatchable and non-dispatchable. In previous DSMPA modeling work, City Light modeled all candidate demand-side resources statically, meaning they could not be dispatched dynamically by the model to most effectively meet the load. For the present DSMPA study, GridPath was able to treat dispatchable demand response programs dynamically.

7.6.1. Non-Dispatchable Candidate Resource Inputs

GridPath modeled non-dispatchable demand-side resources with a fixed hourly shape across a typical calendar year. The potential of these programs increases through the study period based on product- and study year-specific multipliers determined through Cadmus's DSM study for City Light's balancing area. Non-dispatchable demand-side resources include some demand response programs, all energy efficiency measures, and all customer solar programs.

GridPath included the customer solar programs selected in the 2024 DSMPA in the modeling of City Light's existing portfolio. Historically, City Light has not updated the set of candidate programs for every iteration of the DSMPA (or CPA). For the 2026 DSMPA, City Light chose to maintain existing customer solar programs, pausing the update of the customer solar programs in the DSMPA portfolio modeling to make updates to the demand-side distributed energy resource products that will set City Light's near-term targets. City Light will update customer solar programs in the 2028 DSMPA modeling. Even though

the selected programs did not change with this 2026 study, Gridpath allowed the generation output of the previously selected customer solar programs to vary with modeled weather conditions.

To improve computational tractability when modeling thousands of candidate energy efficiency measures, Cadmus grouped non-dispatchable measures into incremental cost bundles, aggregating resource costs and energy contributions based on ranges of the levelized cost of energy (LCOE) of the given resource. The cost thresholds of the LCOE bundles are shown in Table 7-5. Within the cost bundles, Cadmus split out subgroups for customer class (residential, commercial, or industrial), weather sensitivity (yes or no), and measures focused on highly impacted communities (yes or no).

Table 7-5. Levelized Cost Bundle Ranges

Bundle	\$/MWh
1	(\$9,999,999) to \$10
2	\$10 to \$20
3	\$20 to \$30
4	\$30 to \$40
5	\$40 to \$50
6	\$50 to \$60
7	\$60 to \$70
8	\$70 to \$80
9	\$80 to \$90
10	\$90 to \$100
11	\$100 to \$110
12	\$110 to \$120
13	\$120 to \$130
14	\$130 to \$140
15	\$140 to \$150
16	\$150 to \$160
17	\$160 to \$9,999,999

Table 7-6 shows an example of the subbundle attributes within each LCOE bundle.

Table 7-6. Example Subgroups within Each Levelized Cost Bundle Range:

Example: Bundle #1 Sub-bundles	Customer Class	Weather Sensitivity	Highly Impacted Community
1.a.	Residential	Yes	Yes
1.b.	Residential	Yes	No
1.c.	Residential	No	Yes
1.d.	Residential	No	No
1.e.	Commercial	Yes	Yes
1.f.	Commercial	Yes	No
1.g.	Commercial	No	Yes
1.h.	Commercial	No	No
1.i.	Industrial	Yes	Yes
1.j.	Industrial	Yes	No
1.k.	Industrial	No	Yes
1.l.	Industrial	No	No

In the previous DSMPA and CPA studies, City Light had further aggregated Cadmus' LCOE bundles into cumulative groups, such that each bundle included all resources below a specified incremental LCOE threshold, under the assumption that City Light would pursue lower-cost demand-side resources before any higher LCOE resources. City Light also performed further bundling had also been performed by grouping cumulative cost bundles when incremental energy provided by the next highest cost bundle was deemed negligible. However, aggregating energy efficiency measures into cumulative LCOE bundles introduced artificial constraints to the capacity expansion model. For the current DSMPA work, City Light recognizes that it could be more optimal to choose energy efficiency measures with a higher LCOE, compared to lower LCOE products, if those higher LCOE measures more effectively meet City Light's net load at critical times, thereby offsetting the need to acquire more expensive alternate resources or market products. As such, Sylvan did not perform additional cumulative bundling for the 2026 DSMPA and, instead, allowed GridPath to select any of the incremental LCOE sub-bundles to meet resource needs with the combination of measures that resulted in the minimum total portfolio cost.

7.6.2. Dispatchable Candidate Resource Inputs

Cadmus provided parameters for dispatchable candidate demand response resources. These parameters primarily describe achievable potentials and upper limits to the number of calls and durations of calls allowed in each of the summer and winter seasons in the study period. Gridpath modeled dispatchable demand response resources as individual decision variables, meaning the model could choose to select any individual resource and dispatch it as needed within the specified resource parameters. This allowed dispatchable demand response resources to be considered on equal footing with candidate supply-side resources.

Dispatchable demand response programs can be further subcategorized by their impact on load; per NREL nomenclature, these subcategories are shift, shed, and shimmy. Programs could fall into one or more of these sub-categories.

Shift Demand response resources that shift load are resources that allow a reduction in load when an event is called, but the magnitude of the energy reduction is added back onto the load after the event ends. An example of this is commercial EV supply equipment; when an event is called, normal energy use by this equipment is reduced for up to four hours by preventing charging of the EVs during the event. However, EVs still need to be charged before their next use and are assumed to charge instead during the four hours following the event.

Cadmus' study showed these programs to be effective when called four to 12 times per season for up to four hours at a time.

Shed Demand response resources allow City Light to reduce energy consumption without the need to deliver that energy at a later time. Many demand response programs identified by the Cadmus study fell into this category; a typical example of this is curtailment of load, where customers reduce their usage of electronics and energy-intensive electrical equipment during an event.

Similar to shift programs, Cadmus' study allowed events for shed programs to be called four to 12 times per season for up to four hours each.

Shimmy Load shimmy programs allow dispatchers to follow the load on a minute-by-minute basis, providing frequency regulation to the grid. Dispatchable demand response resources that are able to shimmy load and that were identified in the DSMPA study were primarily residential and commercial batteries and water heater-related resources. Within GridPath, Sylvan modeled these resources effectively like batteries, down to a minimum temporal granularity of one hour.

The DSMPA study showed shimmy demand response programs to be effective when called for up to four hours on modeled resource adequacy-constrained days. When two or more resource adequacy-constrained days occur in a row, such as during a multiday heat wave or cold snap, these programs can be called for multiple consecutive days. However, these programs are not intended to be called on days when City Light's service area experiences more typical conditions.

7.6.3. Results

Scenarios with Monthly Capacity Products

Sylvan completed GridPath model runs, as described in the previous section, for the three different price forecast sensitivities: low, mid, and high, where monthly capacity products were available to purchase to meet City Light's resource needs (referred to as the scenarios with capacity products). The candidate portfolios for the low- and mid-price scenarios resulted in reasonable economic achievable potentials (magnitude of demand-side product capacities) across customer classes, but the high-price scenario produced inconsistent and unrealistic results, so Sylvan ran another scenario with an additional constraint to produce more informative results from the high-price scenario, as discussed in more detail below.

Demand Response Low- and Mid-Price Scenarios with Capacity Products

The model found the same demand response economic achievable potential result for the low- and mid-price scenarios. It was determined that only a relatively small portion of the demand response achievable potential was cost-effective compared to the other candidate resource types selected in the optimal

portfolio. The demand response economic achievable potential was primarily concentrated in the commercial customer class, and the model selected only winter demand response rather than summer demand response programs. This seasonal result matches City Light’s past experience, as well as modeled future expectations, that the net load in the winter is, and will continue to be, greater than the net load in the summer.

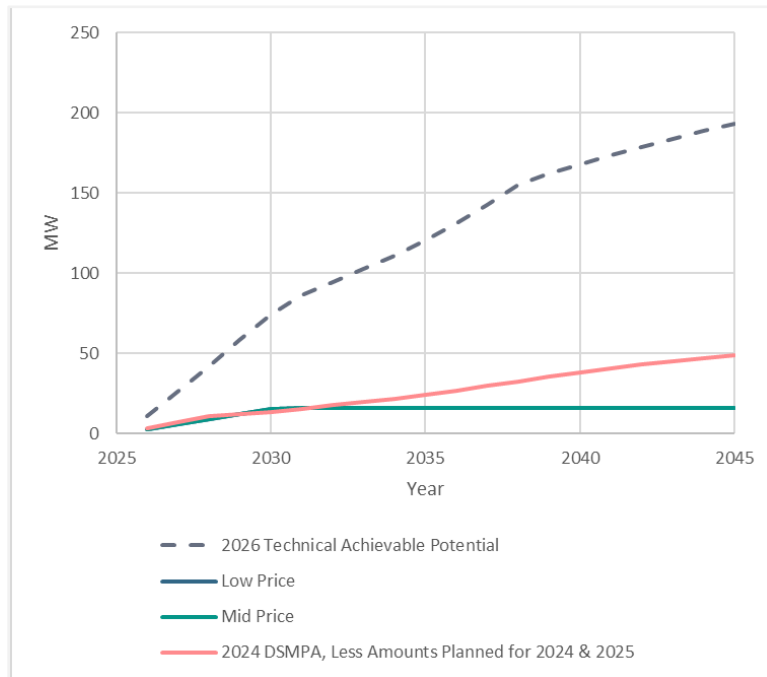
Figure 7-1. Comparison of 2026 Demand Response Scenarios to 2024 Preferred Portfolio

2026 Scenario	Customer Class	2-Year MW (2026-2027)	4-Year MW (2026-2029)	10-Year MW (2026-2035)	20% of 10-year
2026 DSMPA: Low Price	Commercial	6	12	15	3
2026 DSMPA: Mid Price	Commercial	6	12	15	3
2026 DSMPA: High Price (sensitivity)	Commercial	7	14	18	4
2024 Results	Customer Class	2-Year MW (2024-2025)	4-Year MW (2024-2027)	10-Year MW (2024-2033)	20% of 10-Year
2024 DSMPA: Preferred Portfolio	Commercial	6	13	23	4
	Residential	0	0	4	1
	Total	6	13	26	5

Compared to the demand response selected in the preferred portfolio from the 2024 DSMPA, the 2026 DSMPA model selected a similar commercial winter economic achievable potential early in the study period, particularly in the first two and four years. The primary change was that the 2026 DSMPA did not select any additional residential demand response programs or additional commercial programs that contributed to economic potential, particularly in the latter years of the study period. This change was likely driven by the additional flexibility of GridPath’s capacity expansion model, which allowed it to account directly for weather-sensitive contributions to resource adequacy needs and allowed a more cost-effective mix of energy efficiency measures rather than demand response programs to be selected to meet demonstrated resource adequacy needs.

In the 2024 DSMPA, the demand response programs provided capacity in both summer and winter, whereas the 2026 DSMPA shows that only winter demand response programs are economic. This was likely a result of the increased flexibility of City Light’s Skagit hydro project expected in the new FERC license. The increased summer elevation operating range at Ross Reservoir allows the Skagit project to provide significantly more resource adequacy contribution in the summer months.

Figure 7-2 depicts the differences between the winter demand response economic achievable potential identified by the 2024 DSMPA and the low- and mid-price runs’ winter demand response economic achievable potential for the 2026 DSMPA. Note that the demand response economic achievable potentials were the same for both the low- and mid-price scenarios. For reference, the total demand response technical achievable potential identified by Cadmus’ study is included in the same plot.

Figure 7-2. Comparison of 2026 and 2024 DSMPA Winter Demand Response

7.6.4. Energy Efficiency Low- and Mid-Price Runs with Capacity Products

The optimal portfolios resulting from the low- and mid-price runs contained energy efficiency economic achievable potentials significantly higher than their respective demand response economic achievable potentials in all years of the study. The 2026 DSMPA energy efficiency economic achievable potential in the first several years of the study period in the low-price run was lower than that in the 2024 DSMPA preferred portfolio, while that in the mid-price run was higher than that in the 2024 DSMPA preferred portfolio. The 2026 DSMPA energy efficiency economic achievable potential landed well below the 2024 DSMPA results by year 10 and through the remainder of the 20-year study period, as GridPath relied more heavily on supply-side candidate resource builds and capacity products to meet resource needs a decade or more in the future in both the low- and the mid-price runs. The similarity of the energy efficiency economic potentials identified in the near term for the 2026 DSMPA low- and mid-price runs and the 2024 DSMPA preferred portfolio results in energy efficiency potential through the study period, represented by measures benefiting HICs.

Figure 7-3. Comparison of 2026 Energy Efficiency Scenarios to 2024 Preferred Portfolio

2026 Results	Sector	2-Year aMW (2026-2027)	4-Year aMW (2026-2029)	10-Year aMW (2026-2035)	20-Year aMW (2026-2045)	20% of 10- Year aMW
2026 DSMPA: Low Price	Commercial	14	26	49	62	10
	Industrial	1	3	6	8	1
	Residential (HIC)	1 (0)	3 (1)	6 (2)	8 (3)	2 (1)
	Total	17	32	61	78	16
2026 DSMPA: Mid Price	Commercial	17	31	62	82	12
	Industrial	1	3	6	8	1
	Residential (HIC)	3 (1)	5 (1)	9 (3)	13 (4)	3 (1)
	Total	21	39	78	103	16
2026 DSMPA: High Price (sensitivity)	Commercial	18	34	71	96	14
	Industrial	1	3	6	8	1
	Residential (HIC)	4 (1)	7 (2)	15 (4)	23 (5)	5 (1)
	Total	24	44	92	126	18

2024 Results	Sector	2-Year aMW (2024-2025)	4-Year aMW (2024-2027)	10-Year aMW (2024-2033)	22-Year aMW (2024-2045)	20% of 10- Year aMW
2024 DSMPA	Commercial	12	23	49	72	10
	Industrial	2	4	8	10	2
	Residential (HIC)	4 (1)	8 (2)	22 (6)	50 (13)	10(3)
	Total	18	35	79	132	16

Note: Highly Impacted Communities are identified based on the Washington State Department of Health Environmental Health Disparities (EHD) criteria. HIC results are displayed in parentheses in the table.

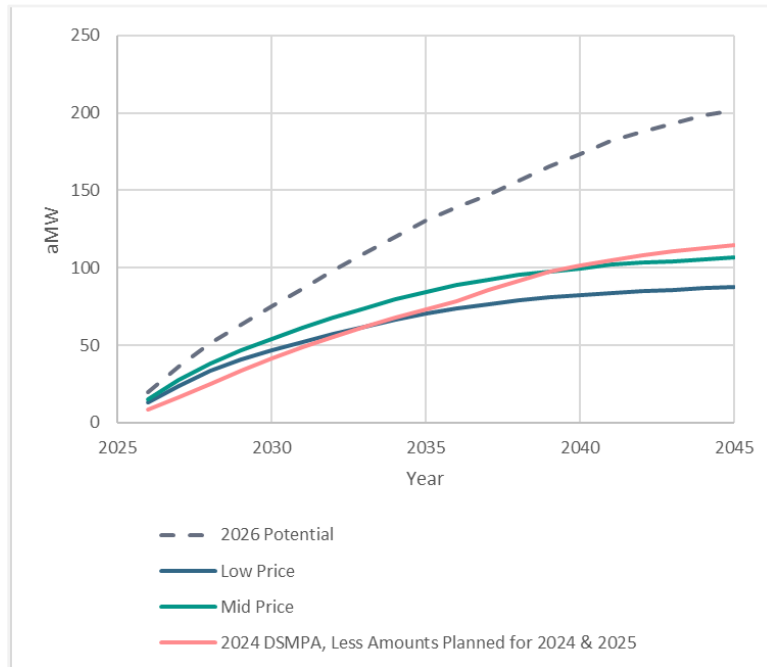
The 2026 DSMPA study selected a greater proportion of energy efficiency economic achievable potential from the commercial customer class than the other customer classes, and also selected higher quantities of energy efficiency economic achievable potential than the 2024 DSMPA. This is likely a result of the additional flexibility of GridPath, as opposed to City Light's previous in-house models, to select distinct incremental price sub-bundles that offer increased value due to the shape of the resource need across hours of the day, months of the year, and years of the study period. This was the same reasoning as with demand response economic achievable potential increases.

Impacts of recent legislation will lead directly or indirectly to increased commercial energy efficiency in the latter years of the study period, but City Light will not be able to recognize them as part of our achievements through energy efficiency measures. For example:

- City of Seattle Building Performance Standards and other initiatives make additional achievable potential available in the near term but eliminates that potential in the latter years of the study period.
- House Bill 1185 requires phasing out of sales of lighting containing mercury by 2029, which would instead be replaced by more efficient LEDs. City Light would continue to be able to recognize lighting efficiencies prior to 2029 as part of its programs but would no longer be able to recognize those efficiencies after the legislation goes into effect.

Figure 7-4 illustrates the differences between the energy efficiency economic achievable potentials identified in 2024 DSMPA and the low- and mid-price runs' energy efficiency economic achievable potentials for 2026. The figure also shows how these compare to the total energy efficiency technical achievable potential identified by Cadmus' updated DSMPA study.

Figure 7-4. Comparison of 2026 and 2024 DSMPA Energy Efficiency



7.6.5. High-Price Scenario Sensitivity Run with Capacity Products

Unlike the low- and mid-price runs with capacity products, the candidate portfolio resulting from the high-price scenario with capacity products selected an unrealistically high quantity of supply-side resources and extremely low demand-side resources because excess energy from supply-side resources could be sold back to the market at a premium due to sustained scarcity pricing through the study period. The model's price-taker wholesale market price forecasts are treated as static inputs to the optimization problem and thus cannot reflect realistic market dynamics. High quantities of resource capacity built in response to sustained high regional wholesale market prices would subsequently act to suppress market prices as energy supply increases relative to demand. This would, in turn, likely make the large amounts of supply-side resource additions to City Light's portfolio uneconomic. Since this scenario produced unrealistic results, City Light did not consider the candidate portfolio resulting from the high-price scenario to be a viable solution.

To remedy this situation, Sylvan ran an additional high-price scenario where the total capacity of supply-side resources selected by the model was artificially limited to 130% of the supply-side capacity selected in the mid-price scenario. Even though it introduces an artificial constraint, this scenario represents a more realistic future scenario where new construction of wind, solar, and short-term batteries is limited, justifying continued scarcity pricing in the wholesale market through the end of the study period.

Sensitivity Run Demand Response Results

In this high-price capped supply-side sensitivity run, only slightly less demand-side management capacity was selected than in the mid- or low-price runs. In particular, the demand response products selected were also a commercial winter demand response program, and it contributed proportionally more capacity in the first two and four years of the study period than in the last 10 years when compared to the 2024 DSMPA preferred portfolio's demand response economic potential. This further supports the conclusions from the low- and mid-price runs that demand response programs contributing greater achievable potential in the winter and in the early years of the study period provide greater value than those that contribute more in the latter years.

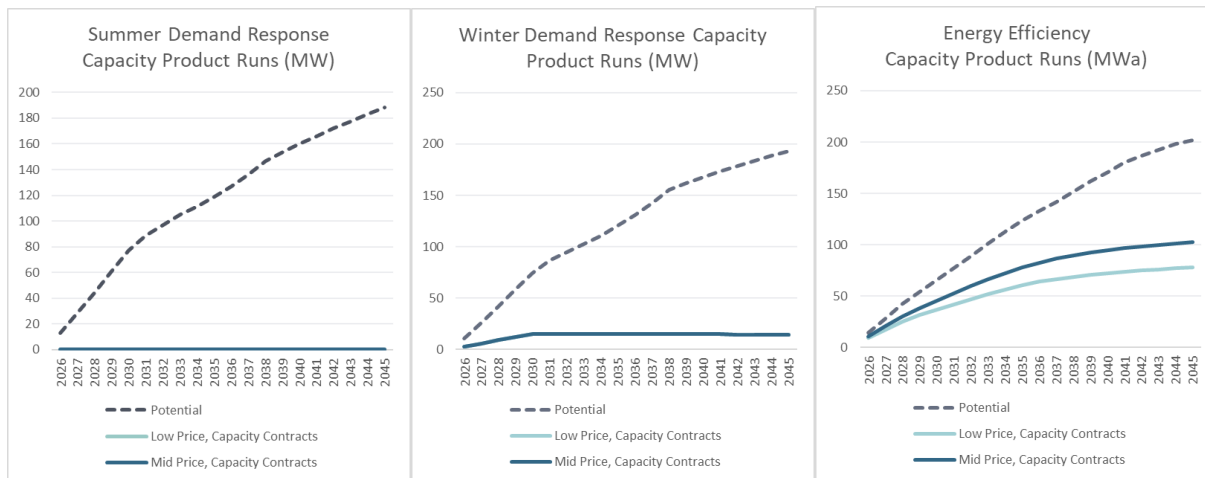
Sensitivity Run Energy Efficiency Results

The high-price sensitivity run's optimal portfolio included greater energy efficiency economic potential than the low- and mid-price runs, with greater weighting on the latter years. This suggests that some energy efficiency measures not selected in the low- and mid-price scenarios are the next most cost-effective in the case that the acquisition of supply-side resources is infeasible at the optimal rate identified by the IRP. Indeed, materials shortages, increases in supply costs, and delays in deployment are already obstacles impacting the industry and are all feasible contingencies that are prudent considerations for long-term resource planning.

Similar to the low- and mid-price runs, the high-price sensitivity run selected a high proportion of commercial customer class energy efficiency measures. In addition, the high-price scenario is consistent with the 20% to 25% of economic programs focused on highly impacted communities, as shown in the low- and mid-price run results.

Sensitivity Run Conclusions

The demand response and energy efficiency economic potentials identified in the high-price sensitivity run further support the conclusion that the commercial customer class may provide the greatest benefit over the cost of implementation for both demand response and energy efficiency resources and that energy efficiency appears to be more cost-effective on the whole, as opposed to demand response, regardless of the possible range of wholesale market prices.

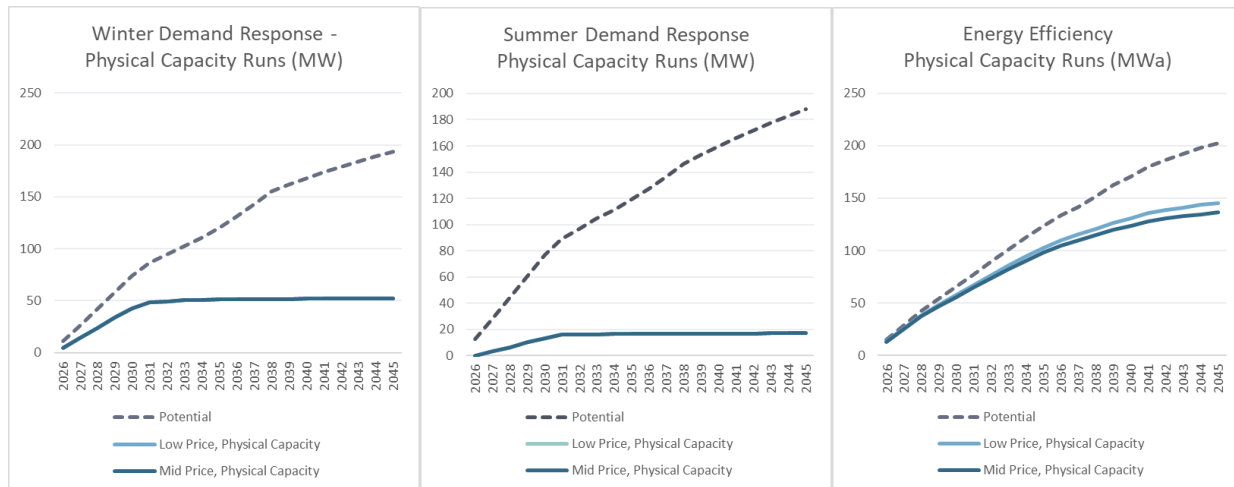
Figure 7-5. Scenarios without Monthly Capacity Products (Physical Capacity Runs)

Because the demand response economic achievable potentials in the model runs described above were notably less than what was identified in the 2024 DSMPA, Sylvan executed model runs to test whether this was a result of the inclusion of wholesale market capacity products to meet resource adequacy needs in the 2026 DSMPA model. Sylvan ran two additional scenarios: one using the low wholesale energy price forecast and the other using the mid wholesale energy price forecast, but this time without capacity products available as candidate resources. While the resultant optimal portfolios produced by these two runs showed unrealistically large buildouts of the wind, solar, and short-term battery supply-side candidate resources to meet City Light’s anticipated future resource adequacy needs, they provided insight into the economic achievable potential of demand-side resources.

Demand Response and Energy Efficiency Results of Physical Capacity Runs

The amount of energy efficiency economic potential overall increased from about 50% of the total achievable potential in the low- and mid-price runs with capacity products to about 75% of the total in the low- and mid-price physical capacity runs. The demand response economic achievable potential selected in these two new scenarios nearly tripled in all study years when capacity products were removed as candidate resources but still only reached about 25% of the total achievable potential by the end of the study period. This confirms that, overall, more of the achievable potential from energy efficiency measures is economic compared to demand response programs. The inclusion of forward monthly capacity products as candidate resources remains a more economic resource for meeting City Light’s resource adequacy needs in the latter part of the study period.

These two portfolios are discussed here to gain insight into the value of demand-side management resources, especially in comparison to supply-side resource options. However, due to the unlikelihood that forward monthly capacity products, which are commonly available products across current power markets, would be unavailable going forward, the resultant portfolios are not considered for the purpose of setting City Light’s demand-side management targets. Further, the infeasibility of the large supply-side buildouts in these portfolios makes them unrealistic and not cost-effective for future resource planning purposes.

Figure 7-6. Scenarios with Monthly Capacity Products (Physical Capacity Runs)

7.7. Conclusions and Recommendation

The collaboration with Sylvan in the implementation of GridPath for City Light’s DSMPA has facilitated significant improvements to City Light’s DSMPA modeling process. While many inputs to the DSMPA model still carry significant uncertainty, this updated model and analyses have attempted to quantify and account for much of that uncertainty in determining the optimal future demand-side resource mix. City Light is encouraged to see that, even with such significant updates to the model framework, the economic achievable potential of energy efficiency and demand response in the first several years are a comparable order of magnitude to those resulting from the previous model framework used for the 2024 DSMPA and prior long-term resource planning studies.

Five total scenarios represented a reasonable breadth of future scenarios for consideration. However, City Light recognizes that three of those portfolios (high price with capacity products and limited supply-side resource buildout, low price with physical capacity only, and mid-price with physical capacity only) introduced artificial limitations to explore “what if” scenarios meant to aid assessment of the stability of the solution space. While they provide useful results for comparison among scenarios, they are less defensible for use in setting demand-side management targets due to artificial limitations.

Among the two scenarios that did not introduce artificial constraints (the low- and mid-wholesale market price scenarios with capacity products), the mid-price scenario represents a future where prices begin at current-day Mid-C ICE Forward prices, representing current regional market scarcity, but by 2030 they align with expected energy price futures from S&P. These prices persist some amount of market scarcity pricing above those assumed by the Council’s price forecasts, which accounts more for imperfect resource buildout in the region, which could be argued to be the most realistic price scenario. Additionally, the mid-price scenario’s economic achievable potential selected by the model aligns well with the results from the previous model framework used in the 2024 IRP Progress Report and the 2024 DSMPA and does not differ hugely from the low-price scenario’s direction.

However, as the mid-wholesale market price portfolio still represents an incremental increase in recognized demand-side efficiencies, as shown in Figure 7-7, City Light would require immediate additional resources, especially in terms of personnel and information technology, to capture these demand-side economic potentials; acquisition of requisite additional resources does not represent an insurmountable obstacle for the utility.

Thus, the optimal portfolio resulting from the mid-wholesale market price (with capacity products) scenario is City Light's choice for setting realistic, economic achievable potential targets for the next two and four years. This portfolio best positions City Light to make investments in customer-side energy solutions while allowing room to adjust course as needed with future model enhancements and updated forecasts.

Figure 7-7. 2026 Portfolio Based on Mid-Price Scenario Compared to 2024 Preferred Portfolio

2026 DSMPA Results	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	20% of 10-Year
Commercial	17	31	62	12
Industrial	1	3	6	1
Residential	3	5	9	2
2026 Total (aMW)	21	39	78	16
<i>Demand Response (MW)</i>	6	12	15	

2024 DSMPA Results	2-Year (2026-2027)	4-Year (2026-2029)	10-Year (2026-2035)	20% of 10-Year
Commercial	12	23	49	10
Industrial	2	4	8	2
Residential	4	8	22	4
2026 Total (aMW)	18	35	79	16
<i>Demand Response (MW)</i>	6	13	31	

In accordance with CETA, City Light has identified a four-year energy efficiency target of 39 aMW and a four-year demand response target of 12 MW. These targets reflect what is cost-effective and feasible over the 2026–2029 period and support the utility's long-term transition to 100% clean electricity by 2045.

Additionally, to meet EIA requirements (RCW 19.285.040 and WAC 194-37), City Light has set a two-year conservation target of 16 aMW, which represents 20% of the ten-year pro rata share of achievable economic potential identified in this DSMPA. While this value satisfies the minimum regulatory requirement, City Light will continue to strive toward the full two-year achievable economic potential of 21 aMW. However, given current market conditions, customer adoption trends, and historical participation rates, the pro rata target is being used as the formal conservation commitment for this period. These

targets will guide program planning, resource acquisition, and regulatory compliance over the upcoming planning horizons.

8. Glossary of Terms

These definitions draw heavily from the NAPEE Guide for Conducting Energy Efficiency Potential Studies and the State and Local Energy Efficiency Action Network.⁶⁵

Achievable potential: The amount of energy use that efficiency can realistically be expected to displace.

Conservation potential assessment: A quantitative analysis of the amount of energy savings that exists, proves cost-effective, or could potentially be realized through implementation of energy-efficient programs and policies.

Cost-effectiveness: A measure of relevant economic effects resulting from implementing an energy efficiency measure. If the benefits of this selection outweigh its costs, the measure is considered cost-effective.

Economic potential: Refers to the subset of technical potential that is economically cost-effective compared with conventional supply-side energy resources.

End use: A category of equipment or service that consumes energy (such as lighting, refrigeration, heating, or process heat).

End-use consumption: Used for the residential sector, this represents per-UEC consumption for a given end use, expressed in annual kilowatt-hours per unit (also called unit energy consumption).

End-use intensities: Used in the commercial and institution sectors, this represents the energy consumption per square foot for a given end use, expressed in annual kilowatt-hours per square foot per unit.

Energy efficiency: The use of less energy to provide the same or an improved service level to an energy consumer in an economically efficient way.

Effective useful life: An estimate of the duration of savings from a measure. EUL is estimated through various means, including the median number of years that energy efficiency measures installed under a program remain in place and operable. EUL also is sometimes defined as the date at which 50% of installed units remain in place and operational.

Levelized cost: The result of a computational approach used to compare the cost of different projects or technologies. The stream of each project's net costs is discounted to a single year using a discount rate (creating a net present value) and divided by the project's expected lifetime output (MWhs).

Lost opportunity: Refers to an efficiency measure or efficiency program seeking to encourage the selection of higher-efficiency equipment or building practices than that typically chosen at the time of a purchase or design decision.

⁶⁵ Schiller Consulting, Inc. 2012. *Energy Efficiency Program Impact Evaluation Guide. NAPEE Guide for Conducting Energy Efficiency Potential Studies and the State and Local Energy Efficiency Action Network*. Prepared by SEEACTION. www.seeaaction.energy.gov

Measure: Installation of equipment, subsystems, or systems, or modifications of equipment, subsystems, systems, or operations on the customer side of the meter designed to improve energy efficiency.

Portfolio: Either (a) a collection of similar programs addressing the same market, technology, or mechanisms or (b) the set of all programs conducted by one organization.

Program: A group of projects with similar characteristics and installed in similar applications.

Retrofit: An efficiency measure or efficiency program intended to encourage the replacement of functional equipment before the end of its operating life with higher-efficiency units (also called early retirement) or the installation of additional controls, equipment, or materials in existing facilities for reducing energy consumption (such as increased insulation, lighting occupancy controls, or economizer ventilation systems).

Resource adequacy: Having sufficient resources, generation, energy efficiency, storage, and demand-side resources to serve loads across a wide range of conditions.

Technical potential: The theoretical maximum amount of energy use that could be displaced by efficiency, disregarding all non-engineering constraints (such as cost-effectiveness or the willingness of end users to adopt the efficiency measures).

Total resource cost test: A cost-effectiveness test that assesses the impacts of a portfolio of energy efficiency initiatives on the economy at large. The test compares the present value of efficiency costs for all members of society (including costs to participants and program administrators) compared with the present value of benefits, including avoided energy supply and demand costs.

SUMMARY and FISCAL NOTE

Department:	Dept. Contact:	CBO Contact:
City Light	Jennifer Finnigan	Christie Parker

1. BILL SUMMARY

Legislation Title: A RESOLUTION relating to the City Light Department; acknowledging and approving the City Light Department’s adoption of a biennial energy conservation target for 2026–2027 and ten-year conservation potential.

Summary and Background of the Legislation:

City Light must establish and make publicly available a biennial acquisition target for cost-effective conservation and a ten-year conservation potential. This Resolution establishes a 16 average megawatt (aMW) conservation target for 2026-2027 and a ten-year conservation potential of 78 aMW.

Initiative 937 was passed by Washington state voters in November 2006 to establish renewable and energy efficiency targets for electric utilities serving more than 25,000 retail customers. In complying with RCW 19.285.040, each qualifying utility shall pursue all available conservation that is cost-effective, reliable, and feasible. RCW 19.285.040.

WAC 194-37-070 Section (5) provides further guidance that the development of the biennial target and the ten-year potential should follow the methodologies used by the Northwest Power and Conservation Council (NWPPC) and this section offers a series of methodical details to ensure consistency with this regional effort. Section (4) also calls for electric utilities to “establish its ten-year potential and biennial target by action of the utility’s governing board, after public notice and opportunity for public comment.” The adoption of this resolution by the City Council in an open public meeting will maintain our compliance with state law.

Every two years City Light initiates a Demand Side Management Potential Assessment (DSMPA) (formerly known as the Conservation Potential Assessment (CPA)) to identify the biennial acquisition target and the ten-year potential for the service territory. City Light hired a consulting firm (Cadmus) to support the DSMPA consistent with the methodologies outlined in RCW 19.285.040 and WAC 194-37-070 and to be consistent with the Northwest Power and Conservation Council’s methodology used for their 2021 Power Plan. This DSMPA has identified a target of 16 aMW within the City Light service territory for 2026-2027 and a total conservation potential of 78 aMW for the ten-year period starting in 2026. City Light anticipates meeting or exceeding the 16 aMW biennial target for 2026-2027 and believes the spending plan and rate path adopted via Resolution 32319 for the 2025-2030 Strategic Plan Update will be sufficient to meet the biennial acquisition targets.

As a point of reference, this is the ninth Resolution to establish the biennial target and ten-year potential for the utility. The most recent legislation, Resolution #32134 established the 2024-

2025 conservation target of 18 aMW and ten-year potential of 79 aMW. The 2026-2027 target of 16 aMW is a decrease from the 2024-2025 target. Other than the energy savings target and ten-year potential, this Resolution is similar to Resolution #32134 in its language and intent.

2. CAPITAL IMPROVEMENT PROGRAM

Does this legislation create, fund, or amend a CIP Project? ☐ Yes ☒ No

3. SUMMARY OF FINANCIAL IMPLICATIONS

Does this legislation have financial impacts to the City? ☐ Yes ☒ No

3.d. Other Impacts

Does the legislation have other financial impacts to The City of Seattle, including direct or indirect, one-time or ongoing costs, that are not included in Sections 3.a through 3.c? If so, please describe these financial impacts.

There is no direct financial impact of implementing this legislation; the adoption of this Resolution is an administrative requirement of state law. However, failing to meet the biennial conservation target may result in an administrative penalty outlined in RCW 19.285.060: “(1) Except as provided in subsection (2) of this section, a qualifying utility that fails to comply with the energy conservation or renewable energy targets established in RCW 19.285.040 shall pay an administrative penalty to the state of Washington in the amount of fifty dollars for each megawatt-hour of shortfall. Beginning in 2007, this penalty shall be adjusted annually according to the rate of change of the inflation indicator, gross domestic product-implicit price deflator, as published by the bureau of economic analysis of the United States department of commerce or its successor.”

If the legislation has costs, but they can be absorbed within existing operations, please describe how those costs can be absorbed. The description should clearly describe if the absorbed costs are achievable because the department had excess resources within their existing budget or if by absorbing these costs the department is deprioritizing other work that would have used these resources.

City Light makes substantial energy efficiency investments every year and expects to do so in the future. The Department builds its capital budget expecting conservation measures will, in general, be relatively close to historical levels and have a similar cost of acquisition. City Light has sufficient CIP & O&M budget in 2026. If the cost of acquisition increases, City Light may require higher O&M and/or CIP budget in 2027 to meet the two-year target. If so, City Light will incorporate incremental conservation budget needs in the 2027-2032 Strategic Plan’s rate path.

Please describe any financial costs or other impacts of *not* implementing the legislation.

There is no direct financial cost of not implementing this legislation. However, City Light is required by state law to set the conservation targets as outlined in RCW 19.285.040. Failing to meet the biennial conservation target may result in an administrative penalty.

4. OTHER IMPLICATIONS

a. Please describe how this legislation may affect any departments besides the originating department.

Within the budget for conservation, Seattle City Light directs funding to the following departments:

- \$3M annually to the Office of Housing in support of the HomeWise Weatherization Program,
- \$1.2M annually to the Office of Sustainability and Environment for policy development, and grant coordination.
- \$547K annually to the Seattle Department of Construction and Inspections for energy code development, compliance, and outreach.

b. Does this legislation affect a piece of property? If yes, please attach a map and explain any impacts on the property. Please attach any Environmental Impact Statements, Determinations of Non-Significance, or other reports generated for this property.

No

c. Please describe any perceived implication for the principles of the Race and Social Justice Initiative.

- i. How does this legislation impact vulnerable or historically disadvantaged communities? How did you arrive at this conclusion? In your response please consider impacts within City government (employees, internal programs) as well as in the broader community.**

The adoption of this Resolution is an administrative requirement of state law to set a conservation target using methodology set by the Northwest Power and Conservation Council.

- ii. Please attach any Racial Equity Toolkits or other racial equity analyses in the development and/or assessment of the legislation.**

The adoption of this Resolution is an administrative requirement of state law to set a conservation target using methodology set by the Northwest Power and Conservation Council.

- iii. What is the Language Access Plan for any communications to the public?**

The adoption of this Resolution is an administrative requirement of state law to set a conservation target using methodology set by the Northwest Power and Conservation Council.

d. Climate Change Implications

- i. Emissions: How is this legislation likely to increase or decrease carbon emissions in a material way? Please attach any studies or other materials that were used to inform this response.**

This resolution supports a decrease in carbon emissions by establishing two- and ten-year energy conservation targets. Conservation helps to reduce City Light's carbon emissions by saving energy and helping to reduce overall load, ultimately helping City Light's hydroelectric resources meet most of our demand.

- ii. **Resiliency: Will the action(s) proposed by this legislation increase or decrease Seattle's resiliency (or ability to adapt) to climate change in a material way? If so, explain. If it is likely to decrease resiliency in a material way, describe what will or could be done to mitigate the effects.**

This resolution supports Seattle's resiliency to climate change by establishing two- and ten-year energy conservation targets. Energy efficiency helps to reduce carbon emissions, as stated above.

- e. **If this legislation includes a new initiative or a major programmatic expansion: What are the specific long-term and measurable goal(s) of the program? How will this legislation help achieve the program's desired goal(s)? What mechanisms will be used to measure progress towards meeting those goals?**

This is not a new initiative or major programmatic expansion; this effort is consistent with City Light's longstanding commitment to conservation.

5. CHECKLIST

- ☒ **Is a public hearing required?**
Yes. Consistent with WAC 194-37-070 section (4), the utility must establish its ten-year potential and biennial target by action of the utility's governing board, after public notice and opportunity for comment.
- ☐ **Is publication of notice with *The Daily Journal of Commerce* and/or *The Seattle Times* required?**
- ☐ **If this legislation changes spending and/or revenues for a fund, have you reviewed the relevant fund policies and determined that this legislation complies?**
- ☐ **Does this legislation create a non-utility CIP project that involves a shared financial commitment with a non-City partner agency or organization?**

6. ATTACHMENTS

Summary Attachments: None.

2026-2027 Conservation Target

Sustainability, City Light, Arts & Culture Committee

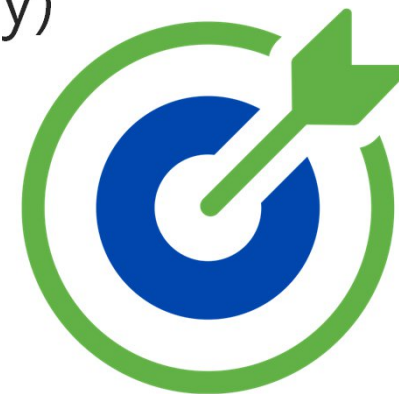
Jennifer Finnigan | September 5, 2025



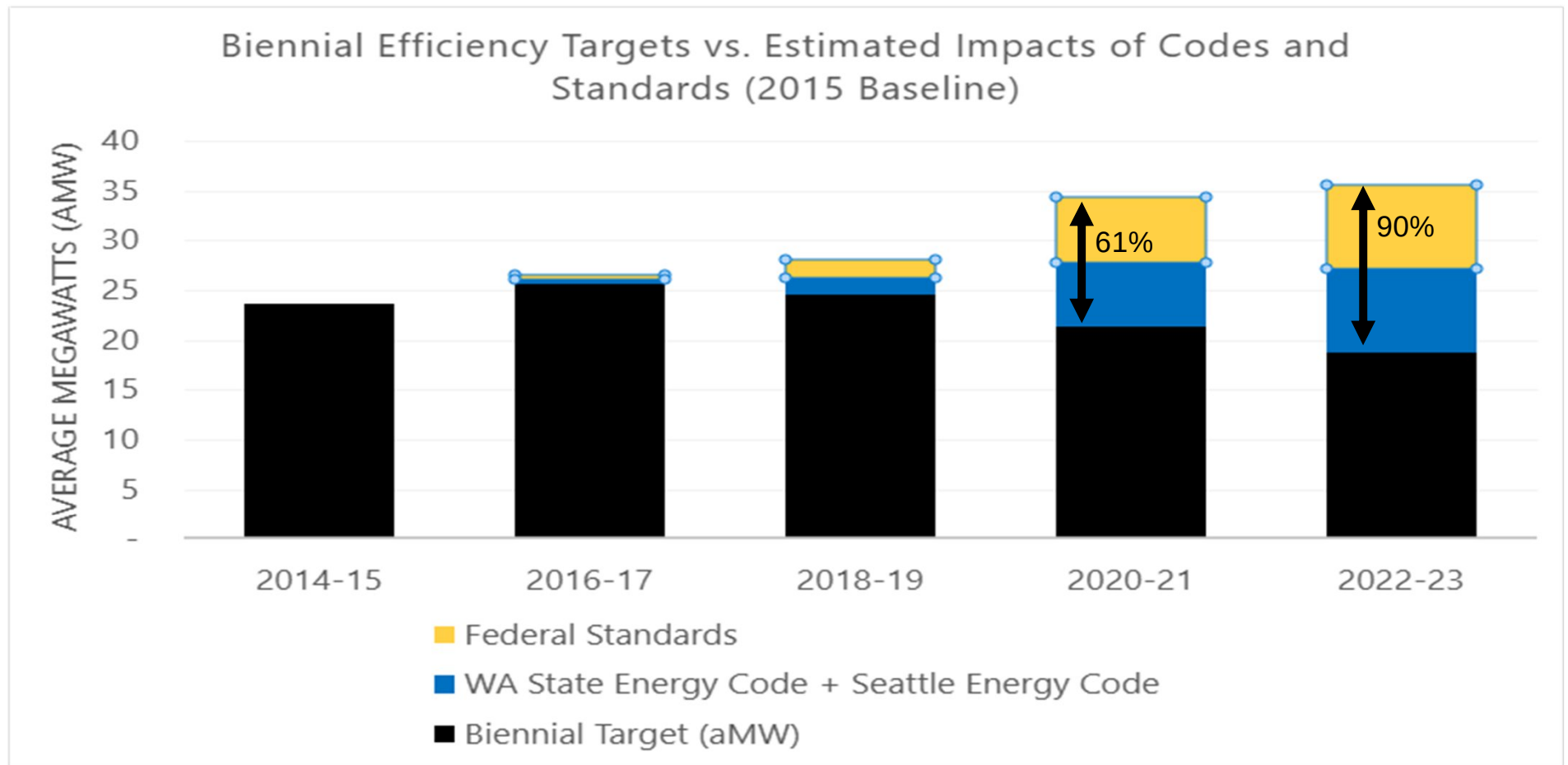
Request

Please approve

- 2026-2035 conservation target: 78 aMW
- 2026-2027 conservation target: 16 aMW
 - (Equivalent energy to ~9,500 homes annually)



Impact of energy codes on energy savings



THANK YOU



Seattle City Light

2026-2027 Conservation Target

Sustainability, City Light, Arts & Culture Committee

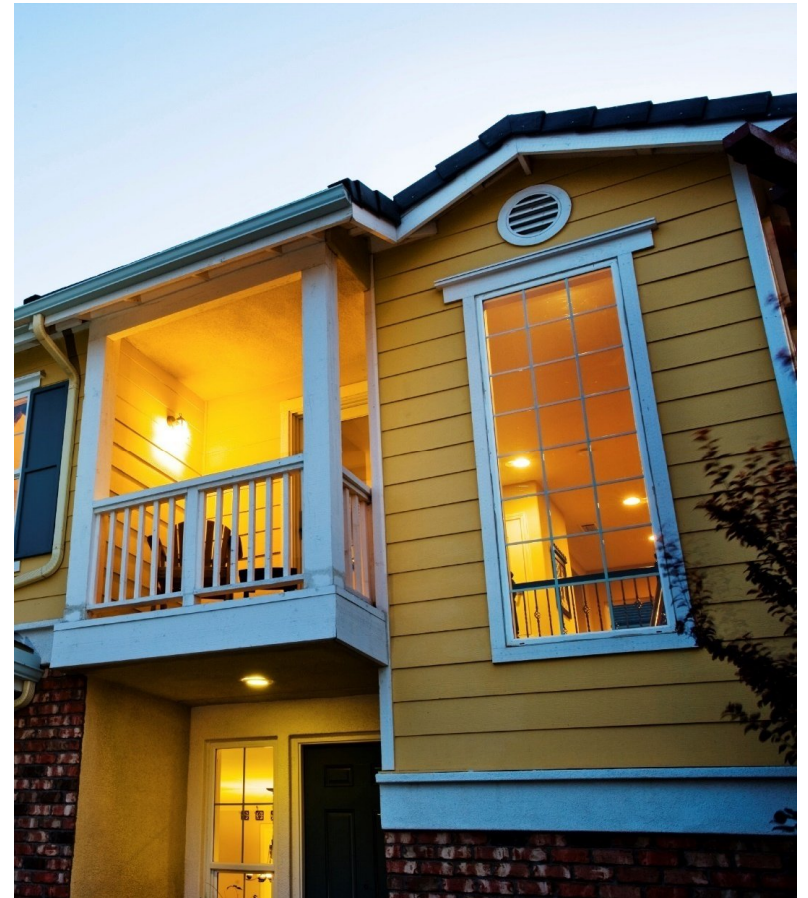
Jennifer Finnigan | August 1, 2025



What is Energy Conservation?

Energy conservation is a reduction of the total amount of energy consumed over a year

Also known as energy efficiency



Conservation Examples

Residential

- ENERGY STAR washers and dryers
- Wall insulation
- Heat pumps
- Heat pump water heaters

Commercial

- Triple glazed windows
- Building automation systems
- HVAC retro-commissioning

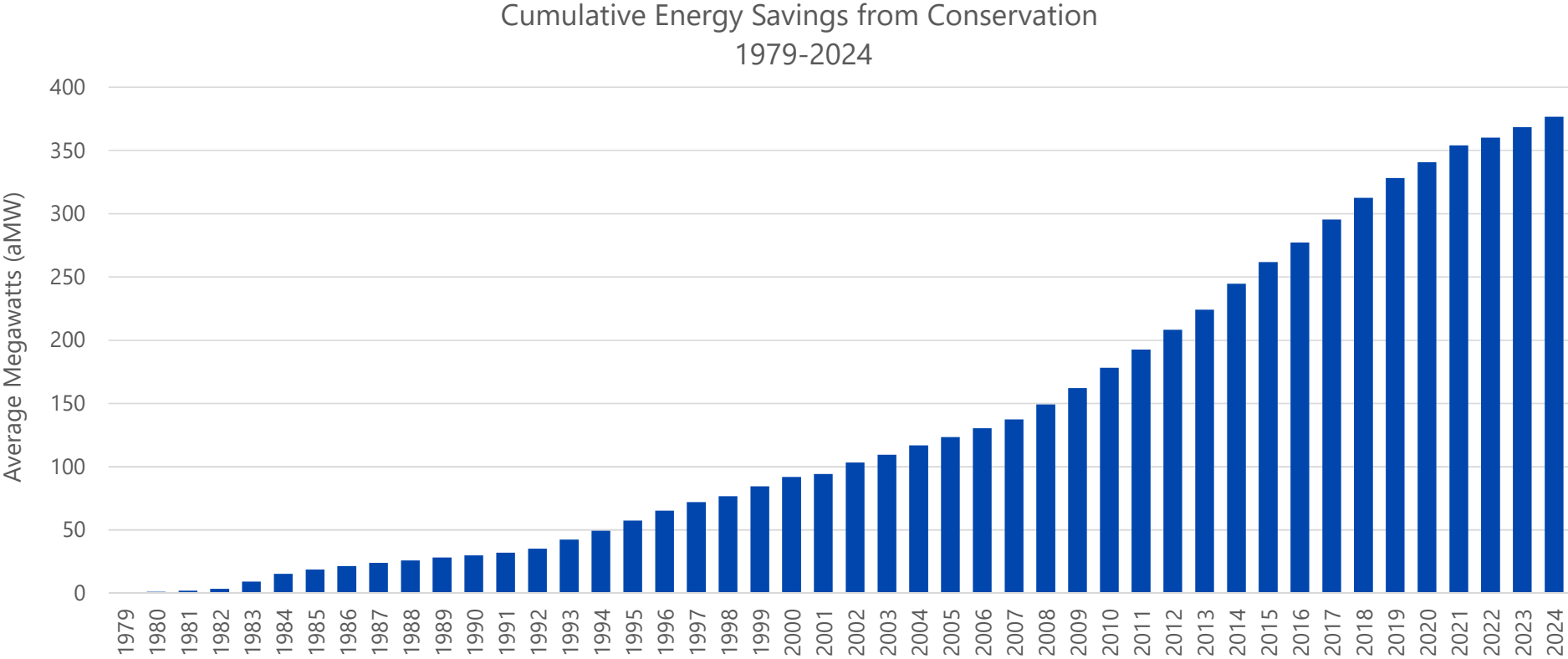


Conservation at City Light

- A top resource choice
 - Lower cost
 - Lower risk
 - Low environmental impact
 - Avoids transmission constraints



Our Conservation Legacy



Energy Conservation Targets – State Law



Utilities must:

- Pursue “all available conservation that is cost-effective, reliable, and feasible”
- Set 2-year conservation target, 10-year conservation target, every two years
- Collect enough conservation to meet the 2-year target

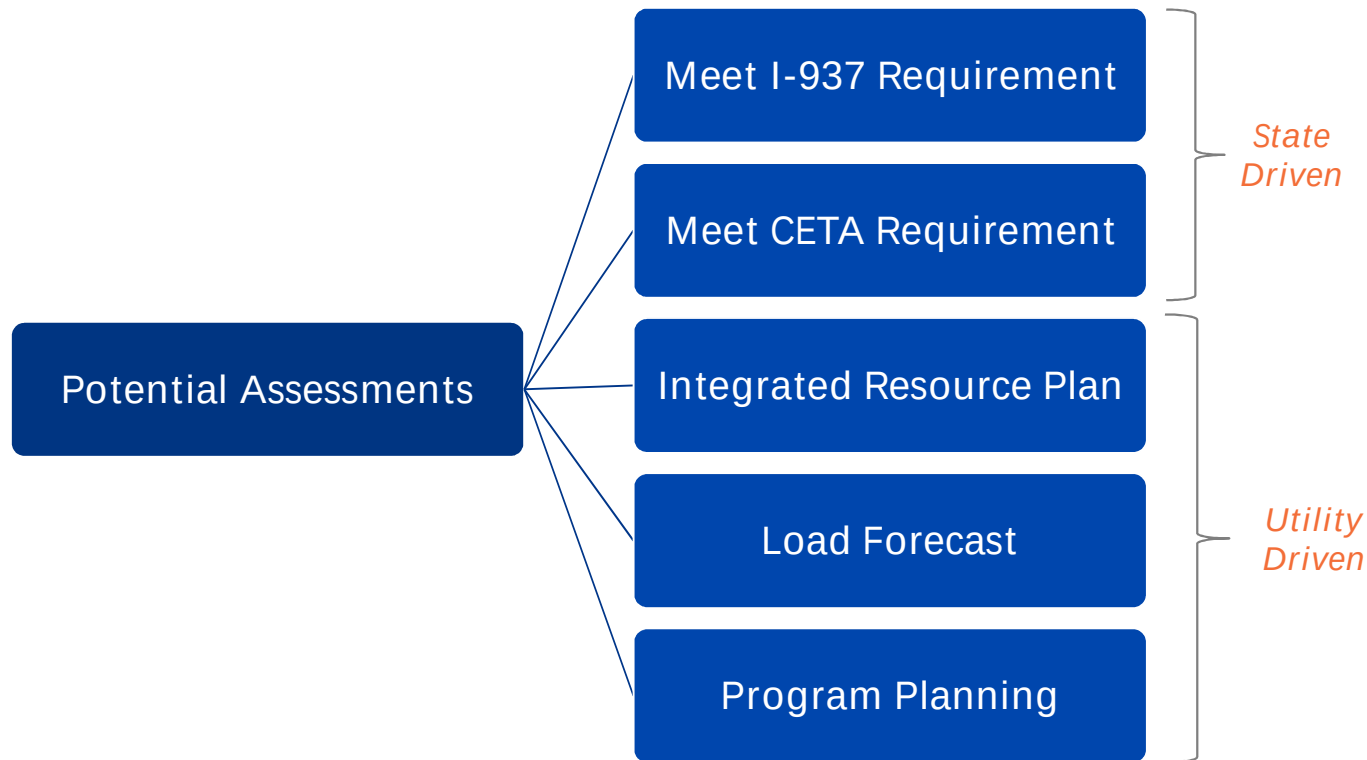
How We Calculate Energy Conservation Targets

Potential Assessment Study

- Identifies the amount, timing, and cost of conservation
- Specific to our service territory
- Weighs against supply-side resources
- Identifies amount of conservation that is 'least-cost'
- Methodology is set by state law

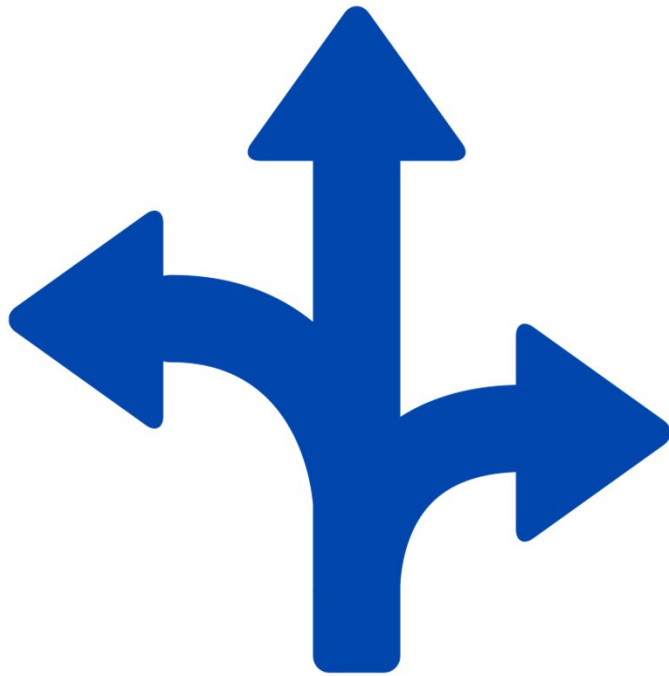


Why We Do Potential Assessments



CETA = Clean Energy Transformation Act

Conservation Targets Change Over Time



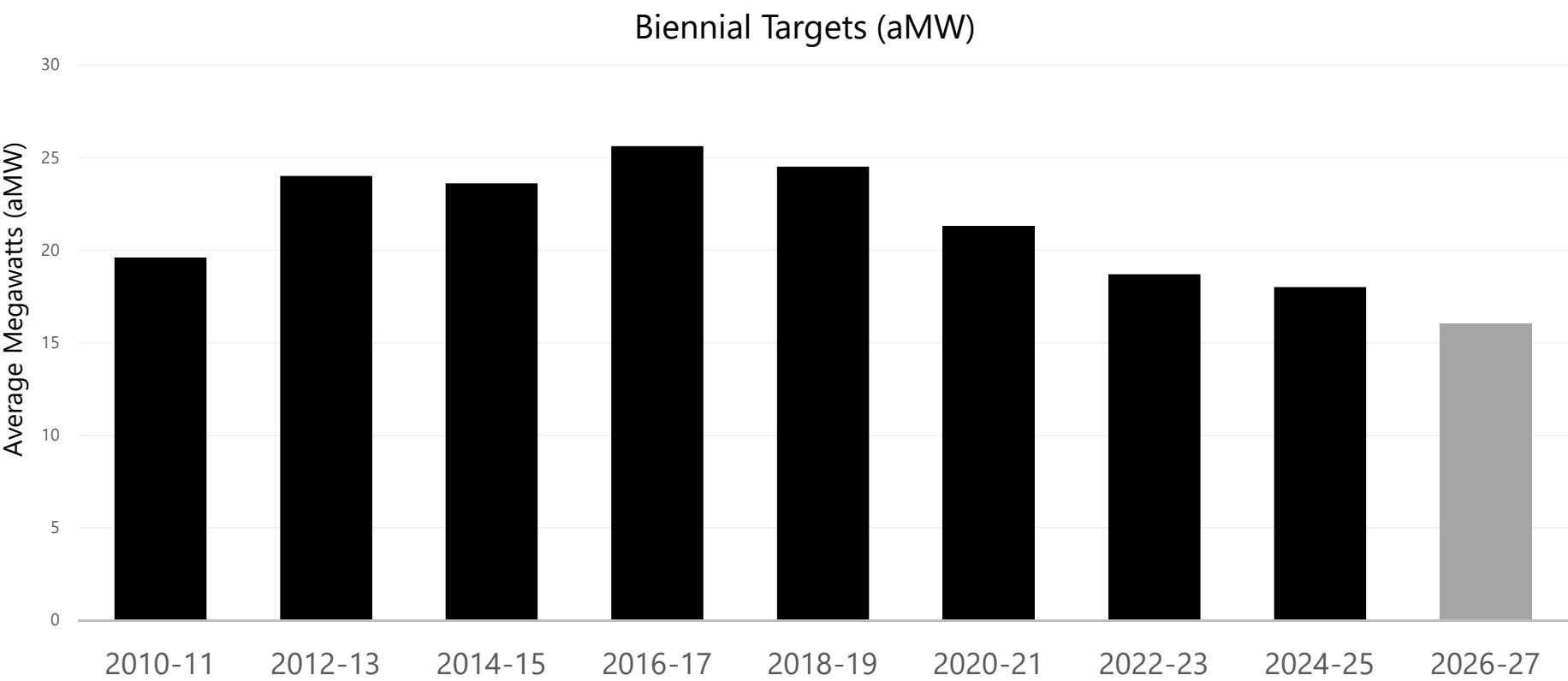
I-937: Utilities must pursue “all available conservation that is cost-effective, reliable, and feasible”

Drivers of change

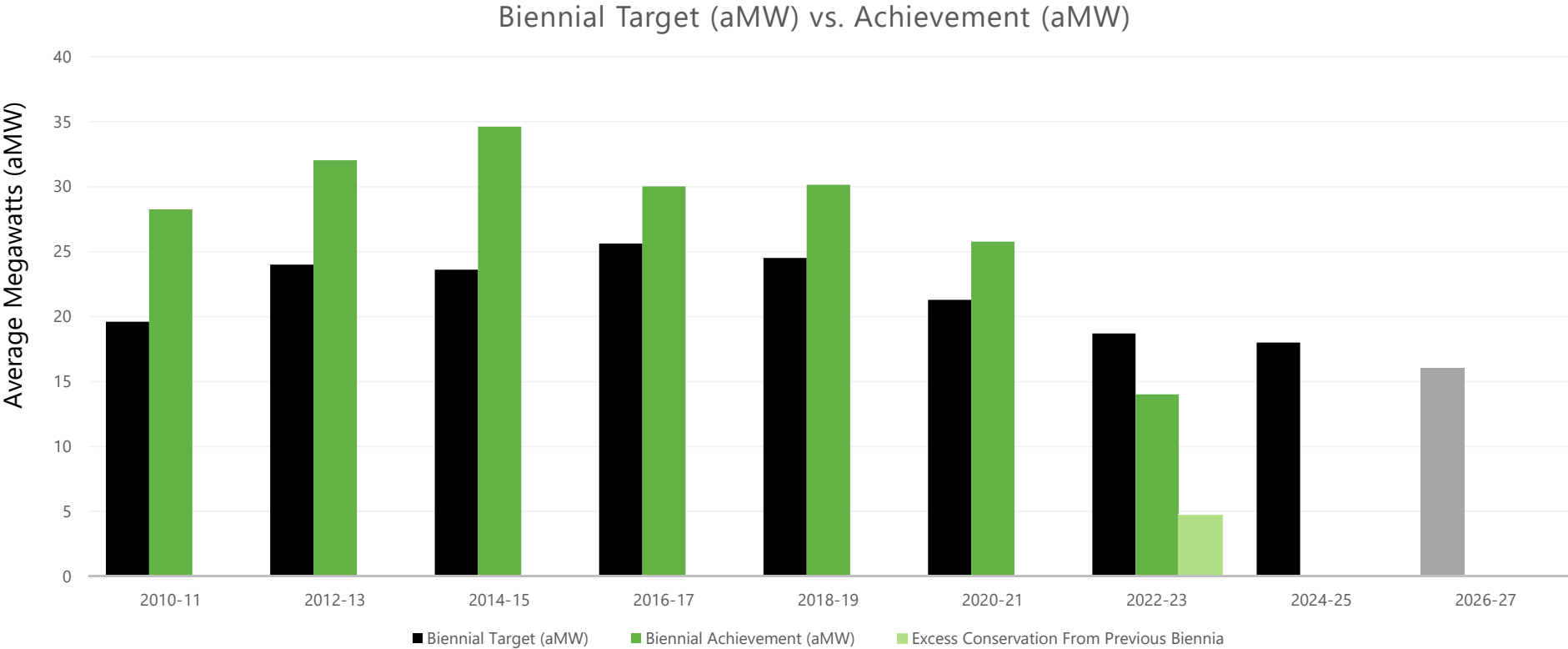
- Market transformation
- Local market conditions
- Government policies

THE NATION'S ENERGY POLICY

Conservation Targets Over Time



Conservation Targets and Achievement Over Time



Request: Approve Conservation Targets

- 2026-2035 (ten-year) conservation target: 78 aMW
- 2026-2027 (two-year) conservation target: 16 aMW
 - (Equivalent energy to ~9,500 homes annually)





Legislation Text

File #: Res 32181, **Version:** 1

CITY OF SEATTLE

RESOLUTION _____

A RESOLUTION relating to the City Light Department; approving the City Light Department's 2026-2029 Clean Energy Implementation Plan as required by Washington State's Clean Energy Transformation Act (CETA), chapter 19.405 RCW.

WHEREAS, in 2019 the Washington State Legislature passed the Clean Energy Transformation Act (CETA)

requiring Washington State utilities to be carbon neutral by 2030 and use 100 percent non-emitting resources by 2045; and

WHEREAS, CETA further requires utilities to compile and submit a Clean Energy Implementation Plan (CEIP) every four years to show progress in meeting the underlying requirements of CETA; and

WHEREAS, the City Light Department's CEIP reflects the statutory requirement to advance energy equity and ensure the equitable distribution of energy and non-energy benefits, particularly for vulnerable populations and highly impacted communities; and

WHEREAS, the City Light Department's CEIP is consistent with the City Light Department's most recently adopted Integrated Resource Plan (IRP) as required under WAC 194-40-200(3), and reflects long-term planning for energy needs, resource adequacy, and reliability; and

WHEREAS, the Seattle City Council approved the City Light Department's 2022-2025 CEIP via Resolution 32040 in 2022, as required under CETA (RCW 19.405.060); and

WHEREAS, the Seattle City Council adopted Resolution 32059 in 2022, directing that the One Seattle update to the Comprehensive Plan update address climate change, climate resiliency and adaptation, and environmental justices; and

WHEREAS, in 2025, Mayor Bruce Harrell issued Executive Order 2025-04 directing a comprehensive update

to The City of Seattle’s 2013 Climate Action Plan, including an integration of climate resilience, climate adaptation, and transportation emissions reduction strategies-objectives that are consistent with and supported by City Light’s 2026-2029 CEIP; and

WHEREAS, climate change threatens Seattle residents’ health, well-being, and economic vitality, with disproportionate impacts on vulnerable communities; and

WHEREAS, the deadline for the City Light Department to submit the 2026-2029 CEIP is January 1, 2026 and, once approved by the Seattle City Council, City Light’s 2026-2029 CEIP will be submitted to the Washington State Department of Commerce by the January 1, 2026 due date; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SEATTLE, THE MAYOR CONCURRING, THAT:

Section 1. The City Light Department’s Clean Energy Implementation Plan, attached to this resolution as Attachment 1, Exhibit A, is adopted as the City’s plan for compliance with Washington State’s Clean Energy Transformation Act.

Adopted by the City Council the _____ day of _____, 2025, and signed by me in open session in authentication of its adoption this _____ day of _____, 2025.

President _____ of the City Council

The Mayor concurred the _____ day of _____, 2025.

Bruce A. Harrell, Mayor

Filed by me this _____ day of _____, 2025.

Scheereen Dedman, City Clerk

(Seal)

Attachments:

Attachment 1 - SCL 2026-2029 Clean Energy Implementation Plan Report

Exhibit A - SCL 2026-2029 Clean Energy Implementation Plan



Seattle City Light

JUNE 2025

2026-2029 Clean Energy Implementation Plan Report

INTRODUCTION

The Clean Energy Transformation Act (CETA), signed by Governor Jay Inslee in 2019 (SB 5116), commits Washington state to an electricity supply free of greenhouse gas emissions by 2045. CETA establishes a phased transition, requiring utilities to supply greenhouse gas-neutral electricity by 2030 and 100% of electricity from renewable or non-emitting resources by 2045. As part of this law, utilities must submit a governing board-approved, Clean Energy Implementation Plan (CEIP) every four years, outlining the specific actions they will take during the upcoming compliance period.

PURPOSE OF REPORT

Seattle City Light created this report to familiarize the City of Seattle's elected officials with the 2026-2029 CEIP. We provide a full summary of targets, indicators, and specific actions in the state-required CEIP Excel workbook template (Exhibit A to this attachment). This narrative provides an accessible overview of the CEIP's key components, including compliance targets, equity considerations, and public engagement efforts. The approved CEIP must be formally submitted to the Washington State Department of Commerce by January 1, 2026.

The CEIP reflects Seattle's continued commitment to environmental stewardship, equity, and transparency. It focuses on near-term, measurable steps toward clean energy while ensuring that Highly Impacted Communities and Vulnerable Populations¹ benefit from the transition.

INTERIM AND SPECIFIC TARGETS (2026-2029)

There are two sets of targets City Light is required to establish for the CEIP:

¹ Highly Impacted Communities and Vulnerable Populations are terms used within CETA and are defined in RCW 19.405.020.

1. Interim targets for serving retail electric load with renewable and non-emitting resources.

- a. "Renewable" includes water, wind, solar energy, geothermal, renewable natural gas, renewable hydrogen, wave, ocean or tidal power, biodiesel fuel that is not derived from crops raised on land cleared from old growth or first growth forests, and biomass energy.
- b. "Non-emitting" includes electricity from a generating facility or a resource that provides electrical energy, capacity, or ancillary services to an electric utility and that does not emit greenhouse gases as a by-product of energy generation. It excludes renewable resources.

2. Specific targets for renewable energy, energy efficiency, and demand response.

- a. The renewable energy target is the quantity in megawatt hours of renewable electricity expected to be used in the period.
- b. The energy-efficiency target is the amount, expressed in megawatt-hours of first-year savings, of energy efficiency resources expected to be acquired during the period. For the purposes of this report, we use the term conservation interchangeably with energy efficiency.
- c. Demand response² target includes an amount, expressed in megawatts, of demand response resources acquired during the period.

These targets align with the utility's most recent Integrated Resource Plan (IRP) and Demand Side Management Potential Assessment (DSMPA), which includes conservation potential and demand response potential, and adheres to a methodology set by RCW 19.285.040. The 2024 IRP Progress Report identified the most cost-effective mix of supply side resources that meet all policy constraints and results in a "resource adequate" portfolio, which means we have adequate generating capacity to meet customer demand for electricity. The 2024 IRP Progress Report has a resource adequacy standard of not exceeding two loss-of-load events every 10 years. This is a standard industry metric for measuring the likelihood of service interruption due to inadequate generation supply. The 2026 DSMPA identified the most cost-effective mix of demand and supply side resources, with a focus on the economic potential of demand side resources.

The interim targets reflect the percentage of load that we expect to support with clean energy during the 2026-2029 period and are consistent with resource planning assumptions. These targets are based on output from the 2024 IRP Progress Report. We forecasted specific generation used to meet load, including both existing and new resource acquisitions specified by the IRP, and calculated the part that is renewable or non-emitting for the interim years 2026-2029. Most of the renewable generation

² "Demand Response" is defined in RCW 19.405.202(11) and, more specifically, refers to changes in electric usage by demand-side resources from their normal consumption patterns and may include energy storage and measures to increase or decrease electricity production on the customer's side of the meter. The utility identifies the need for demand response and how it can be met at the lowest reasonable cost, then puts out a signal and incentive for customers to respond to.

targeted below consists of hydropower from our owned dams and contract with the Bonneville Power Administration (BPA). The non-emitting generation included below is the nuclear part of BPA's fuel mix.

The table below summarizes the projected percentages of renewable and non-emitting energy used to serve load.

Clean Energy Type	INTERIM TARGETS PRIOR TO 2030					
	Units	2026	2027	2028	2029	4-year period
Renewable Targets	%	88%	87%	85%	83%	86%
Non-emitting Targets	%	5%	5%	5%	5%	5%
Total		92%	91%	90%	88%	90%

We based the specific targets below for renewable energy on the 2024 IRP Progress Report. They consist of the *total* amount of forecasted renewable energy generation in contrast to the interim targets above, which only reflect energy to serve load in City Light's portfolio over the next four years, including planned resource additions.

We based the specific targets for energy efficiency and demand response on our most recent 2026 DSMPA, which calculated conservation economic potential and demand response economic potential. In the report, we identified the most cost-effective amount of energy efficiency and demand response to pursue to meet load and policy requirements.

Resource Category	SPECIFIC TARGETS					
	Units	2026	2027	2028	2029	4-year period
Renewable Energy Targets	MWh to be used over the performance period	9,464,348 (1,080 aMW)	9,398,829 (1,073 aMW)	9,011,731 (1,029 aMW)	8,979,352 (1,025 aMW)	36,854,260 (4,207 aMW)
Energy Efficiency Targets	MWh to be acquired over the performance period	70,080 (8 aMW)	70,080 (8 aMW)	100,740 (11.5 aMW)	100,740 (11.5 aMW)	341,640 (39 aMW)
Demand Response Targets	MW to be acquired over the performance period	3	3	3	3	12

While City Light has offered energy efficiency programs for almost 50 years, demand response is a new undertaking for us. City Light currently has a “bring your own thermostat” pilot, we are developing an Industrial Curtailment Program, and will launch time of use rates later this year. In the 2026-2029 reporting period, we’ll continue to expand our portfolio of demand response offerings in support of customer and resource needs.. We will bring forward legislation in 2025 to City Council to amend the Seattle Municipal Code to authorize implementing future programs.

PUBLIC PARTICIPATION SUMMARY

To develop the CEIP, we partnered with the Seattle Department of Neighborhoods to engage with communities throughout our service area. The public participation process included:

1. **Reviewing existing feedback:** We reviewed relevant community feedback provided via other strategic planning efforts (e.g., City Light’s Transportation Electrification Strategic Investment Plan [TESIP 2.0] and the City’s Comprehensive Plan). This approach enabled us to respond to existing community feedback and identify gaps and opportunities in community engagement.
2. **Hosting community conversations:** We directly engaged with customers and community leaders through public meetings, focus groups, and community gatherings to inform the CEIP planning process.
3. **Engaging trusted community partners:** We met with community organizations and Seattle Department of Neighborhoods Community Liaisons, who work directly with Highly Impacted Communities and Vulnerable Populations on issues including affordability, public health, environment, etc.

Key themes from community feedback included an emphasis on centering vulnerable communities in the planning process, increasing awareness about how City Light is preparing for the clean energy transition, and ensuring customers have equitable access to programs and services.

EQUITY INDICATORS, SPECIFIC ACTIONS, AND EQUITY CONSIDERATIONS

The equity-related sections of the CEIP were directly informed by the public participation process that targeted priority populations identified by CETA as Highly Impacted Communities (HICs) and Vulnerable Populations (VPs). Though HICs are pre-determined by the state’s [Environmental Health Disparities \(EHD\) map](#) as census tracts ranking 9 or 10, the term “Vulnerable Population” must be defined through a public process.

Community outreach identified the following groups as most vulnerable or impacted by lack of access to power as those who:

- Rely on electricity for medical devices, medication, and/or personal mobility (e.g., electric wheelchairs, breathing machines, insulin).

- Disproportionately experience and are more sensitive to extreme weather events (e.g., community elders, children).
- Speak a language other than English or have limited English proficiency.
- Are lower-income and/or Black, Indigenous, or People of Color (BIPOC) living in franchise communities (e.g., White Center, Shoreline, Burien).

City Light is an industry leader in centering equity in customer programs and services. As such, many of our current offerings and services already align with the statutory requirement to ensure “equitable distribution of energy benefits and reduction of burdens to vulnerable populations and highly impacted communities.” To prioritize our submittal to the state, we focused on the priorities and concerns raised throughout our public engagement process. This approach ensured that the indicators we selected reflect our goals, and that the specific actions—the “how” behind achieving those goals—are rooted in community input, especially input from HICs and VPs.

We determined the **equity indicators**, or goals, as:

1. Reduce household electric energy burden³.
2. Improve community health outcomes (e.g., air quality).
3. Increase public participation in our programs from HICs and VPs.
4. Improve access to economic opportunities in the green energy sector (especially for young people).

Similarly, we identified the specific actions aligned with each indicator—and the corresponding outcomes used to measure community impact—through extensive public engagement. Community members expressed key concerns such as overall affordability and reliability, improved air quality, expanded opportunities for youth, and the removal of barriers to program participation. By grounding these elements in community-identified priorities, we can ensure that equity improvements are targeted toward the programs and services that matter most to the populations we serve.

GOVERNANCE AND APPROVAL

RCW 19.405.060 requires CEIPs to be approved by a utility’s governing body. Seattle City Council serves as the governing body for Seattle City Light. Approval of the CEIP, via City Council Resolution, is required prior to submission to the Washington State Department of Commerce by January 1, 2026. Upon approval, the final CEIP will be published on City Light’s website.

³ Household energy burden refers to the percent of a household’s income used to pay for energy bills (electricity and gas). Typically, households paying more than 6% of their income on energy bills are considered to have a high energy burden. As defined in WAC 480-100-605 “Energy assistance need” means the amount of assistance necessary to achieve an energy burden equal to six percent for utility customers.

CONCLUSION

We remain committed to an equitable transition to a clean energy future. The CEIP represents the legally required plan for delivering clean energy benefits to all customers during the 2026-2029 period. For complete details, please refer to the attached Excel workbook, which contains the full compliance filing.

EXHIBITS:

ATT 1 EX A – SEATTLE CITY LIGHT 2026-2029 CLEAN ENERGY IMPLEMENTATION PLAN

Clean Energy Implementation Plan Reporting Template

Published: March 10, 2026

Deadline: January 1, 2026

Submission: [Submit this workbook and all supporting documentation via Smartsheet.](#)

Questions: [Aaron Tam, Austin Scharff, Glenn Blackmon, Energy Office, CETA@commerce.wa.gov.](#)



Enter information in yellow fields

Select drop-down option from list in orange fields

Do not modify grey-shaded fields.

Note: this Excel workbook is macro-enabled to allow for the selection of multiple CETA categories on the Indicators & Forecast tab. If you have security restrictions or have no use for this feature, you do not have to enable macros.

Relevant Clean Energy Transformation Act Statutes and Rules

RCW 19.405.060

Clean energy implementation plan—Compliance criteria—Incremental cost of compliance.

(2)(a) By January 1, 2022, and every four years thereafter, each consumer-owned utility must develop and submit to the department a four-year clean energy implementation plan for the standards established under RCW 19.405.040(1) and 19.405.050(1) that: (i) Proposes interim targets for meeting the standard under RCW 19.405.040(1) during the years prior to 2030 and between 2030 and 2045, as well as specific targets for energy efficiency, demand response, and renewable energy; (ii) Is informed by the consumer-owned utility's clean energy action plan developed under RCW 19.280.030(1) or other ten-year plan developed under RCW 19.280.030(5); (iii) Is consistent with subsection (4) of this section; and (iv) Identifies specific actions to be taken by the consumer-owned utility over the next four years, consistent with the utility's long-range resource plan and resource adequacy requirements, that demonstrate progress towards meeting the standards under RCW 19.405.040(1) and 19.405.050(1) and the interim targets proposed under (a)(i) of this subsection. The specific actions identified must be informed by the consumer-owned utility's historic performance under median water conditions and resource capability and by the consumer-owned utility's participation in centralized markets. In identifying specific actions in its clean energy implementation plan, the consumer-owned utility may also take into consideration any significant and unplanned loss or addition of load it experiences.

(b) The governing body of the consumer-owned utility must, after a public meeting, adopt the consumer-owned utility's clean energy implementation plan. The clean energy implementation plan must be submitted to the department and made available to the public. The governing body may adopt more stringent targets than those proposed by the consumer-owned utility and periodically adjust or expedite timelines if it can be demonstrated that such targets or timelines can be achieved in a manner consistent with the following: (i) Maintaining and protecting the safety, reliable operation, and balancing of the electric system; (ii) Planning to meet the standards at the lowest reasonable cost, considering risk; (iii) Ensuring that all customers are benefiting from the transition to clean energy: Through the equitable distribution of energy and nonenergy benefits and reduction of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health and environmental benefits and reduction of costs and risks; and energy security and resiliency; and (iv) Ensuring that no customer or class of customers is unreasonably harmed by any resulting increases in the cost of utility-supplied electricity as may be necessary to comply with the standards.

(4)(a) A consumer-owned utility must be considered to be in compliance with the standards under RCW 19.405.040(1) and 19.405.050(1) if, over the four-year compliance period, the average annual incremental cost of meeting the standards or the interim targets established under subsection (2) of this section meets or exceeds a two percent increase of the consumer-owned utility's retail revenue requirement above the previous year. All costs included in the determination of cost impact must be directly attributable to actions necessary to comply with the requirements of RCW 19.405.040 and 19.405.050.

(b) If a consumer-owned utility relies on (a) of this subsection as a basis for compliance with the standard under RCW 19.405.040(1), and it has not met eighty percent of its annual retail electric load using electricity from renewable resources and nonemitting electric generation, then it must demonstrate that it has maximized investments in renewable resources and nonemitting electric generation prior to using alternative compliance options allowed under RCW 19.405.040(1)(b).

WAC 194-40-200

Clean energy implementation plan.

(1) **Specific actions.** Each utility must identify in each CEIP the specific actions the utility will take during the next interim performance period or GHG neutral compliance period to demonstrate progress toward meeting the standards under RCW 19.405.040(1) and 19.405.050(1) and the interim targets under subsection (2) of this section and the specific targets under subsection (3) of this section. Specific actions must be consistent with the requirements of RCW 19.405.060 (2)(a)(iv).

(2) **Interim target.** The CEIP must establish an interim target for the percentage of retail load to be served using renewable and nonemitting resources during the period covered by the CEIP. The interim target must demonstrate progress toward meeting the standards under RCW 19.405.040(1) and 19.405.050(1), if the utility is not already meeting the relevant standard.

(3) **Specific targets.** The CEIP must establish specific targets, for the interim performance period or GHG neutral compliance period covered by the CEIP, for each of the following categories of resources:

(a) **Energy efficiency.** (i) The CEIP must establish a target for the amount, expressed in megawatt-hours of first-year savings, of energy efficiency resources expected to be acquired during the period. The energy efficiency target must comply with WAC 194-40-330(1). (ii) A utility may update its CEIP to incorporate a revised energy efficiency target to match a biennial conservation target established by the utility under RCW 19.285.040 (1)(b) and WAC 194-37-070.

(b) **Demand response resources.** The CEIP must specify a target for the amount, expressed in megawatts, of demand response resources to be acquired during the period. The demand response target must comply with WAC 194-40-330(2).

(c) **Renewable energy.** The utility's target for renewable energy must identify the quantity in megawatt-hours of renewable electricity to be used in the period.

(4) **Specific actions to ensure equitable transition.** To meet the requirements of RCW 19.405.040(8), the CEIP must, at a minimum:

(a) Identify each highly impacted community, as defined in RCW 19.405.020(23), and its designation as either: (i) A community designated by the department of health based on cumulative impact analyses; or (ii) A community located in census tracts that are at least partially on Indian country.

(b) Identify vulnerable populations based on the adverse socioeconomic factors and sensitivity factors developed through a public process established by the utility and describe and explain any changes from the utility's previous CEIP, if any;

(c) Report the forecasted distribution of energy and nonenergy costs and benefits for the utility's portfolio of specific actions, including impacts resulting from achievement of the specific targets established under subsection (3) of this section. The report must: (i) Include one or more indicators applicable to the utility's service area and associated with energy benefits, nonenergy benefits, reduction of burdens, public health, environment, reduction in cost, energy security, or resiliency developed through a public process as part of the utility's long-term planning, for the provisions in RCW 19.405.040(8); (ii) Identify the expected effect of specific actions on highly impacted communities and vulnerable populations and the general location, if applicable, timing, and estimated cost of each specific action. If applicable, identify whether any resource will be located in highly impacted communities or will be governed by, serve, or otherwise benefit highly impacted communities or vulnerable populations in part or in whole; and (iii) Describe how the specific actions in the CEIP are consistent with, and informed by, the utility's longer-term strategies based on the analysis in RCW 19.280.030 (1)(k) and clean energy action plan in RCW 19.280.030(1)(l) from its most recent integrated resource plan, if applicable.

(d) Describe how the utility intends to reduce risks to highly impacted communities and vulnerable populations associated with the transition to clean energy.

(5) **Use of alternative compliance options.** The CEIP must identify any planned use during the period of alternative compliance options, as provided for in RCW 19.405.040 (1)(b).

(6) The CEIP must be consistent with the most recent integrated resource plan or resource plan, as applicable, prepared by the utility under RCW 19.280.030.

(7) The CEIP must be consistent with the utility's clean energy action plan developed under RCW 19.280.030(1) or other ten-year plan developed under RCW 19.280.030(5).

(8) The CEIP must identify the resource adequacy standard and measurement metrics adopted by the utility under WAC 194-40-210 and used in establishing the targets in its CEIP. (9) If the utility intends to comply using the two percent incremental cost approach specified in WAC 194-40-230, the CEIP must include the information required in WAC 194-40-230(3) and, if applicable, the demonstration required in WAC 194-40-350(2).

(10) Any utility that is not subject to RCW 19.280.030(1) may meet the requirements of this section through a simplified reporting form provided by commerce.

Utility Name & Contact Information

Note: if you list multiple contacts, please separate their information by a comma and a space.

Report Year	2026
Compliance Period	2026-2029
Utility Name	Seattle City Light
Report Date	6/10/2025
Contact Name	Cierra Holland
Phone Number	206-386-4588
Email	cierra.holland@seattle.gov
Web address of published CEIP	https://www.seattle.gov/city-light/energy/power-supply-and-delivery/clean-energy-implementation-plan
Are you a "qualifying utility" under the EIA?	Yes
Are you a BPA "full requirements" customer?	No

Targets

Interim targets: percentage of retail load to be served using renewable and nonemitting resources (WAC 194-40-200(2))

Utilities with less than 25,000 customers only need to complete cells H8 and H9 in the interim targets table below.

Clean Energy Type	Units	2026	2027	2028	2029	4-year Period
Renewable	%	88%	87%	85%	83%	86%
Nonemitting	%	5%	5%	5%	5%	5%
Total		92%	91%	90%	88%	90%

Describe how the target demonstrates progress toward meeting the 2030 and 2045 CETA standards (WAC 194-40-200(2)).

Per Commerce this cell is N/A; already meeting 80% over the 4-year period.

Specific targets (WAC 194-40-200(3))

Utilities with less than 25,000 customers only need to complete cells H17-19 in the specific targets table below.

Resource Category	Units	2026	2027	2028	2029	4-year Period
Renewable Energy	MWh to be used over the interim performance period	9,464,348	9,398,829	9,011,731	8,979,352	36,854,260
Energy Efficiency	MWh to be acquired over the interim performance period	70,080	70,080	100,740	100,740	341,640
Demand Response	MW to be acquired over the interim performance period	3	3	3	3	12

Energy efficiency assessment methodology details

Conservation Assessment Method	Conservation Potential Assessment
Hyperlink to Relevant Assessment	N/A at this time; we may post here once approved by Seattle City Council: https://www.seattle.gov/city-light/energy/power-supply-and-delivery/energy-conservation
Notes	Planning to be heard at Seattle City Council in 2025.

Demand response assessment methodology details

Did your utility conduct a demand response assessment?	Yes
Please briefly describe your demand response assessment findings. Please describe if there are DR opportunities for particular customer classes or barriers to utilizing DR in your service territory. Please describe which DR technologies were found to be cost-effective, reliable, and feasible.	City Light completed a Demand Response Potential Assessment (DRPA) as a part of the 2026 Demand Side Management Potential Assessment. The assessment identified 12 MW of cost effective demand response in the 2026-29 period. Based on model inputs, the DRPA found Critical Peak Pricing to be cost-effective. In the 2026-29 period we plan to explore this product and evaluate its feasibility and reliability. City Light currently has a Bring Your Own Thermostat pilot, and we are developing an Industrial Curtailment program and Time of Use rates; we will continue to test and evaluate these offerings.
Hyperlink to Relevant Assessment	N/A at this time; we may post here once the report is final: https://www.seattle.gov/city-light/energy/power-supply-and-delivery/energy-conservation
Notes	

Indicators & Forecast

Specific actions to ensure equitable transition (WAC 194-40-200(1)(4))

Enter information in the yellow fields below. Each indicator should correspond with the information entered in the same row. See the Menu of Ideas for examples. You can leave any unused fields blank or delete any unused rows. If you need to expand the table, you can drag the boundary of the data table by clicking and dragging the bottom right corner downward.

Index	Ind_ID	Indicator	CETA Category	Specific Action 1	Specific Action 2	Specific Action 3	Specific Action 4	Outcome Metric 1	Outcome Metric 2	Outcome Metric 3	Outcome Metric 4	Outcome Metric 5	How will the indicator and its associated metrics look different across the service territory in four years after taking the specific actions?
1	2026_95_1	Reduce household electric energy burden	Reduction of Costs and Risks	Design and deliver an accessible Community Solar Program	Increase the number of customers enrolled in the Utility Discount Program	Evaluate best case practices for fair rate development and/or cost attribution		Decrease average household energy burden among income-eligible participants as a result of an accessible community solar program	Decrease average household energy burden among Utility Discount Program participants	Provide actionable strategies to apply fair rate development in future rate-setting processes			We anticipate increasing energy affordability and relevant metrics to improve low-income households' ability to comfortably afford their energy bills. Since the southern part of our service area is where a disproportionate number of lower-income households reside, this area may benefit more. However, our service area has many mixed-income communities and expect there to be benefits across many neighborhoods. Especially among populations who may be unaware they qualify, like seniors on fixed incomes or college students.
2	2026_95_2	Improve community health outcomes	Public Health	Deliver transportation electrification investments that target overburdened communities and vulnerable populations.				Reduce metric tons of carbon dioxide equivalent (MTCO2e) in our service area					As we target transportation electrification investments in overburdened communities and vulnerable populations, we plan to directly invest in EV infrastructure, electric fleets and vehicles, and other similar projects. Some of these improvements will occur directly in the named communities. We hope to see these investments translate into air quality improvements in these neighborhoods. However, we recognize there are many other factors contributing to air quality, including other emissions not within our control or jurisdiction.
3	2026_95_3	Increase public participation in utility programs from highly impacted communities and vulnerable populations	Reduction of Burdens to Vulnerable Populations and Highly Impacted Communities	Increase the number of utility assistance community partnerships	Develop and implement a bi-annual Language Access Plan	Actively recruit multi-family buildings, businesses, and organizations to participate in our programs	Create a Whole Home Energy program to increase access to our energy efficiency and weatherization programs	Partner with five new community-serving organizations to increase awareness and enrollment in our utility assistance offerings	Provide meaningful access to utility services and programs for individuals with limited English proficiency	At least 200 buildings participate in energy management, energy efficiency, electrification, and/or other relevant programs	Increase customer touchpoints with energy efficiency and weatherization programs in HICs and VPs		As the southern part of our service area has a disproportionate number of HICs and VPs, this area may benefit more from the actions listed. That's not to take away from other neighborhoods though, as our service area has many mixed communities with residents of various incomes and demographics. And so, we expect there to be benefits across many neighborhoods.
4	2026_95_4	Improve access to economic opportunities in the green energy sector	Economic Development	Establish foundations of a green job pathway through a high school awareness campaign	Design and implement a High School Internship Program Targeting youth in households with income at or below 80% AML	Target WMBE contractors for our EV Charger Installation Program Certification		Complete at least 3 High School Energy/Green job career fairs or presentations annually	Each year, at least 5 high school students from low-income households participate the internship program, gaining hands-on experience and increased clarity about career pathways in the green energy sector.	Certify 20 WMBE contractors supporting equitable access to clean energy infrastructure opportunities			This indicator and associated metrics may not look significantly different across the service area since it aims to target high school youth and WMBE contractors who may or may not reside in our service area. One of the primary focuses is to create awareness and foster more representation into the green energy industry.

Specific Actions & Equity

Specific actions to ensure equitable transition (WAC 194-40-200(1)(4))

Click "Data" > "Refresh All" to auto-populate the specific actions list below with the specific actions from the previous spreadsheet tab.
Enter information in the yellow fields. Each specific action should correspond with information entered in the same row. Please delete any unused rows once you finalize your report.

SA_ID	Specific Action	Long Description	Resource Category	Program Type	Program Name	Input Metric 1	Input Metric 2	Input Metric 3	Output Metric 1	Output Metric 2	Output Metric 3	What is the expected effect of this specific action on highly impacted communities and vulnerable populations?	How will the specific action and its resources be governed by (if applicable), serve, or benefit highly impacted communities or vulnerable populations, if at all?	What are the risks to highly impacted communities and vulnerable population associated with the clean energy transition? How does the utility intend to reduce these risks through this specific action (if applicable)?	Will resources be located in highly impacted communities or vulnerable populations? (Y/N/Not applicable)	What is the general location of this specific action and its resources (if applicable)?	What is the timing of this specific action?	What is the estimated cost of this specific action?	What other benefits does the specific action bring that isn't covered by the listed metrics? (optional)
2026_95_1_1	Design and deliver an accessible Community Solar Program	Implement a program and identify MMW of feasible new community solar generation projects in Seattle and Franchise Cities (sites will vary including: rooftop, ground mounted, parking canopies, and floating will be investigated) identified through technical modeling and community input. Leverage external funding to reduce the portfolio project costs to ensure no-cost participation and a guaranteed bill credit for income-eligible customers and a competitive payback for market-rate customers. Center disadvantaged and minority-owned business entities by preparing them to bid on projects and encourage contractors to provide training opportunities, leveraging existing workforce development programs.	Renewable Energy	Community Solar	Community Solar Program	Financial investment in development of community solar projects.	Number of outreach events in HICs or events serving VPs.	Apply for Washington State University (WSU) Community Solar Expansion Program funding to reduce the projects costs associated with projects serving income-eligible customers.	Number of MMW's of community solar built in HIC and/or areas serving VP	Number of income-eligible customers informed of the Community Solar Program measured by event attendance.	Percent bill discount offered to income-eligible Community Solar Program participants.	Increased access to local solar generation and/or increased resilience due to solar paired with storage at existing community facilities serving HICs/VPs. Reduced energy burden for income-eligible customers. Locating projects at community spaces honors communities, may increase resilience to power outages if solar projects are paired with storage, may increase property values, and will generate an additional revenue stream (utility payment for use of space for life of solar project).	HICs/VPs have been engaged in program design and will continue to be engaged until program launch and during program implementation. See R7 for description of benefits. Also, projects may be in HICs at facilities serving VPs. We are working with Community Partners and community liaisons who work with HICs/VPs to co-design culturally relevant messaging, process improvements, and enrollment support, which includes meeting language access needs. By grounding this work in the lived experiences of the customers and community partners, we are able to identify and remove barriers to enrollment.	HICs/VPs have historically been left out of the clean energy transition. They may not be able to install solar because of cost, building age, and/or because they live in multi-family housing. A community solar program will overcome those barriers by offering 50% of our program subscription (~2MMW) for income-eligible customers and offering those customers no-cost participation and a guaranteed bill discount.	Yes	Our service area. Solar projects will be interconnected on the distribution grid.	We are designing this program. Construction on project(s) is expected ~2026-2028; customer enrollment begins ~2028, as projects are completed.	We are developing/refining cost estimates. Rough order of magnitude estimate is \$14.8M to build ~4MMW. This does not reflect external funding sources the utility plans to leverage to reduce that cost.	We are investigating opportunities to integrate workforce development and public art.
2026_95_1_2	Increase the number of customers enrolled in the Utility Discount Program	Promote enrollment in the Utility Discount Program by removing barriers to access and expanding engagement with HICs/VPs.	Other	Resilience	Utility Discount Program	Number of outreach events in HICs	Number of languages application is translated into	Number of community sign up events	At least 35% of eligible customers are enrolled in Utility Discount Program	Average annual customer bill savings from Utility Discount Program		By reducing the energy burden of customers from HICs/VPs, we are alleviating some financial strain. With the discount, customers have less pressure from high energy costs so they can focus on other essentials.		Energy burden can disproportionately affect HICs/VPs impacting their well-being and causing economic hardship. High energy burdens can prevent people from accessing other essential needs and increases their risk of displacement.	N/A	The utility's service territory.	This work is ongoing.	The estimated cost for communications, language access, and engagement is \$150,000.	Increase awareness of and participation in other utility assistance and energy efficiency programs to help reduce customer energy burdens.
2026_95_1_3	Evaluate best case practices for fair rate development and/or cost attribution	This action is in direct response to priorities raised during our public process and our commitment to an equitable transition. This study will evaluate best case practices to develop fair rates or cost attributions. Currently, this action will be managed by our finance team.	Other	Resilience	Finance	Funds spent on contracting services to do the study	Number of interviews with other utilities or relevant institutions		Final report showing best practice cost attribution methodology			Completing this study will provide best practice review to ensure our cost attribution practices fairly assign costs to each of our customer classes.	This action could provide more fair processes and practices when developing rates or cost attributions.	HICs and VPs risk potentially taking on a disproportionate share of the cost as we transition entirely to clean energy. This study will share methods to mitigate this impact.	N/A	N/A	2026-2030	Approximately \$250,000.	N/A
2026_95_2_1	Deliver transportation electrification investments that target overburdened communities and vulnerable populations.	Implement transportation electrification initiatives that prioritize overburdened communities and vulnerable populations by expanding access to electric vehicles, charging infrastructure, and clean transit options. These investments aim to reduce air pollution, improve public health, lower transportation costs, and promote environmental equity in historically underserved areas.	Other	Transportation Decarbonization	Transportation Electrification	Number of community partners	Number of outreach events in HICs or VPs		Transportation electrification funding spent in HICs and VPs	Number of chargers in HICs		Delivering targeted transportation electrification investments in HICs and VPs will ideally improve the overall air quality and lower our climate impact. It will also bring public investments and improvements to the community that will foster EV adoption.	Many of our transportation electrification programs are committed to partnering with community leaders and organizations. Some of these will be formal contracts to facilitate their involvement as these contracts would extend people's time and expertise. These partnerships will help identify priority locations and the type of transportation investments they'd like to see.	Specifically with transportation electrification, we risk excluding HICs/VPs from participating because of high EV costs and limited/no access to EV charging stations. We intend to reduce these risks by partnering and delivering on community-identified priorities.	Yes	The utility's service territory.	Ongoing	Approximately \$3.7 million.	N/A
2026_95_3_1	Increase the number of utility assistance community partnerships	Work with trusted community organizations and income-qualified housing providers to promote enrollment in the Utility Discount Program.	Other	Public Outreach and Engagement	Utility Discount Program	Number of community organizations we reach out to about Utility Assistance programs	Funds allocated to contractually partner with community organizations		Number of organizations we contract with	Number of customers enrolled via streamlined applications (e.g. auto-enrollment and express rate applications)	Update to Community Based Organization Utility Assistance Enrollment Toolkit	This will help increase awareness of and participation in our Utility Assistance Programs within HICs/VPs. It also reduces harm by streamlining the enrollment process.	HICs/VPs were engaged through a program evaluation and customer research to inform our partnering strategies. We are also working with community orgs to co-design contracting processes to reduce the burden on our partners and designing partnerships that help us better meet the needs of HICs/VPs.	Energy burden can disproportionately affect HICs/VPs impacting their well-being and causing economic hardship. High energy burdens can prevent people from accessing other essential needs and increases their risk of displacement.	N/A	Our service area.	Partnership identification and development will be ongoing throughout implementation of the CEP.	The estimated cost is \$100,000, which includes contracting with City of Seattle Department of Neighborhoods and funding for mutually beneficial partnering.	Through these partnerships, we are reducing participation barriers for people who are linguistically and/or digitally isolated. In addition, we are investing in organizations that serve HICs/VPs.
2026_95_3_2	Develop and implement a bi-annual Language Access Plan	In accordance with Executive Order 2025-03, City Light will develop and implement a Language Access Plan.	Other	Public Outreach and Engagement	City of Seattle Language Access Program	Number or proportion of persons with limited English proficiency	Funds allocated for translation, interpretation, transcription	Develop and socialize Language Access toolkit for employees and consultants	Volume of communications materials translated	Number of in-language customer interactions via LanguageLine Interpretation services	Number of community events hosted with interpreters (e.g. Dept of Neighborhoods Community Liaisons)	Ensure equitable access to our services, resources and benefits regardless of English language proficiency.	As a municipal utility, we are responsive to our customers and elected representatives. The City's Language Access Program, which is led by the Office of Immigrant and Refugee Affairs and the corresponding Executive Order governs City Light's Language Access Plan.	With one in five Seattle residents speaking a language other than English at home, the risk is that customers with limited English proficiency miss out on the benefits of our region's clean energy transition. Through implementation of City Light's Language Access Plan, we are reducing barriers to awareness and expanding equitable access.	N/A	N/A	We are currently implementing the 2025-2026 Language Access Plan and will submit the 2027-2028 Language Access Plan by October 1, 2025.	We estimate spending \$750,000 through implementation of the 2025-2026 plan, and is currently estimating cost estimates for the 2027-2028 plan.	Fosters trust and supports relationship building with immigrant and refugee communities we serve.
2026_95_3_3	Actively recruit multi-family buildings, businesses, and organizations to participate in our programs	This action is meant to capture our programs that offer partnership opportunities, resources, or services with multifamily buildings, organizations and institutions, and businesses intentionally targeting those that serve HICs and VPs. Examples include the Strategic Energy Management Program, WholeHome Energy, and the Transportation Electrification portfolio.	Energy Efficiency	Community and Economic Development	Strategic Energy Management, Transportation Electrification, etc.	Number of community partners	Number of outreach events in HICs or VPs		Outreach materials developed	Number of languages materials translated into	Number of enrolled buildings, businesses, or organizations	We hope to sign on more buildings, businesses, and organizations that are in and/or serving HICs and VPs into the suite of programs we have available. This could materialize into various resources invested in these communities.	Depending on the program, HICs and VPs may have a harder time accessing the benefits of a clean energy transition. The intention with this action is to lessen these barriers and at minimum provide education, staff expertise, and partnerships with institutions we don't regularly partner with.	One of the risks is that households without the means, such as financial, English proficiency, or time, may have a harder time accessing the benefits of a clean energy transition. The intention with this action is to lessen these barriers and at minimum provide education, staff expertise, and partnerships with institutions we don't regularly partner with.	Yes	Our service area.	Ongoing	Approximately \$300,000 per year.	We will also work with multi-family building owners to cross promote enrollment in the Utility Discount Program and other services that benefit HICs/VPs.
2026_95_4_4	Create a Whole Home Energy program to increase access to our energy efficiency and weatherization programs	Empower residential customers to make the best home energy decisions for themselves and their community so that they can achieve affordable energy savings and emissions reductions. Offer targeted support to HICs and VPs, facilitate access to RA, state, and utility offerings, and emphasize holistic and personalized home energy planning.	Energy Efficiency	Energy Efficiency and Weatherization	Whole Home Energy Program	Number of outreach events in HICs and VPs	Number community partners engaged	Number of ads, recruitment tools developed	Number of efficiency and weatherization adopters in HICs and VPs	Reach of ads, recruitment tools		By increasing awareness of and access to energy efficiency and weatherization opportunities in HICs and VPs, we will enable more households to participate in programs that deliver energy and cost savings as well as improved in-home comfort, health, and safety.	HICs/VPs have been engaged in program design and will continue to be engaged through program launch and implementation. We are working with community partners to ensure HICs and VPs can benefit from program offerings by developing a culturally relevant communications strategy and identifying and removing barriers to participation.	HICs and VPs have historically been left out of the clean energy transition. They often have less control over their home energy infrastructure, like in the case of renters, and are less able to participate in incentive programs due to the upfront costs and often onerous applications and processes. We will overcome those barriers through targeted assistance, including to building owners and renters, stacked incentives, especially for income-qualified customers, and more comprehensive customer support.	Yes	Our service area.	Ongoing	We estimate spending \$100,000-150,000 per year on communications, marketing, and outreach. Total annual program costs closer to \$250,000-300,000.	Potential bill savings as energy efficiency and weatherization measures tend to improve a home's ability to retain a comfortable temperature and thus, use less energy. Overall, these types of improvements and potential savings could improve someone's quality of life.
2026_95_4_1	Establish foundations of a green job pathway through a high school awareness campaign	The utility's talent acquisition and workforce development teams will work to create opportunities, events, and partnerships with organizations and institutions that target and/or serve high school aged youth. The intention is to create awareness of the diverse job opportunities of working at a utility, like Seattle City Light, or the green energy sector as a whole.	Other	Community and Economic Development	Workforce Development	Number of high school contacts	Volume of outreach materials created		Number of high school events attended/hosted	Number of high school partnerships		Increased awareness of career opportunities in energy sector.	Students will be better prepared to apply and interview for jobs and gain pathways to high earning careers.	We risk that early career talent in these communities are overlooked for the future energy sector jobs.	N/A	Our service area (Seattle and surrounding neighborhoods) and our remote communities that are under resourced and served.	Annually, with peak seasons of spring and fall.	Approximately \$30,000 for outreach materials and swag. Note: this amount also captures outreach events beyond this high school campaign.	Increased community partnerships with schools, associations and rate payers.
2026_95_4_2	Design and implement a High School Internship Program targeting youth in households with income at or below 80% AMI	This action along with action 4.1 that establishes green job pathways for high school aged youth will work together to provide paid work experience for youth interested in learning more.	Other	Community and Economic Development	Workforce Development	Number of outreach efforts at high schools in HICs	Number of applications received		Number of internship placements	Percent of applicants who identify as a person of color		By providing opportunities for high school age individuals to intern at City Light, we will hopefully expose potential future employees to the diverse set of jobs this industry has to offer. Whether they plan to attend a traditional college, vocational program, or something else, they should know there are well-paying opportunities for everyone in the green energy industry.	This will benefit HICs and VPs as it aims to target high school youth living in a household making 80% area median income or below.	We risk excluding marginalized groups from benefiting from the economic opportunities in this clean energy transition. This action aims at targeting young people living in income-qualified households that are disproportionately made up of VPs and/or in HICs.	N/A	Our service area (Seattle and surrounding neighborhoods) and our remote communities that are under resourced and served.	Summer internships	This program will be funded by the City of Seattle Human Services Department.	Increased community partnerships with schools, associations and rate payers.
2026_95_4_3	Target WMBE contractors for our EV Charger Installation Program Certification	City Light's transportation electrification program portfolio provides EV infrastructure training and business development assistance to cohorts of women and minority owned business to promote their participation in the clean transportation transition	Other	Community and Economic Development	Transportation Electrification	Number of outreach events	Number of WMBE applicants		Number of WMBE contractors enrolled			With increased qualified contractors, there's more opportunity to see these investments occur in these communities. This certification opportunity may also increase the likelihood of WMBE owned businesses coming from these communities.	This program targets WMBE contractors. HICs and VPs are disproportionately made up of people of color.	Part of the risk with a clean energy transition is that it will exclude marginalized groups from benefiting from the economic opportunities. This action will aim at mitigating this risk by targeting WMBE contractors for the EVCP certification we will offer.	N/A	N/A	Ongoing	Approximately \$200,000.	N/A

Highly Impacted Communities & Vulnerable Populations

Highly impacted communities (WAC 194-40-200(4))

Highly Impacted Community is defined in RCW 19.405.020(23) as:

(23) "Highly impacted community" means a community designated by the department of health based on cumulative impact analyses in RCW 19.405.140 or a community located in census tracts that are fully or partially on "Indian country" as defined in 18 U.S.C. Sec. 1151.

Department of Health has designated Highly Impacted Communities as those ranking 9 or 10 on the Environmental Health Disparities (EHD) map.

[Link to Instructions to Identify Highly Impacted Communities \(HIC\)](#)

[Link to the Environmental Health Disparities](#)

(EHD) Map

Which methodology did you use to identify highly impacted communities (HIC)?	Highly Impacted Communities Data Table
# of census tracts that are HIC (Rank 9 or 10 under EHD v2.0 or at least partially on "Indian Country")	65
# of census tracts that are at least partially on "Indian Country"	-
Average EHD v2.0 rank for service territory	6.7
What are the top 1-3 EHD factors in your highly impacted communities? What are the rankings for these EHD factors and the associated metrics?	The top EHD factors are Environmental Exposures and Environmental Effects. Specifically, under Environmental Exposures a significant percentage of census tracts rank 10 for "Diesel Exhaust PM2.5 Emissions," "Proximity to heavy Traffic Roadways," and "Toxic Releases from Facilities." Environmental Effects is another factor with a large number of metrics that rank at 9 or 10 for "Proximity to Hazardous Waste Facilities" and "Lead Risk From Housing." The central and southern parts of our service area also rank high (9 or 10) on the EHD on many other factors, such as "Proximity to Risk Management Plan (RMP) Facilities" and "Proximity to Superfund Sites." This is unsurprising as these areas are historically redlined communities where Black, Indigenous, and people of color were only allowed to live. Decades old policies are still seen as these communities have higher concentrations of BIPOC residents, as demonstrated by EHD's "People of Color" factor.
How do your planned specific actions address the EHD factors for HICs (if applicable)?	The top EHD factors were Environmental Exposures generally attributed to transportation pollution and Environmental Effects since our service area has a large superfund site and older homes with higher lead concentrations. Our specific actions attempt to address these significant exposures by focusing on our transportation electrification work that targets investments in HICs and VPs. That portfolio also helps WMBE contractors obtain certification in EV charging installation. We also have our comprehensive home energy efficiency and weatherization programs that make improvements in people's homes to maintain a comfortable home temperature, potentially reducing situations where people their windows for extended periods of time and lessening environmental exposures and effects. Similarly, we have other programs targeting industrial, commercial, and multi-family buildings to develop energy management plans that would lessen fossil fuel use and potentially limit exposure of other pollutants as they electrify.

Vulnerable populations (WAC 194-40-200(4))

Please list all socioeconomic factors and sensitivity factors developed through a public process and used to identify Vulnerable Populations based on the definition in RCW 19.405.020(40):

(40) "Vulnerable populations" means communities that experience a disproportionate cumulative risk from environmental burdens due to:

(a) Adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, access to food and health care, and linguistic isolation; and

(b) Sensitivity factors, such as low birth weight and higher rates of hospitalization.

Please describe how your utility identified vulnerable populations through a public process (e.g., surveys, focus groups, public forums, etc.)	We conducted an extensive public input process to engage with overburdened communities and better understand their priorities, barriers to access, and which populations should we make sure to focus on — Identifying Vulnerable Populations. We used various methods to ensure meaningful community participation. These methods included analyzing recent engagement reports from the past couple of years; learning sessions with advisory councils, disability advocates, neighborhood associations; focus groups with community leaders and youth interns; and a P-Patch event in a South Seattle neighborhood. During our conversations, we began by asking, "Who is most impacted or burdened when we have unexpected outages?" and "Which populations or groups of people would be most harmed if our lights went out for a few hours, or days?" As we began hearing similar populations, we asked participants to assess if the groups previously mentioned were accurate and if anyone was missing. The populations that participants listed were consistent. Then it was our job to ensure there was a data source for us to capture these groups.
How does your utility's planned specific actions address the vulnerable population factors (if applicable)?	Overall, we plan to be more intentional in ensuring we create more access and inclusion within our program offerings. During our public process, the community identified "Increased public participation from HICs and VPs" as an indicator and as such developed four specific actions to address VP factors. One of these actions is to develop and implement bi-annual Language Access Plans that would serve the utility has best recommendations to meaningfully communicate with limited English proficiency populations and in plain language to all our customers. Two others revolve around contracting with trusted community partners to support customer enrollment in our programs, like our financial assistance programs.

Factor Category	Factor	Details	Source	Date Last Updated
E.g., Employment	Unemployment	% unemployed over 16 years old	American Community Survey	12/15/2019
Health	Sensitive Populations	Customers who depend on electricity because of a disability (ex. uses an electric wheelchair), illness (ex. diabetes), or are immuno-compromised (ex. seniors, children under five).	American Community Survey	2023
Language	Limited English Proficiency	Customers who speak English as an additional language and have limited proficiency, making it difficult to engage in English.	American Community Survey	2023
Race	Franchise Communities	Lower-income residents and/or Black, Indigenous, or People of Color (BIPOC) residing in franchise cities and unincorporated communities.	American Community Survey	2023

Describe and explain any changes to the factors from your utility's previous Clean Energy Implementation Plan (CEIP), if any:

In this CEIP, we changed our factors to three new groups: Sensitive Populations, Limited English Proficiency, and Franchise Communities. Previously, they were Racial & Social Equity Composite Index, Displacement Index, Duwamish Valley, and Vulnerable Groups. These changes came about because of our outreach and engagement plan. Based on what we read from outreach and engagement notes from the past two years and our own engagement with community, participants elevated these populations as those who would be most impacted.

Public Participation

Public participation (WAC 194-40-200(4), -220(1))

Provide a summary of the public input process conducted in compliance with WAC 194-40-220.

Seattle City Light delivers essential services to a diverse, multicultural community. Our work affects the daily lives of our customers. As we plan for a clean energy future, our planning must reflect the needs, priorities, and lived experiences of those we serve.

Integrated Approach to Strategic Planning Engagement

We listened to feedback from our community partners and made changes to improve how we work with them. We coordinated public input for the Clean Energy Implementation Plan (CEIP) with other long-term, strategic planning (e.g. City Light's Strategic Plan and Integrated Resource Plan). This more integrated approach helps us better understand the lived experiences of our customers. It also supports a more coordinated approach to reducing barriers and improving service equity in all our work.

Building on Existing Feedback

To be responsive to community feedback and not overburden them, we connected with teams that had recently conducted relevant community engagement (e.g. TESIP 2.0, Comprehensive Plan, etc.). This collaboration helped develop awareness of feedback that community members have provided to date. This helped us include information that had already been shared to inform City Light's CEIP. It also enabled us to find gaps in community voices and where we needed more information. After reviewing this feedback, we were better positioned to create specific engagement strategies and have more meaningful conversations during the public input process.

CEIP Public Participation

We engaged with representatives from Highly Impacted Communities and Vulnerable Populations through a public input process. We wanted to better understand who may need extra support, learn about barriers they face, and decide what areas we should focus on improving. We used various methods to gather input and make sure everyone had a chance to participate:

- **Learning Sessions:** We joined standing meetings with community representatives including the City of Seattle Indian Advisory Council, City of Seattle Disability Commission, and the South Park Neighborhood Association. We also hosted a learning session with City Light interns, who are youth/young adults engaged in the energy sector.
- **Community Event:** We talked with over one hundred (100) community members at the City of Seattle Department of Neighborhood's P-Patch Resource Fair. We worked with interpreters to engage community members in more than 5 different languages.
- **QualBoards:** We conducted a three-day online focus group with a diverse group of 35 customers, which included broad representation across Seattle and our Franchise Cities (Burien, SeaTac, Lake Forest Park, Shoreline, Skyway, Tukwila, and White Center).
- **Community Liaison Focus Groups:** We hosted focus groups with 22 community members contracted to do community engagement on behalf of the City through the City of Seattle Department of Neighborhoods Community Liaisons Program. The Community Liaisons, many of which have worked with communities on City Light projects, represented 21 different language communities as well as communities with disabilities.
- **Community-Based Organization Focus Groups:** We interviewed 28 community service providers about barriers to affordability programs and recommendations for helping community members reduce energy burdens.
- **External Advisory Panel:** We convened a group of representatives from local nonprofits, government partners, and energy providers to inform the development of City Light's Integrated Resource Plan (IRP) and Demand-Side Management Potential Assessment (DSMPA).

During engagement, community members and partners helped identify Vulnerable Population characteristics, barriers and opportunities for a just transition to a clean energy future, and indicators and potential actions to include in City Light's CEIP.

Continuing to Engage

We will continue to build on the relationships we developed throughout the CEIP public participation process and to expand partnerships to support the implementation of the CEIP.

What barriers to public participation does your utility's community face due to language, cultural, economic, technology, or other factors?

Through this community process we identified the following barriers:

- **Technical and Industry Jargon:** City Light's use of technical terms and industry jargon creates barriers and affects people's interest in engaging and their ability to provide meaningful feedback.
- **Language and Cultural Barriers:** Within City Light's service area, more than 20% of residents were born in another country and 24% of residents speak a language other than English at home. Therefore, language can be a potential barrier to participation. Lack of cultural relevance or trust in government due to historical injustices and disparities can result in some communities being less engaged.
- **Internet Access:** According to the City of Seattle's Technology Access and Adoption Study, an estimated 8% of Seattle households do not have internet access both at home and on-the-go (i.e. mobile). Vulnerable Populations and Highly Impacted Communities have less access to reliable, fast internet when compared to the general population.
- **Digital Literacy:** The City of Seattle's Technology Access and Adoption Study also reported that "Seattle's population is moderately skilled when it comes to technology, but more than two out of five need some assistance completing at least a few digital tasks." Community members experience barriers with effectively navigating technology.
- **Logistical Barriers:** Community members are busy and engaging on clean energy is not a top priority for many. A lack of time to participate and the level of difficulty to participate present logistical barriers to the public input process.

What reasonable accommodations has your utility provided to reduce barriers to public participation?

As a municipal utility, we need to remove barriers to public participation, so that our work reflects inputs from the communities we serve. City Light's Environmental Equity Advisor worked closely with City Light's Communications Division and the City of Seattle Department of Neighborhoods to plan and implement inclusive community engagement for the CEIP development.

- **Reviewing Existing Feedback:** We reviewed input from other long-term planning efforts to respect the time our customers spent providing feedback. In addition to reducing harm, we were also able to tailor our public participation process based on what we had already heard from the community.
- **Communications and Language Access:** To support access and inclusion, we developed communications materials using plain language standards to ensure they were clear, concise, and well organized. This also included being more approachable in how we engaged with communities. For the planning efforts included in the existing feedback we reviewed, we also worked with Office of Immigrant Affairs (OIRA) to develop in-language content and partnered with City of Seattle Department of Neighborhoods to engage communities in their preferred language.
- **Culturally Relevant Engagement:** We worked with the City of Seattle Department of Neighborhoods to develop culturally appropriate engagement strategies and partnered with meeting organizers to tailor our engagement to be relevant and relatable to the communities we were engaging with.
- **Community Conversations:** We took several approaches to improving access to participation. This included participating in existing meetings where community members were already gathering, conducting outreach in multiple formats (in-person, online, and hybrid), and hosting activities on evenings and weekends.
- **Trusted Community Partners:** We engaged with community leaders, community-based organizations, and City of Seattle Department of Neighborhoods Community Liaisons to engage with communities on issues such as affordability, energy, public health, environment, etc. By engaging with trusted community partners, we were able to learn about priorities, challenges, and needs without overburdening community members.

Describe how public comments were reflected in the specific actions under WAC 194-40-200(4), including the development of one or more indicators and other elements of the CEIP and your utility's supporting integrated resource plan or resource plans, as applicable.

Public input played a critical role in our work to develop a CEIP that reflects the interests and needs of the communities we serve. We co-developed indicators for the CEIP and co-defined Vulnerable Populations with community members through an iterative process:

1. **Draft:** We developed a draft list of indicators and a working definition of Vulnerable Populations based on existing feedback.
2. **Engage:** We gathered community feedback on the draft list of indicators and Vulnerable Populations definition.
3. **Refine:** We updated the list of indicators and Vulnerable Populations definition based on community feedback.
4. **Validate:** We received confirmation on the list of indicators and Vulnerable Populations definition from the Community Liaison Focus Groups.

The CEIP, including the indicators and actions, reflects community priorities and key themes that surfaced throughout our public participation process, which focused on ways we could reduce energy burden and expand equitable access to benefits. The plan incorporates the communities' request that we plan and design this work to center Vulnerable Populations and Highly Impacted Communities and to continue engaging people throughout the clean energy transition. Finally, the CEIP incorporates feedback from the External Advisory Panel, which advised on the development of City Light's Integrated Resource Plan (IRP) and Demand-Side Management Potential Assessment (DSMPA).

Long-term Plans

Integrated resource plan & clean energy action plan compliance (WAC 194-40-200(6-7), WAC 194-40-200(4)(c)(iii))

Is your clean energy implementation plan (CEIP) consistent with the most recent integrated resource plan or resource plan, as applicable, prepared by your utility under RCW 19.280.030?	Yes
Is your CEIP consistent with your utility's clean energy action plan developed under RCW 19.280.030(1) or other 10-year plan developed under RCW 19.280.030(5)?	Yes
How are the specific actions consistent with your utility's resource plan and clean energy action plan?	We intentionally coordinated the public input process for the CEIP with other long-term, strategic planning, including our 10-year Strategic Plan and Integrated Resource Plan. The public process directly informed and helped identify the CEIP indicators and specific actions. As a result of this coordination, our specific actions are consistent with the our IRP and strategic plan. The specific actions were developed as part of the 2024 IRP Progress Report and have been updated with information from the 2026 Demand Side Management Potential Assessment (DSMPA). The 2026 DSMPA included an assessment of demand response and considered how renewable energy would be part of City Light's actions.
Hyperlink to Relevant Assessment/Resource Plan	https://www.seattle.gov/documents/Departments/CityLight/IRP/2024IRPProgressReport.pdf

Resource Adequacy Standard

Resource adequacy standard (WAC 194-40-200(8))

Identify the resource adequacy standard and measurement metrics adopted by the utility under WAC 194-40-210 and used in establishing the targets in the CEIP. Identify and explain any changes to your resource adequacy standard.

Resource adequacy standard (e.g., peak load standards, loss of load probability or loss of load expectation)	The resource adequacy standard used by Seattle City Light in the 2024 IRP Progress Report is the Loss of Load Events (LOLEV). Based on the costs and benefits of market reliance, and given our resources and hydro flexibility, City Light has established the resource adequacy standard of LOLEV=0.2, or shortfalls not exceeding two events every ten years. This standard is used in establishing the resource adequacy needs for City Light's critical months for the next 20 years. These critical months are July and August in the summer, and December and January in the winter. For more detail about the resource adequacy standard see page 17 of the 2024 IRP Progress Report: https://www.seattle.gov/documents/Departments/CityLight/IRP/2024IRPProgressReport.pdf The resource adequacy standard used by Seattle City Light in the 2026 DSMPA is to allow no unserved energy over the 32 representative days per year modeled. This standard was used since the limited number of representative days modeled did not allow for a full probabilistic assessment.
Methods of measurement (e.g., probabilistic assessments of resource adequacy)	The resource adequacy standard used by Seattle City Light in the 2024 IRP Progress Report is based on a probabilistic assessment of resource adequacy using hourly simulations of temperature and hydro conditions (30 temperature years, 30 hydro years). For Seattle City Light, LOLEV is the expected number of deficit events over the total number of simulations after accounting for hydro flexibility and market reliance. The resource adequacy standard used by Seattle City Light in the 2026 DSMPA allows for no unserved energy in all hours of the 32 representative days per model year of the study period (2026-2045). Twenty-four of those days are "typical" days, using the median hydro and weather scenarios, out of 29 hydro scenarios and 30 weather scenarios per modeled year. The set of typical days consists of two days per month: one weekday and one Sunday or holiday. The remaining eight days represent "RA constrained" days, which are the single day in each month out of all hydro and weather scenarios that have the greatest resource need. April, May, September, and October did not have any days with resource needs, so were not included in the set of RA-constrained days.

[illegible]

SUMMARY and FISCAL NOTE

Department:	Dept. Contact:	CBO Contact:
City Light	Cierra Holland	Christie Parker

1. BILL SUMMARY

Legislation Title: A RESOLUTION relating to the City Light Department; approving the City Light Department’s 2026-2029 Clean Energy Implementation Plan as required by Washington State’s Clean Energy Transformation Act (CETA), chapter 19.405 RCW.

Summary and Background of the Legislation: The Clean Energy Transformation Act (CETA), enacted by the Washington State Legislature in 2019, requires electric utilities in Washington to transition to carbon-neutral electricity by 2030 and to serve customers with 100% non-emitting or renewable resources by 2045. To support these goals, CETA requires utilities to develop and submit Clean Energy Implementation Plans (CEIPs) every four years. Each CEIP must be approved by the utility’s governing body before submission to the Washington State Department of Commerce.

This resolution seeks City Council approval of Seattle City Light’s 2026–2029 Clean Energy Implementation Plan, the utility’s second CEIP under CETA. The Plan fulfills three core statutory requirements:

- **Progress Toward Clean Energy Targets:** It outlines the specific actions City Light will take between 2026 and 2029 to advance the transition to 100% renewable and non-emitting electricity.
- **Equity and Energy Justice:** It establishes metrics for identifying and measuring the equitable distribution of clean energy benefits, particularly for Highly Impacted Communities and Vulnerable Populations.
- **Public Engagement:** It reflects customer and community input collected through an inclusive engagement process, ensuring the voices of customer-owners shaped the Plan’s development.

Approval of this resolution affirms City Council’s adoption of the CEIP in accordance with RCW 19.405.060 and WAC 194-40-200 and authorizes City Light to submit the plan to the Washington State Department of Commerce by the statutory deadline of January 1, 2026.

For additional background and information, see Attachment 1 to the proposed resolution (Clean Energy Implementation Plan Report).

2. CAPITAL IMPROVEMENT PROGRAM

Does this legislation create, fund, or amend a CIP Project?

☐ Yes ☒ No

3. SUMMARY OF FINANCIAL IMPLICATIONS

Does this legislation have financial impacts to the City?

☒ Yes ☐ No

3.d. Other Impacts

Does the legislation have other financial impacts to The City of Seattle, including direct or indirect, one-time or ongoing costs, that are not included in Sections 3.a through 3.c? If so, please describe these financial impacts.

While this legislation has no direct fiscal impacts to the existing budget (i.e., no changes to 2025 appropriations or revenues), there are long-term indirect cost impacts that relate to City Light's continued commitment to provide customers with carbon-neutral and non-emitting power resources. As the most recent Integrated Resource Plan (IRP) has indicated, the City will have future supply resource needs. To maximize efficiencies and be consistent with the City's values and commitments in meeting emissions targets, future resource acquisitions will be procured based on need as well as based on CETA's compliance value. With that, there will most likely be a long-term financial impact to City Light customers due to future resource acquisitions that meet power needs and CETA compliance requirements.

If the legislation has costs, but they can be absorbed within existing operations, please describe how those costs can be absorbed. The description should clearly describe if the absorbed costs are achievable because the department had excess resources within their existing budget or if by absorbing these costs the department is deprioritizing other work that would have used these resources.

The legislation does not have direct costs.

Please describe any financial costs or other impacts of *not* implementing the legislation.

There are financial consequences based on state statute (RCW 19.405.090) for not complying with CETA. The law requires us to gain governing board approval for the utility's Clean Energy Implementation Plan (RCW 19.405.060(2)(b)).

4. OTHER IMPLICATIONS

a. Please describe how this legislation may affect any departments besides the originating department.

Not applicable.

b. Does this legislation affect a piece of property? If yes, please attach a map and explain any impacts on the property. Please attach any Environmental Impact Statements, Determinations of Non-Significance, or other reports generated for this property.

No.

c. Please describe any perceived implication for the principles of the Race and Social Justice Initiative.

i. How does this legislation impact vulnerable or historically disadvantaged communities? How did you arrive at this conclusion? In your response please consider impacts within City government (employees, internal programs) as well as in the broader community.

This legislation, approval of Seattle City Light's Clean Energy Implementation Plan (CEIP) for 2026–2029, advances the utility's commitment to equitable outcomes in the clean energy transition. As required by the Clean Energy Transformation Act (CETA), the CEIP includes specific actions that prioritize benefits to Highly Impacted Communities (HICs) and Vulnerable Populations (VPs), as defined through a public process.

City Light partnered with the City of Seattle Department of Neighborhoods (DON) to design and carry out a public participation process that emphasized equity. This outreach prioritized community groups and geographies that have been historically underserved or face disproportionate energy burdens. Engagement efforts included:

- A thorough review of recent public input collected through other strategic planning efforts, including the Transportation Electrification Strategic Investment Plan (TESIP 2.0).
- Collaboration with a DON Equity and Engagement Advisor who supported strategic coordination of various City Light plans and leveraging existing community opportunities so as to lessen the burden on communities to be able to engage and provide meaningful feedback.
- Seven virtual and in-person events and community conversations across the service area intentionally targeting these priority populations.

Recurring themes across all engagement included concerns about affordability, reliability, access to programs, and the need to involve youth and workforce development in clean energy planning. These themes directly informed the selection of equity indicators and specific actions in the CEIP.

Within City government, this work also reinforces existing RSJI commitments by embedding equity early in policy development and aligning program design with community-identified needs.

ii. Please attach any Racial Equity Toolkits or other racial equity analyses in the development and/or assessment of the legislation.

A formal Racial Equity Toolkit (RET) was not completed for this CEIP update. However, the CEIP development process incorporated RET-aligned principles in its engagement and decision-making framework:

- Outreach was co-designed and implemented between City Light’s Environmental Equity Advisor and Outreach & Engagement Advisor and DON’s Equity and Engagement Advisor, who brought experience and trusted relationships with HICs and VPs.
- Community feedback directly shaped the equity indicators and corresponding actions included in the plan.
- Actions were evaluated not only for technical feasibility but also for equity impact, with emphasis on reducing barriers and improving access for vulnerable communities.

As we finalize the CEIP, the plan includes going back to the communities we heard from and informing them of the final outcomes. The goal is to continue building on these relationships and continue engagement as community chooses to engage.

iii. What is the Language Access Plan for any communications to the public?

To support access and inclusion, Seattle City Light (SCL) developed communications materials using plain language standards to ensure they were clear, concise, and well organized. This also included being more approachable in how SCL engaged with communities. For the planning efforts, SCL also worked with the Office of Immigrant and Refugee Affairs (OIRA) to develop in-language content and partnered with DON to engage communities in their preferred language.

Future communications, particularly those related to CEIP implementation, will align with the City’s Language Access policies, including provision of translated materials and interpretation services where appropriate.

d. Climate Change Implications

- i. Emissions: How is this legislation likely to increase or decrease carbon emissions in a material way? Please attach any studies or other materials that were used to inform this response.** This legislation documents the required Clean Energy Implementation plan for meeting Clean Energy Transformation Act compliance requirements. Included in the plan are steps for continuing City Light’s and the City’s commitment to reducing carbon emissions. This legislation itself does not direct the increase or decrease in carbon emissions; however, City Light’s CEIP will help illustrate carbon emissions reduction compliance targets over time.

- ii. **Resiliency: Will the action(s) proposed by this legislation increase or decrease Seattle’s resiliency (or ability to adapt) to climate change in a material way? If so, explain. If it is likely to decrease resiliency in a material way, describe what will or could be done to mitigate the effects.** This legislation will not increase or decrease Seattle’s resiliency to climate change itself. City Light is committed to continuing our commitment to be a greenhouse gas neutral utility while also taking affirmative steps to address climate change. The CETA CEIP will act as a compliance plan to reduce greenhouse gas emissions.
- e. **If this legislation includes a new initiative or a major programmatic expansion: What are the specific long-term and measurable goal(s) of the program? How will this legislation help achieve the program’s desired goal(s)? What mechanisms will be used to measure progress towards meeting those goals?**
This legislation does not approve a new initiative or major programmatic expansion. This legislation approves City Light’s second CEIP as required by CETA.

5. CHECKLIST

- ☒ **Is a public hearing required?**
- ☐ **Is publication of notice with *The Daily Journal of Commerce* and/or *The Seattle Times* required?**
- ☐ **If this legislation changes spending and/or revenues for a fund, have you reviewed the relevant fund policies and determined that this legislation complies?**
- ☐ **Does this legislation create a non-utility CIP project that involves a shared financial commitment with a non-City partner agency or organization?**

6. ATTACHMENTS

Summary Attachments: None.

2026–2029 Clean Energy Implementation Plan (CEIP) RES

Sustainability, City Light, Arts & Culture Committee

September 5, 2025

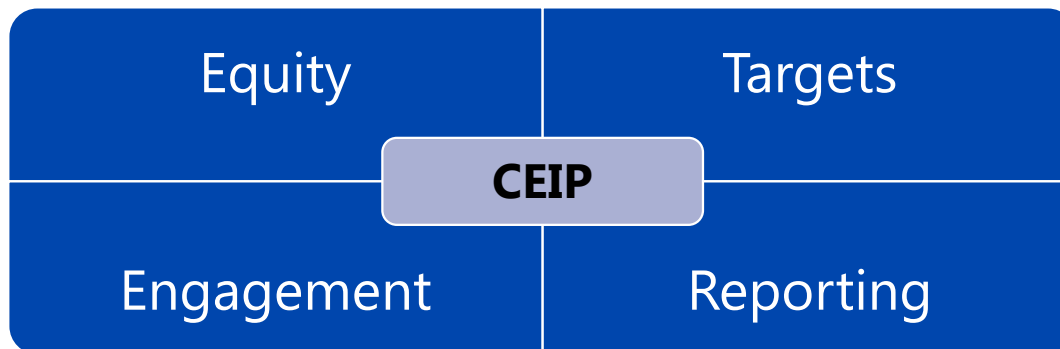


Purpose of Briefing

1. Provide background on Washington State's Clean Energy Transformation Act (CETA)
2. Explain Clean Energy Implementation Plan (CEIP) as a legal requirement under Washington State law
3. Summarize what is included in our CEIP
4. Highlight how equity and community input shaped our plan
5. Seek Council approval to submit CEIP to the Washington State Department of Commerce

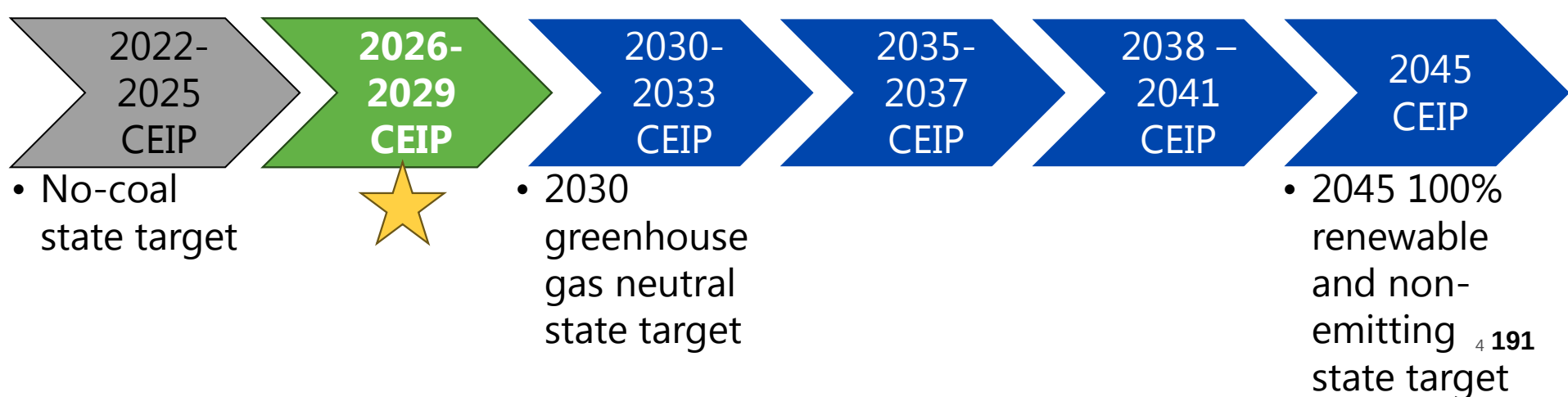
What is the Clean Energy Transformation Act?

- 2019 state law requiring 100% renewable/non-emitting electricity by 2045
 - Statute: Ch [19.405](#) RCW, Rules: Ch [194-40](#) WAC; Ch [173-444](#) WAC
- Key interim targets:
 - 2030 greenhouse gas neutral
 - 2045 100% renewable or non-emitting
- Requires utilities to submit CEIPs every four years



What is a Clean Energy Implementation Plan?

- **Four-year action plan** to meet CETA targets
- Includes:
 - Renewable and efficiency targets
 - Customer benefit “indicators”
 - Equity-focused strategies
 - Public engagement and accountability

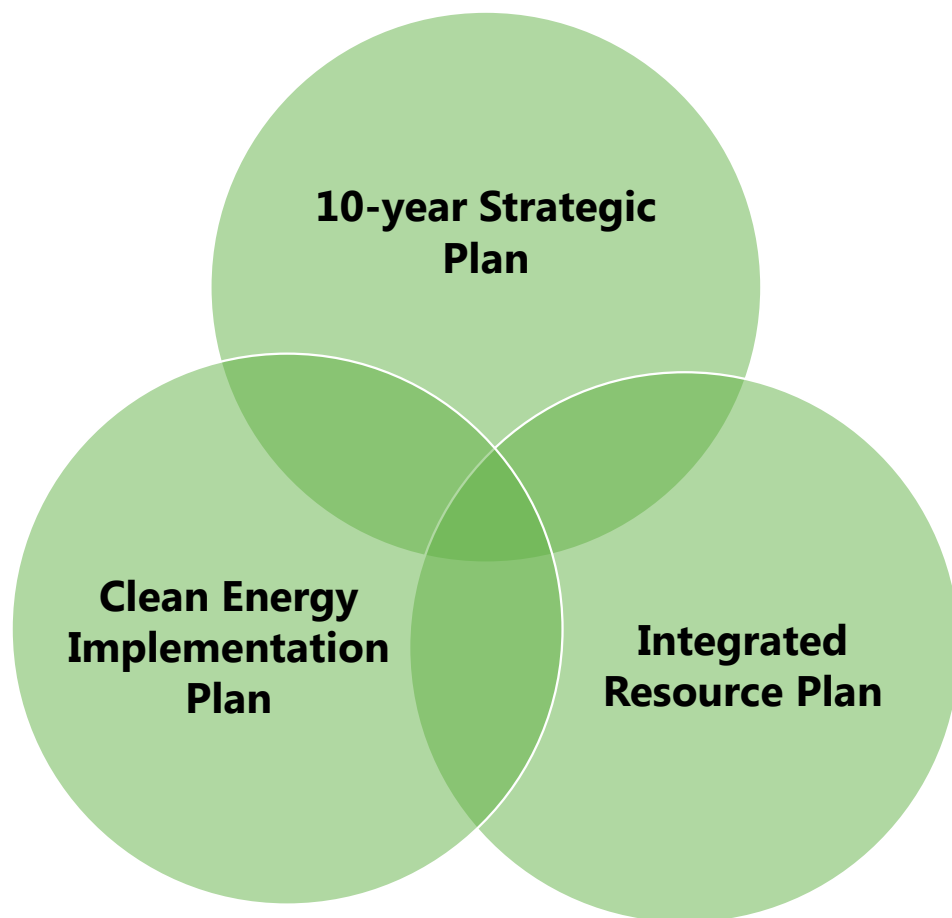


Why Your Approval Matters

- A CEIP is legally required under RCW 19.405.060
- City Council approval required before submission
- Final plan due to Department of Commerce by Jan 1, 2026



Integrated Outreach & Engagement Approach



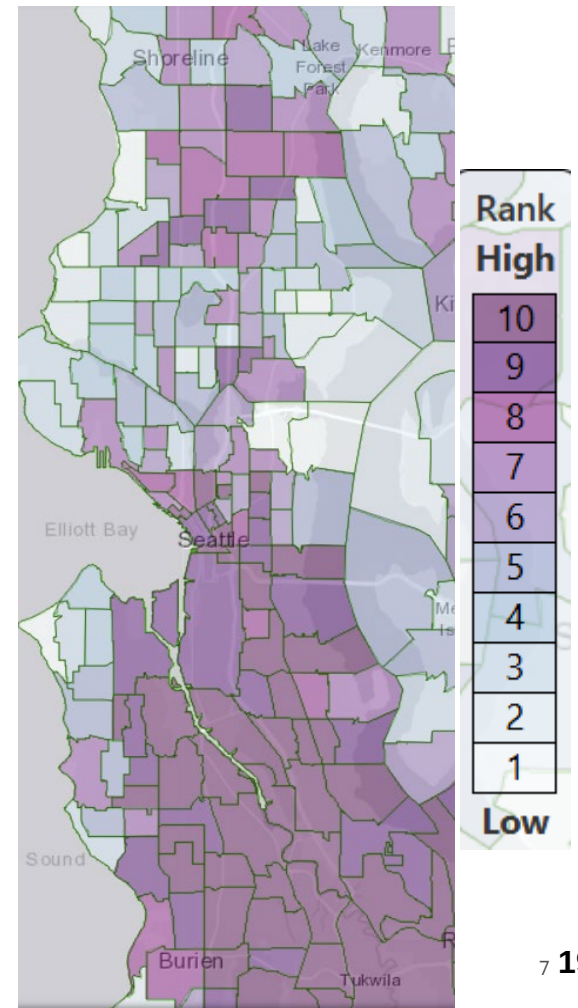
- ❖ Promoted internal coordination
- ❖ Partnered with Department of Neighborhoods
- ❖ Centered voices from priority populations

Who are Priority Populations?

Vulnerable Populations identified:

1. Sensitive Populations reliant on electricity b/c of a disability, illness, or are immuno-compromised
2. Lower-income and/or Black, Indigenous, or People of Color (BIPOC) living outside of Seattle city limits
3. Customers with limited English proficiency

Highly Impacted Communities ranked 9 or 10



Community Prioritized Indicators (Goals)

Indicator 1: Reduce Electric Energy Burden

Specific Actions:

- ☐ Design and Deliver an Accessible Community Solar Program
- ☐ Increase Utility Discount Program enrollees
- ☐ Evaluate best case practices for fair rate development

Indicator 2: Improve Economic Opportunity Access in the Green Energy Sector

Specific Actions:

- ☐ Establish High School Awareness Campaign for Green Jobs
- ☐ Design and implement a High School Internship Program
- ☐ Target WMBE Contractors for EV Charger Installation Program Certification

Community Prioritized Indicators Continued (Goals)

Indicator 3: Improve Community Health

Specific Actions:

- ☐ Deliver transportation electrification investments in overburdened communities

Indicator 4: Increase program participation from Highly Impacted Communities and Vulnerable Populations

Specific Actions:

- ☐ Increase utility assistance partnerships with trusted organizations
- ☐ Develop and implement our bi-annual Language Access Plan
- ☐ Actively recruit community-serving buildings into our suite of programs
- ☐ Increased participation in weatherization and energy efficiency programs

CEIP Interim Targets

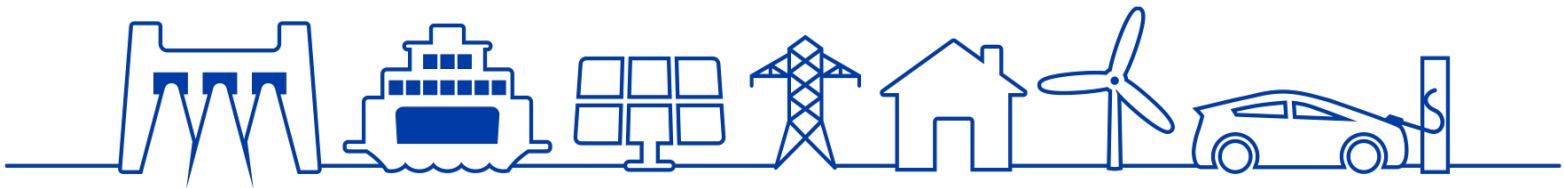
Clean Energy Type	INTERIM TARGETS PRIOR TO 2030					
	Units	2026	2027	2028	2029	4-year period
Renewable	%	88%	87%	85%	83%	86%
Non-emitting	%	5%	5%	5%	5%	5%
Total		92%	91%	90%	88%	90%

CEIP Specific Targets

Resource Category	SPECIFIC TARGETS	
	Units	4-year period
Renewable Energy Target	Average Megawatts	4,207 aMW
Energy Efficiency Target	Average Megawatts	39 aMW
Demand Response Target	Megawatts	12 MW

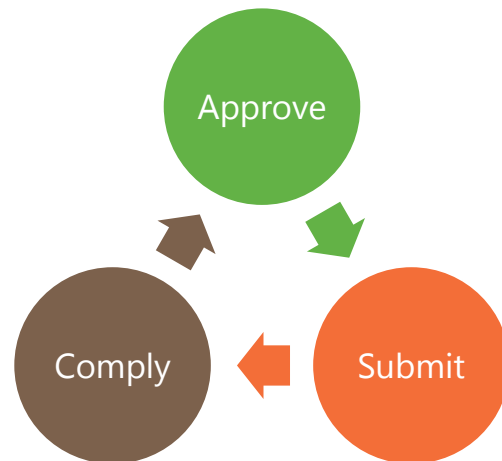
Alignment and Compliance

- The CEIP aligns with:
 - City Light Strategic Plan
 - City Light 2024 Integrated Resource Plan (IRP)
 - City Light Demand Side Management Potential Assessment
 - Mayoral Executive Order 2025-04: Climate Action Plan Update



Action Needed and Milestones

- **City Council approval enables compliance with state law**
 - **Jan 1, 2026:** Washington State Department of Commerce Deadline
- Supports compliance and clean energy progress
- 2030: Progress report of this CEIP



THANK YOU

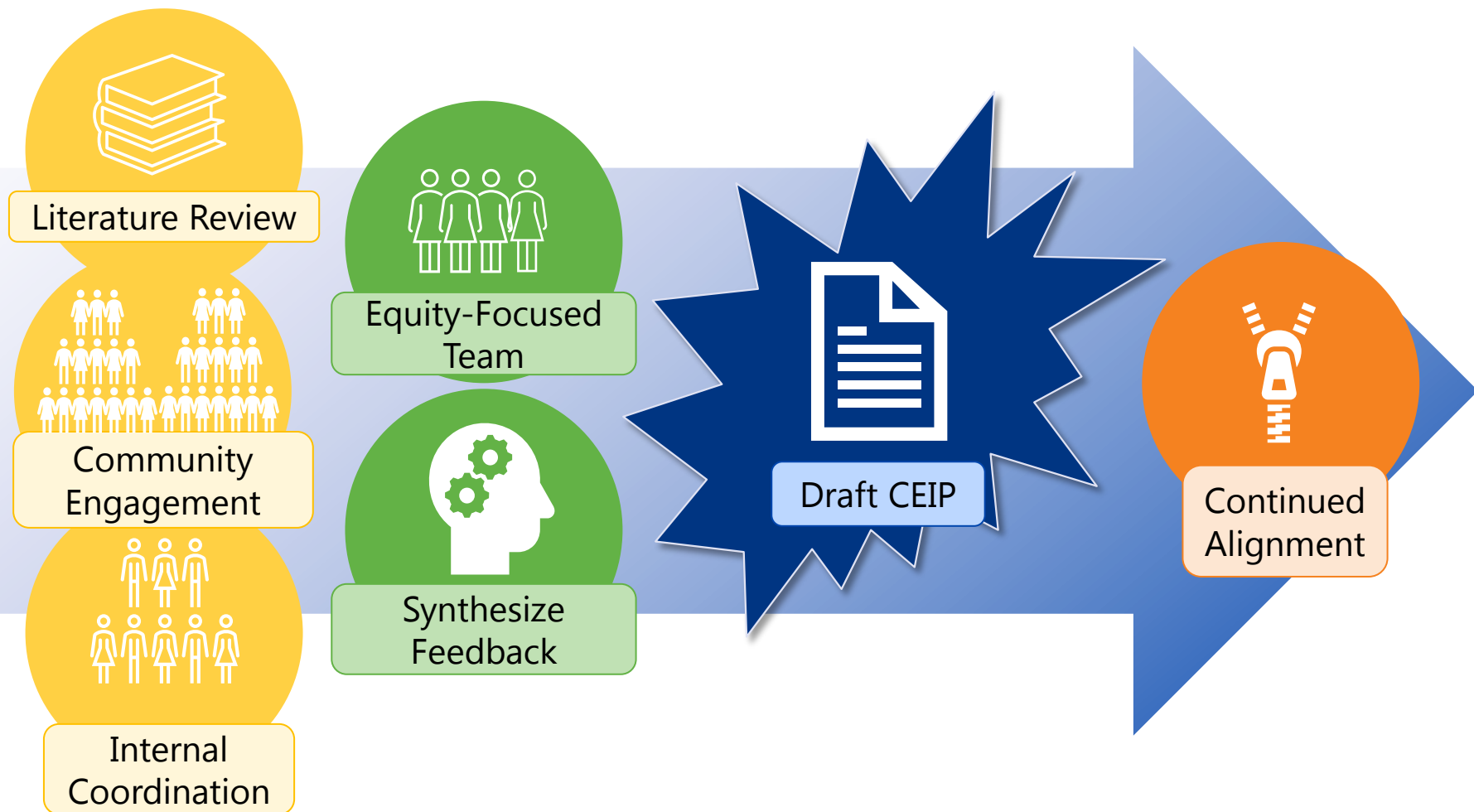


Seattle City Light

CEIP Specific Targets

Resource Category	SPECIFIC TARGETS					
	Units	2026	2027	2028	2029	4-year period
Renewable Energy Target	MWh over the period	9,464,348 (1,080 aMW)	9,398,829 (1,073 aMW)	9,011,731 (1,029 aMW)	8,979,352 (1,025 aMW)	36,854,260 (4,207 aMW)
Energy Efficiency Target	MWh over the period	96,360 (11 aMW)	87,600 (10 aMW)	87,600 (10 aMW)	70,080 (8 aMW)	341,640 (39 aMW)
Demand Response Target	MW over the period	3 MW	3 MW	3 MW	3 MW	12 MW

Embedding Equity into the CEIP



Equity Indicators

1. Reduce household electric energy burden

2. Improve community health (e.g., air quality)

3. Increase program participation from “Highly Impacted Communities” and “Vulnerable Populations”

4. Improve access to green energy economic opportunities



Legislation Text

File #: CB 121063, **Version:** 1

CITY OF SEATTLE

ORDINANCE _____

COUNCIL BILL _____

AN ORDINANCE relating to the City Light Department; authorizing the Department to develop programs, enter into agreements with customers and other parties, and provide incentives for modifications to customer electricity consumption; and amending Section 21.49.130 of the Seattle Municipal Code. WHEREAS, in its 2019 session the Washington State Legislature passed, and the Governor signed in to law,

Senate Bill 5116, known as the Clean Energy Transformation Act (CETA) (“legislation”), which commits Washington to an electricity supply free of greenhouse gas emissions by 2045; and

WHEREAS, the legislation created what was codified as RCW 19.405.040, which requires that “an electric utility must, consistent with the requirements of RCW 19.285.040, if applicable, pursue all cost-effective, reliable, and feasible conservation and efficiency resources, and demand response”; and

WHEREAS, the legislation created what was codified as RCW 19.405.060, which provides that each consumer-owned utility must develop and submit a four-year clean energy implementation plan that proposes “specific targets for energy efficiency, demand response, and renewable energy”; and

WHEREAS, the City Light Department has identified the need for demand response in its 2022 and 2024 Integrated Resource Plans to help supply customers with reliable, affordable, and environmentally responsible energy consistent with CETA; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. Section 21.49.130 of the Seattle Municipal Code, last amended by Ordinance 126887, is amended as follows:

21.49.130 Authority

* * *

B. Rulemaking and contract authority

1. The Department shall have authority to adopt and file as appropriate rules, regulations, policies, and procedures relating to its performance of the provisions of this Chapter 21.49 and to the operation of the Department's light and power system. The Department may require compliance with such rules, regulations, policies, and procedures as a condition for the supply or continued supply of electric service.

2. Effectively managing its power supply portfolio to achieve balance between supply and customer demand requires that City Light transact in the wholesale energy markets for energy and transmission services and products, including the purchase or sale of short-term capacity or energy, or integration, transmission, or ancillary services. The Department may therefore execute, implement, and administer contracts with any city or town, public utility district, governmental agency, municipal corporation, mutual association, broker, or agent, or with any person, firm, or corporation, or any other member of the general public, outside its service area, for an effective term of not more than 60 months from the month following the date on which the contract is first signed ("prompt month"), providing for the acquisition, exchange, or sale of capacity or energy, or integration, transmission, or ancillary services, or eligible renewable resources, which shall have the same meaning as defined by RCW 19.285.030, on terms most favorable to the Department under such circumstances and in compliance with state law, including RCW 43.09.210. Such acquisition, sale, or exchange shall be made on a basis representing the value of such capacity or energy, or integration, transmission, or ancillary services, under then-existing market conditions, and may include provisions that require indemnification by the Department.

3. The Department may execute agreements with the Bonneville Power Administration providing for reimbursements from Bonneville of some or all of the costs of operating energy conservation programs authorized by the City Council. The Department shall determine that such agreements or amendments to such agreements shall not incur any indebtedness or the acceptance of moneys imposing any duties or

obligations on the City that are inconsistent with the Department's budget appropriation for such energy conservation programs. The Department shall provide a written notification prior to the execution of such contracts and a copy of such contracts to the appropriate authorizing committee of the City Council.

4. The Department may execute contracts for the purchase or sale of environmental attributes, including but not limited to renewable energy credits (RECs), greenhouse gas offsets, and carbon credits to meet policy and regulatory requirements in a cost-effective and timely manner. The Department may enter into such contracts in advance of the target date for acquisition identified in the Department's Integrated Resource Plan or the date required by state or federal law. These purchases will be made within the Department's yearly budget authority limits. Sales will be made on an as-needed basis to balance demand with supply of these products, and to minimize overall costs to ratepayers.

5. The Department may execute contracts for the purchase or acquisition of cost-effective energy conservation resources for an effective term of not more than 84 months, provided that the payment terms for such contracts do not exceed 60 months. "Energy conservation resources" shall have the same meaning set forth in the Energy Independence Act, chapter 19.285 RCW, including, without limitation, long-term energy efficiency projects, new construction, whole-building performance, and pay-for-performance programs.

6. In order to meet the requirements of the Renewable Plus Program, the Department may execute contracts with any city or town, public utility district, government agency, municipal corporation, mutual association, broker, or agent, or with any person, firm, or corporation, or any other member of the general public, outside its service territory providing for the acquisition or exchange of capacity or energy, or integration, transmission, or ancillary services, of renewable resources, which shall have the same meaning as defined by RCW 19.280.020 for a term of not more than 20 years. The Department shall endeavor to match the term of the acquisition contracts with the needs and requirements of the Renewable Plus Program customer contract terms. Such acquisition or exchange of capacity, energy, or services shall be made on a basis representing the value of such capacity or energy, or integration, transmission, or ancillary services, under then

-existing market conditions, and may include provisions that require indemnification by the Department.

7. The Department is authorized to negotiate and to enter into new leases or subleases and extensions or modifications of existing leases or subleases of any real property now or hereafter owned by the Department or private parties for the purpose of installing and operating electric vehicle charging stations and supporting infrastructure, including but not limited to energy storage systems, distributed energy generation systems, and general electrical infrastructure, for an effective term of not more than 84 months.

8. The Department is authorized to develop programs, enter into agreements with customers and other parties, and provide incentives, including but not limited to monetary compensation, for modifications to customer electricity consumption. Incentives shall be based on the value of the demand response provided to the Department, with the total cost of incentives not to exceed the expected monetary value to the Department of the demand response measures taken by customers and other parties. "Demand response", as it applies to this section, refers to changes in electric usage by demand-side resources from their normal consumption patterns and may include energy storage and measures to increase or decrease electricity production.

Section 2. This ordinance shall take effect as provided by Seattle Municipal Code Sections 1.04.020 and 1.04.070.

Passed by the City Council the _____ day of _____, 2025, and signed by
me in open session in authentication of its passage this _____ day of _____, 2025.

President _____ of the City Council

Approved / returned unsigned / vetoed this ____ day of _____, 2025.

Bruce A. Harrell, Mayor

Filed by me this _____ day of _____, 2025.

Scheereen Dedman, City Clerk

(Seal)

SUMMARY and FISCAL NOTE

Department:	Dept. Contact:	CBO Contact:
Seattle City Light	Karen Liu	Christie Parker

1. BILL SUMMARY

Legislation Title

AN ORDINANCE relating to the City Light Department; authorizing the Department to develop programs, enter into agreements with customers and other parties, and provide incentives for modifications to customer electricity consumption; and amending Section 21.49.130 of the Seattle Municipal Code.

Summary and Background of the Legislation

This legislation amends the Seattle Municipal Code to provide the Department with authority to establish demand response programs for customers. This legislation authorizes the Department to enter into agreements with customers and other parties and provide incentives, including but not limited to monetary compensation, based on the value of the demand response they provide. The total cost of incentives should be less than the anticipated monetary value of the demand response measures.

Load growth from building and transportation electrification; rising frequency, duration, and severity of extreme climate events; and increasing prices and volatility in the wholesale energy market are driving the need for City Light to develop demand response programs. Demand response programs help flatten peak demand, which will reduce costly energy purchases in the wholesale market and also will reduce the size of the generation, transmission and distribution investments required to meet future peak load. The 2024 Integrated Resource Plan Progress Report identified the need for 16 megawatts (MW) of demand response by 2028 to manage climate- and electrification-related extremes while also generally reducing customers' energy burden. Additionally, in 2026, the Department will file a Clean Energy Implementation Plan that sets a 12 MW demand response target between 2026-2029 to comply with the Washington Clean Energy Transformation Act (CETA).

This legislation provides the authority to build and offer demand response programs to eligible customers. The size of City Light's demand response portfolio will match the scale of cost-effective demand response potential identified over time. Demand response targets are set and updated every two years based on the Demand-Side Management Potential Assessment (DSMPA) and Integrated Resource Plan (IRP). Incremental funding requirements will be assessed as part of the budget cycle and represent the least-cost portfolio of energy resources as identified by the IRP. As such, similar to energy efficiency, demand response will lower overall cost of delivered energy to customers (includes energy, transmission, and distribution). Demand response programs will be evaluated to ensure the portfolio reduces overall power costs relative to supply side solutions.

2. CAPITAL IMPROVEMENT PROGRAM

Does this legislation create, fund, or amend a CIP Project?

☐ Yes ☒ No

3. SUMMARY OF FINANCIAL IMPLICATIONS

Does this legislation have financial impacts to the City?

☒ Yes ☐ No

The total cost of demand response is uncertain but is expected to reduce the overall cost of energy delivered to customers. This ordinance does not directly modify revenues or appropriations; however, it does authorize City Light to enter into future agreements that could impact revenues and expenditures. In 2027-2029 the demand response program budget will be included in City Light's proposed budget, including any necessary budget for staffing resources, incentive payments, and program support.

3.d. Other Impacts

Does the legislation have other financial impacts to The City of Seattle, including direct or indirect, one-time or ongoing costs, that are not included in Sections 3.a through 3.c? If so, please describe these financial impacts.

This legislation does not directly change appropriations or revenues. However, demand response programs will be designed to reduce the overall cost of delivering power to customers. Since City Light recovers costs through rates, retail revenue with demand response will be lower than if City Light were to substitute demand response with supply-side solutions. Lower rates/retail revenue would mean slightly lower utility tax for the General Fund; however, the difference is not anticipated to be significant.

If the legislation has costs, but they can be absorbed within existing operations, please describe how those costs can be absorbed. The description should clearly describe if the absorbed costs are achievable because the department had excess resources within their existing budget or if by absorbing these costs the department is deprioritizing other work that would have used these resources.

There are no specific costs in this legislation.

Please describe any financial costs or other impacts of *not* implementing the legislation.

Demand Response is part of a lowest cost strategy to serve customers. Not having the authority to develop and offer demand response would increase the cost of delivered power and the associated electricity rates of City Light customers.

Please describe how this legislation may affect any City departments other than the originating department.

N/A

4. OTHER IMPLICATIONS

Is a public hearing required for this legislation?

No

a. Is publication of notice with The Daily Journal of Commerce and/or The Seattle Times required for this legislation?

No

b. Does this legislation affect a piece of property?

No

c. Please describe any perceived implication for the principles of the Race and Social Justice Initiative.

- i. How does this legislation impact vulnerable or historically disadvantaged communities? How did you arrive at this conclusion? In your response please consider impacts within City government (employees, internal programs) as well as in the broader community.**

Demand response has a number of use cases that could provide value to City Light, including deferring generation capacity, avoiding or deferring transmission and distribution upgrades, peak shaving, and avoiding high wholesale market prices. Any of these use cases can help lower overall power costs for all customers.

However, because demand response is highly dependent on electrified end-uses and smart technologies that enable flexibility and control, there are significant race and social justice implications. It is likely that highly impacted communities will have less access to smart technologies as a result of historical harms, so it is critical that future demand response programs are designed intentionally to center these communities in the clean energy transition.

- ii. Please attach any Racial Equity Toolkits or other racial equity analyses in the development and/or assessment of the legislation.**

A high-level racial equity analysis was completed. A full Racial Equity Toolkit was not completed at this stage and will be further built out in the Demand Response Strategy, and racial equity analysis is embedded in each step of program design.

- iii. What is the Language Access Plan for any communications to the public?**

Any communications to the public will be planned in partnership with the Department's Communications team.

d. Climate Change Implications

- i. **Emissions: How is this legislation likely to increase or decrease carbon emissions in a material way? Please attach any studies or other materials that were used to inform this response.**

This legislation supports a decrease in carbon emissions by potentially lowering the Department's power purchases on the wholesale market to serve customers. Power purchases account for 60% of the Department's emissions, as there is no guarantee that the power purchased is generated by renewable resources and are therefore considered unspecified to account for potential fossil fuel-based purchases.

- ii. **Resiliency: Will the action(s) proposed by this legislation increase or decrease Seattle's resiliency (or ability to adapt) to climate change in a material way? If so, explain. If it is likely to decrease resiliency in a material way, describe what will or could be done to mitigate the effects.**

This legislation supports an increase in Seattle's resilience to climate change by providing more flexibility to the grid for both the bulk energy system and the distribution system. During times of need that are typically driven by extreme weather events, demand response can provide additional capacity to increase grid resilience and reliability for the bulk system, which reduces the likelihood of customers losing power. Demand response can also provide targeted geographic grid benefits to support grid and customer resiliency at the distribution level.

- e. **If this legislation includes a new initiative or a major programmatic expansion: What are the specific long-term and measurable goal(s) of the program? How will this legislation help achieve the program's desired goal(s)? What mechanisms will be used to measure progress towards meeting those goals?**

As part of the Clean Energy Transformation Act (CETA), the Department must file a Clean Energy Implementation Plan (CEIP) every four years that includes targets for demand response. Under CETA, utilities must be carbon neutral and 80% must be renewable or non-emitting by 2030, and utilities must be 100% renewable or non-emitting by 2045. The CEIP must demonstrate progress towards meeting these goals. The Integrated Resource Plan and Demand-Side Management Potential Assessment identify the amount of cost-effective demand response that is achievable and are used to set the demand response goal in the CEIP. This legislation will enable the Department to develop demand response programs to meet the CEIP targets and demonstrate the utility's progress towards becoming 100% renewable or non-emitting.

- f. **Does this legislation create a non-utility CIP project that involves a shared financial commitment with a non-City partner agency or organization?**

No

5. ATTACHMENTS

Summary Attachments: N/A

SCL Authority for Demand Response ORD

Sustainability, City Light, Arts & Culture Committee

September 5, 2025



WE POWER SEATTLE

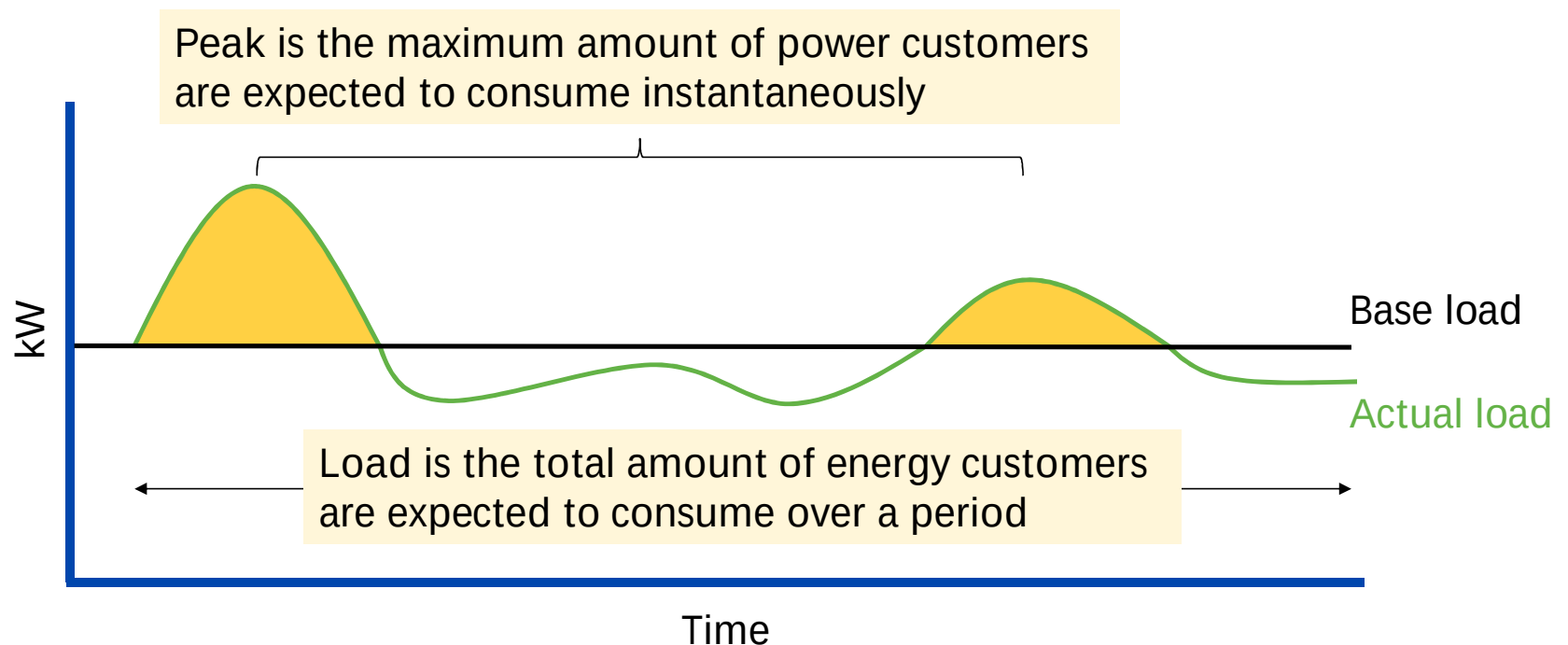
Agenda

1. Definitions
2. Future outlook
3. Drivers
4. Opportunities
5. Purpose of ordinance

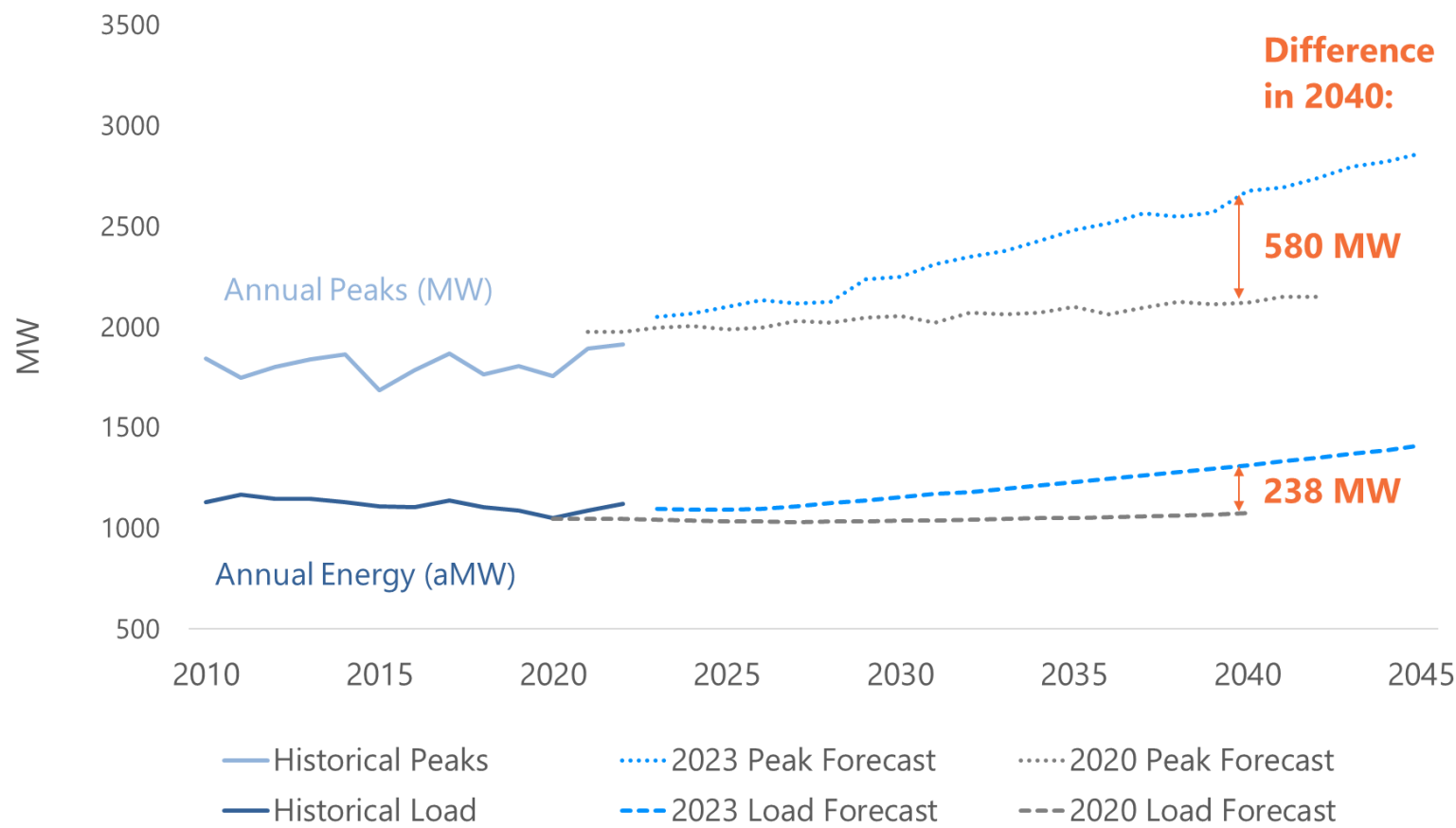


Definitions

Demand response is a broad term for strategies used to shift when electricity is consumed, reduce consumption during peak times, or reduce total consumption.



Future outlook



Drivers for demand response

Increases in:

- Customer electricity needs
- Extreme weather events
- Volatility on wholesale market



Opportunities for demand response

- Customers: residential, commercial, and industrial
- Technologies: thermostats, water heaters, electric vehicles, etc.
- Mechanisms: incentives, rates, contracts, etc.



Industrial demand response program

City Light committed to partnering with customers to:

- Develop a demand response program
- Maximize value to the utility, participants, and all customers



Purpose of ordinance

Amend Seattle Municipal Code to authorize City Light to:

- Establish demand response programs
- Offer incentives for modifications to customer consumption
- Enter into agreements with customers and other parties



THANK YOU



Seattle City Light



Legislation Text

File #: CB 121062, **Version:** 1

CITY OF SEATTLE

ORDINANCE _____

COUNCIL BILL _____

AN ORDINANCE relating to the City Light Department; authorizing the execution of a 16-year power purchase agreement with the Bonneville Power Administration and related agreements.

WHEREAS, the City Light Department (City Light) has been delegated continuing authority to enter into power supply contracts of up to 60 months in duration; and

WHEREAS, City Light has been required to seek specific ordinance authority to enter into any longer-term power purchase contracts; and

WHEREAS, for several decades, City Light has purchased power from the Bonneville Power Administration (BPA) as a preference customer to meet a portion of its electric load (approximately 40 percent under the current load forecast), and City Light is currently under a 2012 power sales contract that will expire September 30, 2028; and

WHEREAS, BPA is a key regional partner in the economy and environment of the Pacific Northwest by providing revenues from the sale of electricity to pay the annual and capital expenses of the Federal Columbia River Power System, including substantial fish and wildlife restoration costs and debt service to the United States Treasury to repay the Federal government's investments in the system; and

WHEREAS, BPA initiated its new contract implementation process in 2022 to develop Provider of Choice power sales contracts and to engage a stakeholder process to determine the terms and conditions under which it will offer power to its preference customers after the current power supply contracts expire; and

WHEREAS, City Light staff recommend that City Light purchase an amount not to exceed its Contract High Water Mark (a value that sets the maximum amount of power available at the lowest cost rates throughout the contract term) from BPA under a Provider of Choice power sales agreement following BPA's Tier 1 rate design; and

WHEREAS, upon a determination of need based on integrated resource planning, City Light staff recommends that City Light purchase some amount of additional power to serve City Light's net power requirements above its Contract High Water Mark at BPA's Tier 2 rates; and

WHEREAS, BPA intends to offer a proposed Provider of Choice Slice/Block Power Sales Agreement in August or September 2025, the timing and status of which is explained in Attachment A to this ordinance; and

WHEREAS, the agreement will be substantially similar to the template attached to this ordinance as Attachment B, with the expectation that City Light will review, analyze, execute, and return the contract by December 5, 2025 so that BPA can finalize and countersign the Provider of Choice Slice/Block Power Sales Agreement by December 31, 2025; and

WHEREAS, out of the three power supply products offered under the Provider of Choice contract term, Slice/Block, Block, and Load Following, City Light has determined that the Slice/Block power supply product will provide the greatest economic benefits to City Light's power portfolio and support future power marketing initiatives; and

WHEREAS, BPA requires a related creditworthiness agreement with Slice/Block purchasers, which will be substantially similar to the template attached to this ordinance as Attachment C, with the expectation that City Light will review, analyze, execute, and return the contract by December 5, 2025 so that BPA can finalize and countersign the Creditworthiness Agreement by December 31, 2025; and

WHEREAS, City Light recommends continuing to purchase power from BPA, because it is expected to be less costly than other sources of majority non-emitting power; and

WHEREAS, City Light has also determined that because (a) power purchased from BPA will come from firm

existing, operating projects, or future projects that will be agreed upon in a planned public process and
(b) the power purchase agreement provides protections to the City if no electricity is available for a long
period, entering into the agreement is reasonable and necessary; and

WHEREAS, budget authority and necessary staffing for administering these new agreements will be included
in the Mayor's 2027-2028 Proposed Budget, as well as the Mayor's subsequent budget proposals;
NOW, THEREFORE,

BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:

Section 1. City Light explains the timing and status for the final Provider of Choice Slice/Block Power
Sales Agreement in the memorandum attached to this ordinance as Attachment A.

Section 2. The General Manager and Chief Executive Officer (CEO) of City Light is authorized for and
on behalf of The City of Seattle to sign and enter into a 16-year Provider of Choice power sales agreement, a
related creditworthiness agreement with the Bonneville Power Administration, and other related contracts that
the General Manager and CEO deems reasonably necessary to implement the Provider of Choice power sales
agreement. These agreements will include a Provider of Choice Slice/Block Power Sales Agreement, and a
Creditworthiness Agreement similar to the forms attached to this ordinance as Attachments B and C,
respectively. The General Manager and CEO of City Light is authorized to agree to modifications and
amendments of the forms throughout the 16-year term of the power sales agreement to the extent the General
Manager and CEO determines such modification or amendment to be reasonably necessary to meet the needs of
the City Light Department.

Section 3. This ordinance shall take effect as provided by Seattle Municipal Code Sections 1.04.020 and
1.04.070.

Passed by the City Council the _____ day of _____, 2025, and signed by
me in open session in authentication of its passage this _____ day of _____, 2025.

President _____ of the City Council

Approved / returned unsigned / vetoed this _____ day of _____, 2025.

Bruce A. Harrell, Mayor

Filed by me this _____ day of _____, 2025.

Scheereen Dedman, City Clerk

(Seal)

Attachments:

Attachment A - Memo BPA 2028 Provider of Choice Contract Status for Legislation

Attachment B - BPA Provider of Choice Slice Block Power Sales Agreement Contract Template

Attachment C - BPA Creditworthiness Agreement Template



Seattle City Light

MEMO

JULY 22, 2025

TO

Seattle City Council Sustainability, City Light, Arts & Culture Committee

FROM

Dawn Lindell, City Light General Manager & CEO

Siobhan Doherty, Power Supply Officer

SUBJECT

Bonneville Power Administration 2028 Provider of Choice Contract Status for Legislation

City Light purchases power from the Bonneville Power Administration (BPA) to meet 40-45% of its electric load. BPA is required under law to sell power to northwest public utilities, including City Light. City Light's current power purchase contract with BPA will expire on September 30, 2028 (the "Current Power Purchase Contract"). City Light is requesting authority for the City Light General Manager and CEO to sign and enter into a new contract with BPA, which will begin deliveries on October 1, 2028, and extend for a 16-year term (the "Provider of Choice Contract").

The following is a list of documents associated with the 2028 Provider of Choice Contract legislation:

- 2028 Provider of Choice Contract Ordinance
 - Attachment A - Memo BPA 2028 Provider of Choice Contract Status for Legislation
 - Attachment B - BPA Provider of Choice Slice Block Power Sales Agreement Contract Template
 - Attachment C - BPA Creditworthiness Agreement Template
- 2028 Provider of Choice Contract Summary & Fiscal Note

City Light would normally bring a finalized contract to City Council for approval rather than a contract template. However, this was not possible due to a timing mismatch between City Council's and BPA's schedules. BPA requires that all contracts be executed by December 5, 2025, but will not be able to provide the City Light-specific contract until sometime between August 29, 2025 and September 30, 2025. BPA cannot guarantee delivery of a final, City Light-specific contract for review prior to the first City Council Sustainability, City Light, Arts & Culture Committee Meeting on September 5, 2025.

Earlier this year, City Light staff alerted BPA this timeline would not align with Seattle's legislative calendar, because final contract review and submission to City Council for authorization of the Provider of Choice Contract must be completed by August 2025. However, BPA was not able to change its timeline.

On June 18, 2025, BPA released its “Final Slice Block Contract Template” (the “Template”), which is a finalized contract template for public preference customers that will choose the Slice/Block product, like City Light. The Template is the most up-to-date contract available, and contract terms will be applicable to all public preference customers that choose this product. BPA offers a suite of power supply products during each contract term that can be grouped into the following categories: Load Following, Block, and Slice/Block. City Light elected the Slice/Block product following financial and economic analysis completed earlier this year.

Beginning in 2021, contract terms were discussed and negotiated during open public forums as part of the Provider of Choice contract implementation policy. The terms outlined in the Template are reflective of a years-long collective negotiation by public preference customers. City Light expects minimal language changes in the final contract and believes the Template best represents the contract BPA will present to City Light for signature. The expected language changes could include punctuation corrections and customer-specific details such as Seattle’s customer name and contract exhibit values that BPA intends to finalize in 2025 and 2026.

The approach to bring a contract template to Council has precedent. Specifically, [Ordinance 122805](#), passed in 2008, authorized the Superintendent of City Light, or his designee, to enter into the Current Power Purchase Contract, with the approved attachments to such ordinance being the contract template, not a finalized power purchase agreement between City Light and BPA.

**PROVIDER OF CHOICE
FINAL SLICE/BLOCK CONTRACT TEMPLATE
(06/18/25)**

Contract No. «##»PS-«#####»

DRAFT 8/8/2025 12:21 PM

*{When finalized, delete date here and
move it to the author information line
at the bottom of signature page.}*

**POWER SALES AGREEMENT
executed by the
BONNEVILLE POWER ADMINISTRATION
and
«FULL NAME OF CUSTOMER»**

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Exhibit A Net Requirements and Resources

Exhibit B Contract High Water Marks

Exhibit C Purchase Obligations

Exhibit D Additional Products and Special Provisions

Exhibit E Metering

Exhibit F Scheduling *Option 1: For directly-connected.*

Exhibit F Scheduling *Option 2: For Transfer.*

Option 1: Include for exclusively directly-connected customers.

Exhibit G This Exhibit Intentionally Left Blank

End Option 1

Option 2: Include for customers served by Transfer Service.

Exhibit G Terms Related to Transfer Service

End Option 2

Exhibit H Renewable Energy Certificates and Environmental Attributes

Exhibit I Notices and Contact Information

Exhibit J Support Services; Additional Resource and Energy Storage Device Requirements

Exhibit K Annual Slice Percentage and Firm Slice Amounts

Exhibit L Provider of Choice Slice Application

Exhibit M Slice Operating Procedures

Option 1: Include the following for customers that are not joint operating entities (JOEs).

This POWER SALES AGREEMENT (Agreement) is executed by the UNITED STATES OF AMERICA, Department of Energy, acting by and through the BONNEVILLE POWER ADMINISTRATION (BPA), and «FULL NAME OF CUSTOMER» («Customer Name»), hereinafter individually referred to as “Party” and collectively referred to as the “Parties”. «Customer Name» is a «public utility district, people’s utility district, non-profit corporation, municipal corporation, public body formed under tribal law, federal agency», organized and authorized under the laws of the State of «State», to purchase and distribute electric power to serve retail consumers from its distribution system within its service area. *Drafter’s Note: Modify the previous sentence for tribal utilities and federal agencies to reflect their legal status independent of the state.*

End Option 1

Option 2: Include the following for customers that are JOEs.

This POWER SALES AGREEMENT (Agreement) is executed by the UNITED STATES OF AMERICA, Department of Energy, acting by and through the BONNEVILLE POWER ADMINISTRATION (BPA), and «FULL NAME OF CUSTOMER» («Customer Name»), hereinafter individually referred to as “Party” and collectively referred to as the “Parties”. «Customer Name» is a «joint operating entity with cooperative utility members» «joint operating entity with public utility members» («Customer Name» Member(s)” or “Member(s)”), which are organized and authorized under the laws of the States of «States», to purchase and distribute electric power to serve retail consumers from their distribution systems within their service areas. «Customer Name» Members under this Agreement are identified in the table in section 1.1 of Exhibit B.

End Option 2

RECITALS

Option: Include the following for customers that had a Regional Dialogue contract and include that RD contract number.

«Customer Name»'s power sales agreement Contract No. «##PB»-«#####» continues through September 30, 2028, and power sales under this Agreement begin on October 1, 2028. All obligations and liabilities accrued under Contract No. «##PB»-«#####» are preserved until satisfied.

End Option

BPA is a functionally separated organization with distinct administrative and decision-making activities for BPA's power and transmission functions. References in this Agreement to Power Services or Transmission Services are solely for the purpose of clarifying which BPA function is responsible for such administrative and decision-making activities.

BPA is authorized to market electric power to qualified entities eligible to purchase such power. Under Section 5(b)(1) of the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act), 16 U.S.C. § 839c(b)(1), BPA is obligated to offer a power sales agreement to any eligible customer for the sale and purchase of electric power to serve the customer's regional consumer load not served by the customer's resources.

Option: Include the following for customers that are JOEs.

Under Section 5(b)(7) of the Northwest Power Act, a qualified joint operating entity (JOE) may request a contract for the sale of electric power from BPA for resale to meet the net requirement loads of qualifying public body and cooperative customers of BPA that are members of the JOE. «Customer Name» is a JOE within the meaning of the Northwest Power Act and has complied with BPA's standards of service. «Customer Name» consists of member «public or cooperative» utilities that serve firm consumer load in the Region.

End Option

In the final Provider of Choice Policy, March 2024 BPA proposed to develop the contracts requested under Section 5(b) of the Northwest Power Act consistent with a tiered rates pricing construct for the Section 7(b) rate, in order to provide signals and to encourage the timely development of regional power resource infrastructure to meet regional consumer loads under this Agreement.

This Agreement effectuates a Contract High Water Mark (CHWM) for «Customer Name» that establishes the amount of power «Customer Name» may purchase from BPA at Tier 1 Rates.

The Parties agree:

1. TERM

Option 1: Include the following for customers who do NOT need RUS approval.

This Agreement takes effect on the date signed by the Parties and expires on September 30, 2044. Power sales by BPA to «Customer Name» under this Agreement shall commence on October 1, 2028, provided that the Parties have

completed any obligations required between the Effective Date and October 1, 2028 as specified under this Agreement.

End Option 1

Option 2: Include the following for customers who must obtain RUS approval of this Agreement.

This Agreement takes effect on the date signed by the Parties and expires on September 30, 2044. This Agreement is subject to approval of the United States Department of Agriculture Rural Utilities Service until December 31, 2026.

«Customer Name» shall send any documentation of such approval to BPA. Power sales by BPA to «Customer Name» under this Agreement shall commence on October 1, 2028, provided that the Parties have completed any obligations required between the Effective Date and October 1, 2028 as specified under this Agreement.

End Option 2

Until October 1, 2028, section 19, Governing Law and Dispute Resolution will only apply to the extent there is a dispute regarding actions required under this Agreement that occur prior to October 1, 2028.

All obligations and liabilities accrued under this Agreement are preserved until satisfied.

Reviewer's Note: Terms related to Resource Support Services (RSS) have been deleted from section 2, Definitions. Because RSS for Provider of Choice have yet to be defined and contract language developed, any definitions included at this point would be presumptive and potentially incorrect. BPA will develop RSS provisions for Exhibit J, and BPA anticipates offering an amendment to this Agreement to include RSS-related definitions to this section 2 at the same time.

2. DEFINITIONS

Capitalized terms below shall have the meaning stated. Capitalized terms that are not listed below are either defined within the section or exhibit in which the term is used, or if not so defined, shall have the meaning stated in BPA's applicable Power Rate Schedules, including the General Rate Schedule Provisions (GRSPs) or Public Rate Design Methodology (PRDM). Definitions in **bold** indicate terms that are both defined in the PRDM and that the Parties agree should conform to the PRDM as it may be revised. The Parties agree that if such definitions are revised pursuant to the PRDM, then BPA shall promptly and unilaterally amend this Agreement to incorporate such revised definitions from the PRDM, to the extent they are applicable.

2.1 "5(b)/9(c) Policy" means BPA's Policy on Determining Net Requirements of Pacific Northwest Utility Customers Under Sections 5(b)(1) and 9(c) of the Northwest Power Act issued May 23, 2000, and its revisions or successors.

2.2 "**7(i) Process**" means a public process conducted by BPA, pursuant to Section 7(i) of the Northwest Power Act, 16 U.S.C. § 839e(i), or its successor, to establish rates for the sale of power and other products.

Option 1: Include the following for customers that are not JOEs.

- 2.3 “Above-CHWM Load” means the forecasted portion of a customer’s Preliminary Net Requirement that is in excess of the customer’s CHWM, if any, as determined in the Above-CHWM Load Process.

End Option 1

Option 2: Include the following for customers that are JOEs.

- 2.4 “Above-CHWM Load” means the sum of all Members’ Above-CHWM Loads.

End Option 2

- 2.5 “Above-CHWM Load Process” means the public process conducted during each Forecast Year, in which BPA will calculate the following values for the upcoming Rate Period: (1) each customer’s Preliminary Net Requirement; (2) adjusted CHWMs; and (3) each customer’s Above-CHWM Load.
- 2.6 “Actual BOS Generation” means the actual generation produced by the BOS Complex, as adjusted for actual Designated System Obligations and CHWM Modeled Augmentation.
- 2.7 “Actual Slice Output Energy” or “ASOE” shall have the meaning as defined in section 2 of Exhibit M.
- 2.8 “Algorithm Tuning Parameters” shall have the meaning as defined in section 2 of Exhibit L.
- 2.9 “Annexed Load” means existing load, distribution system (regardless of voltage), or service territory «Customer Name» acquires after the Effective Date from another utility, by means of annexation, merger, purchase, trade, or other acquisition of rights, the acquisition of which BPA determines is consistent with BPA’s standards of service and has been authorized by agreement between the impacted utilities or by a final state, regulatory, or court action. The Annexed Load must be served from distribution facilities of any voltage that are owned or acquired by «Customer Name».
- 2.10 “Annual Net Requirement” means BPA’s forecast of «Customer Name»’s Net Requirement for each Fiscal Year that results from the process established in section 1 of Exhibit A and is shown in the table in section 1.2 of Exhibit A.
- 2.11 “Annual RSO Test” means an annual test performed by BPA that measures Slice-To-Load pursuant to section 5.6.5.2 and section 11.2 of Exhibit M.
- 2.12 “Attribute Pools” shall have the meaning as defined in section 2 of Exhibit H.
- 2.13 “Average Megawatts” or “aMW” means the amount of electric energy in megawatt-hours (MWh) during a specified period of time divided by the number of hours in such period.

- 2.14 “Balance of System” or “BOS” means the Tier 1 System Resources other than the six Simulator Projects net of Designated System Obligations. Customers receive a share of the BOS complex in three different ways: BOS Base Energy, BOS Deviation Return and BOS Flexibility.
- 2.15 “Balancing Authority” shall have the meaning as defined in section 1 of Exhibit F.
- 2.16 “Balancing Authority Area” shall have the meaning as defined in section 1 of Exhibit F.
- 2.17 “Block” or “Block Product” means a planned amount of Firm Requirements Power sold to a customer to meet a portion of its regional consumer load pursuant to the terms set forth in section 4 of this Agreement.
- 2.18 “BOS Base” means the forecast generation amounts available from the BOS Complex, as adjusted by BPA for forecast Tier 1 System Obligations and CHWM Modeled Augmentation.
- 2.19 “BOS Complex” means the Tier 1 System Resources, except those resources that comprise the Coulee-Chief Complex and Lower Columbia Complex.
- 2.20 “BOS Deviation Account” means the account BPA maintains that quantifies the cumulative amount, expressed in megawatt days, by which «Customer Name»’s hourly BOS Base schedules deviate from the amount determined by multiplying «Customer Name»’s Slice Percentage by the hourly Actual BOS Generation.
- 2.21 “BOS Deviation Return” means the energy amounts associated with the reduction of «Customer Name»’s BOS Deviation Account balance.
- 2.22 “BOS Flex” means the amount by which the BOS Base can reasonably be reshaped within a given calendar day by utilizing the flexibility available from the Lower Snake Complex.
- 2.23 “BOS Module” means the POCSA module that is used to determine «Customer Name»’s Slice Output Energy and SOE Limits available from the BOS Complex.
- 2.24 “Business Day(s)” means every Monday through Friday, except federal holidays.
- 2.25 “Bypass Spill” shall have the meaning as defined in section 2 of Exhibit L.
- 2.26 “CGS Displacement” shall have the meaning as defined in section 5.8.1.2.
- 2.27 “CHWM Contract” means the power sales agreement between a customer and BPA that contains a Contract High Water Mark (CHWM), and under

which the customer purchases power from BPA at rates established by BPA in accordance with the PRDM.

- 2.28 “**CHWM Modeled Augmentation**” means a PRDM construct of a flat annual block of power used to establish the simulated Slice capability.
- 2.29 “**CHWM System**” means the annual Tier 1 Firm System Output, reduced for annual Designated System Obligations plus annual CHWM Modeled Augmentation as determined in each 7(i) Process.
- 2.30 “Columbia Generating Station” or “CGS” shall have the meaning as defined in section 5.8.1.1.
- 2.31 “Committed Power Purchase Amount” means an amount of firm energy, listed in sections 3 and 4 of Exhibit A, that «Customer Name» has agreed to supply and use to serve its Total Retail Load. Such amount is not attributed to a Specified Resource.
- 2.32 “Consumer-Owned Resource” means a Generating Resource connected to «Customer Name»’s distribution system (regardless of voltage) from which the output is owned by a retail consumer, has a nameplate capability greater than 1.000 megawatt, is operated to serve load, and is not operated occasionally or intermittently as a back-up energy source at times of maintenance or forced outage. Consumer-Owned Resource does not include a resource where the owner of the resource is a retail consumer that exists solely for the purpose of selling wholesale power and for which «Customer Name» only provides incidental station service energy for local use at the retail consumer’s generating plant for uses such as lighting, heat and the operation of auxiliary equipment.
- 2.33 “Contracted For, or Committed To” or “CF/CT” shall have the meaning as described in section 20.3.1.1.

Option 1: Include the following for customers that are not JOEs.

- 2.34 “Contract High Water Mark” or “CHWM” means the amount of Firm Requirements Power (expressed in annual Average Megawatts) that a customer is eligible to access at Tier 1 Rates. The amount of Firm Requirements Power a customer purchases at Tier 1 Rates is limited to the lesser of its CHWM or its Net Requirement as established consistent with section 1 of Exhibit A.

End Option 1

Option 2: Include the following for customers that are JOEs.

- 2.35 “Contract High Water Mark” or “CHWM” means the sum of «Customer Name» Members’ CHWMs.

End Option 2

- 2.36 “Contract High Water Mark (CHWM) Implementation Policy” means the policy that documents the process details around the FY 2026 CHWM Calculation Process and Above-CHWM Load Process.
- 2.37 “Coulee-Chief Complex” means the two hydroelectric projects located in the middle reach of the Columbia River, consisting of Grand Coulee and Chief Joseph.
- 2.38 “Cumulative Prior Load” shall have the meaning as established in section 20.3.5.2.
- 2.39 “Customer Facing Interface” or “CFT” shall have the meaning as defined in section 5.9.1.
- 2.40 “Customer Inputs” means the discharge, elevation, or generation requests at each of the Simulator Projects that «Customer Name» submits as inputs to the Simulator pursuant to section 3.3 of Exhibit L.
- 2.41 “Cycle” shall have the meaning as defined in section 6 of Exhibit J.
- 2.42 “Cycles per Day” shall have the meaning as defined in section 6 of Exhibit J.
- 2.43 “Dedicated Resource” means a Specified Resource or a Committed Power Purchase Amount listed in Exhibit A that «Customer Name» is required by statute to provide or obligates itself to provide under this Agreement for use to serve its Total Retail Load.
- 2.44 “Default User Interface” or “DUI” shall have the meaning as defined in section 5.9.1.
- 2.45 “**Designated System Obligations**” means the set of obligations specified in Table 3-2 of the PRDM, that: (1) are directly assigned to the generation output or capability of the Tier 1 System Resources; or (2) are incurred because of contracts, operational obligations, memorandums of agreement, treaties, statutes, regulations, court orders, or executive orders, individually or in combination, that create a firm obligation for the Tier 1 System Resources. Designated System Obligations also includes the portion of BPA’s ancillary and control area service obligations that are provided from the Tier 1 System Resources.
- 2.46 “Diurnal” means the division of hours within a month between Heavy Load Hours (HLH) and Light Load Hours (LLH).
- 2.47 “Due Date” shall have the meaning as described in section 16.2.
- 2.48 “Effective Date” means the date on which this Agreement has been signed by both «Customer Name» and BPA.

- 2.49 “Elective Spill” means Spill other than Bypass Spill or Fish Spill that occurs at a hydroelectric project and is within such project’s available turbine capacity such that the Spill may otherwise be utilized to produce energy.
- 2.50 “Electronic Tag” or “E-Tag” shall have the meaning as defined in section 1 of Exhibit F.
- 2.51 “Emissions Allowance” shall have the meaning as defined in section 2 of Exhibit H.
- 2.52 “Energy Storage Device” or “ESD” means a facility used to hold generated electric energy for release at a later time. Energy Storage Devices include energy storage facilities such as batteries. In Exhibit J, BPA documents Energy Storage Devices with alternating current (AC) nameplates (in some cases stated as facility interconnection AC nameplates) greater than 1.000 megawatt.
- 2.53 “Environmental Attribute Accounting Process” shall have the meaning as defined in section 2 of Exhibit H.
- 2.54 “Environmental Attributes” shall have the meaning as defined in section 2 of Exhibit H.
- 2.55 “Existing Resource” means a Specified Resource listed in section 2 of Exhibit A that «Customer Name» was obligated by contract or statute to use to serve «Customer Name»’s Total Retail Load prior to October 1, 2023.
- 2.56 “Federal Columbia River Power System” or “FCRPS” means the integrated power system that includes, but is not limited to, the transmission system constructed and operated by BPA and the hydroelectric dams in the Pacific Northwest constructed and operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation.
- 2.57 “Federal Operating Decision” means a decision made by the U.S. Army Corps of Engineers, the Bureau of Reclamation, BPA, or the United States Entity of the Columbia River Treaty, in accordance with the authority of each such entity, and as needed to meet Designated System Obligations not already reflected in the Simulator or BOS Module, that establishes the permissible range of operations for any project or projects that comprise the FCRPS.
- 2.58 “FERC” means the Federal Energy Regulatory Commission, or its successor.

Option 1: Include the following for customers that are not JOEs.

- 2.59 “Firm Requirements Power” means electric power that BPA sells under this Agreement and makes continuously available to «Customer Name» to meet BPA’s obligations to «Customer Name» under Section 5(b) of the Northwest Power Act.

End Option 1

Option 2: Include the following for customers that are JOEs.

2.60 “Firm Requirements Power” means electric power that BPA sells under this Agreement and makes continuously available to «Customer Name» to meet BPA’s obligations to «Customer Name» under Sections 5(b)(1) and 5(b)(7) of the Northwest Power Act.

End Option 2

2.61 “**Firm Slice Amount**” means a customer’s Slice Percentage multiplied by the CHWM System.

2.62 “Fiscal Year” or “FY” means the period beginning each October 1 and ending the following September 30.

Drafter’s Note: Include the following for customers served by Transfer Service.

2.63 “Fiscal Year Transfer Cap” shall have the meaning as defined in section 1 of Exhibit G.

End Option

2.64 “Fish Spill” means Spill that occurs at a hydroelectric project in order to maintain compliance with established fish passage criteria, such as those criteria set forth in biological opinions.

2.65 “Flat Annual Shape” means a distribution of energy having the same Average Megawatt value of energy in each month of the year.

2.66 “Flat Within-Month Shape” means a distribution of energy having the same Average Megawatt value of energy in each Diurnal period of the month.

2.67 “Forced Spill” shall have the meaning as defined in section 2 of Exhibit L.

2.68 “Forecast Year” means the Fiscal Year ending one full year prior to the commencement of a Rate Period.

2.69 “FY 2026 CHWM Calculation Process” means the public process where BPA shall calculate each customer’s CHWM in accordance with section 2.4 of the Provider of Choice Policy, March 2024, as amended or revised.

2.70 “Generating Resource” means any source or amount of electric power from an identified electricity-producing unit, and for which the amount of power received by «Customer Name» or «Customer Name»’s retail consumer is determined by the power produced from such identified electricity-producing unit. Such unit may be owned by «Customer Name» or «Customer Name»’s retail consumer in whole or in part, or all or any part of the output from such unit may be owned for a defined period by contract.

2.71 “H/k” means, prospectively, a hydroelectric project’s water-to-energy conversion factor used to forecast such project’s potential energy production per unit of turbine discharge, expressed as MW per kcfs, or retrospectively, for any given period of time, the value equal to a hydroelectric project’s

average net generation divided by such project's average turbine discharge, expressed as MW per kcfs.

- 2.72 “Hard Operating Constraint” means an Operating Constraint that Slice Customers shall not exceed without express consent from project operators, owners, or other federal agencies responsible for establishing such Operating Constraints.
- 2.73 “Heavy Load Hours” or “HLH” shall have the meaning as defined in section 1 of Exhibit F.
- 2.74 “Hours of Maximum Discharge” shall have the meaning as defined in section 6 of Exhibit J.
- 2.75 “Hydraulic Link Adjustment” means the adjustment to «Customer Name»'s simulated McNary inflow that is equal to the difference between «Customer Name»'s calibrated Simulator discharge for Chief Joseph and the measured Chief Joseph discharge, pursuant to section 3.7 of Exhibit M.
- 2.76 “Incremental Side Flows” shall have the meaning as defined in section 2 of Exhibit L.

Drafter's Note: Include the following for customers served by Transfer Service.

- 2.77 “Initial Transfer Study Deposit” shall have the meaning as defined in Exhibit G.

End Option

- 2.78 “Interchange Points” shall have the meaning as defined in section 1 of Exhibit F.
- 2.79 “Inventory” or “Inventories” shall have the meaning as defined in section 2 of Exhibit H.
- 2.80 “Issue Date” shall have the meaning as described in section 16.1.
- 2.81 “Joint Operating Entity” or “JOE” means an entity that meets the requirements of Section 5(b)(7) of the Northwest Power Act.

Drafter's Note: Include the following for customers served by Transfer Service.

- 2.82 “Last Transfer Segment” shall have the meaning as defined in section 1 of Exhibit G.

End Option

- 2.83 “Light Load Hours” or “LLH” shall have the meaning as defined in section 1 of Exhibit F.
- 2.84 “Logic Control Parameters” shall have the meaning as defined in section 2 of Exhibit L.

- 2.85 “Low Voltage Segment” means the facilities of a Third-Party Transmission Provider that are below 34.5kV.
- 2.86 “Lower Columbia Complex” or “LCOL Complex” means the four hydroelectric projects located on the lower reach of the Columbia River, consisting of McNary, John Day, The Dalles, and Bonneville.
- 2.87 “Lower Snake Complex” or “LSN Complex” means the four hydroelectric projects located on the lower reach of the Snake River, consisting of Lower Granite, Little Goose, Lower Monumental, and Ice Harbor.
- 2.88 “Maximum Charge Rate” shall have the meaning as defined in section 6 of Exhibit J.
- 2.89 “Maximum Potential CHWM” shall have the meaning as defined in section 1.2.5 of Exhibit B.
- 2.90 “Maximum Single Hour Discharge” shall have the meaning as defined in section 6 of Exhibit J.

Drafter’s Note: Include the following for customers that are JOEs.

- 2.91 “Member” or “JOE Member” means a public body or cooperative that purchases or will purchase electric power from a JOE pursuant to Section 5(b)(7) of the Northwest Power Act and that has (1) signed a Preservation of Certain Rights and Obligations Agreement, or its successor, with BPA, or (2) assigned its CHWM Contract to a JOE.

End Option

Drafter’s Note: Include the following for customers that are JOEs.

- 2.92 “Member’s Above-CHWM Load” means the forecasted portion of a «Customer Name» Member’s Preliminary Net Requirement that is in excess of such «Customer Name» Member’s CHWM, if any, as determined in the Above-CHWM Load Process.

End Option

Drafter’s Note: Include the following for customers that are JOEs.

- 2.93 “Member’s CHWM” means the amount of Firm Requirements Power (expressed in annual Average Megawatts) that a Member is eligible to access at Tier 1 Rates. The amount of Firm Requirements Power available to «Customer Name» for a Member at Tier 1 Rates is limited to the lesser of such Member’s CHWM or such Member’s Net Requirement. Each «Customer Name» Member’s CHWM is stated in Exhibit B.

End Option

Drafter’s Note: Include the following for customers that are JOEs.

- 2.94 “Member Slice Percentage” means the portion of the JOE’s Slice Percentage that is attributable to the Member.

End Option

- 2.95 “Monthly Reimbursement Value” means the value determined by dividing the amount «Customer Name» is billed for a month under the applicable customer charges, as described pursuant to chapter 4 of the PRDM, by the sum of: (1) «Customer Name»’s ASOE for such month and (2) the amount of «Customer Name»’s Surplus Slice Output energy that is curtailed during such month.
- 2.96 “Monthly RSO Test” means a monthly test performed by BPA that measures Slice-To-Load pursuant to section 5.6.5.1 and section 11.1 of Exhibit M.
- 2.97 “Multiyear Hydroregulation Study” shall have the meaning as defined in section 2 of Exhibit M.
- 2.98 “Net Requirement” means the amount of electric power that a customer may purchase from BPA to serve its Total Retail Load, minus amounts of its Dedicated Resources shown in Exhibit A, as determined consistent with Section 5(b)(1) of the Northwest Power Act.

Drafter’s Note: Include the following for customers served by Transfer Service.

- 2.99 “Network Load” shall have the meaning as defined in section 1 of Exhibit G.
End Option

Drafter’s Note: Include the following for customers served by Transfer Service.

- 2.100 “Network Resource” shall have the meaning as defined in section 1 of Exhibit G.

End Option

- 2.101 “New Large Single Load” or “NLSL” shall have the meaning as specified in Section 3(13) of the Northwest Power Act and in the April 2001 Bonneville Power Administration New Large Single Load Policy or its successor (BPA’s NLSL Policy).
- 2.102 “New Resource” means: (1) a Specified Resource listed in section 2 of Exhibit A that «Customer Name» was or is obligated by contract to use to serve «Customer Name»’s Total Retail Load after September 30, 2023, and (2) any Committed Power Purchase Amounts listed in Exhibit A.
- 2.103 “**New Resource Rate**” or “NR Rate” means the rate for requirements firm power sold to an investor-owned utility (IOU) or public customer pursuant to Section 7(f) of the Northwest Power Act, 16 U.S.C. § 839e(c).
- 2.104 “Northwest Power Act” means the Pacific Northwest Electric Power Planning and Conservation Act, 16 U.S.C. § 839 et seq., Public Law No. 96-501, as amended.
- 2.105 “On-Site Consumer Load” means the load of an identified retail consumer of «Customer Name» that is electrically interconnected at the same Point of Delivery to «Customer Name»’s system with a Consumer-Owned Resource of

that same identified retail consumer. Such load does not utilize BPA or Third-Party Transmission Provider transmission facilities to deliver the generation from the Consumer-Owned Resource to the consumer load.

- 2.106 “Open Access Transmission Tariff” or “OATT” shall have the meaning as defined in section 1 of Exhibit F.
- 2.107 “Operating Constraints” means the operating limits, project operating requirements, and non-power constraints that are the result of implementing Federal Operating Decisions or Prudent Operating Decisions.
- 2.108 “Operating Rule Curves” or “ORC” means the forebay operating limits established for a reservoir pursuant to operating agreements in effect, and as modified to reflect Operating Constraints, that are used to determine such reservoir’s upper forebay operating limit (upper ORC) or lower forebay operating limit (lower ORC).
- 2.109 “Peak Load Variance Service” or “PLVS” means a resource-capacity planning-based service for instances when planned load exceeds expected load forecast values.
- 2.110 “Planned NLSL” means the load at a facility that BPA and a customer have agreed, pursuant to the provisions of Section V.B. of BPA’s NLSL Policy, is expected to become an NLSL during the facility’s next consecutive 12-month monitoring period.
- 2.111 “POCSA Deployment Date” shall have the meaning as defined in section 5.9.1.
- 2.112 “POCSA Functionality Test” shall have the meaning as defined in section 5.9.1.
- 2.113 “POCSA Pass Date” shall have the meaning as defined in section 5.9.1.
- 2.114 “Point of Delivery” or “POD” means the point where power is transferred from a transmission provider to «Customer Name».
- 2.115 “Point of Metering” or “POM” means the point at which power is measured.
- 2.116 “Potential NLSL” means a load at a facility that BPA determines is capable of growing ten Average Megawatt or more in a consecutive 12-month monitoring period that may qualify as an NLSL.
- 2.117 “Power Services” means the organization, or its successor organization, within BPA that is responsible for the management and sale of BPA-provided electric power.

Drafter's Note: Include the following for customers that are JOEs.

2.118 **“Preliminary Member Net Requirement”** means a JOE Member’s annual Net Requirement prior to accounting for any New Resources used to serve Above-CHWM Load. Preliminary Net Requirement is determined as the forecasted annual Total Retail Load less Existing Resources, NLSLs, Specified Resources added to Tier 1 Allowance Amount, and Consumer-Owned Resources serving On-Site Consumer Load, as determined in the Above-CHWM Load Process.

End Option

Option 1: Include the following for customers that are not JOEs.

2.119 **“Preliminary Net Requirement”** means a customer’s annual Net Requirement prior to accounting for any New Resources a customer may elect to serve its Above-CHWM Load. Preliminary Net Requirement is determined as the forecasted annual Total Retail Load less Existing Resources, NLSLs, Specified Resources added to Tier 1 Allowance Amount, and Consumer-Owned Resources serving On-Site Consumer Load, as determined in the Above-CHWM Load Process.

End Option 1

Option 2: Include the following for customers that are JOEs.

2.120 **“Preliminary Net Requirement”** means the sum of the JOE’s Members’ Preliminary Member Net Requirements.

End Option 2

2.121 “Primary Points of Receipt” shall have the meaning as defined in section 14.1.

2.122 “Project Storage Bounds” or “PSB” means the Storage Content amounts associated with the upper ORC and lower ORC in effect at a project.

2.123 “Provider of Choice Slice Application” or “POCSA” means BPA’s proprietary computer hardware, software and related processes, developed, updated, and maintained by BPA and consisting of: (1) the Simulator; (2) the BOS Module; (3) the Default User Interface; (4) the Customer Facing Interface, and (5) other related processes, including but not limited to communications, scheduling, electronic tagging and accounting for Slice Output Energy, all as described in Exhibit L.

2.124 “Prudent Operating Decision” means a decision made by Power Services operations staff, in their exercise of reasonable judgment, that modifies the operating range applied to any project or projects that comprise the FCRPS for the purpose of meeting any BPA obligation, including but not limited to Federal Operating Decisions, except actions taken by Power Services solely to sell surplus power to loads BPA is not contractually obligated to serve under Section 5 of the Northwest Power Act. Prudent Operating Decisions are applied for a finite period of time and in a manner that proportionally affects the amount of power from such project or projects that is available to BPA and Slice Customers.

- 2.125 “**Public Rate Design Methodology**” or “**PRDM**” means the methodology describing the manner in which BPA will collect a portion of its Power Revenue Requirement from public customers with a CHWM Contract through a combination of charges, credits, fees, and discounts, as well as the terms and conditions related to any potential changes to the methodology.
- 2.126 “**Qualified Capacity Contribution**” or “**QCC**” means the megawatt quantity of capacity provided by a resource, contract, or portfolio as defined by the Western Resource Adequacy Program (WRAP).
- 2.127 “**Rate Case Year**” means the Fiscal Year ending prior to the commencement of a Rate Period. The Rate Case Year immediately follows the Forecast Year and is the year in which the 7(i) Process for the next Rate Period is conducted.
- 2.128 “**Rate Period**” means the period of time during which a specific set of rates established by BPA pursuant to the PRDM is intended to remain in effect.
- 2.129 “**Region**” means the Pacific Northwest as defined in Section 3(14) of the Northwest Power Act.
- 2.130 “**Renewable Energy Certificates**” or “**Renewable Energy Credits**” or “**RECs**” shall have the meaning as defined in section 2 of Exhibit H.
- 2.131 “**Retire**” or “**Retirement**” shall have the meaning as defined in section 2 of Exhibit H.
- 2.132 “**Requirements Slice Output**” or “**RSO**” means the portion of «Customer Name»’s Slice Output Energy that is equal to the lesser of: (1) «Customer Name»’s Firm Slice Amount; (2) «Customer Name»’s Net Requirement, less amounts purchased under the Block Product, as specified in Exhibit C; (3) «Customer Name»’s Total Retail Load metered, less «Customer Name»’s Dedicated Resources shown in Exhibit A and less amounts purchased under the Block Product, as specified in Exhibit C; or (4) «Customer Name»’s Total Retail Load metered, less «Customer Name»’s Dedicated Resources in Exhibit A, less any additional generation from a Dedicated Resource that exceeds the amount in Exhibit A that «Customer Name» uses to serve its Total Retail Load and to fulfill a state or federal legal obligation, and less amounts purchased under the Block Product, as specified in Exhibit C.
- 2.133 “**Resource Support Services**” or “**RSS**” means a suite of services BPA Power Services provides to integrate federal and non-federal resources defined in Exhibit J and priced in each regular 7(i) Process consistent with chapter 6 of the PRDM.
- 2.134 “**Round Trip Efficiency**” shall have the meaning as defined in section 6 of Exhibit J.

- 2.135 “Scheduling Hour” or “Scheduling Hour XX” shall have the meaning as defined in section 1 of Exhibit F.
- 2.136 “Scheduling Points of Receipt” shall have the meaning as defined in section 14.1.
- 2.137 “Simulated Operating Scenario” means the simulated operation of the Simulator Projects, including the discharge amounts, generation amounts, and forebay elevations, as determined by the Simulator.
- 2.138 “Simulated Output Energy Schedule(s)” means the amount of energy that is calculated by the Simulator as «Customer Name»’s simulated generation amount associated with each Simulator Project.
- 2.139 “Simulator” or “Slice Water Routing Simulator” means the POCSA module used to determine «Customer Name»’s Slice Output and SOE Limits available from the Simulator Projects.
- 2.140 “Simulator Initialization Time” shall have the meaning as defined in section 2 of Exhibit L.
- 2.141 “Simulator Modeling Period” shall have the meaning as defined in section 2 of Exhibit L.
- 2.142 “Simulator Parameters” means the operating parameters applicable to the Simulator Projects and which BPA develops as inputs to the Simulator to reflect Operating Constraints, pursuant to section 3.2 of Exhibit L.
- 2.143 “Simulator Pass Date” shall have the meaning as defined in section 5.9.1.
- 2.144 “Simulator Performance Test” shall have the meaning as defined in section 5.9.1.
- 2.145 “Simulator Project(s)” means any of the hydroelectric projects represented in the Simulator, including those projects that comprise the Coulee-Chief Complex and the Lower Columbia Complex.
- 2.146 “Slice/Block Product” means a customer’s purchase obligation under the Slice Product and the Block Product to meet its regional consumer load obligation as described in section 3.1 of the Slice/Block Product CHWM Contract.
- 2.147 “Slice Customer” means a customer that is purchasing the Slice Product pursuant to the Slice/Block Product CHWM Contract.
- 2.148 “Slice Operating Day” means a current day of actual electric service from the CHWM System to load.

- 2.149 “Slice Operations Forum” or “SOF” means the group that includes representatives from BPA, «Customer Name», and all other Slice Customers established pursuant to section 5.12.
- 2.150 “Slice Output” means the quantities of energy, peaking energy, storage, and ramping capabilities available from the Tier 1 System Resources, as adjusted for Tier 1 System Obligations and established pursuant to the POCSA, that «Customer Name» is entitled to purchase under the Slice Product, as determined by applying «Customer Name»’s Slice Percentage to such quantities.
- 2.151 “Slice Output Energy Request” or “SOER” means the amount of Slice Output Energy «Customer Name» requests that BPA makes available for any given hour as established pursuant to section 7 of Exhibit L.
- 2.152 “Slice Output Energy” or “SOE” means the energy made available to «Customer Name» under the Slice Product.

Option 1: Include the following for customers that are not JOEs.

- 2.153 “Slice Percentage” means the percentage used to determine the amount of the Slice Product a customer purchases, pursuant to its CHWM Contract.

End Option 1

Option 2: Include the following for customers that are JOEs.

- 2.154 “Slice Percentage” means the sum of the JOE Member’s Slice Percentages, used to determine the amount of the Slice Product a JOE purchases, pursuant to its CHWM Contract.

End Option 2

- 2.155 “Slice Product” means the power product defined in section 5 of the Slice/Block Product CHWM Contract.
- 2.156 “Slice Purchase Obligation End Date” or “SPOED” shall have the meaning as defined in section 2 of Exhibit M.
- 2.157 “Slice-To-Load” means the sum of SOER delivered to serve actual Total Retail Load and SOER used to return Real Power Losses to Transmission Services used in the Monthly RSO Test and Annual RSO Test.
- 2.158 “Slice Scheduling Day” shall have the meaning as defined in section 1 of Exhibit F.
- 2.159 “Slice True-Up Adjustment Charge” means the amount charged to each Slice Product customer determined in accordance with chapters 2.7 and 2.8 of the PRDM.
- 2.160 “Small Utility Adjustment” means the subsequent CHWM adjustment as provided in section 2.4.2.1 of the Provider of Choice Policy, March 2024, as amended or revised.

- 2.161 “SOE Limits” means the limits that govern the availability of Slice Output and the scheduling of Slice Output Energy by «Customer Name» as determined by BPA, and implemented through the POCSA.
- 2.162 “Soft Operating Constraint” means an Operating Constraint, other than a Hard or Absolute Operating Constraint, that is to be achieved on a day-ahead planning basis, but may be exceeded after coordinating with project operators, owners, or other federal agencies responsible for establishing such Operating Constraints.
- 2.163 “Specified Renewable Resource” means a Specified Resource that has been established as renewable in the Northwest Power and Conservation Council’s most recent Power Plan or other resources that the Parties agree are renewable, such as biogas, biomass, geothermal, small hydro (nameplate capability less than or equal to ten megawatts), landfill gas, ocean, solar or wind resources.
- 2.164 “Specified Resource” means a Generating Resource that has a nameplate capability or maximum hourly purchase amount greater than 1.000 megawatt, that a customer is required by statute or has agreed to use to serve its Total Retail Load. Each such resource is identified as a specific Generating Resource listed in sections 2 and 4 of Exhibit A.
- 2.165 “Spill” means water that passes a hydroelectric project without producing energy, including Bypass Spill, Elective Spill, Fish Spill, and Forced Spill.
- 2.166 “Storage” means the ability of the Tier 1 System Resources to alter energy production among hours, days, and months by impounding water or releasing impounded water.
- 2.167 “Storage Capacity” shall have the meaning as defined in section 6 of Exhibit J.
- 2.168 “Storage Content” means the amount of water stored in a project’s reservoir, expressed in thousands of second-foot-days (ksfd). The Storage Content is typically calculated based on a conversion of such reservoir’s measured forebay elevation, expressed in feet, to ksfd through the use of an established elevation-to-content conversion table.
- 2.169 “Storage Offset Adjustment” or “SOA” shall have the meaning as defined in section 2 of Exhibit M.
- 2.170 “Support Services” means a suite of services Power Services provides to customers, including RSS and other Support Services, as defined in Exhibit J and priced in each 7(i) Process consistent with chapter 6 of the PRDM.

- 2.171 “Surplus Firm Power” means firm power that is in excess of BPA’s obligations, including those incurred under Sections 5(b), 5(c), and 5(d) of the Northwest Power Act, as available.
- 2.172 “Surplus Slice Output” means, for any month, the amount of Slice Output Energy (and associated capacity) that is available to «Customer Name» under section 5 that exceeds «Customer Name»’s Requirements Slice Output for any such month.
- 2.173 “Third-Party Transmission Provider” means a transmission provider other than BPA that provides transmission service to serve «Customer Name» load.

Option 1: Include the following for customers that are not JOEs.

- 2.174 “Tier 1 Allowance Amount” means the aggregate total nameplate capacity of qualifying Specified Resources listed in section 2 of Exhibit A that «Customer Name» is applying to offset its purchase obligation in accordance with section 3.5.2.

End Option 1

Option 2: Include the following definition for customers that are JOEs.

- 2.175 “Tier 1 Allowance Amount” means the aggregate total nameplate capacity of qualifying Specified Resources listed in section 2 of Exhibit A that each «Customer Name» Member is applying to offset «Customer Name»’s purchase obligation in accordance with section 3.5.2.

End Option 2

- 2.176 “Tier 1 Block Amounts” means the amount of Firm Requirements Power made available to «Customer Name» under the Block Product that is sold at Tier 1 Rates.
- 2.177 “**Tier 1 Marginal Energy True-Up**” means an end-of-Fiscal-Year process that evaluates the difference between forecast and actual energy usage and aligns that difference with appropriate Tier 1 Rate and market-based pricing levels, as described in chapter 4.2 of the PRDM.
- 2.178 “Tier 1 Rate(s)” shall have the meaning as described in chapter 4 of the PRDM.
- 2.179 “Tier 1 System” means the Tier 1 System Resources and Designated System Obligations.
- 2.180 “Tier 1 System Obligations” means the amount of energy and capacity that BPA forecasts for the Designated BPA System Obligations over a specific time period.
- 2.181 “Tier 1 System Resources” means the resources listed in Table 3-1 of the PRDM, as updated for any new resources, including market purchases, that BPA determines are needed to meet its CHWM obligations.

- 2.182 “Tier 2 Block Amounts” means the amount of Firm Requirements Power made available to «Customer Name» under the Block Product that is sold at Tier 2 Rates.
- 2.183 “Tier 2 Long-Term Rate” means a Tier 2 Rate at which customers may elect to purchase Firm Requirements Power in accordance with section 2.3 of Exhibit C.
- 2.184 “Tier 2 Rate(s)” shall have the meaning as described in chapter 5 of the PRDM.
- 2.185 “Tier 2 Short-Term Rate” means a Tier 2 Rate at which customers may elect to purchase Firm Requirements Power in accordance with section 2.4 of Exhibit C.
- 2.186 “Tier 2 Vintage Rate” means a Tier 2 Rate(s) at which customers may elect to purchase Firm Requirements Power in accordance with section 2.5 of Exhibit C.

Option 1: Include the following for customers that are not JOEs.

- 2.187 “Total Retail Load” or “TRL” means all retail electric power consumption, including electric system losses, within a customer’s electrical system, excluding:
- (1) those loads BPA and the customer have agreed are non-firm or interruptible loads,
 - (2) loads of other utilities served by such customer, and
 - (3) any loads not on such customer’s electrical system or not within such customer’s service territory, unless specifically agreed to by BPA.

End Option 1

Option 2: Include the following definition for customers that are JOEs.

- 2.188 “Total Retail Load” or “TRL” means all retail electric power consumption, including electric system losses, within the individual «Customer Name» Member’s electrical system, excluding:
- (1) those loads BPA and «Customer Name» have agreed are non-firm or interruptible loads,
 - (2) loads of other utilities served by such «Customer Name» Members, and
 - (3) any loads not on such «Customer Name» Member’s electrical system or not within such «Customer Name» Member’s service territory, unless specifically agreed to by BPA.

For purposes of this Agreement, «Customer Name»'s Total Retail Load is equal to the sum of all Members' Total Retail Loads.

End Option 2

Drafter's Note: Include the following for customers served by Transfer Service.

2.189 "Transfer Market Purchase" shall have the meaning as defined in section 1 of Exhibit G.

End Option

2.190 "Transfer Service" means the transmission, distribution and other services provided by a Third-Party Transmission Provider to BPA to serve customer load over its transmission system, as listed in Exhibit E.

Drafter's Note: Include the following for customers served by Transfer Service.

2.191 "Transfer Request" shall have the meaning as defined in section 1 of Exhibit G.

End Option

2.192 "Transfer Service Eligible Resource" means any (1) Dedicated Resource serving Total Retail Load, (2) Consumer-Owned Resource serving On-Site Consumer Load, or (3) any new non-federal resource pursuant to section 14.6.7.2.

Drafter's Note: Include the following for customers served by Transfer Service.

2.193 "Transfer Study" shall have the meaning as defined in section 1 of Exhibit G.

End Option

2.194 "Transmission Services" means the organization, or its successor organization, within BPA that is responsible for the management and sale of transmission service on the Federal Columbia River Transmission System.

2.195 "Transmission System Delivery Plan" or "Delivery Plan" means the plan for each Dedicated Resource serving «Customer Name»'s load or Consumer-Owned Resource serving On-Site Consumer Load that states the transmission system of the load that resource will serve.

2.196 "Uncontrollable Force" shall have the meaning as defined in section 18.

2.197 "Vintage Resource" shall have the meaning as defined in section 2.5 of Exhibit C.

3. SLICE/BLOCK POWER PURCHASE OBLIGATION

3.1 Slice/Block Product Purchase Obligation

From October 1, 2028, and continuing through September 30, 2044, BPA shall sell and make available, and «Customer Name» shall purchase the Slice/Block Product which includes: (1) a planned amount of Firm Requirements Power under the Block Product listed in sections 1 and 2 of

Exhibit C; and (2) Slice Output under the Slice Product pursuant to section 5 and Exhibit K.

3.2 Take or Pay

«Customer Name» shall pay for (1) the Firm Requirements Power under the Block Product that «Customer Name» is obligated to purchase and that BPA makes available under section 3.1(1), and (2) the Slice Output including the Slice Output Energy under the Slice Product that «Customer Name» is obligated to purchase and that BPA makes available under section 3.1(2). «Customer Name» shall pay for such power at the rates BPA establishes in a 7(i) Process pursuant to the PRDM, whether or not «Customer Name» took delivery of such power.

3.3 Application of Dedicated Resources

«Customer Name» shall serve a portion of its Total Retail Load with the Dedicated Resources listed in Exhibit A as follows:

- (1) Specified Resources, listed in section 2 of Exhibit A, and
- (2) Committed Power Purchase Amounts, listed in section 3.1 of Exhibit A.

«Customer Name» shall use its Dedicated Resources to serve its Total Retail Load, and the Parties shall specify amounts of such Dedicated Resources in Exhibit A as stated below for each specific resource and type. BPA shall use the amounts listed in Exhibit A to determine «Customer Name»'s Net Requirement for each Fiscal Year. The amounts listed are not intended to govern how «Customer Name» operates its Specified Resources.

3.3.1 Specified Resources

3.3.1.1 Application of Specified Resources

«Customer Name» shall use the output of all Specified Resources, listed in section 2 of Exhibit A, to serve «Customer Name»'s Total Retail Load.

3.3.1.2 Determining Specified Resource Amounts

For each Specified Resource listed in section 2 of Exhibit A, BPA, in consultation with «Customer Name», shall determine firm energy amounts for each Diurnal period and peak amounts for each month beginning with the later of the date the resource was dedicated to load or October 1, 2028, through the earlier of the date the resource will be permanently removed or September 30, 2044. BPA shall determine such amounts consistent with the 5(b)/9(c) Policy.

3.3.2 Committed Power Purchase Amounts

3.3.2.1 Application of Committed Power Purchase Amounts

To serve «Customer Name»'s Above-CHWM Load that it commits to meet with Dedicated Resources in Exhibit C, «Customer Name» shall provide and use Committed Power Purchase Amounts to meet any amount of such load not met with its Specified Resources listed in section 2 of Exhibit A.

3.3.2.2 Determining Committed Power Purchase Amounts

By March 31 concurrent with BPA's calculation of «Customer Name»'s Net Requirement forecast, as provided in section 1 of Exhibit A, BPA shall calculate and fill in the tables in section 3.1 of Exhibit A with «Customer Name»'s Committed Power Purchase Amounts for the remaining year(s) of the Rate Period. Upon termination or expiration of this Agreement any Committed Power Purchase Amounts listed in Exhibit A shall expire, and «Customer Name» shall have no further obligation to apply Committed Power Purchase Amounts.

3.4 This section intentionally left blank.

3.5 Changes to Dedicated Resources

3.5.1 Specified Resource Additions to Meet Above-CHWM Load

3.5.1.1 Except as provided in section 3.5.1.2 below, «Customer Name» may elect with written notice to BPA by July 31 of a Rate Case Year to add Specified Resources to section 2 of Exhibit A, with amounts effective at the start of the upcoming Rate Period, to meet any obligations «Customer Name» may have in Exhibit C to serve its Above-CHWM Load with Dedicated Resources.

3.5.1.2 If «Customer Name» submits a Total Retail Load forecast eligible for an updated Net Requirement calculation consistent with section 17.6.2, then with such written notice to BPA «Customer Name» may also elect to add Specified Resources to section 2 of Exhibit A, with amounts effective at the start of the applicable Fiscal Year, to meet any obligations «Customer Name» may have in Exhibit C to serve its Above-CHWM Load with Dedicated Resources.

3.5.1.3 BPA shall determine amounts for any Specified Resources added under sections 3.5.1.1 and 3.5.1.2 above in accordance with section 3.3.1.2. BPA shall revise Exhibit A accordingly by March 31 following «Customer Name»'s elections under this section 3.5.1.

Option 1: Include the following for customers that are not JOEs.

3.5.2 Specified Resources Added to Tier 1 Allowance Amount

At any time over the term of the Agreement and by written notice to BPA, «Customer Name» may request for BPA to add Specified Resources that meet the qualifying criteria in section 3.5.2.2 to its Tier 1 Allowance Amount in section 2 of Exhibit J. BPA shall review such request and revise Exhibit A as soon as reasonably practical to include such resources, provided that BPA determines in its sole discretion that the Specified Resources meet such qualifying criteria. Any qualifying Specified Resource included in the Tier 1 Allowance Amount shall remain in the Tier 1 Allowance Amount for the term of the Agreement unless the resource is removed consistent with section 3.5.6. Any qualifying Specified Resource included in the Tier 1 Allowance Amount shall be treated as an Existing Resource for purposes of temporary resource removal as provided in section 10. «Customer Name»'s qualifying Specified Resources included in the Tier 1 Allowance Amount may be subject to charges pursuant to the applicable Power Rate Schedules and GRSPs.

3.5.2.1 Tier 1 Allowance Amount Limit

«Customer Name»'s Tier 1 Allowance Amount shall be limited to the amount stated in section 2 of Exhibit J, and shall not exceed the lesser of 5 MW or 50 percent of «Customer Name»'s CHWM reflected as a megawatt value. Such value will be considered the Tier 1 Allowance Amount limit. If BPA changes «Customer Name»'s CHWM consistent with section 1.2 of Exhibit B, then BPA shall recalculate «Customer Name»'s Tier 1 Allowance Amount limit and update Exhibit J if necessary. If «Customer Name» has a reduction to its CHWM, then BPA shall determine whether a reduction in the Tier 1 Allowance Amount limit is appropriate. In the event that BPA reduces «Customer Name»'s Tier 1 Allowance Amount limit, BPA will determine on a case-by-case basis the treatment of «Customer Name»'s resource(s).

3.5.2.2 Qualifying Specified Resources For Tier 1 Allowance Amount

Any Specified Resource «Customer Name» elects to add to its Tier 1 Allowance Amount must meet the following qualifying criteria:

- (1) the Specified Resource is a New Resource;
- (2) the Specified Resource is connected to «Customer Name»'s distribution system, regardless of voltage, and does not utilize BPA or Third-Party Transmission Provider transmission facilities; and,

- (3) the Specified Resource reduces «Customer Name»'s Total Retail Load.

End Option 1

Option 2: Include the following for customers that are JOEs.

3.5.2 Specified Resources Added to Tier 1 Allowance Amount

At any time over the term of the Agreement and by written notice to BPA, «Customer Name» may request for BPA to add Specified Resources that meet the qualifying criteria in section 3.5.2.2 to a Member's Tier 1 Allowance Amount stated in section 2 of Exhibit J. BPA shall review such request and revise Exhibits A and J as soon as reasonably practical to include such resources, provided that BPA determines in its sole discretion that the Specified Resources meet such qualifying criteria. BPA shall include a table in Exhibit J stating the Tier 1 Allowance Amount for each «Customer Name» Member. Any qualifying Specified Resource included in a «Customer Name» Member's Tier 1 Allowance Amount shall remain in its Tier 1 Allowance Amount for the term of the Agreement unless the resource is removed consistent with section 3.5.6. Any qualifying Specified Resource included in a «Customer Name» Member's Tier 1 Allowance Amount shall be treated as an Existing Resource for purposes of temporary resource removal as provided in section 10. Qualifying Specified Resources included in a «Customer Name» Member's Tier 1 Allowance Amount may be subject to charges pursuant to the applicable Power Rate Schedules and GRSPs.

3.5.2.1 Tier 1 Allowance Amount Limit

Each «Customer Name» Member's Tier 1 Allowance Amount shall be limited to the amount stated in section 2 of Exhibit J, and shall not exceed the lesser of 5 MW or 50 percent of the «Customer Name» Member's CHWM reflected as a megawatt value. Such value will be considered the «Customer Name» Member's Tier 1 Allowance Amount limit. If BPA changes such «Customer Name» Member's CHWM consistent with section 1.2 of Exhibit B, then BPA shall recalculate the «Customer Name» Member's Tier 1 Allowance Amount limit and update Exhibit J if necessary. If a «Customer Name» Member has a reduction to its CHWM, then BPA shall determine whether a reduction in the «Customer Name» Member's Tier 1 Allowance Amount limit is appropriate. In the event that BPA reduces a «Customer Name» Member's Tier 1 Allowance Amount limit, BPA will determine on a case-by-case basis the treatment of the «Customer Name» Member's resource(s).

3.5.2.2 Qualifying Specified Resources For Tier 1 Allowance Amount

Any Specified Resource added to a Member's Tier 1 Allowance Amount must meet the following qualifying criteria:

- (1) the Specified Resource is a New Resource;
- (2) the Specified Resource is connected to the «Customer Name» Member's distribution system, regardless of voltage, and does not utilize BPA or Third-Party Transmission Provider transmission facilities; and,
- (3) the Specified Resource reduces «Customer Name»'s Member's Total Retail Load.

End Option 2

3.5.3 Resource Additions for a BPA Insufficiency Notice

If BPA provides «Customer Name» a notice of insufficiency and reduces its purchase obligation, in accordance with section 20.2, then «Customer Name» may temporarily add Dedicated Resources to replace amounts of Firm Requirements Power BPA will not be providing due to insufficiency. The Parties shall revise Exhibit A to reflect such additions.

3.5.4 Decrements for 9(c) Export

If BPA determines, in accordance with section 20.6, that an export of a Specified Resource listed in section 2 of Exhibit A requires a reduction in the amount of Firm Requirements Power BPA sells «Customer Name» then BPA shall notify «Customer Name» of the amount and duration of the reduction in «Customer Name»'s Firm Requirements Power purchases from BPA. Within 20 calendar days of such notification «Customer Name» may temporarily add a Specified Resource to section 2 of Exhibit A in the amount and for the duration of such decrement. If «Customer Name» does not add a Specified Resource to meet such decrement, then within 30 calendar days of such notification BPA shall add Committed Power Purchase Amounts to section 3.2 of Exhibit A in the amount and for the duration of such decrement.

3.5.5 Temporary Resource Removal

BPA shall revise «Customer Name»'s Dedicated Resource amounts listed in the tables of Exhibit A: (1) consistent with «Customer Name»'s resource removal elections made in accordance with section 10, and (2) by March 31 following such elections.

3.5.6 Permanent Discontinuance of Resources

«Customer Name» may permanently remove a Specified Resource listed in section 2 of Exhibit A, consistent with the 5(b)/9(c) Policy on statutory discontinuance for permanent removal. If BPA makes a determination that «Customer Name»'s Specified Resource has met BPA's standards for a permanent removal, then BPA shall revise Exhibit A accordingly. If «Customer Name» does not replace such resource with another Dedicated Resource, then «Customer Name»'s additional Firm Requirements Power purchases under this

Agreement, as a result of such a resource removal, shall be subject to the applicable rates or charges as established in the Power Rate Schedules and GRSPs.

3.5.7 Resource Additions for Annexed Loads

If «Customer Name» acquires an Annexed Load after the Effective Date, «Customer Name» shall add Dedicated Resources to Exhibit A to serve amounts of such load for which «Customer Name» did not receive a CHWM addition pursuant to section 1.2.2 of Exhibit B. «Customer Name» shall serve such load with Dedicated Resources for the remainder of the Rate Period during which «Customer Name» acquires such load. For all Rate Periods after the Rate Period when «Customer Name» acquires an Annexed Load, «Customer Name» shall serve such load pursuant to «Customer Name»'s elections and either (1) apply Dedicated Resources or (2) purchase Firm Requirements Power at the applicable rates or charges as established in the Power Rate Schedules and GRSPs.

3.5.8 Resource Additions/Removals for NLSLs

3.5.8.1 To serve a Planned NLSL or an NLSL listed in Exhibit D that is added after the Effective Date, «Customer Name» may add Dedicated Resources to section 4 of Exhibit A. «Customer Name» may discontinue serving its NLSL with the Dedicated Resources listed in section 4 of Exhibit A if BPA determines that «Customer Name»'s NLSL is no longer: (1) an NLSL, or (2) in «Customer Name»'s service territory.

3.5.8.2 If «Customer Name» elects to serve a Planned NLSL or an NLSL with Dedicated Resources, then «Customer Name» shall specify in section 4 of Exhibit A the maximum monthly and Diurnal Dedicated Resource amounts that «Customer Name» plans to use to serve the NLSL. «Customer Name» shall establish such firm energy amounts and BPA shall state such amounts in section 4 of Exhibit A for each month beginning with the date the resource was dedicated to the Planned NLSL or NLSL through the earlier of the date the resource will be removed or September 30, 2044. «Customer Name» shall serve the Planned NLSL or NLSL up to such maximum amounts with such Dedicated Resource amounts. To the extent that the load at a Planned NLSL or an NLSL is less than the maximum amount in any monthly or Diurnal period, «Customer Name» shall have no right or obligation to use such amounts to serve load other than a Planned NLSL or an NLSL.

3.5.9 PURPA Resources

If «Customer Name» is required by the Public Utility Regulatory Policies Act (PURPA) to acquire output from a Generating Resource

and plans to use that output to serve its Total Retail Load, then such output shall be added as a Specified Resource pursuant to Exhibit A.

3.6 Consumer-Owned Resources

Except for any Consumer-Owned Resources serving a Planned NLSL or an NLSL, which «Customer Name» has applied to load consistent with section 20.3, «Customer Name» shall apply the output of Consumer-Owned Resources as follows:

3.6.1 Existing Consumer-Owned Resources

«Customer Name» shall designate, in sections 7.1, 7.2, or 7.3 of Exhibit A, the extent that each existing Consumer-Owned Resource as of the Effective Date will or will not serve On-Site Consumer Load. «Customer Name» shall make such designation to BPA in writing no later than 60 calendar days after BPA publishes, to its publicly available website, «Customer Name»'s final CHWMs from the FY 2026 CHWM Calculation Process. Such designation shall apply for the term of this Agreement.

3.6.2 New Consumer-Owned Resources

«Customer Name» shall designate the extent that each Consumer-Owned Resource commencing commercial operation after the Effective Date will or will not serve On-Site Consumer Load. «Customer Name» shall make such designation to BPA in writing within 120 days of energization of such resource. Such designation shall apply for the term of this Agreement.

Consistent with «Customer Name»'s designations, BPA shall list Consumer-Owned Resources serving On-Site Consumer Load in section 7.1 of Exhibit A, Consumer-Owned Resources not serving On-Site Consumer Load in section 7.2 of Exhibit A, and Consumer-Owned Resources serving both On-Site Consumer Load and load other than On-Site Consumer Load in section 7.3 of Exhibit A.

3.6.3 Application of Consumer-Owned Resources Serving On-Site Consumer Load

Power generated from Consumer-Owned Resources listed in section 7.1 of Exhibit A shall serve On-Site Consumer Load. Commensurate with «Customer Name»'s designation under section 3.6.2 above, «Customer Name» shall provide BPA information demonstrating that the Consumer-Owned Resource's forecasted generation will not exceed the On-Site Consumer Load it is intended to serve on an annual average basis. Examples of such information include but are not limited to consumer load projections and monthly generation projections for the generating equipment to be installed.

Option: Include the following for customers exclusively or partially served by Transfer Service.

If actual generation from a Consumer-Owned Resource exceeds the On-Site Consumer Load, then BPA shall pass through and «Customer Name» shall pay any costs assessed on BPA by a Third-Party Transmission Provider as a result of such excess generation.

End Option

«Customer Name» shall provide notice to BPA of any significant changes to an On-Site Consumer Load amount as soon as practicable but no later than 60 calendar days after the change. Concurrent with such notice, «Customer Name» shall re-designate, consistent with section 3.6.2 above, any amount of the Consumer-Owned Resource that is expected to exceed the On-Site Consumer Load. Such re-designation shall apply for the remaining term of this Agreement.

3.6.4 Application of Consumer-Owned Resources Serving Load Other than On-Site Consumer Load

«Customer Name» shall ensure that power generated from Consumer-Owned Resources listed in section 7.2 of Exhibit A, which serves load other than On-Site Consumer Load, is scheduled for delivery and:

- (1) sold to another utility in the Region to serve its Total Retail Load,
- (2) used by «Customer Name» to serve its Total Retail Load (consistent with section 3.3), (3) marketed as an export, or (4) any combination of (1), (2), and (3) above.

3.6.5 Application of Consumer-Owned Resources Serving Both On-Site Consumer Load and Load Other than On-Site Consumer Load

If «Customer Name» designates a Consumer-Owned Resource to serve both On-Site Consumer Load and load other than On-Site Consumer Load, then «Customer Name» shall specify, in section 7.3 of Exhibit A, the annual average amount of such identified Consumer-Owned Resource that will serve an identified On-Site Consumer Load for each year of the remaining term of this Agreement. Commensurate with such designation, «Customer Name» shall provide BPA information demonstrating that such Consumer-Owned Resource amounts will not exceed the On-Site Consumer Load on an annual average basis. Such Consumer-Owned Resource amounts are not subject to change in accordance with section 3.6.6.

«Customer Name» shall provide notice to BPA of any significant changes to an On-Site Consumer Load amount as soon as practicable but no later than 60 calendar days after the change. Concurrent with such notice, «Customer Name» shall re-designate, consistent with section 3.6.2 above, any amount of the Consumer-Owned Resource that is expected to exceed the On-Site Consumer Load. Such re-designation shall apply for the remaining term of this Agreement.

«Customer Name» shall apply any power generated from the identified Consumer-Owned Resource in excess of the specified maximum annual average amounts to load other than On-Site Consumer Load in accordance with section 3.6.4.

Option: Include the following for customers exclusively or partially served by Transfer Service.

If actual generation from a Consumer-Owned Resource applied to the On-Site Consumer Load exceeds the On-Site Consumer Load, then BPA shall pass through and «Customer Name» shall pay any costs assessed on BPA by a Third-Party Transmission Provider as a result of such excess generation.

End Option

3.6.6 **Changes to Consumer-Owned Resources**

Prior to each Fiscal Year «Customer Name» shall notify BPA in writing of any changes in ownership, expected resource output, or other characteristic of Consumer-Owned Resources identified in section 7 of Exhibit A. If a Consumer-Owned Resource has permanently ceased operation and «Customer Name» notifies BPA of such cessation, then BPA shall revise section 7 of Exhibit A to reflect such change as long as BPA agrees the determination is reasonable.

3.6.7 **Application of Consumer-Owned Resources Serving a Planned NLSL or NLSL**

If «Customer Name» is serving a Planned NLSL or an NLSL with Consumer-Owned Resource amounts pursuant to section 20.3 and section 1 of Exhibit D, then BPA shall list such resources in section 7.4 of Exhibit A. Requirements for «Customer Name»'s application of Consumer-Owned Resources serving Planned NLSLs and NLSL are included in section 20.3 and section 1 of Exhibit D.

3.7 **Transfer of Renewable Energy Certificates**

BPA shall provide any applicable Renewable Energy Certificates (RECs), emission accounting information, and non-emitting generation accounting information to «Customer Name» in accordance with Exhibit H.

4. **BLOCK PRODUCT**

4.1 **Block Product General Description**

The Block Product provides a planned amount of Firm Requirements Power to serve a portion of «Customer Name»'s Annual Net Requirement. The Block Product includes a Tier 1 Block Amount and if applicable, a Tier 2 Block Amount.

4.2 Block Amount Shapes

4.2.1 Tier 1 Block Amount Shapes

«Customer Name» shall elect one of the following shapes for its Tier 1 Block Amount concurrent with its execution of this Agreement: (1) a Flat Annual Shape or (2) a Flat Within-Month Shape. BPA shall state the shape elected by «Customer Name» in section 1.2 of Exhibit C. The Tier 1 Block Amount shape selected by «Customer Name» shall remain fixed for the term of this Agreement unless «Customer Name» exercises its right to change its purchase obligation pursuant to section 11.

4.2.2 Tier 2 Block Amount Shape

BPA shall provide any Tier 2 Block Amount to «Customer Name» in a Flat Annual Shape.

Option 1: Include the following if a customer chooses a Flat Annual Shape for its Tier 1 Block Amounts.

4.3 Annual and Monthly Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s annual Tier 1 Block Amount for the applicable Fiscal Year by subtracting the «Customer Name»'s Firm Slice Amount in section 3 of Exhibit K for such Fiscal Year from the lesser of (1) «Customer Name»'s Annual Net Requirement in section 1.2 of Exhibit A or (2) its CHWM for that Fiscal Year. BPA shall revise section 1.1 of Exhibit C to state the annual Tier 1 Block Amount sold to and purchased by «Customer Name».

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s monthly Tier 1 Block Amount using the calculation in section 1.2 of Exhibit C. BPA shall revise section 1.3 of Exhibit C to state the monthly Tier 1 Block Amount sold to and purchased by «Customer Name».

End Option 1

Option 2: Include the following if a JOE chooses a Flat Annual Shape for its Tier 1 Block Amounts.

4.3 Annual and Monthly Tier 1 Block Amounts

4.3.1 Annual Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to

section 17.6.2, and concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate the following annual Tier 1 Block Amounts:

- (1) The portion of «Customer Name's annual Tier 1 Block Amounts attributable to each «Customer Name Member for the applicable Fiscal Year by subtracting each Member's portion of «Customer Name's Firm Slice Amount in section 3 of Exhibit K for such Fiscal Year from the lesser of (A) the Member's Preliminary Member Net Requirement, or (B) the Member's CHWM for the applicable Fiscal Year.
- (2) «Customer Name's annual Tier 1 Block Amounts for the applicable Fiscal Year as the sum of each «Customer Name Member's portion of «Customer Name's annual Tier 1 Block Amounts.

BPA shall revise section 1.1 of Exhibit C to state each Member's attributed portion of «Customer Name's annual Tier 1 Block Amounts, and the annual Tier 1 Block Amounts sold to and purchased by «Customer Name».

4.3.2 Monthly Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate the following monthly Tier 1 Block Amounts:

- (1) The portion of «Customer Name's monthly Tier 1 Block Amounts attributable to each «Customer Name Member for each month in the applicable Fiscal Year using the calculation in section 1.2 of Exhibit C.
- (2) «Customer Name's monthly Tier 1 Block Amounts for each month in the applicable Fiscal Year as the sum of the «Customer Name Members' portions of «Customer Name's monthly Tier 1 Block Amounts.

BPA shall revise section 1.3 of Exhibit C to state each Member's attributed portion of «Customer Name's monthly Tier 1 Block Amounts, and monthly Tier 1 Block Amounts, sold to and purchased by «Customer Name».

End Option 2

Option 3: Include the following if a customer chooses a Flat Within-Month Shape for its Tier 1 Block Amounts.

4.3 Annual and Monthly Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s annual Tier 1 Block Amount for the applicable Fiscal Year by subtracting «Customer Name»'s Firm Slice Amount in section 3 of Exhibit K for such Fiscal Year from the lesser of (1) «Customer Name»'s Annual Net Requirement in section 1.2 of Exhibit A or (2) its CHWM for that Fiscal Year. BPA shall revise section 1.1 of Exhibit C to state the annual Tier 1 Block Amount sold to and purchased by «Customer Name».

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, BPA shall calculate «Customer Name»'s Monthly Shaping Factors applicable to the Block Product pursuant to section 1.2.1 of Exhibit C. BPA shall revise section 1.2.1.3 of Exhibit C to state the Monthly Shaping Factors for the applicable Fiscal Years.

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Tier 1 Block Amount for each month of the applicable Fiscal Year by multiplying the annual Tier 1 Block Amount, calculated pursuant to the paragraph above, by the Monthly Shaping Factors specified in section 1.2 of Exhibit C. BPA shall revise section 1.3 of Exhibit C to state the monthly Tier 1 Block Amount sold to and purchased by «Customer Name».

End Option 3

Option 4: Include the following if a JOE chooses a Flat Within-Month Shape for its Tier 1 Block Amounts.

4.3 Annual and Monthly Tier 1 Block Amounts

4.3.1 Annual Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate the following annual Tier 1 Block Amounts:

- (1) The portion of «Customer Name»'s annual Tier 1 Block Amounts attributable to each «Customer Name» Member for

the applicable Fiscal Year by subtracting each Member's portion of «Customer Name»'s Firm Slice Amount in section 3 of Exhibit K for such Fiscal Year from the lesser of (A) the Member's Preliminary Member Net Requirement, or (B) the Member's CHWM for the applicable Fiscal Year.

- (2) «Customer Name»'s annual Tier 1 Block Amounts for the applicable Fiscal Year as the sum of the «Customer Name» Members' portions of «Customer Name»'s annual Tier 1 Block Amounts.

BPA shall revise section 1.1 of Exhibit C to state each Member's attributed portion of «Customer Name»'s annual Tier 1 Block Amounts, and the annual Tier 1 Block Amounts sold to and purchased by «Customer Name».

4.3.2 Monthly Shaping Factors Applicable to Block Product

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, BPA shall calculate Monthly Shaping Factors applicable to the Block Product for each «Customer Name» Member pursuant to section 1.2.1 of Exhibit C. BPA shall revise section 1.2.1.3 of Exhibit C to state the Monthly Shaping Factors for each «Customer Name» Member for the applicable Fiscal Years.

4.3.3 Monthly Tier 1 Block Amounts

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate the following monthly Tier 1 Block Amounts:

- (1) The portion of «Customer Name»'s monthly Tier 1 Block Amounts attributable to each «Customer Name» Member for each month in the applicable Fiscal Year using the calculation in section 1.2 of Exhibit C.
- (2) «Customer Name»'s monthly Tier 1 Block Amounts for each month in the applicable Fiscal Year as the sum of the «Customer Name» Members' portions of «Customer Name»'s monthly Tier 1 Block Amounts.

BPA shall revise section 1.3 of Exhibit C to state each Member's attributed portion of «Customer Name»'s monthly Tier 1 Block Amounts, and the monthly Tier 1 Block Amounts sold to and purchased by «Customer Name».

End Option 4

4.4 Annual Tier 2 Block Amounts

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name's annual Tier 2 Block Amount for the applicable Fiscal Year pursuant to section 2 of Exhibit C. BPA shall revise section 2 of Exhibit C to state the annual Tier 2 Block Amount, if any, sold to and purchased by «Customer Name».

Drafter's Note: Include the following language if customer purchases RSS.

Drafter's Note: Delete this section for all customers at contract offer as RSS provisions will be drafted in 2026. This section will be added to applicable contracts after RSS provisions are finalized and customers elect RSS.

4.5 Displacement of Block Product for Resource Support Services

«Customer Name» shall schedule its Specified Renewable Resources identified in section 3 of Exhibit J to serve Total Retail Load and BPA shall provide RSS to such Specified Renewable Resources pursuant to section 3 of Exhibit J. «Customer Name» shall reduce its total Block Product schedule each hour pursuant to section 3 of Exhibit J in any hour in the month when the total scheduled generation from such Specified Renewable Resources is greater than the total Planned Resource Amount in section 3 of Exhibit J for such Specified Renewable Resources. Pursuant to section 3.2, «Customer Name» shall pay BPA for the Tier 1 Block Amount listed in the table in section 1.3 of Exhibit C and Tier 2 Block Amount listed in the table in section 2.5 of Exhibit C without any adjustment for displacement of the Block Product.

End Option

5. SLICE PRODUCT

5.1 Slice Product General Description

5.1.1 The Slice Product is a system sale that includes Firm Requirements Power and surplus power. The Slice Product is indexed to the variable output capability of the Tier 1 System Resources to the extent such capability is available to Power Services after Designated System Obligations and Operating Constraints are met. «Customer Name» accesses the capabilities of the Tier 1 System through the Provider of Choice Slice Application (POCSA) as described in Exhibit L. BPA shall configure the POCSA to reasonably represent and calculate the capabilities available on a day-ahead timeframe to Power Services from the Tier 1 System Resources after Designated System Obligations and Operating Constraints are met, including energy production, peaking, storage, and ramping capability. The POCSA applies «Customer Name's Slice Percentage to the Tier 1 System capabilities to determine «Customer Name's Slice Output.

«Customer Name» shall use the POCSA to submit a Slice Output Energy Request (SOER) to BPA for each Scheduling Hour submitted on a day-ahead timeframe pursuant to sections 3 and 4 of Exhibit F. BPA shall supply power for any variation in the Tier 1 System Resource generation capabilities between the day-ahead and real-time timeframes to ensure Slice Output is available to serve «Customer Name»'s SOER.

- 5.1.2 The Slice Product sold by BPA and purchased by «Customer Name» is a power sale, and is not under any circumstances to be construed as a sale of the Tier 1 System Resources, Tier 1 System Resource capability, or a transfer of control of Tier 1 System Resources. Notwithstanding any provision of this Agreement to the contrary, BPA and the federal operating agencies shall retain operational control of all resources comprising the FCRPS, including without limitation all such resources that comprise the Tier 1 System Resources.
- 5.1.3 BPA does not guarantee that the amount of Slice Output Energy made available under the Slice Product, combined with Firm Requirements Power made available under the Block Product, will be sufficient to meet «Customer Name»'s Total Retail Load, on an hourly, daily, weekly, monthly, or annual basis. «Customer Name» is obligated to supply electric power to serve the difference between its Total Retail Load and electric power from its purchase of Slice Output and the Block Product.
- 5.1.4 Changes in the output of the Tier 1 System Resources that occur after the calculation of «Customer Name»'s Firm Slice Amount pursuant to section 5.4 and prior to the Customer Inputs submission deadline pursuant to section 4 of Exhibit F shall affect the amount of Slice Output made available to «Customer Name» under this Agreement. Accordingly, «Customer Name» understands and agrees it is exposed to Tier 1 System Resources performance risk and water supply risk up to Customer Inputs submission deadline pursuant to section 4 of Exhibit F.
- 5.1.5 The Slice Product does not provide «Customer Name» any rights to utilize Tier 1 System Resources for within-hour or within-day energy or capacity services, including but not limited to dynamic scheduling, self-supply of operating reserves, and self-supply of energy imbalance.

5.2 Determination of Amounts of Slice Output Made Available

Slice Output made available to «Customer Name» shall be adjusted by Operating Constraints in effect on the Tier 1 System Resources. Such Operating Constraints shall be applied proportionately to the Tier 1 System Resources output available to Power Services, «Customer Name», and all other Slice Customers.

The amount of Slice Output Energy made available to «Customer Name» is based on a simulation of stream flows routed through the Simulator Projects, plus the BOS Base, using the POCSA, and as adjusted for Operating Constraints. «Customer Name» understands and agrees that the amount of Slice Output Energy made available to «Customer Name» may not precisely equal the result of its Slice Percentage multiplied by the Actual Tier 1 System Generation.

*Option 1: Include the following for customers that have **not** had their Slice Percentage limited or reduced pursuant to sections 11.9 or 21.9. Include this option for all Slice/Block customers **that are not JOEs** at contract offer.*

5.3 Annual Calculation of Slice Percentage

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast update pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Slice Percentage by:

- (1) multiplying 50 percent by the lesser of:
 - (A) «Customer Name»'s Provider of Choice FY 2026 CHWM, including an increase for «Customer Name»'s Annexed Load from a CHWM Contract customer, and a decrease for «Customer Name»'s load annexed by another customer or a third party; or
 - (B) «Customer Name»'s Preliminary Net Requirement, and
- (2) Dividing by the annual CHWM System in section 2 of Exhibit K, and
- (3) Multiplying by 100.

The value as expressed as a percentage will be rounded to the fifth decimal and as a number rounded to the seventh decimal. Expressed as a formula, the Slice Percentage in each year of the Rate Period is calculated as follows:

$$\text{Slice \%} = \left(\frac{50\% \times (\min(\text{FY2026 CHWM, Preliminary Net Requirement}))}{\text{annual CHWM System}} \right) \times 100$$

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall revise and state «Customer Name»'s Slice Percentage in section 1 of Exhibit K.

After BPA calculates «Customer Name»'s Slice Percentage for the Fiscal Year pursuant to section 5.3. of this Agreement, BPA shall not make mid-Fiscal

Year adjustments to «Customer Name»'s Slice Percentage. BPA shall adjust «Customer Name»'s Block Amount when a mid-Fiscal Year adjustment is required.

End Option 1

Option 2: Include the following for customers if their Slice Percentage is limited pursuant to section 11.9 and if the customer is not a JOE and is a public body (not a cooperative or tribal utility).

5.3 Annual Calculation of Slice Percentage

The amount of Slice Product available to «Customer Name» is less than 50 percent of «Customer Name»'s CHWM pursuant to section 11.9. BPA shall revise and state such limitations on «Customer Name»'s Slice Percentage in section 1 of Exhibit K at the Effective Date or at the time of a change in purchase obligation to the Slice Product. If «Customer Name»'s Slice Percentage is limited, then «Customer Name»'s Tier 1 Block Amount will increase pursuant to section 4.3 of this Agreement.

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, or by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Slice Percentage as the lesser of:

- (1) «Customer Name»'s Slice Percentage limit in section 1 of Exhibit K; or
- (2) Multiplying 50 percent by «Customer Name»'s Preliminary Net Requirement, and (A) dividing by the annual CHWM System in section 2 of Exhibit K, and (B) multiplying by 100.

The Slice Percentage shall be rounded to the fifth decimal in percentage format and rounded to the seventh decimal in number format.

Expressed as a formula, the Slice Percentage in each year of the Rate Period is calculated as follows:

$$\text{Slice \%} = \min \left(\text{Slice \% Limit}, \left(\frac{50\% \times (\text{Preliminary Net Requirement})}{\text{annual CHWM System}} \right) \times 100 \right)$$

End Option 2

Option 3: Include the following for cooperatives and tribal utilities that are not members of a JOE if the customer's Slice Percentage is reduced pursuant to section 21.9.

5.3 Annual Calculation of Slice Percentage

The amount of Slice Product available to «Customer Name» is limited to less than 50 percent of «Customer Name»'s CHWM pursuant to section 21.9. BPA shall revise and state such limitations on «Customer Name»'s Slice Percentage in section 1 of Exhibit K at the Effective Date or at the time of a

change in purchase obligation to the Slice Product. If «Customer Name»'s Slice Percentage is limited, then «Customer Name»'s Tier 1 Block Amount will increase pursuant to section 4.3 of this Agreement.

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, or by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Slice Percentage as the lesser of:

- (1) «Customer Name»'s Slice Percentage limit in section 1 of Exhibit K; or
- (2) Multiplying 50 percent by «Customer Name»'s Preliminary Net Requirement, and (A) dividing by the annual CHWM System in section 2 of Exhibit K, and (B) multiplying by 100.

The Slice Percentage shall be rounded to the fifth decimal in percentage format and rounded to the seventh decimal in number format.

Expressed as a formula, the Slice Percentage in each year of the Rate Period is calculated as follows:

$$\text{Slice \%} = \min \left(\text{Slice \% Limit}, \left(\frac{50\% \times (\text{Preliminary Net Requirement})}{\text{annual CHWM System}} \right) \times 100 \right)$$

End Option 3

Option 4: Include the following for JOEs with cooperative and/or tribal utilities if the customer's Slice Percentage is reduced pursuant to section 21.9.

5.3 Annual Calculation of Slice Percentage

The amount of Slice Product available to «Customer Name» is limited to less than 50 percent of «Customer Name»'s CHWM pursuant to section 21.9. BPA shall revise and state such limitations on «Customer Name» Member's Slice Percentages in section 1 of Exhibit K at the Effective Date or at the time of a change in purchase obligation to the Slice Product. If «Customer Name»'s Member's Slice Percentage is limited to less than 50 percent of the Member's Preliminary Member Net Requirement for the applicable Fiscal Year, then the Member's portion of «Customer Name»'s Tier 1 Block Amounts and «Customer Name»'s Tier 1 Block Amounts will increase pursuant to section 4.3 of this Agreement.

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, or by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Slice Percentage and the Member Slice Percentage for each of «Customer Name»'s Members.

BPA shall calculate the Member Slice Percentage for each of «Customer Name»'s Members as the lesser of:

- (1) Each «Customer Name» Member's Slice Percentage limit in section 1 of Exhibit K; or
- (2) Multiplying 50 percent by the «Customer Name» Member's Preliminary Member Net Requirement, and (A) dividing by the annual CHWM System in section 2 of Exhibit K, and (B) multiplying by 100.

Expressed as a formula, the Member Slice Percentage in each Fiscal Year of the Rate Period is calculated as follows:

$$\text{Slice \%} = \min \left(\text{Member's Slice \% Limit}, \left(\frac{50\% \times (\text{Member's Preliminary Member Net Requirement})}{\text{annual CHWM System}} \right) \times 100 \right)$$

BPA shall calculate «Customer Name»'s Slice Percentage for the applicable Fiscal Year as the sum of the Member Slice Percentages.

The Slice Percentage and Member Slice Percentages shall be rounded to the fifth decimal in percentage format and rounded to the seventh decimal in number format.

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall revise and state «Customer Name»'s Slice Percentage and Member Slice Percentages in section 1 of Exhibit K.

After BPA calculates «Customer Name»'s Slice Percentage and Member Slice Percentages for the Fiscal Year pursuant to this section 5.3, BPA shall not make mid-Fiscal Year adjustments to «Customer Name»'s Slice Percentage or the Member Slice Percentages. BPA shall adjust the Member's portion of «Customer Name»'s Tier 1 Block Amounts and «Customer Name»'s Tier 1 Block Amounts when a mid-Fiscal Year adjustment is required.

End Option 4

Option 5: Include the following for JOEs that have Members that are public bodies (do not have cooperative or tribal Members).

5.3 Annual Calculation of Slice Percentage

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, or by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Slice Percentage and the portion of «Customer Name»'s Slice Percentage that is attributable to each of «Customer Name»'s Members.

BPA shall calculate the Member Slice Percentage for each of «Customer Name»'s Members as the lesser of:

- (1) the «Customer Name» Member's FY2026 CHWM, including an increase for Annexed Load from a CHWM Contract customer, and a decrease for load annexed by another customer or a third party; or
- (2) Multiplying 50 percent by the portion of the Member's Preliminary Member Net Requirement, and (A) dividing by the annual CHWM System in section 2 of Exhibit K, and (B) multiplying by 100.

Expressed as a formula, the Member Slice Percentage in each year of the Rate Period is calculated as follows:

$$\text{Slice \%} = \left(\frac{50\% \times (\min(\text{Member's FY2026 CHWM, Preliminary Member Net Requirement}))}{\text{annual CHWM System}} \right) \times 100$$

BPA shall calculate «Customer Name»'s Slice Percentage for the applicable Fiscal Year as the sum of Member Slice Percentages.

The Slice Percentage and Member Slice Percentage shall be rounded to the fifth decimal in percentage format and rounded to the seventh decimal in number format.

By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall revise and state «Customer Name»'s Slice Percentage and Member Slice Percentages in section 1 of Exhibit K.

After BPA calculates «Customer Name»'s Slice Percentage and Member Slice Percentages for the Fiscal Year pursuant to this section 5.3. BPA shall not make mid-Fiscal Year adjustments to «Customer Name»'s Slice Percentage or Member Slice Percentages. BPA shall adjust the Member's portion of «Customer Name»'s Tier 1 Block Amounts and «Customer Name»'s Tier 1 Block Amounts when a mid-Fiscal Year adjustment is required.

End Option 5

Option 1: Include the following for customers that are not JOEs.

5.4 Firm Slice Amount

- 5.4.1 By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net

Requirement pursuant to section 1 of Exhibit A, BPA shall calculate «Customer Name»'s Firm Slice Amount for each month of the applicable Fiscal Year(s) in monthly Average Megawatts by (1) multiplying the monthly Average Megawatts of the CHWM System listed in the table in section 1 of Exhibit K for the applicable month in each Fiscal Year by «Customer Name»'s Slice Percentage applicable to each such Fiscal Year stated in section 2 of Exhibit K, and (2) rounding the results to three decimal places. BPA shall calculate «Customer Name»'s Firm Slice Amount for each month of the applicable Fiscal Year(s) in megawatt-hours by (1) multiplying the Firm Slice Amount in Average Megawatts for each month of the applicable Fiscal Year(s) by the number of hours in the month, and (2) rounding the result to the nearest whole megawatt. BPA shall revise and state «Customer Name»'s Firm Slice Amount in Average Megawatts and megawatt-hours for each month of the applicable Fiscal Year(s) in section 3 of Exhibit K.

- 5.4.2 «Customer Name» shall purchase and receive a share of CHWM Modeled Augmentation in an amount equal to «Customer Name»'s Slice Percentage in section 1 of Exhibit K multiplied by the CHWM Modeled Augmentation for each Fiscal Year as established in the applicable 7(i) Process. Such amounts are included in the calculation of Firm Slice Amount in section 5.4.1 above.

The BOS Base amount in the POCSA as determined pursuant to section 4.1.1 of Exhibit L shall include the amounts of CHWM Modeled Augmentation listed in section 4 of Exhibit K. BPA shall make CHWM Modeled Augmentation available to «Customer Name» in a Flat Annual Shape for the applicable Fiscal Year.

End Option 1

Option 2: Include the following for customers that are JOEs.

5.4 Firm Slice Amount

- 5.4.1 By March 31, 2028 and each March 31 of a Rate Case Year thereafter, and by March 31 in a Forecast Year that «Customer Name» submits a Total Retail Load forecast revision pursuant to section 17.6.2, and concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall calculate the following Firm Slice Amounts:

- (1) «Customer Name»'s Firm Slice Amount for each month of the applicable Fiscal Year(s) in monthly Average Megawatts by (A) multiplying the monthly Average Megawatts of the CHWM System listed in the table in section 1 of Exhibit K for the applicable month in each Fiscal Year by «Customer Name»'s Slice Percentage applicable to each such Fiscal Year stated in section 2 of Exhibit K, and (B) rounding the results to three decimal places.

- (2) «Customer Name»'s Firm Slice Amount for each month of the applicable Fiscal Year(s) in megawatt-hours by (A) multiplying the Firm Slice Amount in Average Megawatts for each month of the applicable Fiscal Year(s) by the number of hours in the month, and (B) rounding the result to the nearest whole megawatt.
- (3) The portion of «Customer Name»'s Firm Slice Amount attributable to each of «Customer Name»'s Members in Average Megawatts by (A) multiplying the monthly Average Megawatts of the CHWM System listed in the table in section 1 of Exhibit K for the applicable month in each Fiscal Year by each Member's Member Slice Percentage applicable to each such Fiscal Year stated in section 2 of Exhibit K, and (B) rounding the results to three decimal places.
- (4) The portion of «Customer Name»'s Firm Slice Amount attributable to each of «Customer Name»'s Members in megawatt hours by (A) multiplying the Firm Slice Amount in Average Megawatts for each month of the applicable Fiscal Year(s) by the number of hours in the month, and (B) rounding the result to the nearest whole megawatt.

BPA shall revise and state «Customer Name»'s Firm Slice Amount and each Member's attributed portion of «Customer Name»'s Firm Slice Amount in Average Megawatts and megawatt-hours for each month of the applicable Fiscal Year(s) in section 3 of Exhibit K.

- 5.4.2 «Customer Name» shall purchase and receive a share of CHWM Modeled Augmentation in an amount equal to «Customer Name»'s Slice Percentage in section 1 of Exhibit K multiplied by the CHWM Modeled Augmentation for each Fiscal Year as established in the applicable 7(i) Process. Such amounts are included in the calculation of Firm Slice Amount in section 5.4.1 above.

The BOS Base amount in the POCSA as determined pursuant to section 4.1.1 of Exhibit L shall include the amounts of CHWM Modeled Augmentation listed in section 4 of Exhibit K. BPA shall make CHWM Modeled Augmentation available to «Customer Name» in a Flat Annual Shape for the applicable Fiscal Year.

End Option 2

5.5 Disposition of Surplus Slice Output

- 5.5.1 All sales, exchanges, or other dispositions of BPA-provided electric power are subject to and governed by federal law including, but not limited to, the Bonneville Project Act, 16 U.S.C. § 832 *et seq.*, P.L. 75-329 as amended, the Pacific Northwest Consumer Power

Preference Act, 16 U.S.C. § 837 *et seq.*, P.L. 88-552, the Federal Columbia River Transmission System Act, 16 U.S.C. § 838 *et seq.*, P.L. 93-454, and the Northwest Power Act, as amended.

- 5.5.2 All sales of Surplus Slice Output by «Customer Name» for use outside the Region, or to parties not serving firm retail load in the Region, are subject to the provisions of the Pacific Northwest Consumer Power Preference Act and Section 9(c) of the Northwest Power Act, and BPA and «Customer Name» acknowledge their respective responsibilities thereunder.
- 5.5.3 The following uses of Surplus Slice Output shall not constitute a sale of Surplus Slice Output outside the Region:
- (1) Leaving the Surplus Slice Output in Storage or placing it in «Customer Name»'s Storage;
 - (2) Exchanging Surplus Slice Output with another utility customer in the Region, or a statutorily enumerated type of exchange with a utility outside the Region;
 - (3) Using Surplus Slice Output to displace «Customer Name»'s non-federal resources identified in Exhibit A, or «Customer Name»'s market purchases that would have been made for serving its Total Retail Load; and
 - (4) A sale of Surplus Slice Output to a BPA utility customer for service to that utility's Total Retail Load in the Region, consistent with Sections 3(14) and 9(c) of the Northwest Power Act.

BPA may request «Customer Name» provide evidence that Surplus Slice Output was used consistent with Section 9(c) of the Northwest Power Act. «Customer Name» may demonstrate such uses of Surplus Slice Output by means of a storage account, executed contracts for binding sales or exchanges, or another form of offer and acceptance.

- 5.5.4 Pursuant to the Pacific Northwest Consumer Power Preference Act and Section 9(c) of the Northwest Power Act, BPA shall have the right to curtail all or a portion of «Customer Name»'s: (1) Surplus Slice Output capacity upon 60 months' written notice to «Customer Name», and (2) Surplus Slice Output energy upon 60 calendar days written notice to «Customer Name». Any such notice shall specify the amounts and duration of the curtailment, and whether such capacity or energy is needed to meet BPA's capacity and energy requirements in the Region. Prior to issuing any such curtailment notice, BPA and «Customer Name» shall consult in order to determine the quantity, if any, of Surplus Slice Output energy and capacity that may be subject to such curtailment. Such curtailments shall be limited to «Customer

Name»'s proportional share of the amount needed, and for the duration necessary, to cover BPA's projection of its needs within the Region. Such curtailments are subject to sections 5.5.5 and 5.5.6.

5.5.5 If BPA issues a notice of curtailment pursuant to section 5.5.4, then it shall concurrently issue notices of curtailment, recall, or termination to all other extra regional and non-preference purchasers to whom BPA has sold Surplus Firm Power, or surplus capacity, for durations longer than specified in the notice, provided that such sales agreements contain provisions that allow for recall, curtailment or termination.

5.5.6 Following each month that Surplus Slice Output is curtailed pursuant to section 5.6.5 above, Power Services shall include a line item credit on **«Customer Name»**'s monthly customer bill issued equal to the amount of Surplus Slice Output energy curtailed during the preceding month, multiplied by the Monthly Reimbursement Value for the month during which the curtailment was in effect.

5.6 **Disposition of Requirements Slice Output and Requirements Slice Output Test**

Reviewer's Note: RSO Test will be revised for BPA participation in a day-ahead market.

5.6.1 **Disposition of Requirements Slice Output**

Requirements Slice Output (RSO) purchased by **«Customer Name»** under this Agreement and made available by BPA shall be used solely for the purpose of serving **«Customer Name»**'s Total Retail Load. **«Customer Name»** shall maintain monthly documentation demonstrating that RSO was used to serve its Total Retail Load. Acceptable methods of documentation may include, but are not limited to, schedules and E-Tags. **«Customer Name»** shall make such documentation available to BPA upon request.

5.6.2 **Monthly Data Submittals**

5.6.2.1 **Monthly Actual Total Retail Load Data**

«Customer Name» shall submit its actual Total Retail Load for the preceding calendar month, expressed in megawatt-hours, to BPA on or before the 10th Business Day of each month.

5.6.2.2 **Monthly Generation Data**

If generation in excess of **«Customer Name»**'s Dedicated Resources in Exhibit A is used to establish **«Customer Name»**'s Requirements Slice Output for a month, then **«Customer Name»** shall submit its actual metered generation data, expressed in megawatt-hours, from such Dedicated Resources to BPA on or before the 10th Business Day of each month.

5.6.3 Failed RSO Rates

Failed RSO Rates shall apply when «Customer Name» fails to pass any RSO test. Such rates shall be priced at market value and include a minimum of a 25 percent market adder for energy, as established in the applicable Power Rate Schedules and GRSPs.

5.6.4 Day-Ahead Market

If «Customer Name»'s service territory is located in a Balancing Authority Area that joins a day-ahead market in advance of BPA's participation in that day-ahead market or the Balancing Authority joins a different day-ahead market than BPA, then BPA and «Customer Name» shall revise the RSO test in section 11 of Exhibit M for day-ahead market implementation.

5.6.5 Requirements Slice Output Test

5.6.5.1 Monthly RSO Test

BPA shall perform a Monthly RSO Test pursuant to section 11.1 of Exhibit M. BPA shall charge «Customer Name» a Monthly RSO Test failure charge pursuant to section 11.1 of Exhibit M if «Customer Name» does not pass the Monthly RSO Test.

5.6.5.2 Annual RSO Test

BPA shall perform an Annual RSO Test pursuant to section 11.2 of Exhibit M. BPA shall charge «Customer Name» an Annual RSO Test failure charge pursuant to section 11.2 of Exhibit M if «Customer Name» does not pass the Annual RSO Test. The Annual RSO Test failure charge for a Fiscal Year shall be reduced by any applicable Monthly RSO Test charge(s) assessed in the Fiscal Year.

5.7 Northwest Power Act Section 6(m) Resource Acquisitions

«Customer Name» retains all rights to participate in any BPA major resource acquisitions pursuant to Section 6(m) of the Northwest Power Act.

5.8 Displacement of Columbia Generating Station (CGS)

5.8.1 Definitions

5.8.1.1 "Columbia Generating Station" or "CGS" means the nuclear powered generating facility located near Richland, Washington, and operated by Energy Northwest, or its successor.

5.8.1.2 "CGS Displacement" means a decision by Power Services to shut-down all or a portion of the power production at CGS due to market conditions.

5.8.2 «Customer Name» shall participate in CGS Displacement. CGS Displacement will reduce «Customer Name»'s Slice Output.

5.9 POCSA Functionality and Simulator Performance Tests

This section sets out the POCSA Functionality and Simulator Performance Tests. BPA shall promptly notify «Customer Name» of the results of the POCSA Functionality and Simulator Performance Tests.

5.9.1 Definitions

- 5.9.1.1 “Customer Facing Interface” or “CFI” means the set of Windows Communication Foundation (WCF) Services that gives a Slice Customer a mechanism for interacting with the SWRS through the customer's own custom user interface. The CFI allows a Slice Customer to submit Customer Inputs, run the SWRS, and review the results.
- 5.9.1.2 “Default User Interface” or “DUI” means the basic user interface that is developed by BPA and made available to «Customer Name» for access to the POCSA.
- 5.9.1.3 “POCSA Deployment Date” means the latest of:
(1) October 1, 2028, (2) 90 days after the POCSA Pass Date, or (3) 90 days after the Simulator Pass Date.
- 5.9.1.4 “POCSA Functionality Test” means the test set forth in section 5.11.2 that is conducted to determine whether the POCSA is complete, functional, and ready for daily operations.
- 5.9.1.5 “POCSA Pass Date” means the date on which the POCSA passes the POCSA Functionality Test.
- 5.9.1.6 “Simulator Pass Date” means the date on which the Simulator passes the Simulator Performance Test.
- 5.9.1.7 “Simulator Performance Test” means the test conducted by BPA and consisting of four separate tests: a Storage Content test, an energy test, a peaking test, and a ramp down test, each as separately described in section 3.5.3 of Exhibit L.

5.9.2 POCSA Functionality Test

- 5.9.2.1 BPA shall conduct the initial POCSA Functionality Test no later than March 15, 2028.
- 5.9.2.2 BPA, in consultation with «Customer Name» and other members of the Slice Operations Forum (SOF), shall, by March 15, 2028, establish a detailed written description of

the validation procedures that will comprise the POCSA Functionality Test. Such validation procedures shall include a comprehensive series of objective tests that establish if the POCSA, including the Simulator, CFI, DUI and BOS module, are wholly functional and ready for daily operations.

5.9.3 POCSA Deployment Date

- 5.9.3.1 If the POCSA Deployment Date is established as October 1, 2028, then BPA and «Customer Name» shall commence implementation of the POCSA beginning on October 1, 2028.
- 5.9.3.2 If the POCSA Deployment Date is established later than October 1, 2028, then:
- (1) Beginning on October 1, 2028, and continuing until the POCSA Deployment Date, BPA and «Customer Name» shall continue to use the version of the POCSA implemented under the Regional Dialogue CHWM Contract that expired on September 30, 2028.
 - (2) The SOF shall develop procedures no later than October 1, 2028 that BPA and Slice Customers shall follow to ensure all POCSA actions are completed in accordance with this Agreement.

5.9.4 Simulator Performance Test

- 5.9.4.1 No later than June 30, 2027, BPA shall provide «Customer Name» access to the Simulator that will be used by BPA to conduct the Simulator Performance Test. The Simulator Performance Test shall be conducted by BPA no later than October 31, 2027.
- 5.9.4.2 If, as of September 30, 2027, the Simulator has failed one or more of the four tests that comprise the Simulator Performance Test, then «Customer Name» may elect to change its purchase obligation pursuant to section 11.2.

5.10 POCSA Access and Use Agreement

«Customer Name» and BPA shall execute a POCSA access and use agreement prior to or coincident with execution of this Agreement.

«Customer Name» may designate third parties to access and use the POCSA on its behalf. BPA retains sole discretion for the approval of third parties' access and use of the POCSA. BPA reserves the right to restrict POCSA access and use by third parties that are significant and active participants in

Western Electricity Coordinating Council (WECC) footprint wholesale power or transmission markets and that are not Slice Customers.

If BPA determines that «Customer Name» is in breach of the POCSA access and use agreement then: (1) BPA shall restrict «Customer Name»'s access to the POCSA, and (2) BPA shall use the POCSA to determine and provide «Customer Name»'s hourly SOERs pursuant to section 5.2 of Exhibit L, and (3) «Customer Name» shall submit E-Tags pursuant to section 5.2 of Exhibit L.

5.11 POCSA Development Schedule

BPA shall provide «Customer Name» with a POCSA development schedule at the time this Agreement is offered for execution. «Customer Name» and BPA understand and agree that: (1) the timelines specified in the POCSA development schedule are not binding and are for preliminary planning purposes only, and (2) the timelines set forth in this section 5 are binding. BPA and «Customer Name» shall discuss, with other members of the SOF, the requirements and status of the various tasks identified in the POCSA development schedule.

5.12 Slice Operations Forum

5.12.1 The Parties anticipate that issues will arise regarding the Slice Product or the POCSA, and that a forum is needed for discussing alternatives and taking actions that may affect BPA and the Slice Customers. The Slice Operations Forum (SOF) shall: (1) consider, recommend, and document modifications to the POCSA necessary to maintain its reasonable representation of the Tier 1 System Resources energy, peaking, storage, and ramping capability; (2) consider, recommend, and document modifications to the POCSA necessary for «Customer Name» and other Slice Customers to schedule Slice Output Energy under this Agreement; and (3) establish a forum for discussion of the Slice Product.

5.12.2 Slice Customers shall propose a draft SOF charter for BPA review and recommendations no later than February 28, 2026. The SOF Charter shall include the following items:

- (1) A process for SOF charter adoption and revisions by an affirmative vote of the Slice customers.
- (2) Rules for convening SOF meetings, establishing a quorum, and rules of order.
- (3) A process to propose POCSA changes to BPA by an affirmative vote of the Slice Customers.
- (4) A process for BPA to add items to a SOF meeting agenda for discussion.

The SOF charter may identify additional areas of interest pertaining to the Slice Product for discussion by the SOF.

BPA shall review the draft SOF Charter, and provide comments and recommendations to the SOF, no later than March 23, 2026. Slice Customers shall provide the final SOF charter to BPA for its approval no later than April 30, 2026.

If the Slice Customers do not adopt a SOF charter, then BPA will identify changes to the POCSA in a meeting with the Slice Customers.

5.12.3 BPA shall have the right in its sole discretion to implement the changes described below only to the extent it determines such implementation is consistent with the Slice product as described in section 5.1, and only after: (1) such implementation and related testing is reviewed and discussed by the SOF; and (2) such changes have been subjected to testing as determined by BPA to be relevant and sufficient to demonstrate that each change functions as intended and does not cause any other portion of the POCSA to malfunction. Such implementation by BPA shall not be subject to approval by the SOF.

- (1) BPA may change the POCSA as necessary to produce results that reasonably represent the energy production, peaking, storage, or ramping capability of the Tier 1 System Resources.
- (2) BPA may change the POCSA as necessary to maintain functionality with BPA's internal business processes and systems.
- (3) BPA may determine how Operating Constraints are translated into Simulator Parameters for application within the POCSA.

5.12.4 The SOF shall request a BPA review of proposed POCSA changes by an affirmative vote taken in accordance with the SOF charter. BPA shall review the SOF's proposed POCSA changes within 45 calendar days of the SOF affirmative vote. BPA may extend the review period at its sole discretion by written notice to the SOF. BPA shall provide a written determination to the SOF that describes its decision to support or not support the proposed POCSA changes.

If BPA supports the proposed POCSA changes, then BPA will commence planning for the implementation of such changes. BPA shall provide the SOF with a proposed plan and proposed timeline for the implementation of the POCSA changes. During the planning and implementation of such proposed changes BPA may identify constraints and technical challenges that preclude BPA from implementing the proposed changes. BPA shall promptly identify any

such implementation constraints or technical challenges to the SOF in writing.

If BPA does not support the proposed POCSA changes, then BPA will not implement the proposed POCSA changes.

5.13 Creditworthiness

«Customer Name» shall execute a creditworthiness agreement with BPA prior to or coincident with execution of this Agreement.

5.14 Slice True-Up Adjustment Charge

5.14.1 BPA shall calculate a Slice True-Up Adjustment Charge annually pursuant to chapter 2.8.5 of the PRDM.

5.14.2 BPA shall compute interest applicable to the Slice True-Up Adjustment Charge using simple interest computed daily. The daily interest rate shall be the Prime Rate (as reported in the Wall Street Journal or successor publication in the first issue of the Fiscal Year in which the Slice True-Up Adjustment Charge is calculated), divided by 365. The daily interest rate shall be fixed on the first day of the Fiscal Year in which the applicable Slice True-Up Adjustment Charge is calculated for the time periods specified under section 5.14.3.

5.14.3 Interest determined pursuant to section 5.14.2 shall be computed and added to the Slice True-Up Adjustment Charge for «Customer Name» for the time periods defined as follows:

- (1) If the Slice True-Up Adjustment Charge is a credit to «Customer Name», then the period for interest computation will begin with the first day of the Fiscal Year in which the Slice True-Up Adjustment Charge is calculated and will end on the due date of the bill that contains such credit.
- (2) If the Slice True-Up Adjustment Charge is a charge payable to BPA, then the period for interest computation will begin with the first day of the Fiscal Year in which the Slice True-Up Adjustment Charge is calculated, and will end, with regard to the portion to be paid, on the due date for each of the three monthly bills in which the Slice True-Up Adjustment Charge appears. If «Customer Name» elects to pay the charge in one month, then «Customer Name» shall notify BPA in writing and the period for interest computation will begin with the first day of the Fiscal Year in which the Slice True-Up Adjustment Charge is calculated and will end on the due date for the next monthly bill issued following the day such Slice True-Up Adjustment Charge is calculated.

- (3) If a credit or charge contained in a Slice True-Up Adjustment Charge is subject to dispute resolution pursuant to Attachment A of the PRDM or has been reserved for final disposition in the next 7(i) Process, all pursuant to the PRDM, and if there is an adjustment to such credit or charge as a result thereof, then the period for the interest calculation shall begin on the first day of the Fiscal Year in which the disputed Slice True-Up Adjustment Charge was calculated and will end as specified in sections 5.14.3(1) or 5.14.3(2) above depending upon whether the adjustment is a credit or a charge.

6. PUBLIC RATE DESIGN METHODOLOGY

- 6.1 The PRDM applies for the term of this Agreement. BPA shall apply the PRDM in accordance with its terms, which govern BPA's establishment, review and revision of Priority Firm Power (PF) rates pursuant to Section 7(i) of the Northwest Power Act for Firm Requirements Power sold under this Agreement.
- 6.2 The recitation of language from the PRDM in this Agreement does not incorporate such language into this Agreement. BPA may only revise the PRDM's language in accordance with the requirements of PRDM chapter 9. If BPA revises the language of the PRDM, then BPA will unilaterally amend this Agreement to accordingly modify any such language recited in this Agreement.
- 6.3 Any disputes over the meaning of the PRDM or rates, including whether BPA is adhering to its obligation under the PRDM to revise the PRDM only in accordance with the PRDM chapter 9, or whether the Administrator is correctly implementing the PRDM or rates, including but not limited to matters of whether the Administrator is correctly interpreting, applying, and otherwise adhering or conforming to the PRDM or rate, shall (1) be resolved pursuant to any applicable procedures set forth in the PRDM; (2) if resolved by the Administrator as part of a proceeding under Section 7(i) of the Northwest Power Act, be reviewable as part of the United States Court of Appeals for the Ninth Circuit's review under Section 9(e)(5) of the Northwest Power Act of the rates or rate matters determined in such Section 7(i) proceeding (after FERC final confirmation and approval, and subject to any further review by the United States Supreme Court); and (3) if resolved by the Administrator outside such a Section 7(i) Process and such decision is a final action, be reviewable by the United States Court of Appeals for the Ninth Circuit under Section 9(e)(5) of the Northwest Power Act (subject to any further review by the United States Supreme Court). The remedies available to «Customer Name» through such judicial review shall be «Customer Name»'s sole and exclusive remedy for such disputes.
- 6.4 BPA shall not publish a Federal Register Notice regarding BPA rates or the PRDM that prohibits, limits, or restricts «Customer Name»'s right to submit testimony or brief issues on rate matters regarding the meaning or

implementation of the PRDM or establishment of BPA rates pursuant to the PRDM. For purposes of BPA's conformance to this paragraph, a "rate matter" shall not include budgetary and program level issues, or any other matter unrelated to the PRDM or the establishment of rates pursuant to the PRDM.

Option 1: Include the following for customers that are not JOEs.

7. CONTRACT HIGH WATER MARKS

By September 30, 2026, BPA shall establish «Customer Name»'s CHWM in the FY 2026 CHWM Calculation Process and revise Exhibit B to state «Customer Name»'s CHWM. Once established, BPA may only adjust «Customer Name»'s CHWM as permitted pursuant to Exhibit B. After any adjustment, BPA shall revise Exhibit B to state «Customer Name»'s adjusted CHWM.

End Option 1

Option 2: Include the following for customers that are JOEs.

7. CONTRACT HIGH WATER MARKS

BPA shall establish «Customer Name»'s CHWM in the FY 2026 CHWM Calculation Process by September 30, 2026. BPA shall calculate «Customer Name»'s CHWM as the sum of its Members' CHWMs. By September 30, 2026, BPA shall revise Exhibit B to state «Customer Name»'s CHWM and each Member's CHWM. Once established, BPA may only adjust «Customer Name»'s CHWM or a Member's CHWM as permitted pursuant to Exhibit B. After any adjustment, BPA shall revise Exhibit B to state «Customer Name»'s adjusted CHWM and the adjusted Member's CHWM.

End Option 2

8. APPLICABLE RATES

Purchases under this Agreement are subject to the following rate schedules, or their successors: Priority Firm Power (PF), including Tier 1 Rates and Tier 2 Rates, New Resource Firm Power (NR), and Firm Power and Surplus Products and Services (FPS), as applicable. Billing determinants for any purchases will be included in each rate schedule. Power purchases and services sold under this Agreement are subject to the applicable rates and charges in BPA's Power Rate Schedules, established in accordance with the PRDM, as applicable, and its GRSPs (or their successors) established during a 7(i) Process. «Customer Name» may incur additional charges as established in the applicable 7(i) Process, and as provided in the Power Rate Schedules and GRSPs, including the Unauthorized Increase Charge or its successors.

8.1 Applicability of Tier 1 and Tier 2 Rates

BPA shall establish PF rates that include rate schedules for purchase amounts at Tier 1 Rates and purchase amounts at Tier 2 Rates. Tier 1 Rates and Tier 2 Rates shall apply to «Customer Name»'s purchases as follows:

- (1) Tier 1 Rates shall apply to «Customer Name»'s purchases of Tier 1 Block Amounts, as specified in section 1 of Exhibit C, Firm Slice Amounts, and associated Slice Output.

- (2) Tier 2 Rates shall apply to «Customer Name»'s purchases of Tier 2 Block Amounts, if any, in accordance with the terms of section 2 of Exhibit C.

9. ELECTIONS TO PURCHASE POWER PRICED AT TIER 2 RATES

Option 1: Include the following for customers that are not JOEs.

9.1 Tier 2 Rate Alternatives

Subject to the requirements of this section 9 and Exhibit C, and pursuant to the PRDM, «Customer Name» shall have the right to purchase Firm Requirements Power at a Tier 2 Long-Term Rate, Tier 2 Short-Term Rate, and Tier 2 Vintage Rate.

9.2 Above-CHWM Load Service Options and Tier 2 Rate Elections

BPA shall calculate «Customer Name»'s Above-CHWM Load in the Above-CHWM Load Process ahead of each Rate Period.

«Customer Name» has the option to serve its Above-CHWM Load with:

- (1) Firm Requirements Power purchased from BPA at a Tier 2 Rate or rates,
(2) Dedicated Resources, or (3) a specific combination of both (1) and (2).

Within 60 calendar days after BPA publishes, to its publicly available website, «Customer Name»'s final CHWMs from the FY 2026 CHWM Calculation Process, «Customer Name» shall determine and provide written notice to BPA of its Above-CHWM Load service election, including its election to purchase Firm Requirements Power at Tier 2 Rates, consistent with section 2.1 of Exhibit C.

BPA shall update Exhibit C to state «Customer Name»'s Tier 2 Rate purchase elections and the amount of its purchase obligation of Firm Requirements Power at Tier 2 Rates.

9.3 Amounts of Tier 2 Flat Across All Hours

Amounts of Firm Requirements Power sold by BPA at Tier 2 Rates and purchased by «Customer Name» shall be equal in all hours of the year.

End Option 1

Option 2: Include the following for customers that are JOEs.

9.1 Tier 2 Rate Alternatives

Subject to the requirements of this section 9 and Exhibit C and pursuant to the PRDM, «Customer Name» shall have the right to purchase Firm Requirements Power at a Tier 2 Long-Term Rate, Tier 2 Short-Term Rate, and Tier 2 Vintage Rate.

9.2 Above-CHWM Load Service Options and Tier 2 Rate Elections

BPA shall calculate «Customer Name»'s Above-CHWM Load, as the sum of all Members' Above-CHWM Loads, in the Above-CHWM Load Process ahead of each Rate Period.

«Customer Name», consistent with its election for each of its Members made in accordance with section 2.1 of Exhibit C, has the option to serve «Customer Name»'s Above-CHWM Load with: (1) Firm Requirements Power purchased from BPA at a Tier 2 Rate or rates, (2) Dedicated Resources, or (3) a specific combination of both (1) and (2).

Within 60 calendar days after BPA publishes, to its publicly available website, «Customer Name» Members' final CHWMs and «Customer Name»'s final CHWMs from the FY 2026 CHWM Calculation Process, «Customer Name» shall determine and provide written notice to BPA of its Above-CHWM Load service election for each of its Members, including any election to purchase Firm Requirements Power at Tier 2 Rates, consistent with section 2.1 of Exhibit C.

BPA shall update Exhibit C to state «Customer Name»'s Tier 2 Rate purchase elections for each of its Members and the total amount of its purchase obligation of Firm Requirements Power at Tier 2 Rates.

9.3 Amounts of Tier 2 Flat Across All Hours

Amounts of Firm Requirements Power sold by BPA at Tier 2 Rates and purchased by «Customer Name» shall be equal in all hours of the year.

End Option 2

10. TIER 2 REMARKETING AND RESOURCE REMOVAL

Under this section 10, «Customer Name» does not have temporary resource removal or remarketing rights for its Dedicated Resources in Exhibit A added pursuant to section 3.5.4 or section 3.5.8 of the Agreement. In addition, under this section 10, «Customer Name» does not have temporary resource removal or remarketing rights for any Dedicated Resource amounts or amounts of Firm Requirements Power purchased at Tier 2 Rates that would otherwise be eligible for removal or remarketing due to the addition of resources under section 3.5.4. Any BPA remarketing of Tier 2 Vintage Rate purchase obligation amounts under this section 10 is subject to section 2.5.6 of Exhibit C.

10.1 New Resource Removal and Remarketing of Tier 2 Rate Purchase Obligation Amounts for Each Rate Period

If «Customer Name»'s Above-CHWM Load as forecasted for each Fiscal Year of an upcoming Rate Period is less than the sum of: (1) «Customer Name»'s New Resource amounts serving its Above-CHWM Load, as stated in Exhibit A, and (2) Tier 2 Rate purchase obligation amounts, as stated in Exhibit C, then, except as permitted in sections 10.1.3 and 10.1.4 below and in the following order:

- (1) «Customer Name» shall temporarily remove its eligible New Resource amounts, and
- (2) BPA shall remarket «Customer Name»'s Tier 2 Rate purchase obligation amounts.

Any removal of eligible New Resource amounts or remarketing of Tier 2 Rate purchase obligation amounts shall apply until either: (1) the removed New Resource amounts plus the remarketed Tier 2 Rate purchase obligation amounts equal the amount by which «Customer Name»'s New Resource amounts plus its Tier 2 Rate purchase obligation amounts exceed its Above-CHWM Load, or (2) all of «Customer Name»'s New Resources are removed and all of its Tier 2 Rate purchase obligation amounts are remarketed.

- 10.1.1 If «Customer Name» has more than one New Resource, then by October 31 of each Rate Case Year, «Customer Name» shall notify BPA of the order and associated amounts of «Customer Name»'s New Resources that «Customer Name» shall remove for each Fiscal Year in the upcoming Rate Period to the extent necessary to comply with this section 10.1.
- 10.1.2 If «Customer Name» fails to notify BPA in accordance with section 10.1.1, then BPA shall determine the order and associated amounts of «Customer Name»'s New Resource removal for each Fiscal Year in the upcoming Rate Period to comply with section 10.1.
- 10.1.3 If compliance with the requirements of section 10.1 would cause «Customer Name» to remove part or all of any New Resource amounts that «Customer Name» uses to fulfill a state or federal renewable resource standard or other comparable legal obligation, then by October 31 of each Rate Case Year «Customer Name» may request for BPA to remarket the same amount of Tier 2 Rate purchase obligation amounts until all of «Customer Name»'s Tier 2 Rate purchase obligation amounts are remarketed. Following such remarketing, «Customer Name» may either temporarily remove New Resources applied to the Tier 1 Allowance Amount or Existing Resources to the extent necessary to comply with section 10.1, provided that the hourly, monthly, and Diurnal amounts removed shall be equal to the hourly, monthly, and Diurnal amounts provided by the New Resources that «Customer Name» would have otherwise been obligated to remove.
- 10.1.4 If: (1) «Customer Name» made an election under section 2.1(3) or section 2.1(4) of Exhibit C to serve all or a portion of its Above-CHWM Load using the flexible option, (2) «Customer Name» has both New Resource amounts and Tier 2 Vintage Rate purchase obligation amounts for serving such Above-CHWM Load, and (3) compliance with the requirements of section 10.1 would cause «Customer Name» to remove part or all of its New Resource amounts, then «Customer Name» may request for BPA to first remarket the Tier 2 Vintage Rate purchase obligation amounts until all of «Customer Name»'s Tier 2 Vintage Rate purchase obligation amounts are remarketed before removing any New Resource amounts.

10.2 Partial Resource Removal

When only a portion of an eligible Dedicated Resource is removed pursuant to section 10.1 above, such resources shall be removed proportionally to maintain the same annual shape for the resource as established in Exhibit A.

10.3 Responsibilities for Remarketing Tier 2 Rate Purchase Obligation Amounts and Disposition of Dedicated Resource

«Customer Name» shall be subject to applicable charges or credits, as established in a 7(i) Process, associated with BPA's remarketing of Tier 2 Rate purchase obligation amounts of Firm Requirements Power.

Except as specified in section 10.4 below, «Customer Name» shall be responsible for the disposition of any amounts of its Dedicated Resources, whether Specified Resources or Committed Power Purchase Amounts that are removed or reduced pursuant to this Agreement.

10.4 Removal of Resources Taking RSS

If «Customer Name» purchases RSS for any New Resources that are partially or entirely removed pursuant to sections 10.1 or 10.2 above, then the following shall apply:

10.4.1 «Customer Name» shall continue to supply the entire amount of any such resources consistent with applicable provisions stated in Exhibit J.

10.4.2 BPA shall remarket the amounts of any such resources that are removed pursuant to section 10.1 in the same manner BPA remarkets Tier 2 Rate purchase obligation amounts in section 10.3. BPA shall revise Exhibit A to identify the amounts of any such resources that are removed. BPA shall continue to provide RSS in accordance with applicable provisions in Exhibit J to any amounts of such resources that remain in Exhibit A after resource removal.

10.5 New Resource Removal and Remarketing of Tier 2 Rate Purchase Obligation Amounts with an Updated Net Requirement Forecast

For purposes of this section 10, if BPA calculates an updated Net Requirement forecast for «Customer Name» as provided in section 17.6.2, then BPA shall establish a substitute amount that shall apply instead of «Customer Name»'s Above-CHWM Load for the remaining year(s) of the applicable Rate Period. Such substitute amount (negative values set to zero) shall equal: (A) «Customer Name»'s updated Total Retail Load forecast, submitted consistent with section 17.6.2, minus (B) «Customer Name»'s Existing Resources, NLSLs, Specified Resources added to Tier 1 Allowance Amount, Consumer-Owned Resources serving On-Site Consumer Load, and «Customer Name»'s CHWM. «Customer Name» shall notify BPA of any elections under section 10.1 above by February 28 ahead of power delivery for the applicable Fiscal Year.

11. RIGHT TO CHANGE PURCHASE OBLIGATION

11.1 One-Time Right to Change Purchase Obligation

Under this Agreement «Customer Name» shall have a one-time right to request a change in its purchase obligation, identified in section 3, to another purchase obligation available from BPA, including *[Drafter's Note: Delete product customer is currently purchasing and adjust so that it reads X, Y, or Z.]* «Load Following, »«Annual Flat Block, »«Diurnally Shaped Monthly Block, »«Flat Monthly Block, »«Flat Monthly Block with 10 Percent Shaping Capacity, » «Flat Monthly Block with Peak Net Requirement (PNR) Shaping Capacity, » «or» «Flat Monthly Block with Peak Net Requirement (PNR) Shaping Capacity with Peak Load Variance Service (PLVS), »«or »«Slice/Block, if available».

Unless otherwise agreed by the Parties, any «Customer Name» Above-CHWM Load service elections, Dedicated Resource additions, and other elections made under this Agreement prior to the notice made under section 11.2 shall continue to be applicable under the new purchase obligation, provided that BPA may update such terms and conditions consistent with the then-current terms of the new purchase obligation, and additional costs may apply for service under «Customer Name»'s new purchase obligation as described in section 11.6.

Option 1: Include the following for customers that are not JOEs

11.2 Notice and Conditions to Change Purchase Obligation and to Join a JOE

Written notices sent under this section 11.2 must comply with section 1 of Exhibit I. The following sections 11.2.2, 11.2.3 and 11.2.4 shall be in accordance with Section 5(b)(7) of the Northwest Power Act.

Sub-Option 1: Include the following for customers that do not operate their own Balancing Authority Area.

11.2.1 Notice of Change to Purchase Obligation

No sooner than October 1, 2028, «Customer Name» may provide written notice to BPA to request a change to its purchase obligation pursuant to section 11.1 above. Such notice to BPA must be at least three years prior to the start of the Rate Period the purchase obligation change would be effective. «Customer Name»'s notice shall state: (1) the purchase obligation request, and (2) the Rate Period «Customer Name» requests the change to be effective. The latest date that «Customer Name» may provide notice to request a change to its purchase obligation is September 30, 2037 for a purchase obligation change effective on October 1, 2040.

End Sub-Option 1

Sub-Option 2: Include the following for customers that do operate their own Balancing Authority Area.

11.2.1 Notice of Change to Purchase Obligation

No sooner than October 1, 2028, «Customer Name» may provide written notice to BPA to request a change to its purchase obligation pursuant to section 11.1 above. Such notice to BPA must be at least three years prior to the start of the Rate Period the purchase obligation change would be effective. «Customer Name»'s notice shall state: (1) the purchase obligation request, and (2) the Rate Period «Customer Name» requests the change to be effective. The latest date that «Customer Name» may provide notice to request a change to its purchase obligation is September 30, 2037 for a purchase obligation change effective on October 1, 2040. Any «Customer Name» request for the Load Following purchase obligation under this section 11.2.1 shall be subject to the limitations in section 11.3.1 below.

End Sub-Option 2

11.2.2. Joining a JOE For Service Effective October 1, 2028

If «Customer Name» requests to join a JOE for service under the JOE's CHWM Contract effective October 1, 2028, then «Customer Name»'s written notice to BPA to request to assign its contract to the JOE must be received no later than June 30, 2027, regardless of «Customer Name»'s and the JOE's purchase obligations. Receiving service under the JOE CHWM Contract will not constitute a change to «Customer Name»'s purchase obligation under this section 11.

11.2.3. If Customer and JOE Have Same Purchase Obligation

After June 30, 2027, if the BPA-JOE CHWM Contract and «Customer Name» have the same purchase obligation when «Customer Name» requests to join the JOE, then «Customer Name»'s written notice to BPA to request to assign its contract to the JOE must be received no later than June 30 of a Forecast Year for power sales under the BPA-JOE CHWM Contract to begin at the start of the following Rate Period.

11.2.4 If Customer and JOE Have Different Purchase Obligations

After June 30, 2027, if the BPA-JOE CHWM Contract and «Customer Name» have different purchase obligations, including different Block purchase obligations, when «Customer Name» requests to join the JOE, then «Customer Name»'s written notice to BPA to request to assign its contract to the JOE must be received no later than three years prior to when power sales under the BPA-JOE CHWM Contract will begin at the start of the subsequent Rate Period.

End Option 1

Option 2: Include the following for customers that are JOEs.

11.2 Notice and Conditions to Change Purchase Obligation

Written notices sent under this section 11.2 must comply with section 1 of Exhibit I.

11.2.1 Notice to Change Purchase Obligation by October 1, 2028

By October 1, 2028, «Customer Name» may provide written notice to BPA to request a change to its purchase obligation, effective October 1, 2030, pursuant to section 11.1 above.

11.2.2 Notice to Change Purchase Obligation after October 1, 2028

After October 1, 2028, «Customer Name» may provide written notice to BPA to request a change to its purchase obligation, effective October 1, 2032 or beyond, pursuant to section 11.1 above. Such notice to BPA must be at least three years prior to the start of the Rate Period the purchase obligation change would be effective. «Customer Name»'s notice shall state: (1) the purchase obligation request, and (2) the Rate Period «Customer Name» requests the change to be effective. The latest date that «Customer Name» may provide notice to request a change to its purchase obligation is September 30, 2037 for a purchase obligation change effective on October 1, 2040.

End Option 2

Option 1: Include the following for customers that do not operate their own Balancing Authority Area.

11.3 Limitations Due to Total Monthly Peak Load Increase

After receiving «Customer Name»'s notice under section 11.2, BPA shall evaluate the impact of «Customer Name»'s request on BPA's forecast of its total monthly peak load obligation relative to BPA's most recent forecast of its total monthly Qualified Capacity Contribution (QCC) values, or successor capacity requirements as determined by BPA, for the first Fiscal Year the purchase obligation change would become effective. As part of such evaluation BPA will assess the change to monthly QCC made by (1) a change to «Customer Name»'s purchase obligation, and (2) the peak amounts of «Customer Name»'s Dedicated Resource(s) as stated in Exhibit A.

If after its evaluation BPA determines that «Customer Name»'s request to change its purchase obligation would increase BPA's total monthly peak load obligation relative to BPA's change in QCC forecast in any one month, then BPA may:

- (1) approve «Customer Name»'s request and directly assign any costs as stated in section 11.6 below; or
- (2) approve «Customer Name»'s request without directly assigning such costs; or
- (3) deny «Customer Name»'s request to change its purchase obligation.

If BPA receives multiple requests from customers to change their purchase obligations and such changes would be effective at the beginning of the same Rate Period, then BPA shall evaluate the impact of «Customer Name»'s purchase obligation request together with all requesting customers' to assess the aggregate impact of all such purchase obligation change requests. If BPA determines that such requests would increase BPA's total monthly peak load obligation, in relationship to the change in BPA's QCC forecast in any one month, then in addition to options (1), (2), or (3) above, BPA may:

- (4) approve «Customer Name»'s request but defer the date on which «Customer Name»'s new purchase obligation change would become effective to the start of a subsequent Rate Period.

If BPA determines after its evaluation that the purchase obligation change(s) would not increase BPA's total monthly peak load obligation, in relationship to the change in BPA's QCC forecast, then BPA may approve «Customer Name»'s request to change its purchase obligation.

BPA will not withhold its approval of «Customer Name»'s request except under reasonable circumstances, including but not limited to securing the transmission and metering sufficient to deliver the applicable product.

BPA shall provide customers with an opportunity to comment on any customer's request to change its purchase obligation.

End Option 1

Option 2: Include the following for customers that do operate their own Balancing Authority Area.

11.3 Limitations

11.3.1 Limitations on Changing Purchase Obligation to Load Following

If «Customer Name» requests the Load Following purchase obligation pursuant to section 11.1 above, then within one year following the request or unless otherwise agreed to by the Parties, BPA shall notify «Customer Name» whether it will agree to the request to change to the Load Following purchase obligation. Prior to such notification, BPA will work with «Customer Name» to identify issues, barriers in product design, and operational concerns associated with «Customer Name» taking the Load Following purchase obligation and simultaneously operating a Balancing Authority Area. The Parties shall negotiate in good faith to attempt to resolve all identified issues. BPA may reasonably withhold its consent to «Customer Name»'s request if the Parties are unable to resolve an identified issue. If BPA determines «Customer Name» may change to the Load Following purchase obligation, then BPA shall prepare and offer contract amendments to this Agreement that include, but are not limited to,

any conditions precedent that BPA may require prior to «Customer Name» taking the Load Following purchase obligation.

11.3.2 Limitations Due to Total Monthly Peak Load Increase

After receiving «Customer Name»'s notice under section 11.2, BPA shall evaluate the impact of «Customer Name»'s request on BPA's forecast of its total monthly peak load obligation relative to BPA's most recent forecast of its total monthly Qualified Capacity Contribution (QCC) values, or successor capacity requirements as determined by BPA, for the first Fiscal Year the purchase obligation change would become effective. As part of such evaluation BPA will assess the change to monthly QCC made by (1) a change to «Customer Name»'s purchase obligation, and (2) the peak amounts of «Customer Name»'s Dedicated Resource(s) as stated in Exhibit A.

If after its evaluation BPA determines that «Customer Name»'s request to change its purchase obligation would increase BPA's total monthly peak load obligation relative to BPA's change in QCC forecast in any one month, then BPA may:

- (1) approve «Customer Name»'s request and directly assign any costs as stated in section 11.6 below; or
- (2) approve «Customer Name»'s request without directly assigning such costs; or
- (3) deny «Customer Name»'s request to change its purchase obligation.

If BPA receives multiple requests from customers to change their purchase obligations and such changes would be effective at the beginning of the same Rate Period, then BPA shall evaluate the impact of «Customer Name»'s purchase obligation request together with all requesting customers' to assess the aggregate impact of all such purchase obligation change requests. If BPA determines that such requests would increase BPA's total monthly peak load obligation, in relationship to the change in BPA's QCC forecast in any one month, then in addition to options (1), (2), or (3) above, BPA may:

- (4) approve «Customer Name»'s request but defer the date on which «Customer Name»'s new purchase obligation change would become effective to the start of a subsequent Rate Period.

If BPA determines after its evaluation that the purchase obligation change(s) would not increase BPA's total monthly peak load obligation, in relationship to the change in BPA's QCC forecast, then BPA may approve «Customer Name»'s request to change its purchase obligation.

BPA will not withhold its approval of «Customer Name»'s request except under reasonable circumstances, including but not limited to securing the transmission and metering sufficient to deliver the applicable product.

BPA shall provide customers with an opportunity to comment on any customer's request to change its purchase obligation.

End Option 2

11.4 This section intentionally left blank.

11.5 Changes to Block Purchase Obligation

If «Customer Name» requests and BPA completes a change from one Block purchase obligation to a different Block purchase obligation as outlined in section 1 of Exhibit C, then «Customer Name» will have exercised their one-time right to change its purchase obligation as stated above in section 11.1.

11.6 Charges to Change Purchase Obligation

In addition to the limitations established in sections 11.1, 11.2 and 11.3 above, (1) «Customer Name» shall be responsible for fulfilling all rights, obligations, and liabilities associated with its prior purchase obligation, and (2) «Customer Name» may be subject to charges, in addition to the rates for the new service, as a result of changing its purchase obligation. Such additional charges shall recover all additional costs that: (1) will be incurred by BPA to serve «Customer Name» under its new purchase obligation compared to its existing purchase obligation, and (2) would otherwise result in a rate impact on all other customers receiving service under a CHWM Contract. If «Customer Name» makes a request to change its purchase obligation, then BPA shall notify «Customer Name» of any such additional charges. BPA shall not be required to make a payment to «Customer Name» as a result of «Customer Name» changing its purchase obligation.

11.7 Change Confirmation

Within 30 calendar days of BPA's presentation to «Customer Name» of the additional charges determined in section 11.6, «Customer Name» shall provide BPA with written notice whether it will proceed with its request to change its purchase obligation.

11.8 Amendment to Reflect New Purchase Obligation

Following «Customer Name»'s confirmation of its decision to change its purchase obligation, the Parties shall amend this Agreement to replace the terms of «Customer Name»'s current purchase obligation with the terms of the new purchase obligation.

11.9 Additional Rights to Change Purchase Obligation

In addition to the opportunity to change its purchase obligation provided in section 11.1, «Customer Name» may elect to change its purchase obligation to

one of those stated in section 11.9.2 after the occurrence of any of the events listed in sections 11.9.1 through 11.9.3.

11.9.1 Changes to Transmission Scheduling Practices

During the term of this Agreement, if «Customer Name» changes its purchase obligation to the Slice/Block Product, then «Customer Name» may change its purchase obligation to one of those stated in section 11.9.2 by providing written notice to BPA in accordance with section 20 no later than 60 calendar days after BPA, or its successor, adopts standards, rules, practices or procedures, that require «Customer Name» to schedule hourly energy based on Scheduling Points of Receipt for each of the Tier 1 System Resources from which «Customer Name» may receive Slice Output Energy under this Agreement. Unless the Parties agree otherwise, the effective date of the contingent contract amendment shall be October 1 of the Fiscal Year following the date BPA adopts such policy.

11.9.2 Alternative Requirements Power Purchase Obligation

«Customer Name» may select one of the following purchase obligations in the event «Customer Name» changes its purchase obligation pursuant to section 11.9.1: Load Following, Annual Flat Block, Diurnally Shaped Monthly Block, Flat Monthly Block, Flat Monthly Block with 10 Percent Shaping Capacity, Flat Monthly Block with PNR Shaping Capacity, or Flat Monthly Block with PNR Shaping Capacity with PLVS.

The Parties shall amend this Agreement for the selected purchase obligation. Such amendment shall contain the same terms and conditions as this Agreement, including any elections or choices made under this Agreement that are applicable to the new purchase obligation selected by «Customer Name».

11.9.3 Waiver of Certain Claims for Damages

In the event that «Customer Name» changes its purchase obligation in accordance with this section 11, «Customer Name» agrees not to seek and hereby waives the right, if any such right exists, to pursue any claim for damages from BPA due to any such change. This waiver is limited to any claims «Customer Name» may have arising from changes to «Customer Name»'s purchase obligation under this section 11. This waiver has no application to, and «Customer Name» hereby expressly preserves, any claims for damages arising under any other section of this Agreement.

12. BILLING CREDITS AND RESIDENTIAL EXCHANGE

12.1 Billing Credits

If «Customer Name» develops a Generating Resource or engages in conservation activities independently undertaken to serve its loads, then «Customer Name» agrees that it shall forego any request for, and BPA is not

obligated to include, billing credits, as defined in Section 6(h) of the Northwest Power Act, on «Customer Name»'s bills under this Agreement. This section does not apply to any billing credit contracts in effect as of the Effective Date.

12.2 Residential Exchange

During the term of this Agreement, «Customer Name» agrees it will not seek and shall not receive residential exchange benefits pursuant to Section 5(c) of the Northwest Power Act. «Customer Name»'s agreement in this section 12.2 is a material precondition to BPA offering and executing this Agreement.

13. SCHEDULING

«Customer Name» shall schedule power in accordance with Exhibit F.

14. DELIVERY

14.1 Definitions

14.1.1 "Primary Points of Receipt" means the points on the Region's transmission system where Firm Requirements Power is forecasted to be made available by Power Services to «Customer Name» for purposes of obtaining a long-term firm transmission contract.

14.1.2 "Scheduling Points of Receipt" means the points on the Region's transmission system where Slice Output Energy and the Block Product are made available by Power Services to «Customer Name» for purposes of acquiring transmission service and transmission scheduling.

14.2 Transmission Service

Option 1: Include the following for exclusively directly connected customers.

14.2.1 «Customer Name» is responsible for acquiring transmission service to deliver power from the Scheduling Points of Receipt.

End Option 1

Option 2: Include the following for customers served by Transfer Service.

14.2.1 «Customer Name» is responsible for acquiring transmission service to deliver power from the Scheduling Points of Receipt, subject to the provisions included in section 14.6.

End Option 2

14.2.2 «Customer Name» shall provide at least 180 days' notice to Power Services prior to changing Balancing Authority Areas.

14.2.3 At «Customer Name»'s request, Power Services shall provide «Customer Name» with Primary Points of Receipt and other information needed to enable «Customer Name» to acquire long-term firm transmission for delivery of power sold under this Agreement. If

required by a transmission provider for purposes of transmission scheduling, then Power Services shall provide «Customer Name» with Scheduling Points of Receipt. Power Services has the right to provide power to «Customer Name» at Scheduling Points of Receipt that are different than the Primary Points of Receipt. If BPA does provide power to «Customer Name» at Scheduling Points of Receipt that are different than the Primary Points of Receipt, then BPA shall reimburse «Customer Name» for any incremental, direct, non-administrative costs incurred by «Customer Name» to comply with delivering Firm Requirements Power from such Scheduling Points of Receipt to «Customer Name»'s load if the following conditions, as outlined in (1) or (2) below, have been met:

- (1) If «Customer Name» has long-term Point to Point (PTP) Transmission Service (as defined in BPA's Open Access Transmission Tariff or its successor) for delivery of Firm Requirements Power to its load:
 - (A) «Customer Name» has requested long-term firm transmission service to deliver its Firm Requirements Power using the Primary Points of Receipt and other information provided by Power Services; and
 - (B) «Customer Name» has submitted a request to redirect its long-term firm PTP Transmission Service to deliver Firm Requirements Power and Surplus Firm Power from the Scheduling Point of Receipt on a firm basis, but that request was not granted; and
 - (C) «Customer Name»'s transmission schedule was curtailed due to non-firm status under PTP Transmission Service or «Customer Name» can provide proof of the reimbursable costs incurred to replace the curtailed schedule.
- (2) If «Customer Name» has long-term Network Integration Transmission Service (as defined in BPA's Open Access Transmission Tariff or its successor) for delivery of Firm Requirements Power to its load:
 - (A) «Customer Name» has requested long-term firm transmission service to deliver its Firm Requirements Power using the Primary Points of Receipt and other information provided by Power Services; and
 - (B) «Customer Name»'s transmission schedule was curtailed due to non-firm status under its secondary service status and «Customer Name» can provide proof of the

reimbursable costs incurred to replace the curtailed schedule.

14.3 **Liability for Delivery**

«Customer Name» waives any claims against BPA arising under this Agreement for non-delivery of power to any points beyond the applicable Scheduling Points of Receipt, except for reimbursement of costs as described in section 14.2.3. BPA shall not be liable under this Agreement for any third-party claims related to the delivery of power after it leaves the Scheduling Points of Receipt. Neither Party shall be liable under this Agreement to the other Party for damage that results from any sudden, unexpected, changed, or abnormal electrical condition occurring in or on any electric system, regardless of ownership. These limitations on liability apply regardless of whether or not this Agreement provides for Transfer Service.

Option 1: Include the following if customer is exclusively directly connected.

14.4 **Real Power Losses**

BPA is responsible for the real power losses necessary to deliver Tier 1 Block Amounts and Tier 2 Block Amounts to «Customer Name»'s PODs listed in Exhibit E.

«Customer Name» shall be responsible for all real power losses associated with the delivery of its Slice Output Energy.

End Option 1

Option 2: Include the following if customer is served by Transfer Service.

14.4 **Real Power Losses**

BPA is responsible for the real power losses necessary to deliver Tier 1 Block Amounts and Tier 2 Block Amounts to «Customer Name»'s PODs listed in Exhibit E.

«Customer Name» shall be responsible for all real power losses associated with the delivery of its Slice Output Energy except BPA shall be responsible for real power losses associated with the delivery of Slice Output Energy across the Third-Party Transmission Provider's system to «Customer Name»'s PODs listed in Exhibit E.

End Option 2

14.5 **Metering Losses**

BPA shall adjust measured amounts of power to account for metering losses, if any, that occur between «Customer Name»'s PODs and the respective POMs, as specified in Exhibit E.

Option: Include the following section 14.6 for customers served by Transfer Service.

14.6 **Delivery by Transfer**

Subject to the limitations in this section, BPA agrees to acquire and pay for Transfer Service assessed by the Third-Party Transmission Provider to deliver Firm Requirements Power and Surplus Firm Power to «Customer

Name’s Transfer Service PODs, as listed in Exhibit E, in an amount not to exceed **«Customer Name»**’s Total Retail Load on an hourly basis.

BPA and **«Customer Name»** will coordinate: (1) to ensure that **«Customer Name»**’s relevant characteristics and plans are communicated to the Third-Party Transmission Provider, (2) to confirm that **«Customer Name»** is aware of relevant details of the Transfer Service it acquires to serve **«Customer Name»**’s load, and (3) to resolve any issues **«Customer Name»** may have related to the Transfer Service BPA acquires to serve the load.

BPA shall pass through to **«Customer Name»** the cost of Transfer Service assessed by the Third-Party Transmission Provider for power sold at the NR Rate, including ancillary services and real power losses, in accordance with any applicable BPA Power Rate Schedules and GRSPs.

14.6.1 Ancillary Services

BPA shall acquire and pay for ancillary services charged by a Third-Party Transmission Provider needed to deliver Firm Requirements Power and Surplus Firm Power to **«Customer Name»**’s Transfer Service PODs listed in Exhibit E.

If at any time **«Customer Name»** is not purchasing a specific ancillary service from Transmission Services to deliver Firm Requirements Power and Surplus Firm Power to one or more of the PODs listed in Exhibit E, then **«Customer Name»** shall pay Power Services any applicable charge(s) for such ancillary service to deliver power to the POD(s) in accordance with the applicable BPA Power Rate Schedules and GRSPs.

«Customer Name» agrees to pay certain charges and BPA shall apply certain credits related to an energy imbalance market or a day-ahead market associated with **«Customer Name»**’s load served by Transfer Service, consistent with the terms of the applicable BPA Power Rate Schedules and GRSPs. Such charges and credits shall include, but are not limited to, those associated with **«Customer Name»**’s load served by Transfer Service Eligible Resources that **«Customer Name»** is responsible for scheduling or operating.

The Parties shall negotiate the terms and conditions necessary to implement this section 14.6.1 and pass through any energy imbalance market or day-ahead market charges or credits. The Parties will include such terms and conditions in Exhibit D.

14.6.2 Low Voltage Delivery

Low voltage delivery is transmission service over the Low Voltage Segment by any Third-Party Transmission Provider’s system. For low voltage delivery to identified PODs in Exhibit E, **«Customer Name»** shall pay Power Services the applicable Transfer Service Delivery Charge rate, or its successor, consistent with the applicable BPA

Power Rate Schedules and GRSPs. BPA shall pass through to «Customer Name» any costs associated with delivery to identified PODs in Exhibit E over a Low Voltage Segment that is not subject to the Transfer Service Delivery Charge.

14.6.3 Direct Assignment Costs

«Customer Name» shall pay BPA for all directly assigned costs consistent with: (1) Transmission Services’ “BPA Facility Ownership and Cost Assignment Guidelines” or its successor, and (2) the “Supplemental Guidelines for Direct Assignment of Facilities Costs Incurred Under Transfer Agreements” under the applicable BPA Power Rate Schedules and GRSPs. Such costs include but are not limited to: facility, system and generation interconnection study costs, construction costs, upgrade costs, and expansion costs, or other capital costs for facilities directly associated with service to any «Customer Name» PODs assessed by the Third-Party Transmission Provider to BPA. BPA shall pass through to «Customer Name» any credits received by BPA from the Third-Party Transmission Provider from the payment of such directly assigned costs.

14.6.4 Penalties Assessed By the Third-Party Transmission Provider

BPA has the right to pass through to «Customer Name» any penalty charges assessed by the Third-Party Transmission Provider that are associated with BPA’s acquisition of Transfer Service to the PODs identified in Exhibit E, except to the extent the penalty is a result of a BPA error. Such charges may include but are not limited to power factor penalties or excessive energy imbalance penalties.

14.6.5 Removal of PODs

BPA may terminate deliveries at a POD if «Customer Name» consents to the termination or if the Parties determine that «Customer Name»’s requirements for power at such point may be adequately supplied under reasonable conditions and circumstances at different POD(s):
(1) directly from the Federal Columbia River Transmission System,
(2) indirectly from the facilities of another transmission owner/operator, or (3) both.

14.6.6 Annexed Loads

BPA shall arrange and pay for Transfer Service to serve «Customer Name»’s Annexed Load subject to the limitations in this section 14.6 and Exhibit G. «Customer Name» shall provide BPA written notice of any Annexed Load acquired greater than one Average Megawatt as soon as possible, but no later than 180 days prior to the commencement of service to the Annexed Load. However, BPA’s obligation to provide Transfer Service to «Customer Name»’s Annexed Load shall be limited as set forth in section 6.2.7 of BPA’s Provider of Choice Policy, March 2024, as amended or revised.

14.6.7 Non-Federal Deliveries

Subject to the limitations in this section 14.6 and Exhibit G, BPA agrees to acquire and pay the Third-Party Transmission Provider for Transfer Service to deliver Transfer Service Eligible Resources to «Customer Name»'s Transfer Service PODs, as listed in Exhibit E, in an amount not to exceed «Customer Name»'s Total Retail Load on an hourly basis.

If «Customer Name» has or is acquiring a Transfer Service Eligible Resource and «Customer Name» has requested that BPA assist in the acquisition of transmission services for such resource, then the Parties shall revise section 7 of Exhibit J to include specific terms and conditions under which BPA will obtain Transfer Service on a Third-Party Transmission Provider's system for delivery of that resource to «Customer Name»'s system.

14.6.7.1 BPA shall pass through to «Customer Name» the cost of Transfer Service assessed by the Third-Party Transmission Provider for: (1) any service to a Planned NLSL or an NLSL pursuant to section 1 of Exhibit D where «Customer Name» has elected to serve the NLSL with a Transfer Service Eligible Resource, regardless of the Delivery Plan for such resource, (2) any Transfer Service Eligible Resource serving a portion of «Customer Name»'s Total Retail Load that «Customer Name» is obligated to serve with BPA-provided electric power pursuant to this Agreement, or (3) any Transfer Service Eligible Resource that «Customer Name» is not acquiring and paying for transmission service from Transmission Services for such Transfer Service Eligible Resource.

14.6.7.2 «Customer Name» shall notify BPA if it intends to acquire any new non-federal resources serving «Customer Name»'s Transfer Service PODs with a nameplate capability under 1 MW. If BPA notifies «Customer Name» that the new non-federal resource is subject to requirements from the Third-Party Transmission Provider, then such resource shall be treated as a Transfer Service Eligible Resource and subject to the requirements in this section 14.6.7 and Exhibit G. BPA may require metering and scheduling for any such non-federal resources consistent with the metering and scheduling requirements for Dedicated Resources.

14.6.8 Unavailability of Transmission Service

14.6.8.1 BPA shall acquire and pay for «Customer Name»'s firm Transfer Service when firm transmission is available. If a Third-Party Transmission Provider: (1) has indicated that long-term firm transmission service necessary to deliver

power to any portion of «Customer Name»'s load served by Transfer Service is unavailable and (2) identifies upgrades that are necessary to deliver power to «Customer Name» on firm transmission to such load on a long-term basis, then BPA shall attempt to acquire non-firm transmission, or other mutually agreed to interim solution, from the Third-Party Transmission Provider to serve «Customer Name»'s load on an interim basis until the identified upgrades are completed and firm transmission is available.

- (1) If a Third-Party Transmission Provider has indicated that neither firm nor non-firm transmission service necessary to deliver power to any portion of «Customer Name»'s load served by Transfer Service is available, then (A) BPA shall have no obligation to deliver power under this Agreement to serve such load until that Third-Party Transmission Provider is able to provide transmission service and (B) «Customer Name» shall not continue forward to serve the load in excess of available transmission service from that Third-Party Transmission Provider.
- (2) If a Third-Party Transmission Provider identifies upgrades necessary to deliver power on firm transmission to any portion of «Customer Name»'s load served by Transfer Service on a long-term basis and «Customer Name» declines to pay any costs or deposits that the Third-Party Transmission Provider requires to proceed with the upgrades consistent with section 14.6.3, then (A) BPA shall have no obligation to deliver power under this Agreement to serve such load, and (B) «Customer Name» shall not continue forward to serve the load in excess of available transmission service from that Third-Party Transmission Provider.
- (3) Notwithstanding the above, if a Third-Party Transmission Provider has determined transmission service is unavailable and «Customer Name» continues forward to serve the load in excess of the available transmission service, then BPA shall pass through to «Customer Name» any charges related to transmission service to «Customer Name»'s load that the Third-Party Transmission Provider has indicated is unavailable.

14.6.8.2 Prior to any deliveries to any portion of «Customer Name»'s load served by Transfer Service using non-firm transmission or other mutually agreed to interim solution, pursuant to this section 14.6.8, BPA will inform «Customer Name» of the terms of service associated with such non-firm transmission

arrangements, or other mutually agreed to interim solution, and the Parties shall include such terms in Exhibit D.

14.6.8.3 BPA shall not be liable for any damages incurred by «Customer Name» associated with the Third-Party Transmission Provider's inability to provide firm or non-firm transmission, BPA's inability to acquire transmission service, curtailment of non-firm transmission service, or unserved load.

14.6.9 Changes to «Customer Name»'s Third-Party Transmission Provider Transmission Needs

As soon as possible, «Customer Name» shall notify and coordinate with BPA for any significant anticipated changes that would require «Customer Name» to need additional transmission from a Third-Party Transmission Provider. In the event that multiple customers require and request capacity on any portion of the Third-Party Transmission Provider system, BPA shall address requests, including those in section 14.6.8, on a first come first served basis.

If «Customer Name» fails to notify and coordinate with BPA for any transmission needs greater than one megawatt, then for up to five years, BPA, in its sole discretion, may pass through any Third-Party Transmission Provider costs, including the cost of Transfer Service, related to the transmission needs that «Customer Name» failed to communicate.

14.6.10 If, during the term of this Agreement, «Customer Name» becomes entirely directly-connected to BPA's transmission system and is served entirely without Transfer Service, then upon notification from BPA, this Agreement shall be amended to remove Transfer Service-related provisions, including the provisions of this section 14.6 and Exhibit G.

End Option

Drafter's Note: Include the following section 14.7 for customers served by Transfer Service with load interconnected to multiple transmission systems.

14.7 Delivery of Non-Federal Resources Over Multiple Transmission Systems

14.7.1 Notice of Transmission System Delivery Plan

If «Customer Name» is applying a Transfer Service Eligible Resource and the load is located on multiple transmission systems, then by September 1, 2027, «Customer Name» shall provide written notice to BPA of its Transmission System Delivery Plan(s) for service beginning October 1, 2028.

Beginning September 1, 2028, and by September 1 every year thereafter, «Customer Name» shall provide written notice to BPA of:

(1) its Transmission System Delivery Plan for any new Transfer Service Eligible Resource(s) or (2) any changes to its Transmission System Delivery Plan for its current Transfer Service Eligible Resource(s). Such updated Transmission System Delivery Plans shall be for service to load beginning October 1 of the following calendar year.

«Customer Name»'s Transmission System Delivery Plan(s) under this section 14.7 shall adhere to the following requirements:

- (1) the maximum potential output of all «Customer Name»'s Transfer Service Eligible Resources on a transmission system shall not exceed BPA's forecast of «Customer Name»'s minimum load on that transmission system in any given hour.
- (2) «Customer Name»'s Dedicated Resources for a specific load, such as an NLSL or On-Site Consumer Load, shall be delivered over the transmission system where the load is located.

If «Customer Name»'s updated Transmission System Delivery Plan(s) is not acceptable to BPA, then BPA shall provide notice to «Customer Name» and the Parties shall attempt to negotiate a revised Transmission System Delivery Plan(s). If the Parties cannot agree upon an acceptable Transmission System Delivery Plan(s), then the resource cannot be used to serve «Customer Name»'s load.

14.7.2 Delivery of Non-Federal Resources According to Delivery Plan

By March 31, 2028 BPA shall update Exhibit A with «Customer Name»'s accepted Transmission System Delivery Plan for each Transfer Service Eligible Resource. By March 31 every year thereafter, if «Customer Name» notifies BPA of any changes to «Customer Name»'s Transmission System Delivery Plan(s) according to section 14.7.1 above, then BPA shall update Exhibit A with «Customer Name»'s accepted new Transmission System Delivery Plan(s).

«Customer Name» shall apply its Transfer Service Eligible Resource to serve its load consistent with the Transmission System Delivery Plans. «Customer Name» shall be subject to charges associated with Delivery Plan, if any, in accordance with the applicable BPA Power Rate Schedules and GRSPs established during the 7(i) Process.

End Option

15. METERING

15.1 Requirements for Meters

For purposes of forecasting, planning, or billing and pursuant to the requirements of section 17.5, BPA may require «Customer Name» to provide BPA some or all of «Customer Name»'s load data. Additionally, for purposes

of forecasting, planning or billing, BPA may require «Customer Name» to provide BPA access to load meter data.

If, during the term of this Agreement, BPA determines that the load data BPA has requested and «Customer Name» has provided to BPA is not adequate or verifiable, or if BPA determines that either load or resource meter data is needed to administer this Agreement, then «Customer Name» shall allow BPA to install BPA owned meters, at BPA's expense, to collect such data.

For all new meters and for all existing meters listed in Exhibit E, used by BPA for forecasting, planning, or billing, the following requirements shall apply.

15.1.1 BPA Owned Meters

At BPA's expense, BPA shall operate, maintain, and replace, as necessary, all metering equipment owned by BPA that is needed to forecast, plan, or bill for «Customer Name»'s power needs under this Agreement consistent with «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA. «Customer Name» authorizes BPA to maintain and replace any BPA owned metering equipment on «Customer Name» facilities that is reasonably necessary to forecast, plan, or bill for power. With reasonable notice from BPA, and for the purpose of implementing this provision, «Customer Name» shall grant BPA reasonable physical access to BPA owned meters at BPA's request, consistent with «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA.

If, at any time, either Party determines that a BPA owned meter is defective or inaccurate, then BPA shall adjust, repair, or replace the meter to provide accurate metering as soon as practical consistent with «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA. «Customer Name» shall have the right to witness any meter tests conducted by BPA on BPA owned meters listed in Exhibit E. The exercise of such right shall be conducted consistent with the applicable requirements, if any, of «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA.

15.1.2 Non-BPA Owned Meters

15.1.2.1 Non-BPA Owned Meters Owned by «Customer Name»

At «Customer Name»'s expense, «Customer Name» shall operate, maintain, and replace, as necessary, all non-BPA

metering equipment that is owned by «Customer Name» that is needed by BPA to forecast, plan, or bill for «Customer Name»'s power needs under this Agreement. For the purpose of inspection, «Customer Name» shall grant BPA reasonable physical access to «Customer Name»'s meters at BPA's request, consistent with «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA.

If, at any time, BPA or «Customer Name» determines that a «Customer Name» owned meter listed in Exhibit E is defective or inaccurate, then «Customer Name» shall adjust, repair, or replace the meter, or shall make commercially reasonable efforts to arrange for the completion of such actions, to provide accurate metering as soon as practical. BPA shall have the right to witness any meter tests conducted by «Customer Name» on «Customer Name» owned meters listed in Exhibit E. The exercise of such right shall be conducted consistent with the applicable requirements, if any, of «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA.

15.1.2.2 Non-BPA Owned Meters Not Owned by «Customer Name»

For non-BPA owned meters not owned by «Customer Name», and excluding such in section 15.1.2.3 below, needed by BPA to forecast, plan, or bill for power under this Agreement, «Customer Name» shall make commercially reasonable efforts to arrange with the owner(s) of for the meters to be operated, maintained and replaced, as necessary.

If, at any time, it is determined that a non-BPA owned meter not owned by «Customer Name» listed in Exhibit E is defective or inaccurate, then «Customer Name» shall make commercially reasonable efforts to arrange with the owner of the meter to adjust, repair, or replace the meter, to provide accurate metering as soon as practical. To the extent possible, BPA may witness any meter tests on non-BPA owned meters not owned by «Customer Name» listed in Exhibit E, consistent with «Customer Name»'s Network Operating Agreement, BPA's Metering Application Requirements, or their successors, or other agreements «Customer Name» has with BPA as well as any applicable agreements «Customer Name» may have with the owner of the meter.

15.1.2.3 Non-BPA Owned Meters Owned by a Third-Party Transmission Provider

For non-BPA owned meters owned by a Third-Party Transmission Provider for which BPA holds a transmission contract for service to «Customer Name» load, the metering arrangements shall be between BPA and the Third-Party Transmission Provider.

15.1.3 New Meters

A separate agreement addressing the location, cost responsibility, access, maintenance, testing, and liability of the Parties with respect to new meters shall be between «Customer Name» and Transmission Services.

All new and replaced meters installed by either Party shall meet the American National Standard Institute standards and the Requirements for Instrument Transformers, or their replacement as specified in BPA's applicable metering procedures and requirements posted to BPA's publicly accessible metering services website as of the date of installation.

15.2 Metering an NLSL

In addition to the provisions contained in this section 15, any loads that are monitored by BPA for an NLSL determination and any NLSLs shall be metered pursuant to section 20.3.3.

15.3 Metering Exhibit

The Parties shall provide meter data to one another as specified in section 17.3. BPA shall list «Customer Name»'s PODs, POMs, Interchange Points as applicable, and related information in Exhibit E.

16. BILLING AND PAYMENT

16.1 Billing

BPA shall electronically bill «Customer Name» monthly for all products and services, including any charges and credits incurred, provided during the preceding month(s). However, if electronic transmittal of the bill is not possible, then BPA shall mail a physical copy of the bill to «Customer Name». BPA may send «Customer Name» an estimated bill prior to a final bill and may send subsequent revisions if needed. The Issue Date is the date BPA sends the bill to «Customer Name».

Option 1: Include the following for all customers except federal customers.

16.2 Payment

«Customer Name» shall pay all bills electronically in accordance with instructions on the bill. Payment of all bills, whether estimated or final, must be received by the 20th day after the Issue Date of the bill (Due Date). If the 20th day is a Saturday, Sunday, or federal holiday, then the Due Date is the next Business Day.

If «Customer Name» has made payment on an estimated bill then:

- (1) if the amount of the final bill exceeds the amount of the estimated bill, then «Customer Name» shall pay BPA the difference between the estimated bill and final bill by the final bill's Due Date; or
- (2) if the amount of the final bill is less than the amount of the estimated bill, then BPA shall pay «Customer Name» the difference between the estimated bill and final bill by the 20th day after the final bill's Issue Date. If the 20th day is a Saturday, Sunday, or federal holiday, BPA shall pay the difference by the next Business Day.

16.3 Late Payments

If «Customer Name» has not paid its bill in full by the Due Date, BPA shall apply a daily interest charge to any unpaid balance equal to the higher of:

- (1) the Prime Rate (as reported in the Wall Street Journal or successor publication in the first issue published during the month in which payment was due) plus four percent, divided by 365; or
- (2) the Prime Rate times 1.5, divided by 365.

End Option 1

Option 2: Include the following for federal customers.

16.2 Payment

Payment of all bills, whether estimated or final, must be received by the 20th day after the Issue Date of the bill (Due Date). If the 20th day is a Saturday, Sunday, or federal holiday, then the Due Date is the next Business Day. Subject to the availability of funds, BPA shall collect the amount due by the Due Date from «Customer Name» through the U.S. Treasury G-Invoicing system, or its successor.

16.3 This section intentionally left blank.

End Option 2

16.4 Failure to Pay

If «Customer Name» has not paid its bill in full by the Due Date, then BPA shall notify «Customer Name» of nonpayment. «Customer Name» shall have 45 calendar days after receipt of the written notice to cure its nonpayment by making payment in full. If «Customer Name» does not provide full payment within the 45-day cure period, then BPA shall send an additional written notice of nonpayment to «Customer Name». «Customer Name» shall then have three Business Days after receipt of the additional written notice to provide payment. If «Customer Name» has not provided payment within three Business Days after receipt of the additional written notice and BPA determines in its sole discretion that «Customer Name» is unable to make the payments owed, then BPA may terminate this Agreement pursuant to

section 23. Written notices sent under this section 16.4 must comply with section 1 of Exhibit I.

16.5 Disputed Bills

16.5.1 If «Customer Name» disputes any portion of a charge or credit on «Customer Name»'s estimated or final bills, «Customer Name» shall provide written notice to BPA with a copy of the bill noting the disputed amounts. Notwithstanding whether any portion of the bill is in dispute, «Customer Name» shall pay the entire bill by the Due Date. This section 16.5.1 does not allow «Customer Name» to challenge the validity of any BPA rate.

16.5.2 Unpaid amounts on a bill (including both disputed and undisputed amounts) are subject to the late payment charges provided above. Notice of a disputed charge on a bill does not constitute BPA's agreement that a valid claim under contract law has been stated.

Option 1: Include the following for all customers except federal customers.

16.5.3 If the Parties agree, or if after a final determination of a dispute pursuant to section 19, «Customer Name» is entitled to a refund of any portion of the disputed amount, then BPA shall make such refund with simple interest computed from the date of receipt of the disputed payment to the date the refund is made. The daily interest rate shall equal the Prime Rate (as reported in the Wall Street Journal or successor publication in the first issue published during the month in which payment was due) divided by 365.

End Option 1

Option 2: Include the following for federal customers.

16.5.3 If the Parties agree, or if after a final determination of a dispute pursuant to section 19 it is determined, «Customer Name» is entitled to a refund of any portion of the disputed amount, then BPA shall make such refund available to «Customer Name» through the U.S. Treasury G-Invoicing system, or its successor.

End Option 2

17. INFORMATION EXCHANGE AND CONFIDENTIALITY

17.1 General Requirements

Upon request, each Party shall provide the other Party any information that is necessary to administer this Agreement and to forecast «Customer Name»'s Total Retail Load, forecast BPA system load, comply with North American Electric Reliability Corporation (NERC) reliability standards, prepare bills, resolve billing disputes, administer Transfer Service, forecast and monitor large loads and NLSLs, and otherwise implement this Agreement. For example, this obligation includes, but is not limited to: (1) load and resource data relating to large loads and NLSLs; (2) transmission and power scheduling information; (3) load and resource metering information (such as

customer system one-line and metering diagrams, loss factors, historical hourly load and resource data, etc.); and, (4) Energy Storage Device data.

In addition, «Customer Name» shall provide information BPA requests about Dedicated Resources and Consumer-Owned Resources serving On-Site Consumer Load for purposes of meeting: (1) BPA's statutory obligations under Section 7(b) of the Northwest Power Act and (2) regional resource adequacy programs and market participation.

The Parties shall make best efforts to provide information requested under this section 17.1 within the reasonable time frames specified in the requests. If «Customer Name» fails to provide BPA with information «Customer Name» is required to provide pursuant to this Agreement and the absence of such information makes it impossible for BPA to perform a calculation, make a determination, or take an action required under this Agreement, then BPA may suspend its obligation to perform such calculation, make such determination, or take such action until «Customer Name» has provided such information to BPA.

17.2 Reports

17.2.1 Within 30 calendar days after final approval of «Customer Name»'s annual financial report and statements by «Customer Name»'s authorized officer, «Customer Name» shall either e-mail them to BPA at kslf@bpa.gov or, if any of the information is publicly available, then «Customer Name» shall notify BPA of its availability.

17.2.2 Within 30 calendar days after its submittal to the Energy Information Administration (EIA), or its successor, «Customer Name» shall e-mail a copy of its Annual Form EIA-861 Reports to BPA at kslf@bpa.gov. If «Customer Name» is not required to submit such reports to the EIA, then this requirement does not apply.

17.2.3 By November 30, 2028, and by November 30 each year thereafter, «Customer Name» shall provide to the Pacific Northwest Utilities Conference Committee (PNUCC), or its successor, forecasted loads, Energy Storage Devices, and resources data to facilitate a region-wide assessment of loads and resources in a format, length of time, and level of detail specified in PNUCC's Northwest Regional Forecast Data Request.

After consultation with the Northwest Power and Conservation Council's (Council) Resource Adequacy Advisory Committee, or a successor, BPA may require «Customer Name» to submit additional data to Council that BPA determines is necessary for the Council to perform a regional resource adequacy assessment.

The requirements of this section 17.2.3 are waived if «Customer Name»: (1) purchases all the power to serve its Total Retail Load from

BPA and (2) uses no Energy Storage Device(s) to serve its Total Retail Load.

Notwithstanding the above, in no event shall «Customer Name» be obligated under this section 17.2.3 to provide PNUCC or the Council an unaggregated load forecast or other unaggregated data that is specific to an individual end-use consumer or potential end-use consumer of «Customer Name», including no obligation to provide the identities of such end-use consumers.

«Customer Name» may require PNUCC or Council to execute a commercially reasonable non-disclosure agreement consistent with the terms of section 17.8 before providing such entities the data and information required pursuant to this section 17.2.3, as applicable.

- 17.2.4 If «Customer Name» is required by applicable law, their transmission provider, or directive (i.e. utility board resolution) to prepare and publish long-term integrated resource plans or resource forecasts, then Power Services may request and «Customer Name» shall provide Power Services with updated copies of such.

17.3 Meter Data

- 17.3.1 In accordance with section 15 and Exhibit E, the Parties shall notify each other of any changes to PODs, POMs, Interchange Points and related information for which each Party is responsible. «Customer Name» shall ensure BPA has access to all data from load, Energy Storage Device, and resource meters that BPA determines are necessary to administer this Agreement including to forecast, plan, schedule, and bill under this Agreement. Access to these data shall be on a schedule agreed to by the Parties. Meter data include, but are not limited to: «Customer Name»'s actual amounts of energy used, expended, or stored for loads, resources, and Energy Storage Devices, and the physical attributes of «Customer Name»'s meters.

BPA shall provide «Customer Name» access to and «Customer Name» may view meter data from the meters listed in Exhibit E with an active Customer Portal agreement, or its successor.

- 17.3.2 «Customer Name» consents to allow Power Services to receive the following information from Transmission Services and BPA's metering function: (1) «Customer Name»'s meter data, as specified in section 17.3.1, section 15, and Exhibit E, and (2) notification of outages or load shifts.

- 17.3.3 When the following events are planned to occur on «Customer Name»'s system that will affect the load measured by the meters listed in Exhibit E:

- (1) installation of a new meter,
- (2) changes or updates to an existing meter not owned by BPA,
- (3) any planned line or planned meter outages, and
- (4) any planned load shifts from one POD to another,

then «Customer Name» shall provide BPA with advance notice by e-mailing BPA at mdm@bpa.gov and the contacts shown in section 1 of Exhibit I.

«Customer Name» shall follow all applicable metering procedures and requirements posted to BPA's publicly accessible metering services website. Such requirements include, but are not limited to, specifying the number of required advanced days' notice for the events listed above.

This section 17.3.3 is not intended to apply to retail meters not listed in Exhibit E.

17.3.4 If an unplanned load shift or outage occurs, materially affecting the load measured by the meters listed in Exhibit E, then «Customer Name» shall e-mail BPA at: (1) mdm@bpa.gov, and (2) the contacts shown in section 1 of Exhibit I within 72 hours after the event.

17.4 Data for Determining CHWM

Upon request, «Customer Name» shall provide to BPA any load and resource information that BPA determines is reasonably necessary to calculate «Customer Name»'s CHWM. This may include historical load data not otherwise available to BPA and other data necessary to allow BPA to adjust for weather normalization.

17.5 Hourly Total Retail Load Data

BPA shall notify «Customer Name» by January 15, 2026, if BPA determines that it does not have adequate hourly meter data to calculate «Customer Name»'s Total Retail Load. If BPA sends such notification, «Customer Name» shall e-mail the following hourly data to BPA at kslf@bpa.gov according to the schedule below. «Customer Name» shall submit such data in a comma-separated-value (csv) format with the time/date stamp in one column and load amounts, with units of measurement specified, in another column.

17.5.1 By June 30, 2026, «Customer Name» shall send to BPA «Customer Name»'s actual hourly Total Retail Load data for Fiscal Year 2016 through Fiscal Year 2025.

17.5.2 By December 31, 2026, and by December 31 of each year thereafter, «Customer Name» shall send BPA «Customer Name»'s actual hourly Total Retail Load data for the immediately preceding Fiscal Year.

17.6 Total Retail Load Forecast

Option 1: Include the following for customers that are not JOEs.

17.6.1 By December 31, 2026, and by December 31 of each Forecast Year thereafter, «Customer Name» shall provide BPA a forecast of «Customer Name»'s monthly energy and «Customer Name»'s system coincidental peak of «Customer Name»'s Total Retail Load for the upcoming ten Fiscal Years.

«Customer Name» shall e-mail the forecast to BPA at kslf@bpa.gov, in a comma-separated-value (csv) format. «Customer Name» shall send the csv file with the following data elements in separate columns:

- (1) four-digit calendar year,
- (2) three-character month identifier,
- (3) monthly energy forecast in megawatt hours (MWh), and
- (4) «Customer Name»'s monthly «Customer Name»-system coincidental peak forecast in megawatts (MW).

Unless a BPA forecast under section 17.6.3 below is applied, BPA shall fill in the table in section 1.1 of Exhibit A with «Customer Name»'s Total Retail Load forecast submitted under this section 17.6.1 by March 31, 2028, and by March 31 of each Rate Case Year thereafter.

End Option 1

Option 2: Include the following for customers that are JOEs.

17.6.1 By December 31, 2026, and by December 31 of each Forecast Year thereafter, «Customer Name» shall provide BPA a forecast of each «Customer Name» Member's monthly energy and each «Customer Name» Member's system coincidental peak of the Member's Total Retail Load for the upcoming ten Fiscal Years.

«Customer Name» shall e-mail the forecasts to BPA at kslf@bpa.gov, in a comma-separated-value (csv) format. «Customer Name» shall send the csv file with the following data elements in separate columns:

- (1) four-digit calendar year,
- (2) three-character month identifier,
- (3) monthly energy forecast in megawatt hours (MWh), and
- (4) «Customer Name»'s monthly «Customer Name»-system coincidental peak forecast in megawatts (MW).

Unless a BPA forecast under section 17.6.3 below is applied, BPA shall fill in the table in section 1.1 of Exhibit A with «Customer Name»'s Total Retail Load forecast submitted under this section 17.6.1 by March 31, 2028, and by March 31 of each Rate Case Year thereafter.

End Option 2

17.6.2 No later than January 31 ahead of power delivery for a Fiscal Year, «Customer Name» may submit an updated Total Retail Load forecast for use in establishing «Customer Name»'s Net Requirement, consistent with section 1 of Exhibit A, for the remaining year(s) of that Rate Period. Unless a BPA forecast under section 17.6.3 below is used, BPA shall calculate such Net Requirement using such updated Total Retail Load forecast if one or more of the following apply:

- (1) «Customer Name»'s updated Total Retail Load forecast:
(A) changes by at least the lesser of 10 percent or 15 aMWs compared to the forecast used to establish «Customer Name»'s Above-CHWM Load, and (B) would change «Customer Name»'s Net Requirement eligible for power at the Tier 1 Rate(s); or
- (2) «Customer Name» permanently removes a Specified Resource listed in section 2 of Exhibit A, consistent with section 3.5.6 of the body of this Agreement, that would change «Customer Name»'s Net Requirement.

Unless a BPA forecast under section 17.6.3 below is applied, if «Customer Name» submits an updated Total Retail Load forecast as provided above, then by March 31 following «Customer Name»'s submittal BPA shall fill in the table in section 1.1 of Exhibit A with «Customer Name»'s Total Retail Load forecast for the remaining Fiscal Year(s) of the Rate Period.

17.6.3 For any Total Retail Load forecast «Customer Name» submits pursuant to sections 17.6.1 and 17.6.2 above, BPA may notify «Customer Name» no later than one calendar month after such submittal if BPA determines «Customer Name»'s submitted forecast is not reasonable. If BPA determines «Customer Name»'s submitted forecast is not reasonable, then BPA shall fill in the table in section 1.1 of Exhibit A with a forecast BPA determines to be reasonable by March 31 immediately preceding the start of the Fiscal Year.

17.6.4 In the Above-CHWM Load Process, BPA will make available «Customer Name»'s updated Total Retail Load forecast and any changes to «Customer Name»'s Dedicated Resources and Consumer-Owned Resources that would change «Customer Name»'s Net

Requirement as determined pursuant to sections 17.6.2 and 17.6.3 above.

17.7 Transparency of Net Requirements Process

By July 31, 2028, and by July 31 each Rate Case Year thereafter, BPA shall make the following information publicly available to «Customer Name» and all other BPA regional utility customers with a CHWM:

- (1) «Customer Name»'s measured Total Retail Load data for the previous two Fiscal Years in monthly energy amounts and monthly customer-system peak amounts, and
- (2) «Customer Name»'s Dedicated Resources for the previous two Fiscal Years in monthly energy and peak amounts as listed in section 5 of Exhibit A.

«Customer Name» waives all claims of confidentiality regarding the data described above.

17.8 Confidentiality

Before «Customer Name» provides information to BPA that is confidential, or is otherwise subject to privilege or nondisclosure, «Customer Name» shall clearly designate such information as confidential. BPA shall notify «Customer Name» as soon as practicable of any request received under the Freedom of Information Act (FOIA), or under any other federal law or court or administrative order, for any confidential information. BPA shall release such confidential information consistent with FOIA or if required by any other federal law or court or administrative order. BPA shall limit the use and dissemination of confidential information within BPA to employees who need it for purposes of administering this Agreement.

17.9 Resources Not Used to Serve Total Retail Load

«Customer Name» shall list in section 6 of Exhibit A all Generating Resources «Customer Name» owns that are: (1) not Specified Resources listed in section 2 of Exhibit A, and (2) greater than 1.000 megawatt of nameplate capability. At BPA's request, «Customer Name» shall provide BPA with additional data if needed to verify the information listed in section 6 of Exhibit A.

18. UNCONTROLLABLE FORCES

- 18.1 A Party shall not be in breach of an obligation under this Agreement to the extent its failure to fulfill the obligation is due to an Uncontrollable Force. "Uncontrollable Force" means an event beyond the reasonable control, and without the fault or negligence, of the Party claiming the Uncontrollable Force, that prevents that Party from performing its obligations under this Agreement and which that Party could not have avoided by the exercise of reasonable care, diligence and foresight. Uncontrollable Forces include each

event listed below, to the extent it satisfies the foregoing criteria, but are not limited to these listed events:

- (1) any curtailment or interruption of firm transmission service on BPA's or a Third-Party Transmission Provider's System that prevents delivery of Firm Requirements Power sold under this Agreement to «Customer Name»;
- (2) any failure of «Customer Name's» distribution or transmission facilities that prevents «Customer Name» from delivering power to end-users;
- (3) strikes, work stoppage, or terrorist acts;
- (4) floods, earthquakes, other natural disasters, epidemics, or pandemics; and
- (5) final orders or injunctions issued by a court or regulatory body having subject matter jurisdiction which the Party claiming the Uncontrollable Force, after diligent efforts, was unable to have stayed, suspended, or set aside pending review by a court having subject matter jurisdiction.

18.2 Neither the unavailability of funds or financing, nor conditions of national or local economies or markets shall be considered an Uncontrollable Force. The economic hardship of either Party shall not constitute an Uncontrollable Force. Nothing contained in this provision shall be construed to require either Party to settle any strike or labor dispute in which it may be involved.

18.3 If an Uncontrollable Force prevents a Party from performing any of its obligations under this Agreement, such Party shall:

- (1) promptly notify the other Party of such Uncontrollable Force by any means practicable and confirm such notice in writing as soon as reasonably practicable;
- (2) use commercially reasonable efforts to mitigate the effects of such Uncontrollable Force, remedy its inability to perform, and resume full performance of its obligation hereunder as soon as reasonably practicable;
- (3) keep the other Party apprised of such efforts on an ongoing basis; and
- (4) provide written notice of the resumption of performance.

Written notices sent under this section must comply with section 1 of Exhibit I.

18.4 The Parties shall keep each other apprised of the status of any Uncontrollable Force once invoked.

19. GOVERNING LAW AND DISPUTE RESOLUTION

Option: Include for Tribal customers «Customer Name» agrees that it will not assert as a defense to any claim by BPA hereunder, its sovereign immunity, and said immunity is hereby expressly waived for any obligations, liabilities, or duties owed by «Customer Name» to the Bonneville Power Administration, United States Department of Energy, under this Agreement. *End Option* This Agreement shall be interpreted consistent with and governed by federal law. «Customer Name» and BPA shall identify issue(s) in dispute arising out of this Agreement and make a good faith effort to negotiate a resolution of such disputes before either may initiate litigation or arbitration. Such good faith effort shall include discussions or negotiations between the Parties' executives or managers. Pending resolution of a contract dispute or contract issue between the Parties or through formal dispute resolution of a contract dispute arising out of this Agreement, the Parties shall continue performance under this Agreement unless to do so would be impossible or impracticable. Unless the Parties engage in binding arbitration as provided for in this section 19, the Parties reserve their rights to individually seek judicial resolution of any dispute arising under this Agreement.

19.1 Judicial Resolution

Final actions subject to Section 9(e) of the Northwest Power Act are not subject to arbitration under this Agreement and shall remain within the exclusive jurisdiction of the United States Court of Appeals for the Ninth Circuit. Such final actions include, but are not limited to, the establishment and the implementation of rates and rate methodologies. Any dispute regarding any rights or obligations of «Customer Name» or BPA under any rate or rate methodology, or BPA policy, including the implementation of such policy, shall not be subject to arbitration under this Agreement. For purposes of this section 19, BPA policy means any written document adopted by BPA as a final action in a decision record or record of decision that establishes a policy of general application or makes a determination under an applicable statute or regulation. If BPA determines that a dispute is excluded from nonbinding arbitration under this section 19, then «Customer Name» may apply to the federal court having jurisdiction for an order determining whether such dispute is subject to nonbinding arbitration under this section 19.

19.2 Arbitration

Any contract dispute or contract issue between the Parties arising out of this Agreement, which is not excluded by section 19.1 above, shall be subject to arbitration, as set forth below.

«Customer Name» may request that BPA engage in binding arbitration to resolve any dispute. If «Customer Name» requests such binding arbitration and BPA determines in its sole discretion that binding arbitration of the dispute is appropriate under BPA's Binding Arbitration Policy or its successor, then BPA shall engage in such binding arbitration, provided that

the remaining requirements of this section 19.2 and sections 19.3 and 19.4 are met. BPA may request that «Customer Name» engage in binding arbitration to resolve any dispute. In response to BPA's request, «Customer Name» may agree to binding arbitration of such dispute, provided that the remaining requirements of this section 19.2 and sections 19.3 and 19.4 are met. Before initiating binding arbitration, the Parties shall draft and sign an agreement to engage in binding arbitration, which shall set forth the precise issue in dispute, the amount in controversy and the maximum monetary award allowed, pursuant to BPA's Binding Arbitration Policy or its successor.

Nonbinding arbitration shall be used to resolve any dispute arising out of this contract that is not excluded by section 19.1 above and is not resolved via binding arbitration, unless «Customer Name» notifies BPA that it does not wish to proceed with nonbinding arbitration.

19.3 Arbitration Procedure

Any arbitration shall take place in Portland, Oregon, unless the Parties agree otherwise. The Parties agree that a fundamental purpose for arbitration is the expedient resolution of disputes; therefore, the Parties shall make best efforts to resolve an arbitrable dispute within one year of initiating arbitration. The rules for arbitration shall be agreed to by the Parties.

19.4 Arbitration Remedies

The payment of monies shall be the exclusive remedy available in any arbitration proceeding pursuant to this section 19. This shall not be interpreted to preclude the Parties from agreeing to limit the object of arbitration to the determination of facts. Under no circumstances shall specific performance be an available remedy against BPA.

19.5 Finality

19.5.1 In binding arbitration, the arbitration award shall be final and binding on the Parties, except that either Party may seek judicial review based upon any of the grounds referred to in the Federal Arbitration Act, 9 U.S.C. §1-16 (1988). Judgment upon the award rendered by the arbitrator(s) may be entered by any court having jurisdiction thereof.

19.5.2 In nonbinding arbitration, the arbitration award is not binding on the Parties. Each Party shall notify the other Party within 30 calendar days, or such other time as the Parties otherwise agreed to, whether it accepts or rejects the arbitration award. Subsequent to nonbinding arbitration, if either Party rejects the arbitration award, either Party may seek judicial resolution of the dispute, provided that such suit is brought no later than 395 calendar days after the date the arbitration award was issued.

19.6 Arbitration Costs

Each Party shall be responsible for its own costs of arbitration, including legal fees. Unless otherwise agreed to by the Parties, the arbitrator(s) may apportion all other costs of arbitration between the Parties in such manner as the arbitrator(s) deem reasonable taking into account the circumstances of the case, the conduct of the Parties during the proceeding, and the result of the arbitration.

20. STATUTORY PROVISIONS

20.1 Retail Rate Schedules

«Customer Name» shall make its retail rate schedules available to BPA, as required by section 5(a) of the Bonneville Project Act, P.L. 75-329, within 30 calendar days of each of «Customer Name»'s retail rate schedule effective dates. This requirement may be satisfied by «Customer Name» informing BPA of its public website where such information is posted and kept current.

20.2 Insufficiency and Allocations

If BPA determines, consistent with Section 5(b) of the Northwest Power Act and other applicable statutes, that it will not have sufficient resources on a planning basis to serve its loads after taking all actions required by applicable laws then BPA shall give «Customer Name» a written notice that BPA may restrict service to «Customer Name». Such notice shall be consistent with BPA's insufficiency and allocations methodology, published in the Federal Register on March 20, 1996, and shall state the effective date of the restriction, the amount of «Customer Name»'s load to be restricted and the expected duration of the restriction. BPA shall not change that methodology without the written agreement of all public body, cooperative, federal agency and investor-owned utility customers in the Region purchasing electric power from BPA under Section 5(b) of the Northwest Power Act. Such restriction shall take effect no sooner than five years after BPA provides notice to «Customer Name». If BPA imposes a restriction under this provision then the amount of Firm Requirements Power that BPA is obligated to provide and that «Customer Name» is obligated to purchase pursuant to section 3 and Exhibit C shall be reduced to the amounts available under such allocation methodology for restricted service.

20.3 New Large Single Loads and CF/CTs

20.3.1 Customer Notice of Large Loads and Determination of an NLSL

«Customer Name» shall provide reasonable notice to BPA of any expected increase in a single load that may qualify as a Potential NLSL, Planned NLSL, or NLSL.

Pursuant to this section 20.3, BPA shall determine if any load associated with a single facility that is capable of growing ten Average Megawatts or more in a consecutive 12-month period is a Potential NLSL or an NLSL. Pursuant to this section 20.3, the Parties shall

determine if any load associated with a single facility is a Planned NLSL.

Reviewer's Note: Section 2.# will point to the definition of Potential NLSL.

«Customer Name»'s Potential NLSLs, Planned NLSLs, and NLSLs shall be subject to monitoring as determined necessary by BPA. For the purposes of section 2.«##», this section 20.3, and section 1 of Exhibit D, ten Average Megawatts in a consecutive 12-month monitoring period equates to 87,600,000 kilowatt-hours in any consecutive 12-month period with 365 days and 87,840,000 kilowatt-hours for any consecutive 12-month period with 366 days.

In accordance with BPA's NLSL Policy and the terms of this section 20.3, BPA may determine that a load is an NLSL as follows:

20.3.1.1 Pursuant to Section 3(13) of the Northwest Power Act, BPA shall determine an increase in production load to be an NLSL if any load associated with a new facility, an existing facility, or an expansion of an existing facility, which is not Contracted For, or Committed To (CF/CT), as determined by the Administrator, by a public body, cooperative, investor-owned utility, or federal agency customer prior to September 1, 1979, will result in an increase in power requirements of such customer of ten Average Megawatts or more in any consecutive 12-month period.

20.3.1.2 For the sole purpose of computing the increase in energy consumption between any two consecutive 12-month periods of comparison under this section 20.3.1, BPA shall determine if the reductions in the end-use consumer's load associated with a facility during the first 12-month period of comparison are due to unusual events reasonably beyond the control of the end-use consumer, and, if so, BPA shall compute the energy consumption as if such reductions had not occurred.

20.3.1.3 The Parties may agree that the applicable increase in load of installed production equipment at a facility will equal or exceed ten Average Megawatts consumption over any 12 consecutive months and that such production load constitutes an NLSL. Any such agreement will be a binding NLSL determination, and BPA shall add the NLSL to section 1 of Exhibit D. Alternatively, the Parties may agree that the load at a facility is expected to become an NLSL during the facility's next consecutive 12-month monitoring period and that such load is a Planned NLSL. BPA shall add the Planned NLSL to section 1 of Exhibit D.

20.3.1.4 Unless the Parties agree pursuant to section 20.3.1.3 above, BPA shall determine whether a new load or an increase in existing load at a facility is an NLSL. If BPA determines that the load at a facility is an NLSL, then BPA shall notify «Customer Name» and BPA shall add the NLSL to section 1 of Exhibit D if such is not already in Exhibit D after the facility determination pursuant to section 20.3.2.

20.3.1.5 BPA shall list «Customer Name»'s CF/CT loads, Potential NLSLs, Planned NLSLs, and NLSLs in section 1 of Exhibit D.

20.3.2 Determination of a Facility

BPA shall make a written determination as to what constitutes a single facility for the purpose of identifying an NLSL. BPA's determination will be made by applying some or all of the following criteria:

- (1) whether the load is operated by a single end-use consumer;
- (2) whether the load is in a single location;
- (3) whether the load serves a manufacturing process which produces a single product or type of product;
- (4) whether separable portions of the load are interdependent;
- (5) whether the load is separately metered from other loads;
- (6) whether the load is contracted for, served or billed as a single load under «Customer Name»'s customary billing and service policy or practices;
- (7) consideration of the facts from previous similar situations; and
- (8) any other factors the Parties determine to be relevant.

20.3.3 Access and Metering

Upon BPA request, «Customer Name» shall provide physical access to its substations and other service locations where BPA needs to perform inspections or gather information for purposes of implementing Section 3(13) of the Northwest Power Act. Such BPA inspections may include but are not limited to those needed to make a facility, final NLSL, or CF/CT determination. «Customer Name» shall coordinate with the end-use consumer to provide BPA, at reasonable times, physical access to inspect a facility for these purposes.

For any load that is monitored by BPA for an NLSL determination, and for any load at any facility that was determined by BPA to be an

NLSL, BPA may, in its sole discretion, install BPA owned meters. If the Parties agree, «Customer Name» may install meters meeting specifications BPA provides to «Customer Name». «Customer Name» and BPA shall enter into a separate agreement for the location, ownership, cost responsibility, access, maintenance, testing, replacement and liability of the Parties with respect to such meters. «Customer Name» shall coordinate with BPA and the end-use consumer to arrange for metering locations that allow accurate measurement of the load at a facility. «Customer Name» shall arrange for BPA to have physical access to such meters and «Customer Name» shall ensure BPA has access to all meter data for loads that are monitored under this section 20.3 and section 1 of Exhibit D that BPA determines are necessary to forecast, plan, schedule, and bill for power.

20.3.4 Billing for Large Loads Capable of Growing By More Than 10 aMW in 12-Month Monitoring Period

At the time a load starts to increase, if BPA does not determine that such increase in load is a Planned NLSL or an NLSL, then BPA shall bill «Customer Name» for the increase in load at a facility at the applicable PF rates during any consecutive 12-month monitoring period.

If BPA later determines that the increase in load is an NLSL, then BPA shall revise «Customer Name»'s monthly bills from the monitoring period to reflect the difference between the assessed PF rates and the applicable NR Rates in effect for the monitoring period in which the increase takes place. «Customer Name» shall pay the balance on each revised bill, which will include simple interest on the assessed amount. BPA shall compute simple interest on the assessed amount from the original Due Date of any bill that included days from the applicable monitoring period to the Due Date of the revised bill that will be issued. The daily interest rate shall equal the Prime Rate (as reported in the Wall Street Journal or successor publication in the first issue published during the month in which the monitoring period began) divided by 365. After BPA's NLSL determination, «Customer Name» shall make a service request or election for the NLSL pursuant to section 20.3.6.

If BPA concludes in its sole judgment that «Customer Name» has not fulfilled its obligations, or has not been able to obtain access or information from the end-use consumer under this section 20.3, then BPA may determine any large load capable of growing ten Average Megawatts or more in a consecutive 12-month period or any Potential NLSL subject to monitoring to be an NLSL, in which case «Customer Name» shall be billed and pay in accordance with the preceding paragraph. Such NLSL determination shall be final unless «Customer Name» proves to BPA's satisfaction that the applicable increase in

load did not equal or exceed ten Average Megawatts in any 12-month monitoring period.

20.3.5 Load Status at the End of the Consecutive 12-Month Monitoring Period

At the end of each consecutive 12-month monitoring period of a load at a facility, BPA will determine if the metered load at the facility has grown by ten Average Megawatts or more during the preceding consecutive 12-month monitoring period. To determine load growth for a facility determined to be a CF/CT, BPA will subtract the amount of firm energy contracted for, or committed for the facility, as stated in section 1 of Exhibit D, from the metered load at the facility for the preceding consecutive 12-month monitoring period.

20.3.5.1 Load Growth By 10 Average Megawatts or More

If the load at a facility has grown by ten Average Megawatts or more in the preceding consecutive 12-month monitoring period, then the facility is an NLSL. BPA shall notify «Customer Name» of the NLSL designation and shall update section 1 of Exhibit D. Any future increases in the load shall be part of the NLSL.

20.3.5.2 Load Growth Less Than 10 Average Megawatts

If the load at a facility has grown by less than ten Average Megawatts in the preceding consecutive 12-month monitoring period, then BPA shall notify «Customer Name» that the load remains a Potential NLSL or Planned NLSL, and BPA may continue to monitor the load growth in the subsequent consecutive 12-month monitoring period. BPA shall also determine if liquidated damages are applicable pursuant to section 1 of Exhibit D.

If the load at a facility has grown by less than ten Average Megawatts in the preceding consecutive 12-month monitoring period(s), then BPA will track the cumulative total load at the facility from one monitoring period to the next. For purposes of this section 20.3 and section 1 of Exhibit D, the cumulative total load, including load increases and load reductions, from the prior 12-month monitoring period(s) will be referred to as the “Cumulative Prior Load”. At the end of each 12-month monitoring period, BPA shall update section 1 of Exhibit D with the amount of «Customer Name»’s Cumulative Prior Load and include the amount of Cumulative Prior Load in the calculation of «Customer Name»’s Firm Requirements Power eligible for service at BPA’s PF rates for the subsequent consecutive 12-month monitoring period.

20.3.5.3 Load at a Facility Included in Customer's Firm Requirement Power

For purposes of this section 20.3 and section 1 of Exhibit D, the amount of Cumulative Prior Load of a Potential NLSL or Planned NLSL when BPA determines the facility to be an NLSL will be the fixed amount of «Customer Name»'s load at a facility that BPA will include in its calculation of «Customer Name»'s Firm Requirements Power eligible for service at BPA's PF rates. BPA may adjust the fixed amount of «Customer Name»'s load at a facility that BPA will include in its calculation of «Customer Name»'s Firm Requirements Power eligible for service at BPA's PF rates if «Customer Name»'s load at the facility reduces by 10 aMW below the fixed amount.

Upon BPA's determination that a monitored load is an NLSL, all measured amounts of such NLSL that exceed the load at the facility that is included in «Customer Name»'s Firm Requirements Power calculation shall be part of «Customer Name»'s NLSL, which will be served in accordance with this section 20.3 and section 1 of Exhibit D.

As applicable, BPA shall update the table in section 1.5.2 of Exhibit D with the fixed amount of load at the facility to be included in the calculation of «Customer Name»'s Firm Requirements Power eligible for service at BPA's PF rates.

20.3.6 Service Options for Planned NLSLs and NLSLs

«Customer Name» shall serve all Planned NLSLs and NLSLs with Dedicated Resource or Consumer-Owned Resource amounts added in Exhibit A that are not already being used to serve «Customer Name»'s Total Retail Load in the Region. «Customer Name» agrees to provide such Dedicated Resource or Consumer-Owned Resource amounts on a continuous basis as identified in Exhibit A. «Customer Name» shall not request for BPA to serve any Planned NLSL or NLSL with power priced at the NR Rate. Under no circumstances will BPA be obligated to acquire firm power for service to «Customer Name»'s Planned NLSLs and NLSLs.

Reviewer's Note: The Block and Slice/Block versions of sections 20.3.7 and 20.3.8 are the same as those sections in the Load Following template, but they have been renumbered for Block and Slice/Block customers.

20.3.7 Submittal of Initial Forecast

If «Customer Name» is serving any Planned NLSLs or NLSLs with Dedicated Resource or Consumer-Owned Resource amounts, then by June 30 of each year, unless another date is agreed to by the Parties, «Customer Name» shall provide BPA with forecasted energy amounts for such resources for each Diurnal period and peak amounts for each month to serve any Planned NLSLs and NLSLs for the upcoming

Fiscal Year. BPA shall use «Customer Name»'s initial forecast to determine the Dedicated Resource or Consumer-Owned Resource amounts required to serve the Planned NLSLs and NLSLs. However, if BPA determines «Customer Name»'s initial forecast to be unreasonable, then BPA may replace «Customer Name»'s initial forecast with a final forecast that BPA develops. If «Customer Name» is serving any Planned NLSLs or NLSLs with Dedicated Resource or Consumer-Owned Resource amounts, then BPA shall revise section 4 of Exhibit A to state such amounts by September 1 of each year.

20.3.8 Consumer-Owned Resources Serving a Planned NLSL or an NLSL

20.3.8.1 Consumer-Owned Resources

«Customer Name»'s consumer may serve a Planned NLSL or an NLSL with a Consumer-Owned Resource if the following criteria are met:

- (1) the Consumer-Owned Resource and its expected generation amounts are indicated in section 7.4 of Exhibit A as serving a specific Planned NLSL or NLSL;
- (2) the Consumer-Owned Resource is physically located within «Customer Name»'s service territory;
- (3) the Consumer-Owned Resource is within the same Balancing Area Authority as the Planned NLSL or NLSL; and
- (4) the Consumer-Owned Resource is metered, regardless of nameplate size, and the meter data is communicated in accordance with sections 15 and 17.

In order to designate a Consumer-Owned Resource as serving a Planned NLSL or NLSL, «Customer Name» shall provide BPA information demonstrating on a planning basis that any Consumer-Owned Resource forecasted generation will not exceed «Customer Name»'s forecasted Planned NLSL or NLSL amounts on an annual average basis as submitted pursuant to section 20.3.7 above. Examples of such information include but are not limited to consumer load projections and monthly generation projections for the generating equipment to be installed.

«Customer Name» shall apply any power generated from the identified Consumer-Owned Resource in excess of the forecasted Planned NLSL or NLSL amounts submitted pursuant to section 20.3.7 above to load other than the Planned

NLSL or NLSL to which it is designated in accordance with section 3.6.4.

Option: Include the following for customers exclusively or partially served by Transfer Service.

If actual generation from a Consumer-Owned Resource exceeds the Planned NLSL or NLSL actual amounts, then BPA shall pass through and «Customer Name» shall pay any costs assessed on BPA by a Third-Party Transmission Provider as a result of such excess generation.

End Option

«Customer Name» shall provide notice to BPA of any significant changes to such Planned NLSL or NLSL amounts as soon as practicable but no later than 60 calendar days after the change. Concurrent with such notice, «Customer Name» shall re-designate, consistent with section 3.6.2, any amount of the Consumer-Owned Resource that is expected to exceed the Planned NLSL or NLSL amounts. Such re-designation shall apply for the remaining term of this Agreement.

20.3.8.2 On-Site Renewable Resource/Cogeneration Exception

For purposes of this section 20.3.8.2, on-site means within the physical footprint of the NLSL facility as determined by BPA in the facility determination process.

«Customer Name» may request to have BPA serve an NLSL at a PF equivalent rate, as established in the applicable 7(i) Process, if the following criteria are met:

- (1) «Customer Name»'s end use consumer applies an on-site renewable resource or on-site cogeneration resource to reduce the load at a facility, that is otherwise not eligible to be served at PF rates, to less than ten Average Megawatts in a consecutive 12-month period,
- (2) the on-site renewable resource or on-site cogeneration resource applied to the NLSL is behind «Customer Name»'s meter at the facility, and
- (3) the on-site renewable resource or on-site cogeneration resource is continuously applied to serve the NLSL, consistent with BPA's NLSL Policy included in BPA's Final Provider of Choice Contract Record of Decision (ROD), September 2025, as amended or replaced.

If «Customer Name» meets the criteria above and BPA grants «Customer Name»'s request for the on-site

renewable/cogeneration exception, then BPA shall: (1) list the Consumer-Owned Resource serving the NLSL in section 7.4 of Exhibit A and (2) revise section 1 of Exhibit D to add the on-site renewable resource or cogeneration facility and the requirements for such service.

20.4 Priority of Pacific Northwest Customers

The provisions of Sections 9(c) and 9(d) of the Northwest Power Act and the provisions of the Pacific Northwest Consumer Power Preference Act as amended by the Northwest Power Act, as implemented pursuant to BPA's 5(b)/9(c) Policy, are incorporated into this Agreement by reference.

«Customer Name», together with other customers in the Region, shall have priority to electric power consistent with such provisions.

20.5 Prohibition on Resale

«Customer Name» shall not resell Firm Requirements Power except to serve «Customer Name»'s Total Retail Load or as otherwise permitted by federal law.

20.6 Use of Regional Resources

20.6.1 Within 60 calendar days prior to the start of each Fiscal Year, «Customer Name» shall provide notice to BPA of any firm power from «Customer Name»'s Generating Resources during its term, listed in Exhibit A that has been used to serve firm consumer load in the Region and that «Customer Name» plans to export for sale outside the Region in the next Fiscal Year. Firm power includes firm energy and firm peaking capability.

BPA may request and «Customer Name» shall provide within 30 calendar days of such request, additional information on «Customer Name»'s sales and dispositions of non-federal resources if BPA has information that «Customer Name» may have made such an export and not notified BPA. BPA may request and «Customer Name» shall provide within 30 calendar days of such request, information on the planned use of any or all of «Customer Name»'s Generating Resources.

During any Rate Period that «Customer Name» has no purchase obligation for Firm Requirements Power under section 3, «Customer Name» shall have no obligation to notify BPA of its exports under this section; provided, however, «Customer Name» shall provide notification of all applicable exports in Rate Periods when it has a purchase obligation.

20.6.2 «Customer Name» shall be responsible for monitoring any firm power from Generating Resources it sells in the Region to ensure such firm power is planned to be used to serve firm consumer load in the Region.

20.6.3 Subject to the 5(b)/9(c) Policy, if «Customer Name» fails to report to BPA in accordance with section 20.6.1 above, any of its planned exports for sale outside the Region of firm power from a Generating Resource that has been used to serve firm consumer load in the Region, and BPA makes a finding that an export which was not reported was made, then BPA shall decrement the amount of its Firm Requirements Power sold under this Agreement by the amount and for the duration of the export that was not reported and by any continuing export amount. Decrements under the preceding sentence shall be first to power that would otherwise be provided at the applicable firm power rate, as determined by BPA. When applicable, such decrements shall be identified in section 3.2 of Exhibit A.

20.6.4 For purposes of this section 20.6, an export for sale outside the Region means a contract for the sale or disposition of firm power from a Generating Resource during its term that has been used to serve firm consumer load in the Region, which contract will be performed in a manner that such output is no longer used or not planned to be used solely to serve firm consumer load in the Region. Delivery of firm power outside the Region under a seasonal exchange agreement that is made consistent with BPA's 5(b)/9(c) Policy will not be considered an export. Firm power from a Generating Resource used to serve firm consumer load in the Region means the firm generating or load carrying capability of a Generating Resource as established under the resource planning criteria generally used within the Region.

20.6.5 For purposes of this section 20.6, if «Customer Name» has notified BPA that it will join and participate in an organized market using non-federal firm power produced by a Generating Resource dedicated to supply its Total Retail Load as identified in Exhibit A, then to the extent the organized market operates geographically both within and outside the Region, «Customer Name»'s participation in such market will not be considered an export outside the Region, provided «Customer Name»'s dedicated non-federal power obligation remains unchanged from the amount identified in Exhibit A. «Customer Name»'s participation in an organized market shall not increase the firm energy requirements of «Customer Name» or other customers of the Administrator, as determined by the Administrator.

20.7 BPA Appropriations Refinancing

The Parties agree that the provisions of section 3201(i) of the Bonneville Power Administration Refinancing section of the Omnibus Consolidated Rescissions and Appropriations Act of 1996 (BPA Refinancing Act), P.L. 104-134, 110 Stat. 1321, 350, as stated in the United States Code on the Effective Date, are incorporated by reference and are a material term of this Agreement.

21. STANDARD PROVISIONS

21.1 Amendments

Except where this Agreement explicitly allows for one Party to unilaterally amend a provision or exhibit, no amendment of this Agreement shall be of any force or effect unless set forth in writing and signed by authorized representatives of each Party. Upon «Customer Name»'s request, and to the extent BPA determines it is practicable, BPA shall provide «Customer Name» a reasonable opportunity to review any unilateral provision or exhibit revisions, or the data that will be input into an exhibit revision, prior to BPA making such unilateral revisions.

21.2 Entire Agreement and Order of Precedence

This Agreement, including documents expressly incorporated by reference, constitutes the entire agreement between the Parties with respect to the subject matter of this Agreement. It supersedes all previous communications, representations, or contracts, either written or oral, which purport to describe or embody the subject matter of this Agreement. The body of this Agreement shall prevail over the exhibits to this Agreement in the event of a conflict.

Option 1: Include the following for customers who do NOT need RUS approval.

21.3 Assignment

This Agreement is binding on any successors and assigns of the Parties. Neither Party may otherwise transfer or assign this Agreement, in whole or in part, without the other Party's written consent. Such consent shall not be unreasonably withheld. Without limiting the foregoing, BPA's refusal to consent to assignment shall not be considered unreasonable if, in BPA's sole discretion: (1) the sale of power by BPA to the assignee would violate any applicable statute, or (2) such sale might adversely affect the tax-exempt status of bonds issued as part of an issue that finances or refinances the Columbia Generating Station or that such sale might limit the ability to issue future tax-exempt bonds to finance or refinance the Columbia Generating Station. «Customer Name» may not transfer or assign this Agreement to any of its retail consumers.

End Option 1

Option 2: Include the following for customers who must obtain RUS approval of this Agreement.

21.3 Assignment

This Agreement is binding on any successors and assigns of the Parties. Neither Party may otherwise transfer or assign this Agreement, in whole or in part, without: (1) the other Party's written consent, which shall not be unreasonably withheld; and (2) the written consent of the United States Department of Rural Utilities Service. Without limiting the foregoing, BPA's refusal to consent to assignment shall not be considered unreasonable if, in BPA's sole discretion: (1) the sale of power by BPA to the assignee would violate any applicable statute, or (2) such sale might adversely affect the tax-exempt status of bonds issued as part of an issue that finances or refinances

the Columbia Generating Station or that such sale might limit the ability to issue future tax-exempt bonds to finance or refinance the Columbia Generating Station. «Customer Name» may not transfer or assign this Agreement to any of its retail consumers.

End Option 2

21.4 No Third-Party Beneficiaries

This Agreement is made and entered into for the sole benefit of the Parties, and the Parties intend that no other person or entity shall be a direct or indirect beneficiary of this Agreement.

21.5 Waivers

No waiver of any provision or breach of this Agreement shall be effective unless such waiver is in writing and signed by the waiving Party, and any such waiver shall not be deemed a waiver of any other provision of this Agreement or of any other breach of this Agreement.

21.6 BPA Policies

Any reference in this Agreement to BPA policies, including any revisions, does not constitute agreement of «Customer Name» to such policy by execution of this Agreement, nor shall it be construed to be a waiver of the right of «Customer Name» to seek judicial review of any such policy.

21.7 Rate Covenant and Payment Assurance

«Customer Name» agrees that it shall establish, maintain and collect rates or charges sufficient to assure recovery of its costs for power and energy and other services, facilities and commodities sold, furnished or supplied by it through any of its electric utility properties. BPA may require additional forms of payment assurance if: (1) BPA determines that such rates and charges may not be adequate to provide revenues sufficient to enable «Customer Name» to make the payments required under this Agreement, or (2) BPA identifies in a letter to «Customer Name» that BPA has other reasonable grounds to conclude that «Customer Name» may not be able to make the payments required under this Agreement. If «Customer Name» does not provide payment assurance satisfactory to BPA, then BPA may terminate this Agreement. Written notices sent under this section must comply with section 1 of Exhibit I.

21.8 Procedure in the Event of Federal Base System Resource Loss

BPA shall provide notice to «Customer Name» if BPA expects the loss of Federal Base System Resource, as defined in Section 3(10) of the Northwest Power Act, that: (1) is in excess of 450 aMW in a single year and is expected to last for a period of five or more years, and (2) the replacement cost of which would be included in the Tier 1 Cost Pool.

BPA shall conduct a public process to discuss targeted policy and CHWM Contract amendments if, within 30 calendar days of such notice provided in this section 21.8, a majority of CHWM Contract customers, or their representatives, indicate in writing to BPA the customer's support to

open a public process to discuss targeted policy and contract amendments. For purposes of calculating utility count under this section, JOE Members will be counted individually.

Option: Include this section ONLY for JOEs with cooperative members; cooperatives; and tribal utilities.

21.9 Bond Assurances

BPA has advised «Customer Name» that: (1) the Columbia Generating Station has been financed and refinanced in large part by bonds that are intended to bear interest that is exempt from federal income tax under section 103 of the Internal Revenue Code of 1954, as amended, and Title XIII of the Tax Reform Act of 1986, and (2) the tax-exempt status of those bonds and other bonds issued together with those bonds might be jeopardized if «Customer Name» or any other nongovernmental person has a contract to purchase additional amounts of the output of the Columbia Generating Station.

Drafter's Note: Over the term of this Agreement, if a customer changes its purchase obligation to Slice/Block pursuant to section 11, retain March 31 in the first paragraph, but update the year.

Pursuant to section 5.3 of this Agreement, BPA shall calculate «Customer Name»'s Slice Percentage for each Fiscal Year of the Rate Period. BPA shall calculate the de minimis threshold applicable to «Customer Name» and update section 1 of Exhibit K with «Customer Name»'s applicable threshold, and Slice Percentage, by March 31, 2028. If «Customer Name»'s Slice Percentage calculated for any Fiscal Year would exceed «Customer Name»'s de minimis threshold percentage of the Tier 1 System Resources for the applicable year, then BPA shall reduce «Customer Name»'s Slice Percentage for such year to equal such de minimis threshold percentage. For any Fiscal Year that BPA reduces «Customer Name»'s Slice Percentage to comply with this section 21.9, «Customer Name»'s Tier 1 Block Amount will increase by an equivalent amount pursuant to the calculation in section 4.3.

In the event that «Customer Name»'s purchase under this Agreement results in remedial action or Internal Revenue Service (IRS) settlement related to the tax-exempt bonds associated with Columbia Generating Station, BPA shall bill «Customer Name» and «Customer Name» shall reimburse BPA for any costs BPA determines are related to such remedial action or IRS settlement.

If the IRS determines or BPA in its sole discretion determines that the Slice/Block Product does not constitute a direct purchase of the output of the Columbia Generating Station (or does not otherwise result in excess private business use with respect to outstanding tax-exempt bonds associated with Columbia Generating Station), then BPA shall not reduce «Customer Name»'s Slice Percentage.

End Option

22. PARTICIPATION IN WRAP

BPA is participating in the Western Resource Adequacy Program (WRAP) with its first binding season occurring prior to October 1, 2028. If BPA ceases to participate in WRAP, then BPA shall provide advance notice to «Customer Name» of the date that BPA's participation will end.

In the event BPA ceases participation in WRAP, its obligation to support customer participation will continue.

22.1 Responsibilities and Provision of Information Necessary for WRAP Participation

«Customer Name» shall notify BPA if «Customer Name» is participating in WRAP on October 1, 2028 or starts its participation in WRAP after such date.

If «Customer Name» participates in WRAP, then consistent with this section 22 and section 17, BPA shall provide «Customer Name» with any necessary and requested information, forecasts, and attestations associated with amounts of electric power provided under this Agreement to support «Customer Name»'s participation in WRAP.

22.1.1 «Customer Name» may request a signed Joint Contract Accreditation Form (JCAF) from BPA for its purchases under this Agreement relevant to WRAP. BPA shall provide «Customer Name» with such signed JCAF(s) no later than 30 calendar days following such request. JCAFs provided under this section shall comply with the requirements of WRAP and shall be updated as appropriate to meet WRAP requirements.

22.1.2 If «Customer Name» incurs any charges from WRAP attributed to power sold under this Agreement, then any pass through of such charges by «Customer Name» will be pursuant to section 5 of Exhibit J.

22.1.3 BPA shall have no additional responsibility to support «Customer Name» in its participation in WRAP beyond the terms held in this Agreement.

If «Customer Name» ceases to participate in WRAP, then «Customer Name» shall provide advance notice to BPA of the date that «Customer Name»'s participation will end.

23. FUTURE AMENDMENT FOR DAY-AHEAD MARKET IMPLEMENTATION

If BPA decides, or has decided, to join a day-ahead market to serve «Customer Name»'s load, then BPA shall conduct a public process to discuss implementation details of BPA's decision and work with customers to determine: (1) any necessary amendments to the Provider of Choice power sales agreements, including any necessary to align with an updated Transmission Services tariff and settlements under an organized market, and (2) the anticipated timeline for executing such amendments. Such public process shall not be construed as reconsideration of BPA's

market decision. Any amendments negotiated during such public process shall be limited to those necessary to implement a day-ahead market and shall not be conditioned by either Party on modification to any other provision under this Agreement not related to implementing a day-ahead market. Following the conclusion of such public process, BPA shall issue the final amendment template and, based on the agreed-upon timeline, prepare and offer «Customer Name» a contract amendment using the amendment template. «Customer Name»'s agreement to such amendment consistent with this section 23 shall not be unreasonably withheld.

Following BPA joining a day-ahead market to serve «Customer Name»'s load and the Parties amend this Agreement pursuant to this section 23, BPA shall also conduct a public process on the topic of settlements for the Slice Product in the day-ahead market that BPA joins.

24. TERMINATION

BPA may terminate this Agreement if:

- (1) «Customer Name» fails to make payment as required by section 16.4, or
- (2) «Customer Name» fails to provide payment assurance satisfactory to BPA as required by section 21.7.

Such termination is without prejudice to any other remedies available to BPA under law.

Reviewer's Note: If necessary, customers will still have the option to sign a hard copy of the Agreement.

25. SIGNATURES

This Agreement may be executed in several counterparts, all of which taken together will constitute one single agreement, and may be executed by electronic signature and delivered electronically. The Parties have executed this Agreement as of the last date indicated below.

«FULL NAME OF CUSTOMER»

UNITED STATES OF AMERICA
Department of Energy
Bonneville Power Administration

By _____

By _____

Name _____
(Print/Type)

Name _____
(Print/Type)

Title _____

Title _____

Date _____

Date _____

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Exhibit A NET REQUIREMENTS AND RESOURCES

Option 1: Include the following for customers that are not JOEs.

1. NET REQUIREMENTS

BPA shall establish «Customer Name»'s Net Requirement based on its Total Retail Load minus: (1) «Customer Name»'s Dedicated Resources determined pursuant to section 3.3 of the body of this Agreement and listed in sections 2, 3, and 4 of this exhibit, and (2) Consumer-Owned Resources determined pursuant to section 3.6 of the body of this Agreement and listed in sections 7.1, 7.3, and 7.4 of this exhibit. The Parties shall not add or remove resource amounts to change «Customer Name»'s purchase obligations from BPA under section 3.1 of the body of this Agreement except in accordance with sections 3.5, 3.6 and 10 of the body of this Agreement.

BPA shall calculate a forecast of «Customer Name»'s Net Requirement for each year of the upcoming Rate Period as follows:

1.1 Forecast of Total Retail Load

BPA shall fill in the table below with «Customer Name»'s Total Retail Load forecast as established pursuant to section 17.6 of the body of this Agreement.

Drafter's Note: Leave table blank at contract signing.

Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2030													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2031													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2032													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2033													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2034													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2035													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2036													
Energy (MWh)													
Peak (MW)													

Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2037													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2038													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2039													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2040													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2041													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2042													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2043													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2044													
Energy (MWh)													
Peak (MW)													
Notes: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

End Option 1

Option 2: Include the following for customers that are JOEs.

1. NET REQUIREMENTS

BPA shall establish «Customer Name»'s Net Requirement based on its Total Retail Load minus: (1) the sum of each «Customer Name» Member's Dedicated Resources determined pursuant to section 3.3 of the body of this Agreement and listed in sections 2, 3, and 4 of this exhibit, and (2) the sum of each «Customer Name» Member's Consumer-Owned Resources determined pursuant to section 3.6 of the body of this Agreement and listed in sections 7.1, 7.3, and 7.4 of this exhibit. The Parties shall not add or remove resource amounts to change «Customer Name»'s purchase obligations from BPA under section 3.1 of the body of this Agreement except in accordance with sections 3.5, 3.6 and 10 of the body of this Agreement.

BPA shall calculate a forecast of the portion of «Customer Name»'s Net Requirement that is attributable to each «Customer Name» Member for each year of the upcoming Rate Period as follows:

1.1 Forecast of Total Retail Load

BPA shall fill in the tables below with «Customer Name»'s Total Retail Load forecast and each «Customer Name» Member's Total Retail Load forecast as established pursuant to section 17.6 of the body of this Agreement.

1.1.1 «Customer Name»

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2030													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2031													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2032													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2033													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2034													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2035													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2036													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2037													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2038													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2039													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2040													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2041													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2042													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2043													
Energy (MWh)													
Peak (MW)													

«Customer Name» Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2044													
Energy (MWh)													
Peak (MW)													
Notes: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

Drafter's Note: Replicate the table in section 1.1.1(1) below and add a new table for each JOE Member with a sequential number. E.g. 1.1.1(1), 1.1.1(2), 1.1.1(3) etc.

1.1.1(1) **«JOE Member Name»**

Drafter's Note: Leave table blank at contract signing.

«JOE Member Name» Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2030													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2031													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2032													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2033													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2034													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2035													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2036													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2037													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2038													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2039													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2040													
Energy (MWh)													
Peak (MW)													

«JOE Member Name» Annual Forecast of Monthly Total Retail Load													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2041													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2042													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2043													
Energy (MWh)													
Peak (MW)													
Fiscal Year 2044													
Energy (MWh)													
Peak (MW)													
Notes: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

Option 1: Include the following for customers that are not JOEs.

1.2 Forecast of Net Requirements

At the time BPA fills in the table in section 1.1 above, BPA shall calculate, and fill in the table below with «Customer Name»'s Net Requirement forecast for the remaining Fiscal Year(s) of the Rate Period by month. «Customer Name»'s Net Requirement forecast is based on «Customer Name»'s Total Retail Load forecast, stated in section 1.1 above, minus: (1) «Customer Name»'s Dedicated Resource amounts, stated in section 5 below, and (2) Consumer-Owned Resources stated in sections 7.1, 7.3, and 7.4 of this exhibit.

On a planning basis «Customer Name» shall serve that portion of its Total Retail Load that is not served with Firm Requirements Power with «Customer Name»'s Dedicated Resources.

End Option 1

Option 2: Include the following for customers that are JOEs.

1.2 Forecast of Net Requirements

At the time BPA fills in the tables in section 1.1 above, BPA shall calculate and fill in the tables below with «Customer Name»'s Net Requirement forecast and the portion of «Customer Name»'s Net Requirement forecast that is attributable to each «Customer Name» Member for the remaining Fiscal Year(s) of the Rate Period by month. «Customer Name»'s Net Requirement forecast is based on each «Customer Name» Member's Total Retail Load forecast, stated in section 1.1 above, minus: (1) each «Customer Name» Member's Dedicated Resource amounts, stated in section 5 below, and (2) each «Customer Name» Member's Consumer-Owned Resources stated in sections 7.1, 7.3, and 7.4 of this exhibit. In no event shall «Customer Name»'s planned Firm Requirements Power purchased for a Fiscal Year under this Agreement exceed «Customer Name»'s Net Requirement forecast for the Fiscal Year.

On a planning basis «Customer Name» shall serve that portion of its Total Retail Load that is not served with Firm Requirements Power with «Customer Name»'s Dedicated Resources.

End Option 2

Option 1: Include the following for customers that are not JOEs.

Drafters Note: BPA will only be calculating a Peak Net Requirement value for customers taking the Flat Monthly Block with Peak Net Requirement (PNR) Shaping Capacity with Peak Load Variance Service (PLVS) product pursuant to section 1.4.8 of Exhibit C. Fill in the energy amounts in the table below for the customer's Annual Forecast of Monthly Net Requirement.

Drafter's Note: Leave table blank at contract signing.

Annual Forecast of Monthly Net Requirements													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Fiscal Year 2030													
Energy (MWh)													
Fiscal Year 2031													
Energy (MWh)													
Fiscal Year 2032													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Fiscal Year 2034													
Energy (MWh)													
Fiscal Year 2035													
Energy (MWh)													
Fiscal Year 2036													
Energy (MWh)													
Fiscal Year 2037													
Energy (MWh)													
Fiscal Year 2038													
Energy (MWh)													
Fiscal Year 2039													
Energy (MWh)													
Fiscal Year 2040													
Energy (MWh)													
Fiscal Year 2041													
Energy (MWh)													
Fiscal Year 2042													
Energy (MWh)													
Fiscal Year 2043													
Energy (MWh)													
Fiscal Year 2044													
Energy (MWh)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

End Option 1

Option 2: Include the following for customers that are JOEs.
Drafters Note: BPA will only be calculating a Peak Net Requirement value for customers taking the Flat Monthly Block with Peak Net Requirement (PNR) Shaping Capacity with Peak Load Variance Service (PLVS) product pursuant to section 1.4.8 of Exhibit C. Fill in the energy amounts in the table below for the customer's Annual Forecast of Monthly Net Requirement.

1.2.1 **«Customer Name»**

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Annual Forecast of Monthly Net Requirements													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Fiscal Year 2030													
Energy (MWh)													
Fiscal Year 2031													
Energy (MWh)													
Fiscal Year 2032													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Fiscal Year 2034													
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Energy (MWh)													
Fiscal Year 2036													
Energy (MWh)													
Fiscal Year 2037													
Energy (MWh)													
Fiscal Year 2038													
Energy (MWh)													
Fiscal Year 2039													
Energy (MWh)													
Fiscal Year 2040													
Energy (MWh)													
Fiscal Year 2041													
Energy (MWh)													
Fiscal Year 2042													
Energy (MWh)													
Fiscal Year 2043													
Energy (MWh)													
Fiscal Year 2044													
Energy (MWh)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

Drafter's Note: Replicate the table in section 1.2.1(1) below and add a new table for each JOE Member with a sequential number. E.g. 1.2.1(1), 1.2.1(2), 1.2.1(3) etc. Fill in the energy amounts in the table

below for the each «JOE Member Name» Annual Forecast of Monthly Net Requirement.

1.2.1(1) «JOE Member Name»

Drafter's Note: Leave table blank at contract signing.

«JOE Member Name» Annual Forecast of Portion of «Customer Name»'s Monthly Net Requirement													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (MWh)													
Fiscal Year 2030													
Energy (MWh)													
Fiscal Year 2031													
Energy (MWh)													
Fiscal Year 2032													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Fiscal Year 2034													
Energy (MWh)													
Fiscal Year 2035													
Energy (MWh)													
Fiscal Year 2036													
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Fiscal Year 2038													
Energy (MWh)													
Fiscal Year 2039													
Energy (MWh)													
Fiscal Year 2040													
Energy (MWh)													
Fiscal Year 2041													
Energy (MWh)													
Fiscal Year 2042													
Energy (MWh)													
Fiscal Year 2043													
Energy (MWh)													
Fiscal Year 2044													
Energy (MWh)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

End Option 2

Reviewer's Note: Because customers can have numerous resources and the subsections of section 2 can span multiple pages, BPA will apply subsection numbering as 2(1), 2(2), etc.

(as opposed to simply numbering resources as (1), (2),....) under section 2 so that it is easier to know which resource is being referred to.

2. LIST OF SPECIFIED RESOURCES

Drafter's Note: List each Specified Resource using the format shown below in section 2(1) for each Specified Resource. Determine the Dedicated Resource amounts for Specified Resources per the updated 5(b)/9(c) Policy.

*Option 1: Include the following if customer does NOT have any Specified Resources. «Customer Name» does not have any Specified Resources at this time.
End Option 1*

Option 2: Include the following if customer has Specified Resources. Complete sections (1)(A) - (C) for each resource. When listing multiple resources renumber each resource as 2(2), 2(3), etc.

All of «Customer Name»'s Specified Resources are listed below.

2(1) «Resource Name»

(A) Special Provisions

Drafter's Note: Include any special provisions here that are applicable to this resource. If none, retain this section and state "None".

(B) Resource Profile

Drafter's Note: For Delivery Plan, enter the transmission system used to deliver the resource (or for behind-the-meter resources, the transmission system that serves the load that the resource serves). For Statutory Status, Resource Status, Applied to Tier 1 Allowance Amount, RSS, and Dispatchable, fill in the appropriate cells with "X"s.

Fuel Type	Date Resource Dedicated to Load	Date of Resource Removal	Percent of Resource Used to Serve Load	Nameplate Capability (MW)	Delivery Plan

Statutory Status		Resource Status		Applied to Tier 1 Allowance Amount		RSS		Dispatchable	
5b1A	5b1B	Existing	New	Yes	No	Yes	No	Yes	No

Note: Fill in the table above with "X"s.

(C) Specified Resource Amounts

Specified Resource Amounts													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													

Specified Resource Amounts													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2030													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2031													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2032													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2033													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2034													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2035													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2036													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2037													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2038													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2039													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													

Specified Resource Amounts													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2040													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2041													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2042													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2043													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2044													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours, with megawatts rounded to one decimal place, and annual Average Megawatts rounded to three decimal places.													

End Option 2

3. COMMITTED POWER PURCHASE AMOUNTS

3.1 Committed Power Purchase Amounts Used to Serve Total Retail Load

Option 1: Include the following if customer does NOT have any Committed Power Purchase Amounts include the following.

«Customer Name» does not have any Committed Power Purchase Amounts at this time.

End Option 1

Option 2: Include the following if customer has Committed Power Purchase Amounts include the following and fill in the table below (adding additional years as needed).

«Customer Name»'s Committed Power Purchase Amounts are listed in the table below.

Committed Power Purchase Amounts													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2030													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours and with annual Average Megawatts rounded to three decimal places.													

End Option 2

3.2 Committed Power Purchase Amounts for 9(c) Export Decrements

Option 1: Include the following if customer does NOT have any Committed Power Purchase Amounts for 9(c) export decrements.

«Customer Name» does not have any Committed Power Purchase Amounts for 9(c) export decrements at this time.

End Option 1

Option 2: Include the following if customer has Committed Power Purchase Amounts for 9(c) export decrements and fill in the table below (adding additional years as needed).

«Customer Name»'s Committed Power Purchase Amounts for 9(c) export decrements pursuant to section 3.5.4 of the body of this Agreement are listed in the table below.

Committed Power Purchase Amounts for 9(c) Export Decrements													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Fiscal Year 2030													
Total (MWh)													
HLH (MWh)													
LLH (MWh)													
Peak (MW)													
Note: Fill in the table above with megawatt-hours rounded to whole megawatt-hours and with annual Average Megawatts rounded to three decimal places.													

End Option 2

Reviewer's Note: Because customers can have numerous resources serving Planned NLSLs or NLSLs and the subsections of section 4 can span multiple pages, BPA will apply subsection numbering as 4(1), 4(2), etc. (as opposed to simply numbering resources as (1), (2),....) under section 4 so that it is easier to know which resource is being referred to.

4. DEDICATED RESOURCE AMOUNTS USED TO SERVE PLANNED NLSLs AND NLSLs

Option 1: Include the following if customer does NOT have a Planned NLSL or an NLSL.

«Customer Name» does not have any Dedicated Resource amounts serving a Planned NLSL or an NLSL at this time, in accordance with sections 3.5.8 and 20.3 of the body of this Agreement.

End Option 1

Option 2: Include the following if customer has a Planned NLSL or an NLSL. If customer is serving the Planned NLSL or NLSL with Specified Resources, use the tables and format from section 2, Option 2 above and complete sections 2(1)(A) - (C) for each resource (state "N/A" in the Tier 1 Allowance Amount cell). If customer is serving the Planned NLSL or NLSL with Committed Power Purchase Amounts, add a table using the table format in section 3.2 and fill out monthly Diurnal amounts based on the NLSL or Planned NLSL load forecast less any Specified Resources in section 4 serving such NLSL or Planned NLSL. Also describe in section 1.4 or 1.5 of Exhibit D how the resource listed below will match the Planned NLSL or NLSL.

All of «Customer Name»'s Dedicated Resource amounts serving a Planned NLSL and/or an NLSL, in accordance with sections 3.5.8 and 20.3 of the body of this Agreement, are listed below.

4(1) Name of «Planned NLSL» or «NLSL»

End Option 2

5. TOTAL DEDICATED RESOURCE AMOUNTS

Option 1: Include the following if customer does NOT have any Dedicated Resource amounts listed in sections 2, 3, or 4 above.

«Customer Name» does not have any Dedicated Resource amounts at this time.

End Option 1

Option 2: Include the following if customer has Dedicated Resource amounts listed in sections 2, 3, or 4 above. Insert a table below the language using the table format in section 2(1)(C) with amounts equal to the sum of all Dedicated Resource amounts listed in section 2, 3, and 4, and changing the title of the table from "Specified Resource Amounts" to "Total Dedicated Resource Amounts".

The amounts in the table below equal the sum of all Dedicated Resource amounts used to serve «Customer Name»'s Total Retail Load listed above in sections 2, 3, and 4.

End Option 2

6. LIST OF RESOURCES NOT USED TO SERVE TOTAL RETAIL LOAD

Option 1: Include the following if customer does NOT own any Specified Resources not dedicated to its TRL.

Pursuant to section 17 of the body of this Agreement, «Customer Name» does not own any Generating Resources that are: (1) not Specified Resources listed in section 2 of Exhibit A, and (2) greater than 1.000 megawatt of nameplate capability.

End Option 1

Option 2: Include the following if customer owns resources that are not Specified Resources used to serve to its TRL. Complete sections (1)(A) and (B) below for each resource.

Pursuant to section 17 of the body of this Agreement, all Generating Resources «Customer Name» owns that are: (1) not Specified Resources listed in section 2 of Exhibit A, and (2) greater than 1.000 megawatt of nameplate capability, are listed below.

(1) «Resource Name»

(A) Resource Profile

Fuel Type	Type of Resource		Percent of Resource Not Used to Serve Load	Nameplate Capability (MW)
	Generating Resource	Contract Resource		

(B) Expected Resource Output

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

End Option 2

7. LIST OF CONSUMER-OWNED RESOURCES

Drafter's Note: At contract offer, if customer has any existing Consumer-Owned Resources then (1) include the following paragraph and (2) use Option 2 below (intentionally left blank) for sections 7.1, 7.2 and 7.3. The following paragraph will be removed by September 30, 2026, when BPA updates sections 7.1, 7.2 and/or 7.3.

Pursuant to section 3.6 of the body of this Agreement, «Customer Name» has one or more existing Consumer-Owned Resources. «Customer Name» shall designate such resource as serving On-Site Consumer Load, serving load other than On-Site Consumer Load, or serving both On-Site Consumer Load and load other than On-Site Consumer Load pursuant to section 3.6.1 of the body of this Agreement. By September 30, 2026, BPA shall update sections 7.1, 7.2, or 7.3 with «Customer Name»'s designations and amounts for its existing Consumer-Owned Resources.

End Option

7.1 Consumer-Owned Resources Serving On-Site Consumer Load

Option 1: Include the following if customer does NOT have any Consumer-Owned Resources serving On-Site Consumer Load.

Pursuant to section 3.6 of the body of this Agreement, «Customer Name» does not have any Consumer-Owned Resources serving On-Site Consumer Load at this time.

End Option 1

Option 2: Include the following at contract offer if customer has existing Consumer-Owned Resources.

This section is intentionally left blank.

End Option 2

Option 3: If customer has any existing Consumer-Owned Resources, delete the following at contract offer. If applicable, BPA will include the following as of September 30, 2026, if customer has Consumer-Owned Resources serving On-Site Consumer Load. Complete sections (1)(A) and (B) below for each resource.

Pursuant to section 3.6 of the body of this Agreement, all of «Customer Name»'s Consumer-Owned Resources serving On-Site Consumer Load are listed below.

(1) «Resource Name»

(A) Resource Profile

Resource Owner	Fuel Type	Nameplate Capability (MW)	Delivery Plan
<i>Sub-Option 1: Include the following footnote if customer has provided satisfactory information demonstrating that the resource will be sized to not exceed the consumer's load on an annual basis.</i> <u>Note:</u> Pursuant to section 3.6.3 of the body of this Agreement, on «Month Day, Year» information provided to BPA demonstrated that on that date the resource listed in this section would be sized to not generate in excess of the Consumer's On-Site Load on an annual basis.<i>End Sub-Option 1</i> <i>Sub-Option 2: Include the following footnote if customer has not provided satisfactory information demonstrating that the resource will be sized to not exceed the consumer's load on an annual basis.</i> <u>Note:</u> Pursuant to section 3.6.3 of the body of this Agreement, «Customer Name» has not provided information demonstrating that the resource listed in this section would be sized to serve only the Consumer's On-Site Load on an annual basis.<i>End Sub-Option 2</i>			

(B) Expected Resource Output

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

End Option 3

7.2 Consumer-Owned Resources Serving Load Other than On-Site Consumer Load

Option 1: Include the following if customer does NOT have any Consumer-Owned Resources serving load other than On-Site Consumer Load.

Pursuant to section 3.6 of the body of this Agreement, «Customer Name» does not have any Consumer-Owned Resources serving load other than On-Site Consumer Load at this time.

End Option 1

Option 2: Include the following at contract offer if customer has existing Consumer-Owned Resources.

This section is intentionally left blank.

End Option 2

Option 3: If customer has any existing Consumer-Owned Resources, delete the following at contract offer. If applicable, BPA will include the following as of September 30, 2026, if customer has Consumer-Owned Resources serving load other than On-Site Consumer Load. Complete sections (1)(A) and (B) below for each resource.

Pursuant to section 3.6 of the body of this Agreement, all of «Customer Name»'s Consumer-Owned Resources serving load other than On-Site Consumer Load are listed below.

(1) «Resource Name»

(A) Resource Profile

Resource Owner	Fuel Type	Nameplate Capability (MW)

(B) Expected Resource Output

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

End Option 3

7.3 Consumer-Owned Resources Serving Both On-Site Consumer Load and Load Other than On-Site Consumer Load

Option 1: Include the following if customer does NOT have any Consumer-Owned Resources serving both On-Site Consumer Load and load Other than On-Site Consumer Load.

Pursuant to section 3.6 of the body of this Agreement, «Customer Name» does not have any Consumer-Owned Resources serving both On-Site Consumer Load and load other than On-Site Consumer Load at this time.

End Option 1

Option 2: Include the following at contract offer if customer has existing Consumer-Owned Resources.

This section is intentionally left blank.

End Option 2

Option 3: If customer has any existing Consumer-Owned Resources, delete the following at contract offer. If applicable, BPA will include the following as of September 30, 2026, if customer has Consumer-Owned Resources serving both On-Site Consumer Load and load other than On-Site Consumer Load.

Complete sections (1)(A) – (D) below for each resource.

Pursuant to section 3.6 of the body of this Agreement, all of «Customer Name»'s Consumer-Owned Resources serving both On-Site Consumer Load and load other than On-Site Consumer Load are listed in tables below.

(1) «Resource Name»

(A) Resource Profile

Resource Owner	Fuel Type	Nameplate Capability (MW)	Delivery Plan

(B) **Expected Resource Output**

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

(C) **Expected On-Site Consumer Load**

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

(D) **Maximum Resource Amounts Serving On-Site Consumer Load**

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

End Option 3

7.4 **Consumer-Owned Resources Serving Planned NLSL or NLSL**

Option 1: Include the following if customer does NOT have any Consumer-Owned Resources serving a Planned NLSL or an NLSL.

Pursuant to section 20.3.8 of the body of this Agreement, «Customer Name» does not have any Consumer-Owned Resources serving a Planned NLSL or an NLSL at this time.

End Option 1

Option 2: Include the following if customer has Consumer-Owned Resources serving a Planned NLSL or an NLSL. Complete sections (1)(A) and (B).

Pursuant to section 20.3.8 of the body of this Agreement, all of «Customer Name»'s Consumer-Owned Resources serving a Planned NLSL and/or an NLSL are listed below.

(1) «Resource Name»

(A) Resource Profile

Resource Owner	Fuel Type	Nameplate Capability (MW)

(B) Expected Resource Output

Expected Output – Energy (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts rounded to three decimal places.								

End Option 2

8. REVISIONS

BPA shall unilaterally revise this exhibit to reflect: (1) «Customer Name»'s elections regarding the application and use of all resources owned by «Customer Name» and «Customer Name»'s retail consumers, and (2) BPA's determinations relevant to this exhibit and made in accordance with this Agreement. All other changes to this Exhibit A will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» {Drafter's Note: Insert date of finalized contract here}

Exhibit B CONTRACT HIGH WATER MARKS

1. CONTRACT HIGH WATER MARK (CHWM)

Option 1: Include the following for customers that are not JOEs.

1.1 CHWM Amount

By September 30, 2026, BPA shall fill in the table below with «Customer Name»'s CHWM. Once established, BPA may only adjust «Customer Name»'s CHWM as permitted pursuant to section 1.2 of this exhibit.

Drafter's Note: Fill in the table with customer's CHWM. For updates following the initial value, enter the applicable effective date.

CHWM (annual aMW) «^{1/}»:	«X.XXX»
Note: BPA shall round the number in the table above to three decimal places. «^{1/}» CHWM amount effective «October 1, 2028».	

1.2 CHWM Adjustments

BPA shall determine any adjustments to «Customer Name»'s CHWM pursuant to this section 1.2. BPA shall notify «Customer Name» of any adjustments and the date such adjustment will be effective.

End Option 1

Option 2: Include the following for customers that are JOEs.

1.1 CHWM Amount

By September 30, 2026, BPA shall fill in the table below with each «Customer Name» Member's CHWM and «Customer Name»'s CHWM. Once established, BPA may only adjust each «Customer Name» Member's CHWM and «Customer Name»'s CHWM as permitted pursuant to section 1.2 below.

Drafter's Note: Fill in the table with JOE Members' CHWMs and JOE's CHWM. For updates following the initial values, enter the applicable effective date.

«Customer Name» Member	CHWM (annual aMW) «^{1/}»:
«JOE Member Name»	«X.XXX»
«JOE Member Name»	«X.XXX»
«Customer Name»	«X.XXX»
Note: BPA shall round the number in the table above to three decimal places. «^{1/}» CHWM amount effective «October 1, 2028».	

1.2 CHWM Adjustments

BPA shall determine any adjustments to «Customer Name» Members' CHWMs and «Customer Name»'s CHWM pursuant to this section 1.2. BPA shall notify «Customer Name» of any adjustments and the date such adjustment will be effective.

End Option 2

1.2.1 Corrections for NLSLs

If after BPA establishes «Customer Name»'s CHWM pursuant to section 7 of the body of this Agreement, BPA determines that a load included in «Customer Name»'s Total Retail Load in the CHWM calculation was an NLSL or became an NLSL in FY 2023, then BPA shall adjust «Customer Name»'s CHWM by removing the FY 2023 load associated with the NLSL from «Customer Name»'s weather normalized Total Retail Load. BPA shall revise the table in section 1.1 of this Exhibit B with the adjusted CHWM and its effective date. BPA shall provide «Customer Name» written notice of the CHWM adjustment and its effective date, and will provide «Customer Name» with a revised Exhibit B. In the event of an adjustment, and subject to any applicable statute of limitations, «Customer Name» shall pay any charges calculated by BPA to account for the ineligible PF rate purchases dating back to October 1, 2028.

1.2.2 Annexed Load

If «Customer Name» annexes load from a utility that has a CHWM Contract, then BPA shall increase «Customer Name»'s CHWM in an amount determined as follows:

- (1) If «Customer Name» and the other utility involved in the annexation agree on the amount of the CHWM transfer to «Customer Name», then BPA shall adopt that amount if BPA determines such amount is reasonable.
- (2) If «Customer Name» and the other utility cannot agree on the amount of the CHWM transfer to «Customer Name», or if BPA determines the amount agreed to in section 1.2.2(1) of this exhibit is unreasonable, then BPA shall calculate the amount of «Customer Name»'s CHWM transfer using the following formula; provided however that BPA may adjust the calculated amount to reflect (A) the division of Dedicated Resources between the utilities and (B) other pertinent information provided by «Customer Name» and the other utility:

$$\left[\frac{\text{Annexed Load minus annexed NLSLs, if any}}{\text{Other utility's pre-annexation Total Retail Load minus total NLSLs, if any}} \right] \times \left[\text{Other utility's pre-annexation CHWM} \right]$$

In no event shall the total CHWM amount of «Customer Name» and the other utility after the transfer exceed the total CHWM amount of «Customer Name» and the other utility prior to the transfer.

[Drafter's Note: Include the following sentence for any cooperative. If not a cooperative, delete the following sentence:] Any change to

«Customer Name»'s CHWM related to the acquisition of an Annexed Load is subject to section 21.9 of the body of this Agreement./

BPA shall revise the table in section 1.1 of this Exhibit B with the adjusted CHWM which will be effective on the date that «Customer Name» begins service to the Annexed Load.

1.2.3 Ceded Load

If another utility with a CHWM Contract annexes load of «Customer Name», then BPA shall reduce «Customer Name»'s CHWM in an amount determined as follows:

- (1) If «Customer Name» and the other utility involved in the annexation agree on the amount of the CHWM transfer to the other utility, then BPA shall adopt that amount if BPA determines such amount is reasonable.
- (2) If «Customer Name» and the other utility cannot agree on the amount of the CHWM transfer to the other utility, or if BPA determines the amount agreed to in section 1.2.3(1) of this exhibit is unreasonable, then BPA will calculate the amount of «Customer Name» CHWM transfer using the following formula; provided however, BPA may adjust the calculated amount to reflect (A) the division of Dedicated Resources between the utilities and (B) other pertinent information advanced by «Customer Name» and the other utility:

$$\left[\frac{\text{Annexed Load minus annexed NLSLs, if any}}{\text{«Customer Name»'s pre-annexation Total Retail Load minus total NLSLs, if any}} \right] \times \left[\frac{\text{«Customer Name»'s pre-annexation CHWM}}{\text{CHWM}} \right]$$

In no event shall the total CHWM amount of «Customer Name» and the other utility after the transfer exceed the total CHWM amount of «Customer Name» and the other utility prior to the transfer.

BPA shall revise the table in section 1.1 of this Exhibit B with the adjusted CHWM which will be effective on the date that the annexing utility begins service to the Annexed Load.

1.2.4 Court Order on Annexation

BPA shall adjust «Customer Name»'s CHWM due to annexation if BPA's Administrator determines that a court order requires BPA to do so. BPA shall revise the table in section 1.1 of this Exhibit B with the adjusted CHWM and its effective date. BPA shall provide «Customer Name» written notice of the CHWM adjustment and revised Exhibit B as soon as reasonably practical.

1.2.5 Small Utility Adjustment

BPA shall determine in its sole discretion whether «Customer Name» qualifies for the Small Utility Adjustment. If «Customer Name» is eligible for the Small Utility Adjustment, then BPA shall also determine «Customer Name»'s Maximum Potential CHWM for purposes of this section 1.2.5. For purposes of this section 1.2.5, "Maximum Potential CHWM" means the lesser of: (1) double «Customer Name»'s CHWM as calculated in the FY 2026 CHWM Calculation Process, or (2) 5 aMW. By September 30, 2026, BPA shall fill in the table below indicating such eligibility and «Customer Name»'s Maximum Potential CHWM.

Drafter's Note: Fill in "Yes" or "No" depending on customer's eligibility for the Small Utility Adjustment. If customer is eligible, also fill in the Maximum Potential CHWM amount, calculated as provided above, and rounded to three decimal places. If customer is not eligible, fill in N/A for Maximum Potential CHWM.

Eligible for Small Utility Adjustment	Maximum Potential CHWM
Yes / No	«x.xxx»

If «Customer Name» is eligible for the Small Utility Adjustment as indicated above, then during each Above-CHWM Load Process BPA shall determine whether an adjustment is needed and calculate such adjustment as provided below. Any such adjustment would be added to «Customer Name»'s CHWM.

- (1) BPA will determine whether «Customer Name»'s Preliminary Net Requirement exceeds its CHWM.
- (2) If «Customer Name»'s Preliminary Net Requirement is less than its CHWM, then BPA shall make no adjustment to «Customer Name»'s CHWM.
- (3) If «Customer Name»'s Preliminary Net Requirement exceeds its CHWM, then BPA shall calculate a CHWM adjustment in an amount equal to the difference between «Customer Name»'s Preliminary Net Requirement and its CHWM not to exceed «Customer Name»'s Maximum Potential CHWM stated above.
- (4) If a proposed CHWM adjustment under section 1.2.5(3) above would exceed «Customer Name»'s Maximum Potential CHWM, then BPA shall reduce such adjustment to an amount resulting in a CHWM that equals «Customer Name»'s Maximum Potential CHWM.
- (5) If «Customer Name»'s CHWM has been adjusted pursuant to section 1.2.5(4) above, then BPA shall make no additional

change to «Customer Name»'s CHWM except as otherwise provided for in this Exhibit B.

For any Rate Period that BPA adjusts «Customer Name»'s CHWM pursuant to this section 1.2.5, BPA shall revise the table in section 1.1. of this Exhibit B with the adjusted CHWM to be effective at the start of the next Rate Period. BPA shall provide «Customer Name» written notice of the CHWM adjustment and revised Exhibit B. For purposes of the Tier 1 Marginal Energy True-Up rate, «Customer Name»'s CHWM shall be the Maximum Potential CHWM as stated above.

Drafter's Note: Include in contracts of customers that have requested a CF/CT adjustment to their CHWM.

1.2.6 CF/CT Adjustment

«Customer Name» has requested an adjustment to its CHWM for a CF/CT load consistent with the requirements included in section 2.4.2.5 of the Provider of Choice Policy, March 2024, as amended or revised. BPA shall review such request and determine whether such load may qualify «Customer Name» for the CF/CT adjustment consistent with the requirements in section 2.4.2.5 of the Provider of Choice Policy, March 2024, as amended or revised. BPA shall make such determination as follows:

- (1) During the FY 2026 CHWM Calculation Process, BPA shall determine if the same «Customer Name» CF/CT load qualifies «Customer Name» for an economic adjustment as provided in section 2.4.1.2 of the Provider of Choice Policy, March 2024, as amended or revised. If so, then such economic adjustment shall apply and «Customer Name» is not eligible for the CF/CT adjustment under this section 1.2.6. If the same CF/CT load does not qualify «Customer Name» for such economic adjustment, then «Customer Name» will remain eligible for the CF/CT adjustment under this section 1.2.6, subject to sections 1.2.6(2) and 1.2.6(3) below.
- (2) During the Above-CHWM Load Process for the BP-29 Rate Period, BPA shall determine the amount of CHWM adjustment, if any, «Customer Name» qualifies for based on submitted meter data for its CF/CT load through FY 2026.
- (3) During the Above-CHWM Load Process for the BP-31 Rate Period, BPA shall determine the amount of CHWM adjustment, if any, «Customer Name» qualifies for based on submitted meter data for its CF/CT load through FY 2028.

If BPA determines «Customer Name»'s CF/CT qualifies «Customer Name» for such CHWM adjustment under either section 1.2.6(2) or section 1.2.6(3) above, then BPA shall revise the table in section 1.1 of

this Exhibit B with the adjusted CHWM to be effective at the start of the next Rate Period. BPA shall provide «Customer Name» written notice of the adjusted CHWM and revised Exhibit B.

In order to maintain such CF/CT adjustment, «Customer Name» shall submit meter data from the prior Rate Period for its CF/CT by December 31, 2030, and by December 31 of each Forecast Year thereafter. If, for a given Rate Period, the associated CF/CT load's Average Megawatt value for actual power consumption drops below 50 percent of the annual load amount, in Average Megawatts, used to establish such CF/CT adjustment, then BPA shall reduce «Customer Name»'s CHWM by the amount of such reduction for the remaining term of the Agreement, unless BPA determines in its sole discretion whether mitigating circumstances would justify a smaller reduction. BPA shall consider «Customer Name»'s submitted meter data and any other pertinent information to determine in its sole discretion whether such CF/CT ceases to consume electric power or significantly reduces the amount of electric power it consumes for production demand, and the commensurate reduction to «Customer Name»'s CHWM. If BPA determines «Customer Name»'s CHWM must be reduced consistent with this section 1.2.6, then BPA shall revise the table in section 1.1 of this Exhibit B with the adjusted CHWM and its effective date. BPA shall provide «Customer Name» written notice of the CHWM adjustment and revised Exhibit B no later than 30 calendar days prior to the adjusted CHWM's effective date.

For purposes of the Tier 1 Marginal Energy True-Up rate applied in FY 2029 and FY 2030, «Customer Name»'s CHWM shall be as established in the Above-CHWM Load Process for the BP-31 Rate Period.

Drafter's Note: Include the following option in DOE-Hanford's contract.

1.2.6 US DOE-Hanford

BPA shall adjust «Customer Name»'s CHWM under the following conditions:

1.2.6.1 During each Above-CHWM Load Process, and subject to section 1.2.6.2 through section 1.2.6.5 of this exhibit, BPA shall increase «Customer Name»'s CHWM if «Customer Name»'s electric power consumption increases due to the loads related to defense materials activities that are on-site at the DOE facilities that «Customer Name» serves in the state of Washington.

1.2.6.2 «Customer Name» shall notify BPA at least three years prior to any forecasted increase in loads related to defense materials activities. «Customer Name» may satisfy this notice requirement by providing BPA with annual 10-year load forecasts that indicate, with at least three years' lead

time, when these loads are expected to increase. If «Customer Name» notifies BPA pursuant to these terms, then by the next March 31 of a Rate Case Year BPA shall revise this Exhibit B to increase «Customer Name»'s CHWM effective for the Rate Period where these loads are forecasted to increase.

- 1.2.6.3 The total cumulative increase in «Customer Name»'s CHWM over the term of this Agreement shall be limited to the difference between 60.000 aMW and «Customer Name»'s CHWM prior to any subsequent CHWM adjustment.
- 1.2.6.4 «Customer Name» shall meter loads not related to defense materials activities separately from «Customer Name»'s loads related to defense materials activities. «Customer Name» shall install meters and metering equipment necessary to meter loads not related to defense materials activities at «Customer Name»'s expense.
- 1.2.6.5 BPA shall only include load growth related to on-going defense materials activities in «Customer Name»'s CHWM adjustments under this section 1.2.6.
- 1.2.6.6 For purposes of the Tier 1 Marginal Energy True-Up rate, «Customer Name»'s CHWM shall be 60.000 aMW.

End Option

Drafter's Note: Include the following option in contracts of qualifying tribal utilities (e.g. Yakama, Kalispel Tribal Utility, and Umpqua Indian Utility Cooperative) and utilities operated pursuant to a P.L. 93-638 contract (e.g. Mission Valley Power).

1.2.6 Tribal Utilities

After the application of any adjustment under section 1.2.5 above, BPA shall adjust «Customer Name»'s CHWM as follows:

- 1.2.6.1 During each Above-CHWM Load Process, and subject to section 1.2.6.4 below, BPA shall increase «Customer Name»'s CHWM by the amount of «Customer Name»'s Preliminary Net Requirement growth expected during the upcoming Rate Period.
- 1.2.6.2 If «Customer Name» acquires an Annexed Load from a utility that does not have a CHWM, then BPA shall increase «Customer Name»'s CHWM by the amount of Annexed Load subject to section 1.2.6.4 of this exhibit.
- 1.2.6.3 If «Customer Name» acquires an Annexed Load from a utility that has a CHWM, and if such Annexed Load exceeds the CHWM amount established by section 1.2.2 of this exhibit,

then BPA shall increase «Customer Name»'s CHWM by the difference between the Annexed Load amount and the transferred CHWM amount, minus any annexed NLSLs, subject to section 1.2.6.4 of this exhibit.

1.2.6.4 CHWM adjustments made pursuant to this section 1.2.6 are subject to each of the following limitations:

- (1) a cumulative 40 aMW limit of additional CHWM for qualifying tribal utilities and utilities operating pursuant to a P.L. 93-638 contract over the term of the Agreement,
- (2) a cumulative Rate Period limit of 50 aMW of additional CHWM for all new public utility CHWM Contract holders and for qualifying tribal utilities and utilities operating pursuant to a P.L. 93-638 contract, and
- (3) a cumulative 200 aMW limit of additional CHWM for all new public utility CHWM Contract holders and for qualifying tribal utilities and utilities operating pursuant to a P.L. 93-638 contract over the term of the Agreement.

If a proposed CHWM adjustment under this section 1.2.6 would exceed the limits in (1), (2), or (3) above, then BPA shall reduce such adjustment to an amount that does not exceed the applicable limit. If the limit has been fully exhausted, then the proposed CHWM adjustment under this section 1.2.6 will be reduced to zero and BPA shall make no change to «Customer Name»'s CHWM.

For any Rate Period that the total amount of CHWM adjustments under this section 1.2.6 would exceed the limits in (1), (2), or (3) above, BPA shall proportionally reduce the CHWM adjustments of the new public utility CHWM Contract holders and qualifying tribal utilities and utilities operating pursuant to a P.L. 93-638 contract, as applicable, so that each receives a pro rata share of the remaining amount under the applicable limit for that Rate Period. BPA shall determine each utility's pro rata share as specified in the CHWM Implementation Policy.

1.2.6.5 For any Rate Period that BPA changes «Customer Name»'s CHWM pursuant to this section 1.2.6, BPA shall revise the table in section 1.1. of this Exhibit B with the adjusted CHWM to be effective at the start of the next Rate Period. BPA shall provide «Customer Name» written notice of the CHWM change and revised Exhibit B.

End Option

Drafter's Note: Include the following for customers that are JOEs. If another section 1.2.6 applies to the JOE, adjust the numbering of the following to section 1.2.7.

1.2.6 Joint Operating Entities

1.2.6.1 Member Additions

If a utility with a CHWM Contract becomes a Member of «Customer Name» at any time after CHWMs are calculated, then BPA, as part of the amendment to add the new Member, shall add the new Member's CHWM to «Customer Name's CHWM and revise the table in section 1.1 of this exhibit accordingly.

1.2.6.2 Member Terminations

If a «Customer Name» Member terminates their membership under «Customer Name» at any time after CHWMs are calculated, then BPA, as part of the amendment to remove the departing Member, shall subtract the departing Member's CHWM from «Customer Name's CHWM and revise the table in section 1.1 of this exhibit accordingly.

End Option

2. REVISIONS

BPA shall unilaterally revise this exhibit pursuant to section 1 of this exhibit. All other changes to this Exhibit B will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Exhibit C PURCHASE OBLIGATIONS

Option 1: Include the following for customers that are not JOEs.

1. TIER 1 BLOCK AMOUNTS

1.1 Annual Tier 1 Block Amounts

By March 31 concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the table below with «Customer Name's annual Tier 1 Block Amount for the upcoming Fiscal Year as calculated pursuant to section 4.3 of the body of this Agreement.

Drafter's Note: Leave table blank at contract signing.

Annual Tier 1 Block Amounts		
Fiscal Year	Annual Tier 1 Block Amount (aMW)	Annual Tier 1 Block Amount (MWh)
2029		
2030		
2031		
2032		
2033		
2034		
2035		
2036		
2037		
2038		
2039		
2040		
2041		
2042		
2043		
2044		

Option 1: Include if customer chooses a Flat Annual Block Shape.

1.2 Flat Annual Shape

Under the Flat Annual Shape, «Customer Name's hourly Tier 1 Block Amounts shall be equal in all hours of the year. For each Fiscal Year, the megawatt amount of such power for each hour shall equal the annual Tier 1 Block Amount, expressed in annual Average Megawatts, stated in section 1.1 of this exhibit, rounded to a whole number. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. «Customer Name's planned monthly Tier 1 Block Amounts shall equal the annual Tier 1 Block Amount, expressed in annual Average Megawatts, stated in section 1.1 of this exhibit, rounded to a whole number, and multiplied by the number of hours in the applicable month.

Drafter's Note: Add the following paragraph if customer purchases RSS.

Drafter's Note: Delete this section for all customers at contract offer.

«Customer Name» shall schedule any Specified Renewable Resources identified in section 3 of Exhibit J to serve its Total Retail Load, and BPA shall provide Resource Support Service to such Specified Renewable Resources pursuant to section 3 of Exhibit J. «Customer Name» shall reduce its Tier 1 Block Amount schedule each hour, pursuant to section 4.5 of the body of this Agreement and section 3 of Exhibit J, in any hour in the month when the total scheduled generation from such Specified Renewable Resources is greater than the total Planned Resource Amount in section 3 of Exhibit J for such Specified Renewable Resources. «Customer Name» shall pay BPA for the Tier 1 Block Amount in the table below without any adjustment due to displacement of the Block Product for RSS.

End Option

End Option 1

Option 2: Include if customer chooses a Flat Monthly Block.

1.2 Flat Within-Month Shape

«Customer Name»'s monthly Tier 1 Block Amounts, expressed in MWh, shall be determined based on the Monthly Shaping Factors. «Customer Name»'s Monthly Shaping Factors that are used to determine monthly Tier 1 Block Amounts shall be determined as follows:

1.2.1 Monthly Shaping Factors to Determine Amounts for Each Month

For purposes of this section 1.2, "Monthly Shaping Factors" means the twelve monthly factors on a Rate Period basis, as stated in section 1.2.1.3 of this exhibit, which BPA shall use to determine the amount of Firm Requirements Power priced at Tier 1 Rates for each month of a Fiscal Year. BPA shall determine «Customer Name»'s Monthly Shaping Factors in accordance with section 1.2.1.2 of this exhibit using «Customer Name»'s "monthly load values" and "annual load value" as determined in accordance with section 1.2.1.1 of this exhibit.

1.2.1.1 Calculation of Monthly and Annual Load Values

BPA shall calculate «Customer Name»'s "monthly load value" for each month of the year by taking the average of «Customer Name»'s Total Retail Load, expressed in MWh, for the four years prior to the current Forecast Year for the applicable month.

Monthly Load Value =
$$avg(TRL_{month_{Year\ 1}}, TRL_{month_{Year\ 2}}, TRL_{month_{Year\ 3}}, TRL_{month_{Year\ 4}})$$

Where:

TRL month_{Year 1} means the Total Retail Load, in MWh, of a given month in the first year of the four-year period prior to the current Forecast Year

TRL month_{Year 2} means the Total Retail Load, in MWh, of a given month in the second year of the four-year period prior to the current Forecast Year

TRL month_{Year 3} means the Total Retail Load, in MWh, of a given month in the third year of the four-year period prior to the current Forecast Year

TRL month_{Year 4} means the Total Retail Load, in MWh, of a given month in the fourth year of the four-year period prior to the current Forecast Year

BPA shall calculate «Customer Name»'s “annual load value” by taking the average of «Customer Name»'s Total Retail Load, expressed in MWh for the four Fiscal Years prior to the current Forecast Year.

$$\text{Annual Load Value} = \text{avg}(TRL_{\text{Year 1}}, TRL_{\text{Year 2}}, TRL_{\text{Year 3}}, TRL_{\text{Year 4}})$$

Where:

TRL_{Year 1} means the Total Retail Load, in MWh, the first year of the four year period prior to the current Forecast Year

TRL_{Year 2} means the Total Retail Load, in MWh, the second year of the four year period prior to the current Forecast Year

TRL_{Year 3} means the Total Retail Load, in MWh, the third year of the four year period prior to the current Forecast Year

TRL_{Year 4} means the Total Retail Load, in MWh, the fourth year of the four year period prior to the current Forecast Year

1.2.1.2 Calculation of Monthly Shaping Factors

BPA shall calculate «Customer Name»'s Monthly Shaping Factors as follows: (1) the “monthly shape numerator” for each month, divided by (2) the “monthly shape denominator.”

Where:

“monthly shape numerator” equals the greater of (1) zero or (2) “monthly load value” for the corresponding month minus the average of «Customer

Name»'s Dedicated Resource amounts for that month and for all months within both years of the applicable Rate Period as listed in section 2 of Exhibit A, expressed in MWh; and

“monthly shape denominator” equals (1) the “annual load value,” minus (2) the average of **«Customer Name»**'s Dedicated Resource amounts for all months within both years of the given Rate Period as listed in section 2 of Exhibit A, expressed in MWh.

1.2.1.3 Monthly Shaping Factors

By March 31, 2027 and by March 31 of each Rate Case Year thereafter, BPA shall update the table below with **«Customer Name»**'s Monthly Shaping Factors calculated in accordance with this section 1.2.1.

Drafter's Note: Leave table blank at contract signing.

Monthly Shaping Factors													
FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
2029-2030													1.000
2031-2032													1.000
2033-2034													1.000
2035-2036													1.000
2037-2038													1.000
2039-2040													1.000
2041-2042													1.000
2043-2044													1.000

Note: Round the factors in the table above to three decimal places.

1.3 Monthly Tier 1 Block Amounts

Sub-Option 1: Include the following language for customers that does NOT purchase RSS, as defined in section 3 of Exhibit J.

The monthly Tier 1 Block Amounts for each month of each Fiscal Year, beginning with FY 2029 shall be equal to: (1) the annual Tier 1 Block Amount as specified in section 1.1 of this exhibit multiplied by (2) the Monthly Shaping Factor for the corresponding month as specified in section 1.2 of this exhibit, rounded to a whole number. BPA shall enter such amounts into the table below. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. **«Customer Name»** shall schedule the monthly Tier 1 Block Amounts as flat as possible on all hours of each month.

End Sub-Option 1

Sub-Option 2: Include the following language for customers that purchase RSS as defined in section 3 of Exhibit J.

Drafter's Note: Delete this section for all customers at contract offer.

The monthly Tier 1 Block Amounts for each month of each Fiscal Year, beginning with FY 2029, shall be equal to: (1) the annual Tier 1 Block Amount as specified in section 1.1 of this exhibit multiplied by (2) the Monthly Shaping Factor for the corresponding month as specified in section 1.2 of this exhibit, rounded to a whole number. BPA shall enter such amounts into the table below. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. «Customer Name» shall schedule the monthly Tier 1 Block Amounts as flat as possible on all hours of each month unless displacement of the Block Product for RSS occurs.

«Customer Name» shall schedule any Specified Renewable Resources identified in section 3 of Exhibit J to serve Total Retail Load and BPA shall provide RSS to such Specified Renewable Resources pursuant to section 3 of Exhibit J. «Customer Name» shall reduce its Tier 1 Block Amount schedule each hour pursuant to section 4.5 of the body of this Agreement and section 3 of Exhibit J in any hour in the month when the total scheduled generation from such Specified Renewable Resources is greater than the total Planned Resource Amount in section 3 of Exhibit J for such Specified Renewable Resources. «Customer Name» shall pay BPA for the Tier 1 Block Amount in the table below without any adjustment due to displacement of the Block Product for RSS.

End Sub-Option 2

Drafter's Note: Leave table blank at contract signing.

Monthly Tier 1 Block Amounts (MWh)												
FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
2043												
2044												

End Option 2

End Option 2 for customers that are not JOEs.

Option 2: Include the following for customers that are JOEs.

1. TIER 1 BLOCK AMOUNTS

1.1 Annual Tier 1 Block Amounts

By March 31 concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the table below with «Customer Name's annual Tier 1 Block Amount for the upcoming Fiscal Year as calculated pursuant to section 4.3 of the body of this Agreement.

1.1.1 «Customer Name»

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Annual Tier 1 Block Amounts		
Fiscal Year	Annual Tier 1 Block Amount (aMW)	Annual Tier 1 Block Amount (MWh)
2029		
2030		
2031		
2032		
2033		
2034		
2035		
2036		
2037		
2038		
2039		
2040		
2041		
2042		
2043		
2044		

Drafter's Note: Replicate the table below and add a new table for each JOE Member with a sequential number. E.g. 1.1.1(1), 1.1.1(2), 1.1.1(3), etc

1.1.1(1) «JOE Member Name»

Drafter's Note: Leave table blank at contract signing.

«JOE Member Name's Portion of «Customer Name's Annual Tier 1 Block Amounts		
Fiscal Year	Annual Tier 1 Block Amount (aMW)	Annual Tier 1 Block Amount (MWh)
2029		
2030		
2031		

«JOE Member Name»'s Portion of «Customer Name»'s Annual Tier 1 Block Amounts		
Fiscal Year	Annual Tier 1 Block Amount (aMW)	Annual Tier 1 Block Amount (MWh)
2032		
2033		
2034		
2035		
2036		
2037		
2038		
2039		
2040		
2041		
2042		
2043		
2044		

Option 1: Include if customer chooses a Flat Annual Block Shape.

1.2 Flat Annual Shape

Under the Flat Annual Shape, «Customer Name»'s hourly Tier 1 Block Amounts shall be equal in all hours of the year. For each Fiscal Year, the megawatt amount of such power for each hour shall equal the annual Tier 1 Block Amount, expressed in annual Average Megawatts stated in section 1.1 of this exhibit, rounded to a whole number. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. «Customer Name»'s planned monthly Tier 1 Block Amounts shall equal the annual Tier 1 Block Amount, expressed in annual Average Megawatts stated in section 1.1 of this exhibit, rounded to a whole number, and multiplied by the number of hours in the applicable month.

Drafter's Note: Add the following paragraph if customer purchases RSS.

Drafter's Note: Delete this section for all customers at contract offer.

«Customer Name» shall schedule any Specified Renewable Resources identified in section 3 of Exhibit J to serve its Total Retail Load, and BPA shall provide Resource Support Service to such Specified Renewable Resources pursuant to section 3 of Exhibit J. «Customer Name» shall reduce its Tier 1 Block Amount schedule each hour, pursuant to section 4.5 of the body of this Agreement and section 3 of Exhibit J, in any hour in the month when the total scheduled generation from such Specified Renewable Resources is greater than the total Planned Resource Amount in section 3 of Exhibit J for such Specified Renewable Resources. «Customer Name» shall pay BPA for the Tier 1 Block Amount in the table below without any adjustment due to displacement of the Block Product for RSS.

End Option

End Option 1

Option 2: Include if customer chooses a Flat Monthly Block.

1.2 Flat Within-Month Shape

«Customer Name»'s monthly Tier 1 Block Amounts, expressed in megawatt hours, shall be determined based on each «Customer Name» Member's Monthly Shaping Factors. Each «Customer Name» Member's Monthly Shaping Factors that are used to determine monthly Tier 1 Block Amounts shall be determined as follows:

1.2.1 Monthly Shaping Factors to Determine Amounts for Each Month

For purposes of this section 1.2, "Monthly Shaping Factors" means the twelve monthly factors on a Rate Period basis, as stated in section 1.2.1.3 of this exhibit, which BPA shall use to determine the amount of Firm Requirements Power priced at Tier 1 Rates for each month of a Fiscal Year. BPA shall determine each «Customer Name» Member's Monthly Shaping Factors in accordance with section 1.2.1.2 of this exhibit using the «Customer Name»'s Member's "monthly load values" and "annual load value" as determined in accordance with section 1.2.1.1 of this exhibit.

1.2.1.1 Calculation of Monthly and Annual Load Values

BPA shall calculate «Customer Name»'s Member's "monthly load value" for each month of the year by taking the average of «Customer Name»'s Total Retail Load, expressed in MWh, for the four years prior to the current Forecast Year for the applicable month.

$$\text{Monthly Load Value} = \text{avg}(\text{TRL month}_{\text{Year } 1}, \text{TRL month}_{\text{Year } 2}, \text{TRL month}_{\text{Year } 3}, \text{TRL month}_{\text{Year } 4})$$

Where:

TRL month_{Year 1} means the Member's Total Retail Load, in MWh, of a given month in the first year of the four-year period prior to the current Forecast Year

TRL month_{Year 2} means the Member's Total Retail Load, in MWh, of a given month in the second year of the four-year period prior to the current Forecast Year

TRL month_{Year 3} means the Member's Total Retail Load, in MWh, of a given month in the third year of the four-year period prior to the current Forecast Year

TRL month_{Year 4} means the Member's Total Retail Load, in MWh, of a given month in the fourth year of the four-year period prior to the current Forecast Year

BPA shall calculate each «Customer Name» Member's "annual load value" by taking the average of the Member's Total Retail Load, expressed in MWh for the four Fiscal Years prior to the current Forecast Year.

$$\text{Annual Load Value} = \text{avg}(TRL_{\text{Year } 1}, TRL_{\text{Year } 2}, TRL_{\text{Year } 3}, TRL_{\text{Year } 4})$$

Where:

$TRL_{\text{Year } 1}$ means the Member's Total Retail Load, in MWh, the first year of the four year period prior to the current Forecast Year

$TRL_{\text{Year } 2}$ means the Member's Total Retail Load, in MWh, the second year of the four year period prior to the current Forecast Year

$TRL_{\text{Year } 3}$ means the Member's Total Retail Load, in MWh, the third year of the four year period prior to the current Forecast Year

$TRL_{\text{Year } 4}$ means the Member's Total Retail Load, in MWh, the fourth year of the four year period prior to the current Forecast Year

1.2.1.2 Calculation of Monthly Shaping Factors

BPA shall calculate each «Customer Name» Member's Monthly Shaping Factors as follows: (1) the Member's "monthly shape numerator" for each month, divided by (2) the "monthly shape denominator."

Where:

"monthly shape numerator" equals the greater of (1) zero or (2) "monthly load value" for the corresponding month minus the average of the Member's Dedicated Resource amounts for that month and for all months within both years of the applicable Rate Period as listed in section 2 of Exhibit A, expressed in MWh; and

"monthly shape denominator" equals (1) the "annual load value," minus (2) the average of the Member's Dedicated Resource amounts for all months within both years of the given Rate Period as listed in section 2 of Exhibit A, expressed in megawatt hours.

1.2.1.3 Monthly Shaping Factors

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, BPA shall update the table below with each «Customer Name» Member's Monthly Shaping Factors calculated in accordance with this section 1.2.1.

*Drafter's Note: Replicate the table below and add a new table for each JOE Member with a sequential number. E.g.
1.2.1.3(1), 1.2.1.3(2), 1.2.1.3(3) etc
1.2.1.3(1) «JOE Member Name»*

Drafter's Note: Leave tables blank at contract signing.

«JOE Member Name» Monthly Shaping Factors													
FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
2029-2030													1.000
2031-2032													1.000
2033-2034													1.000
2035-2036													1.000
2037-2038													1.000
2039-2040													1.000
2041-2042													1.000
2043-2044													1.000

Note: Round the factors in the table above to three decimal places.

1.3 Monthly Tier 1 Block Amounts

Sub-Option 1: Include the following language for customers that do NOT purchase RSS, as defined in section 3 of Exhibit J.

The monthly Tier 1 Block Amounts for each month of each Fiscal Year, beginning with FY 2029 shall be equal to the sum of all «Customer Name» Members' calculated portions of monthly Tier 1 Block Amount made available to «Customer Name». Each «Customer Name» Members' calculated portion shall be equal to: (1) «Customer Name» Member's calculated portion attributable to the annual Tier 1 Block Amount calculated pursuant to section 4.3 of this Agreement multiplied by (2) the Member's Monthly Shaping Factor for the corresponding month as specified in section 1.2 of this exhibit, rounded to a whole number. BPA shall enter such amounts into the table below. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. «Customer Name» shall schedule the monthly Tier 1 Block Amounts as flat as possible on all hours of each month.

End Sub-Option 1

Sub-Option 2: Include the following language for customers that purchase RSS as defined in section 3 of Exhibit J.

Drafter's Note: Delete this section for all customers at contract offer.

The monthly Tier 1 Block Amounts for each month of each Fiscal Year, beginning with FY 2029, shall be equal to the sum of all «Customer Name» Members' calculated portions of monthly Tier 1 Block Amounts made available to «Customer Name». Each «Customer Name» Member's calculated portion shall be equal to: (1) «Customer Name» Member's calculated portion attributable to the annual Tier 1 Block Amount calculated pursuant to section 4.3 of this Agreement multiplied by (2) the Member's Monthly Shaping Factor for the corresponding month as specified in section 1.2 of this exhibit, rounded to a whole number. BPA shall enter such amounts into the

table below. Due to rounding, total megawatt-hour deliveries during any Fiscal Year may be slightly different than the megawatt-hours stated in section 1.1 of this exhibit. «Customer Name» shall schedule the monthly Tier 1 Block Amounts as flat as possible on all hours of each month unless displacement of the Block Product for RSS occurs.

«Customer Name» shall schedule any Specified Renewable Resources identified in section 3 of Exhibit J to serve Total Retail Load and BPA shall provide RSS to such Specified Renewable Resources pursuant to section 3 of Exhibit J. «Customer Name» shall reduce its Tier 1 Block Amount schedule each hour pursuant to section 4.5 of the body of this Agreement and section 3 of Exhibit J in any hour in the month when the total scheduled generation from such Specified Renewable Resources is greater than the total Planned Resource Amount in section 3 of Exhibit J for such Specified Renewable Resources. «Customer Name» shall pay BPA for the Tier 1 Block Amount in the table below without any adjustment due to displacement of the Block Product for RSS.

End Sub-Option 2

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Monthly Tier 1 Block Amounts (MWh)												
FY	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2029												
2030												
2031												
2032												
2033												
2034												
2035												
2036												
2037												
2038												
2039												
2040												
2041												
2042												
2043												
2044												

End Option 2 for customers that are JOEs

2. FIRM REQUIREMENTS POWER AT TIER 2 RATES

Option 1: Include the following for customers that are not JOEs.

2.1 One-Time Above-CHWM Load Service Elections

Pursuant to section 9.2 of the body of the Agreement, «Customer Name» shall elect one of the following four options below to serve its Above-CHWM Load which shall apply for the term of the Agreement except when «Customer Name» elects to change its Tier 2 Long-Term Rate purchase election amount

pursuant to the terms and conditions of sections 2.3.2 and 2.3.3 of this exhibit.

BPA shall revise this exhibit by March 31, 2027, to indicate «Customer Name»'s initial election and purchase obligation by adding an "X" to the box next to the applicable option below.

Drafter's Note: If customer changes its election over the term of the Agreement in accordance with section 2.3 add an "Additional Election" check box below "Initial Election" in section 2.1 and mark customers new election with "X".

Initial Election ☐ (1) **Option A. All Tier 2 Long-Term Rate option**
«Customer Name» shall purchase and BPA shall serve all of «Customer Name»'s Above-CHWM Load with Firm Requirements Power priced at the Tier 2 Long-Term Rate.

Initial Election ☐ (2) **Option B. Fixed Tier 2 Long-Term Rate option then flexible option**
«Customer Name» shall purchase and BPA shall provide up to a fixed Average Megawatt amount of «Customer Name»'s Above-CHWM Load with Firm Requirements Power sold at the Tier 2 Long-Term Rate. Any remaining Above-CHWM Load will be served with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirements Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

At the time of election as stated in section 9.3 of the body of this Agreement, «Customer Name» shall notify BPA of the fixed Average Megawatt amount of its Above-CHWM Load BPA will serve up to with Firm Requirements Power sold at a Tier 2 Long-Term Rate. BPA shall update the following table to state such amount.

Drafter's Note: Leave table blank at contract signing.

Fixed aMW Amounts - Tier 2 Long-Term Election								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: The amount in the table should be rounded to three decimal places.								

Initial Election ☐ (3) **Option C. Fixed flexible option then Tier 2 Long-Term Rate option**
«Customer Name» shall elect up to a fixed Average Megawatt amount of Above-CHWM Load that will be served with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirements Power at a Tier 2 Vintage Rate, if applicable,

(3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

At the time of election, «Customer Name» shall notify BPA of the fixed Average Megawatt amount of its Above-CHWM Load that will be served up to under the flexible option for the duration of the contract. BPA shall update the following table to state such amounts.

«Customer Name» shall purchase and BPA shall serve any remaining Above-CHWM Load with Firm Requirements Power sold at the Tier 2 Long-Term Rate.

Drafter's Note: Leave table blank at contract signing.

Fixed aMW Amounts - Flexible Election								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: the amount in the table should be rounded to three decimal places.								

Initial Election

☐

(4) Option D. All flexible option

«Customer Name»'s Above-CHWM Load shall be served with (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirement Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

If «Customer Name» fails to notify BPA of its Above-CHWM Load service election pursuant to section 9.2 of the body of this Agreement, then «Customer Name» shall be deemed to have elected option D under section 2.1 of this exhibit and «Customer Name» shall serve all of its Above-CHWM Load amounts with the options stated in section 2.1(4) above.

«Customer Name»'s total Tier 2 Rate purchase obligation amount(s) that BPA shall provide and «Customer Name» shall purchase consistent with sections 3.1 and 3.2 of the body of this Agreement shall be stated in the table below in section 2.9.

End Option 1

Option 2: Include the following for customers that are JOEs.

2.1 One-Time Above-CHWM Load Service Elections

Pursuant to section 9.2 of the body of the Agreement «Customer Name» shall submit to BPA its Members' individual one-time Member's Above-CHWM Load service election from one of the following four options below to serve «Customer Name»'s Above-CHWM Load. Such elections shall apply for the term of the Agreement in accordance with this section 2.1, except when «Customer Name» elects for «Customer Name»'s Members to change its Tier 2

Long-Term Rate purchase election amount pursuant to the terms and conditions of sections 2.3.2 and 2.3.3 of this exhibit.

BPA shall revise this exhibit by March 31, 2027, to indicate «Customer Name»'s initial election and purchase obligation for each «Customer Name» Member by completing the «Customer Name» Member election table in section 2.1 below.

- (1) **Option A. All Tier 2 Long-Term Rate option**
«Customer Name» shall purchase and BPA shall serve the applicable Above-CHWM Load with Firm Requirements Power priced at the Tier 2 Long-Term Rate.
- (2) **Option B. Fixed Tier 2 Long-Term Rate option then flexible option**
«Customer Name» shall purchase and BPA shall provide up to a fixed Average Megawatt amount of the applicable Above-CHWM Load with Firm Requirements Power sold at the Tier 2 Long-Term Rate. Any remaining Above-CHWM Load of such applicable Member(s) will be served with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirements Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

At the time of election as stated in section 9.3 of the body of this Agreement, «Customer Name» shall notify BPA of the fixed Average Megawatt amount of the applicable Above-CHWM Load BPA will serve up to with Firm Requirements Power sold at a Tier 2 Long-Term Rate. BPA shall update the following table to state such amount.

Drafter's Note: Leave table blank at contract signing.

Fixed aMW Amounts - Tier 2 Long-Term Election								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: The amount in the table should be rounded to three decimal places.								

- (3) **Option C. Fixed flexible option then Tier 2 Long-Term Rate option**
«Customer Name» shall elect for each Member(s) up to a fixed Average Megawatt amount of Above-CHWM Load that will be served with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirements Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

At the time of election, «Customer Name» shall notify BPA of the fixed Average Megawatt amount of applicable Above-CHWM Load that will be served up to under the flexible option for the duration of the contract. BPA shall update the following table to state such amounts.

«Customer Name» shall purchase and BPA shall serve the applicable remaining Above-CHWM Load with Firm Requirements Power sold at the Tier 2 Long-Term Rate.

Drafter's Note: Leave table blank at contract signing.

Fixed aMW Amounts - Flexible Election								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: the amount in the table should be rounded to three decimal places.								

- (4) **Option D. All flexible option**
Applicable Above-CHWM Load shall be served with (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirement Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

Drafter's Note: Add rows for each JOE Member and include each Above-CHWM Load election as either Option A, B, C or D. If a JOE Member's election(s) changes over the term of the Agreement in accordance with section 2.1, then update this table with the new election option(s) (A-D) in section 2.1; update the fixed long-term and short-term (aMW) amounts for options B and C in accordance with sections 2.3 and 2.4; and add a footnote capturing effective date of the new election.

Drafter's Note: Leave table blank at contract signing.

JOE Member Elections for Above-CHWM Load and Fixed Amounts under Options B and C			
«Customer Name» Member	Election	Option B, Fixed Long-Term Amount (aMW)« ^{1/»} :	Option C, Fixed Flexible Amount (aMW)« ^{1/»} :
«JOE Member Name»			
«JOE Member Name»			
Note: BPA shall round the number in the table above to three decimal places. « ^{1/»} Fixed Above-CHWM Load amount effective «October 1, 2028».			

If «Customer Name» fails to notify BPA of its Above-CHWM Load service election for any «Customer Name» Member(s) pursuant to section 9.2 of the body of this Agreement, then the «Customer Name» election for such Member(s) shall be deemed to be option D under section 2.1 of this exhibit and «Customer Name» shall serve all applicable Above-CHWM Load amounts with the options stated in section 2.1(4) above.

«Customer Name»'s total Tier 2 Rate purchase obligation amount(s) that BPA shall provide and «Customer Name» shall purchase consistent with sections 3.1 and 3.2 of the body of this Agreement shall be stated in the table below in section 2.9.

End Option 2

2.2 This section intentionally left blank.

Option 1: Include the following for customers that are not JOEs.

2.3 Tier 2 Long-Term Rate

2.3.1 Election Opportunity and Tier 2 Long-Term Rate Purchase Obligation Amount

«Customer Name» may elect to purchase Firm Requirements Power at the Tier 2 Long-Term Rate to serve its Above-CHWM Load by selecting options A, B or C under section 2.1 of this exhibit. If «Customer Name» elects option A, B or C, then BPA shall update the table below by March 31 of each Rate Case Year to state the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate for the upcoming Rate Period as follows.

If «Customer Name» elects option A under section 2.1, then the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall equal «Customer Name»'s Above-CHWM Load amount, calculated for each Fiscal Year of the applicable Rate Period, as stated in the table in this section 2.3.1.

If «Customer Name» elects option B under section 2.1, then the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall be the lesser of «Customer Name»'s Above-CHWM Load amount, calculated for each Fiscal Year of the applicable Rate Period, or the fixed Average Megawatt amount elected under the Tier 2 Long-Term option stated in the table in section 2.1(2) above.

If «Customer Name» elects option C under section 2.1, then the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall equal the amount of «Customer Name»'s Above-CHWM Load, calculated for each Fiscal Year of the applicable Rate Period, that exceeds the fixed Average Megawatt amount to be served under the flexible option as stated in the table in section 2.1(3) above.

Drafter's Note: For options A, B, C: Update Tier 2 Long-Term amounts by March 31 of each Rate Case Year after the Above-CHWM Load Process is complete.

Drafter's Note: Leave table blank at contract signing.

Tier 2 Long-Term Rate Purchase Obligation Amount								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with the annual Average Megawatts, rounded to three decimal places.								

2.3.2 Right to Reduce Tier 2 Long-Term Rate Election Amount Without a Fee

«Customer Name» shall have a one-time right to request to reduce its Tier 2 Long-Term Rate election amount under options A, B, or C, without any charges or fees, if: (1) «Customer Name» submits a written request to BPA prior to August 1, 2027, and (2) BPA has not acquired power for the purposes of serving «Customer Name»'s Tier 2 Long-Term Rate purchase obligation.

BPA, in its sole discretion, shall determine whether «Customer Name»'s request to reduce its Tier 2 Long-Term Rate election amount meets the notice requirements. BPA shall notify «Customer Name» if the request does not meet the notice requirements.

If BPA determines that «Customer Name»'s request meets the notice requirements, then BPA shall reduce «Customer Name»'s Tier 2 Long-Term Rate election amount. By March 31, 2028, BPA shall: (1) update the applicable table(s) in section 2 of this exhibit with «Customer Name»'s updated Tier 2 Long-Term Rate election amount, and (2) update «Customer Name»'s election in section 2.1 if applicable.

2.3.3 Right to Reduce Tier 2 Long-Term Election Amount with a Fee

2.3.3.1 Changes to Tier 2 Long-Term Elections

Regardless of any reduction made pursuant to section 2.3.2 above, over the remaining term of the Agreement «Customer Name» shall have a one-time right to reduce its Tier 2 Long-Term Rate election amount under section 2.1 above, including reducing such amount to zero.

2.3.3.2 Notification and Service Options

«Customer Name» shall notify BPA in writing of its one-time election to reduce the amount of power «Customer Name» is obligated to purchase under section 2.3.3.1 above no less than three years prior to the start of the Rate Period that its election would be effective.

«Customer Name»'s election under section 2.3.3.1 above shall be binding for the remaining term of the Agreement.

If «Customer Name» elects to reduce its Tier 2 Long-Term Rate election amount pursuant to section 2.3.3.1 above, then «Customer Name» shall serve the amount of the reduction with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirement Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

«Customer Name» shall notify BPA of its intent to serve its Above-CHWM Load with one of the four options listed in section 2.3.3.2 consistent with the terms and conditions stated in section 2 of Exhibit C.

2.3.3.3 Exhibit Updates

By March 31 following «Customer Name»'s election notice under section 2.3.3.2 above, BPA shall: (1) update the applicable table(s) in section 2 of this exhibit, with «Customer Name»'s updated Tier 2 Long-Term Rate election amount, and (2) update «Customer Name»'s election in section 2.1 of this exhibit. BPA will update Exhibit A with any changes to «Customer Name»'s Dedicated Resource amounts.

2.3.3.4 Charges to Change Tier 2 Long-Term Election Amount

«Customer Name» shall pay any charges that apply as a result of «Customer Name» exercising the one time right to change its Tier 2 Long-Term Rate election amount under this section 2.3.3. BPA shall calculate such charges pursuant to the PRDM and the applicable Power Rate Schedules and GRSPs. BPA shall not make payment to «Customer Name» as a result of BPA reducing the fixed up to Average Megawatt amounts of Firm Requirements Power that «Customer Name» is obligated to purchase at Tier 2 Long-Term Rates.

2.4 Tier 2 Short-Term Rate

Subject to the limitations in section 2.4.1 below, «Customer Name» may elect to purchase Firm Requirements Power at Tier 2 Short-Term Rates by electing option B, C or D under section 2.1 above.

If «Customer Name» elects options B, C or D, then by July 31, 2027, and by July 31 of each Forecast Year, «Customer Name» shall notify BPA of the amount of its Above-CHWM Load it requests for BPA to serve, if any, at the Tier 2 Short-Term Rate for the following Rate Period. Subject to the limitations in section 2.4.2 below, BPA shall update the table below by March 31 of each Rate Case Year to state the amount of power «Customer Name» is obligated to purchase at the Tier 2 Short-Term Rate as follows.

If «Customer Name» elects option B under section 2.1, then the amount of Firm Requirements Power «Customer Name» may request to purchase at the Tier 2 Short-Term Rate shall not exceed the difference between «Customer Name»'s Above-CHWM Load, calculated for each Fiscal Year of the applicable Rate Period, and the fixed Average Megawatt amount elected under the Tier 2 Long-Term option stated in the table in section 2.1(2) above.

If «Customer Name» elects option C under section 2.1, then the amount of Firm Requirements Power «Customer Name» may request to purchase at the Tier 2 Short-Term Rate, shall not exceed the lesser of «Customer Name»'s Above-CHWM Load amount calculated for each Fiscal Year of the applicable Rate Period or the fixed up to Average Megawatt amount to be served under the flexible option as stated in the table in section 2.1(3) above.

If «Customer Name» elects option D under section 2.1, then the amount of Firm Requirements Power «Customer Name» may request to purchase at the Tier 2 Short-Term Rate, shall not exceed «Customer Name»'s Above-CHWM Load amount, calculated for each Fiscal Year of the applicable Rate Period.

Drafter's Note: For options B, C, and D, update Tier 2 Short-Term amounts for each Rate Period by March 31 of each Rate Case Year after the Above-CHWM Process is complete.

Drafter's Note: Leave table blank at contract signing.

Tier 2 Short-Term Rate Purchase Obligation Amounts								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts, rounded to three decimal places.								

End Option 1

Option 2: Include the following for customers that are JOEs.

2.3 Tier 2 Long-Term Rate

2.3.1 Election Opportunity and Tier 2 Long-Term Rate Purchase Obligation Amount

«Customer Name», consistent with its election for «Customer Name» Members, may purchase Firm Requirements Power at the Tier 2 Long-Term Rate to serve its Above-CHWM Load by selecting options A, B or C under section 2.1 of this exhibit. If «Customer Name» elects option A, B or C for «Customer Name» Member(s), then BPA shall update the table below by March 31 of each Rate Case Year to state the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate for the upcoming Rate Period as follows.

If «Customer Name» elects option A under section 2.1 for certain «Customer Name» Member(s), then the amount of Firm Requirements

Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall equal the summed amounts of such Members' Above-CHWM Load amount, calculated for each Fiscal Year of the applicable Rate Period, as stated in the table in this section 2.3.1.

If «Customer Name» elects option B under section 2.1 for certain «Customer Name» Member(s), then the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall not exceed the difference between the summed amounts of such Members' Above-CHWM Load amounts, calculated for each Fiscal Year of the applicable Rate Period, and the fixed Average Megawatt amount elected under the Tier 2 Long-Term option stated in the table in section 2.1(2) above.

If «Customer Name» elects option C under section 2.1 for certain «Customer Name» Member(s), then the amount of Firm Requirements Power «Customer Name» is obligated to purchase at the Tier 2 Long-Term Rate shall equal the summed amount of such Members' Above-CHWM Load, calculated for each Fiscal Year of the applicable Rate Period, that exceeds the fixed Average Megawatt amount to be served under the flexible option as stated in the table in section 2.1(3) above.

Drafter's Note: For options A, B, C: Update Tier 2 Long-Term amounts by March 31 of each Rate Case Year after the Above-CHWM Load Process is complete.

Drafter's Note: Leave table blank at contract signing.

Tier 2 Long-Term Rate Purchase Obligation Amount								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with the annual Average Megawatts, rounded to three decimal places.								

2.3.2 Right to Reduce Tier 2 Long-Term Rate Election Amount Without a Fee

«Customer Name» shall have a one-time right to request to reduce the Tier 2 Long-Term Rate election amount under options A, B, or C, without any charges or fees, if: (1) «Customer Name» submits a written request to BPA prior to August 1, 2027, and (2) BPA has not acquired power for the purposes of serving «Customer Name»'s Tier 2 Long-Term Rate purchase obligation.

BPA, in its sole discretion, shall determine whether «Customer Name»'s request to reduce a respective Member's Tier 2 Long-Term Rate election amount meets the notice requirements. BPA shall notify

«Customer Name» if the request does not meet the notice requirements.

If BPA determines that «Customer Name»'s request meets the notice requirements, then BPA shall reduce such «Customer Name»'s Members Tier 2 Long-Term Rate election amount. By March 31, 2028, BPA shall: (1) update the applicable table(s) in section 2 of this exhibit with «Customer Name»'s updated Tier 2 Long-Term Rate election amount, and (2) update «Customer Name»'s election in section 2.1 if applicable.

2.3.3 Right to Reduce Tier 2 Long-Term Election Amount with a Fee

2.3.3.1 Changes to Tier 2 Long-Term Elections

Regardless of any reduction made pursuant to section 2.3.2 above, over the remaining term of the Agreement «Customer Name» shall have a one-time right to reduce «Customer Name»'s Member(s) Tier 2 Long-Term Rate election amount under section 2.1 above, including reducing such amount to zero.

2.3.3.2 Notification and Service Options

«Customer Name» shall notify BPA in writing of its one-time election if any «Customer Name» Member reduces the amount of power «Customer Name» is obligated to purchase under section 2.3.3.1 above no less than three years prior to the start of the Rate Period that its election would be effective.

«Customer Name»'s elections for each of «Customer Name»'s Member(s) under section 2.3.3.1 above shall be binding for the remaining term of the Agreement.

If «Customer Name» elects to reduce «Customer Name»'s Member(s) Tier 2 Long-Term Rate election amount pursuant to section 2.3.3.1 above, then «Customer Name» shall serve the amount of the reduction with: (1) Firm Requirements Power at the Tier 2 Short-Term Rate, (2) Firm Requirement Power at a Tier 2 Vintage Rate, if applicable, (3) Dedicated Resources, or (4) a combination of amounts of (1), (2) and (3).

«Customer Name» shall notify BPA of its intent to serve its Above-CHWM Load with one of the four options listed in section 2.3.3.2 consistent with the terms and conditions stated in section 2 of Exhibit C.

2.3.3.3 Exhibit Updates

By March 31 following «Customer Name»'s election notice under section 2.3.3.2 above, BPA shall: (1) update the applicable table(s) in section 2 of this exhibit, with «Customer

Name’s updated Tier 2 Long-Term Rate election amount, and (2) update **«Customer Name»**’s election for **«Customer Name»**’s Member(s) in section 2.1 of this exhibit. BPA will update Exhibit A with any changes to **«Customer Name»**’s Dedicated Resource amounts.

2.3.3.4 Charges to Change Tier 2 Long-Term Election Amount

«Customer Name» shall pay any charges that apply as a result of **«Customer Name»** exercising the one time right to change **«Customer Name»**’s Members Tier 2 Long-Term Rate election amount under this section 2.3.3. BPA shall calculate such charges pursuant to the PRDM and Power Rate Schedules and General Rate Schedule Provisions. BPA shall not make payment to **«Customer Name»** as a result of BPA reducing the fixed up to Average Megawatt amounts of Firm Requirements Power that **«Customer Name»** is obligated to purchase at Tier 2 Long-Term Rates.

2.4 Tier 2 Short-Term Rate

Subject to the limitations in section 2.4.1 below, **«Customer Name»** may elect to purchase Firm Requirements Power at Tier 2 Short-Term Rates for **«Customer Name»** Member(s) by electing option B, C or D under section 2.1 above.

If **«Customer Name»** elects options B, C or D for certain **«Customer Name»** Member(s), then by July 31, 2027, and by July 31 of each Forecast Year, **«Customer Name»** shall notify BPA of the amount of its Above-CHWM Load it requests for BPA to serve, if any, at the Tier 2 Short-Term Rate for the following Rate Period. Subject to the limitations in section 2.4.2 below, BPA shall update the table below by March 31 of each Rate Case Year to state the amount of power **«Customer Name»** is obligated to purchase at the Tier 2 Short-Term Rate as follows.

If **«Customer Name»** elects option B under section 2.1 for certain **«Customer Name»** Member(s), then the amount of Firm Requirements Power **«Customer Name»** may request to purchase at the Tier 2 Short-Term Rate shall not exceed the summed amount of such Members’ Above-CHWM Loads, calculated for each Fiscal Year of the applicable Rate Period, and shall not exceed the fixed Average Megawatt amount elected under the Tier 2 Long-Term option stated in the table in section 2.1(2) above.

If **«Customer Name»** elects option C under section 2.1 for certain **«Customer Name»** Member(s), then the amount of Firm Requirements Power **«Customer Name»** may request to purchase at the Tier 2 Short-Term Rate, shall not exceed the lesser of the summed amounts of such Members’ Above-CHWM Load amount calculated for each Fiscal Year of the applicable Rate Period or the fixed up to Average Megawatt amount to be served under the flexible option as stated in the table in section 2.1(3) above.

If «Customer Name» elects option D under section 2.1 for certain «Customer Name» Member(s), then the amount of Firm Requirements Power «Customer Name» may request to purchase at the Tier 2 Short-Term Rate, shall not exceed the summed amounts of such Members' Above-CHWM Load amount, calculated for each Fiscal Year of the applicable Rate Period.

Drafter's Note: For options B, C, and D, update with the sum of all JOE Members' Tier 2 Short-Term amounts for each Rate Period by March 31 of each Rate Case Year after the Above-CHWM Process is complete.

Drafter's Note: Leave table blank at contract signing.

Tier 2 Short-Term Rate Purchase Obligation Amounts								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts, rounded to three decimal places.								

End Option 2

2.4.1 Limitations on Tier 2 Short-Term Rate Amounts

BPA shall attempt to acquire power to serve «Customer Name»'s total amount of load requested to be served with Firm Requirements Power at the Tier 2 Short-Term Rate. If BPA is unable to acquire power, at any price, and cannot meet all customers' requests to purchase power at the Tier 2 Short-Term Rate, then each applicable Rate Period BPA: (1) shall notify «Customer Name» of the unavailability of power at the Tier 2 Short-Term Rate and (2) may limit the amount of Firm Requirements Power at the Tier 2 Short-Term Rate that «Customer Name» can purchase. If BPA receives multiple requests to provide Firm Requirements Power at the Tier 2 Short-Term Rate for the same Rate Period, and if BPA is only able to acquire power to serve a portion of the total requests for power priced at the Tier 2 Short-Term Rate, then BPA shall proportionally reduce all requests for the Rate Period on a pro rata basis.

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, BPA shall notify customers of the unavailability or pro-rata reduction of power available at the Tier 2 Short-Term Rate.

2.4.2 Determining Pro-Rata Shares of Amounts at Tier 2 Short-Term Rate

If necessary pursuant to section 2.4.1 above, BPA shall determine «Customer Name»'s pro-rata amount of power available for purchase at a Tier 2 Short-Term Rate for the applicable Rate Period based on (1) the actual amounts BPA is able to acquire to meet all customers' aggregate requests for service at a Tier 2 Short-Term Rate and (2) the total amount of Firm Requirements Power requested at the Tier 2 Short-Term Rate in section 2.4 each Rate Period. BPA will adjust individual amounts of Firm Requirements Power at the Tier 2 Short-

Term Rate downward by the ratio between sections 2.4.2.(1) and 2.4.2.(2) above to calculate the amounts of the proportional share adjustment.

In the event BPA adjusts amounts at the Tier 2 Short-Term Rate downward, «Customer Name» shall apply Dedicated Resources to serve the portion of its election at the Short-Term Tier 2 Rate that BPA is unable to supply. BPA will update amounts in Exhibit A in accordance with section 2.6 below.

2.4.3 Failure to Make an Election

If «Customer Name» fails to make an election and does not notify BPA of its Tier 2 Short-Term Rate election amounts pursuant to section 2.4 above, then BPA shall enter “zero” for the applicable Fiscal Years of the Rate Period. «Customer Name» shall serve its remaining Above-CHWM Load amounts with Dedicated Resources to meet its Above-CHWM Load and any amounts will be updated in Exhibit A in accordance with section 2.6 below.

2.4.4 Liability

In no event shall BPA make payment to «Customer Name» as a result of «Customer Name» electing to reduce the amounts of Firm Requirements Power that «Customer Name» is obligated to purchase at Tier 2 Short-Term Rates. In no event shall BPA make payment to «Customer Name» if it is unable to secure power to meet requests for purchases at the Tier 2 Short-Term Rate.

Option 1: Include the following for customers that are not JOEs.

2.5 Tier 2 Vintage Rate Alternative

If «Customer Name» elects option B, C, or D under section 2.1 above, then «Customer Name» is eligible to purchase Firm Requirement Power at a Tier 2 Vintage Rate, if offered by BPA, as described in this section 2.5. For purposes of this section 2.5, “Vintage Resource” means the output of a physical resource that BPA determines, in its sole discretion, to acquire for a period of greater than three years and that forms the cost basis for pricing Firm Requirements Power subject to an established Tier 2 Vintage Rate. BPA may offer to sell Firm Requirements Power at a Tier 2 Vintage Rate whenever it acquires a Vintage Resource.

BPA shall notify customers with a CHWM Contract at least 60 calendar days prior to making a Request For Offer (RFO) for a Vintage Resource. Within 30 calendar days of such notice, «Customer Name» shall notify BPA of the amount of Firm Requirements Power it will purchase from BPA at a Tier 2 Vintage Rate associated with the Vintage Resource.

Following the close of the RFO, BPA shall determine, in its sole discretion, whether to proceed with acquiring the Vintage Resource. If BPA decides to proceed with acquiring the Vintage Resource, then BPA will notify «Customer Name» of the available quantity, if any, of Firm Requirement Power that

customer is eligible to purchase at the Tier 2 Vintage Rate, and the estimated Tier 2 Vintage Rate. «Customer Name» shall execute a Statement of Intent, as stated in section 2.5.1 below, to purchase identified amounts of Firm Requirements Power at the applicable Tier 2 Vintage Rate. The Statement of Intent will include the process and timing to elect the Vintage Alternative and execute a Statement of Intent.

End Option 1

Option 2: Include the following for customers that are JOEs.

2.5 Tier 2 Vintage Rate Alternative

If «Customer Name» elects option B, C, or D under section 2.1 above for certain «Customer Name» Member(s), then «Customer Name» is eligible to purchase Firm Requirement Power at a Tier 2 Vintage Rate, if offered by BPA, as described in this section 2.5 to serve such «Customer Name» Member(s) Above-CHWM load. For purposes of this section 2.5, “Vintage Resource” means the output of a physical resource that BPA determines, in its sole discretion, to acquire for a period of greater than three years and that forms the cost basis for pricing Firm Requirements Power subject to an established Tier 2 Vintage Rate. BPA may offer to sell Firm Requirements Power at a Tier 2 Vintage Rate whenever it acquires a Vintage Resource.

BPA shall notify customers with a CHWM Contract at least 60 calendar days prior to making a Request For Offer (RFO) for a Vintage Resource. Within 30 days of such notice, «Customer Name» shall notify BPA of the amount of Firm Requirements Power it will purchase from BPA at a Tier 2 Vintage Rate associated with the Vintage Resource.

Following the close of the RFO, BPA shall determine, in its sole discretion, whether to proceed with acquiring the Vintage Resource. If BPA decides to proceed with acquiring the Vintage Resource, then BPA will notify «Customer Name» of the available quantity, if any, of Firm Requirement Power that customer is eligible to purchase at the Tier 2 Vintage Rate, and the estimated Tier 2 Vintage Rate. «Customer Name» shall execute a Statement of Intent, as stated in section 2.5.1 below, to purchase identified amounts of Firm Requirements Power at the applicable Tier 2 Vintage Rate. The Statement of Intent will include the process and timing to elect the Vintage Alternative and execute a Statement of Intent.

End Option 2

2.5.1 Statement of Intent

If «Customer Name» elects to purchase Firm Requirements Power from BPA at Tier 2 Vintage Rates, then «Customer Name» shall sign a Statement of Intent provided by BPA which will state the amount of power «Customer Name» commits to purchase at a Tier 2 Vintage Rate. The Statement of Intent will be binding unless BPA does not complete the acquisition of the Vintage Resource consistent with section 2.5.3 below.

2.5.2 Tier 2 Vintage Rate

BPA shall determine the applicable Tier 2 Vintage Rate in accordance with the PRDM and applicable Power Rate Schedules and GRSPs. BPA will restate in the Statement of Intent the applicable Tier 2 Vintage Rate for the Vintage Resource.

2.5.3 BPA Acquisition of Vintage Resource

If BPA acquires the Vintage Resource, then BPA shall notify «Customer Name» that the acquisition is complete and update the table in section 2.5.8 below with the amount of Firm Requirements Power sold at a Tier 2 Vintage Rate and the contract number for the Statement of Intent. If BPA does not complete the acquisition of the Vintage Resource, then BPA shall notify «Customer Name», and the Statement of Intent will become null and void. If BPA does not complete the acquisition, then «Customer Name»'s current elections for service to its Above-CHWM Load above shall continue to apply.

2.5.4 Additional Provisions Applicable to the Statement of Intent

2.5.4.1 Additional Terms and Conditions in Statement of Intent

In addition to paying the Tier 2 Vintage Rate, «Customer Name» will also be subject to such additional terms and conditions associated with its selection of the Tier 2 Vintage Rate as described in the Statement of Intent. Such additional terms may include, but are not limited to, liquidated damages, if applicable, associated with the purchase of the Vintage Resource.

Option 1: Include the following for customers that are not JOEs.

2.5.4.2 Duration of Statement of Intent

The Tier 2 Vintage Resource amounts applied to serve «Customer Name»'s Above-CHWM Load under this Agreement will not apply beyond the expiration of this Agreement, except as stated in the Statement of Intent.

2.5.4.3 Maximum Amount of Firm Requirements Power at Tier 2 Vintage Rate

The maximum amount of Firm Requirements Power «Customer Name» is eligible to purchase at a Tier 2 Vintage Rate will be equal to the annual maximum forecast of «Customer Name»'s flexible Above-CHWM Load amounts of «Customer Name»'s election under section 2.1, minus any Dedicated Resources serving «Customer Name»'s Above-CHWM Load. BPA will develop the annual maximum forecast of «Customer Name»'s flexible Above-CHWM Load amounts at the time BPA issues the RFO for the Vintage Resource. Such forecast shall apply for the term of BPA's acquisition of the Vintage Resource or the term of this Agreement, whichever terminates first.

End Option 1

Option 2: Include the following for customers that are JOEs.

2.5.4.2 Duration of Statement of Intent

The Tier 2 Vintage Resource amounts applied to serve «Customer Name»'s Member's Above-CHWM Load under this Agreement will not apply beyond the expiration of this Agreement, except as stated in the Statement of Intent.

2.5.4.3 Maximum Amount of Firm Requirements Power at Tier 2 Vintage Rate

The maximum amount of Firm Requirements Power «Customer Name» is eligible to purchase at a Tier 2 Vintage Rate will be equal to the annual maximum forecast of «Customer Name»'s flexible Above-CHWM Load amounts of «Customer Name»'s elections for «Customer Name»'s Member(s) under section 2.1, minus any Dedicated Resources serving «Customer Name»'s Member's Above-CHWM Load. BPA will develop the annual maximum forecast of «Customer Name»'s flexible Above-CHWM Load amounts at the time BPA issues the RFO for the Vintage Resource. Such forecast shall apply for the term of BPA's acquisition of the Vintage Resource or the term of this Agreement, whichever terminates first.

End Option 2

2.5.4.4 Commencement of the Vintage Resource

«Customer Name»'s Statement of Intent shall include procedures for how BPA will address the availability and timing of a Vintage Resource, if the timing of such Vintage Resource is not concurrent with the timing of any elections made by «Customer Name» in sections 2.1 and 2.4 of this exhibit.

2.5.5. Multiple Requests for Vintage Resource

«Customer Name»'s Statement of Intent shall include procedures for how BPA will address multiple requests for Firm Requirements Power sold by BPA at a Tier 2 Vintage Rate if the aggregate amount of customer requests exceeds the amount of the Vintage Resource.

2.5.6 Tier 2 Vintage Amounts in Excess of Above-CHWM Load

If «Customer Name» purchases an amount of power from BPA at a Tier 2 Vintage Rate that exceeds its current Above-CHWM Load, then BPA, in its sole discretion, may either:

- (1) determine any amount of power that exceeds «Customer Name»'s Above-CHWM Load as surplus power and provide such to «Customer Name» at a surplus rate equivalent to the applicable Tier 2 Vintage Rate to be managed by «Customer Name»; or

- (2) in accordance with section 10 of this exhibit, and pursuant to the PRDM, provide a remarketing service for the power that exceeds «Customer Name»'s Above-CHWM Load until «Customer Name»'s Above-CHWM Load can accommodate the contracted amount of power purchased at the Tier 2 Vintage Rate.

2.5.7 Treatment of Tier 2 Vintage Rate and Tier 2 Short-Term Rate Purchase Obligations

In addition to the right to purchase power at a Tier 2 Vintage Rate established in this section 2.5, «Customer Name» may have the opportunity to purchase Firm Requirements Power at Tier 2 Vintage Rates regardless of whether «Customer Name» is purchasing power at Tier 2 Short-Term Rates, if BPA determines, in its sole discretion, to offer «Customer Name» a Statement of Intent that would provide «Customer Name» the opportunity to purchase Firm Requirements Power at Tier 2 Vintage Rates.

Any election by «Customer Name» to purchase Firm Requirements Power at Tier 2 Vintage Rates shall not relieve «Customer Name» of any obligation to purchase Firm Requirements Power at another Tier 2 Rate.

Any amounts of power that «Customer Name» is obligated to purchase at a Tier 2 Vintage Rate or Tier 2 Short-Term Rate that exceeds its Above-CHWM Load will be treated pursuant to section 2.5.6 above.

2.5.8 Tier 2 Vintage Rate Elections, Amounts and Exhibit Updates

If applicable, BPA shall update the table below within 90 calendar days of signing the Statement of Intent, with «Customer Name»'s Tier 2 Vintage Rate purchase obligation amounts.

Drafter's Note: Leave table blank at contract signing.

«Customer Name»'s Annual Amounts at Tier 2 Vintage Rate. Statement of Intent Contract No. «##PS-#####»								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
Annual aMW								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
Annual aMW								
Note: Fill in the table above with annual Average Megawatts, rounded to three decimal places. Leave FY blank when not purchasing at a Tier 2 Vintage Rate. Include SOI number(s) in table title.								

By September 15 of each Fiscal Year or immediately following the establishment of a Tier 2 Vintage Rate for which «Customer Name» signed a Statement of Intent, BPA shall update the table in section 2.8.2 with «Customer Name»'s Tier 2 Vintage Rate purchase obligation amounts.

2.6 Obligation to Apply Dedicated Resources

«Customer Name» shall apply Dedicated Resources to serve the portion of its Above-CHWM Load that exceeds the sum of all «Customer Name»'s purchase obligations at Tier 2 Rates under sections 2.3, 2.4, and 2.5 above. BPA shall add «Customer Name»'s Dedicated Resources to section 2 and section 3 of Exhibit A.

2.7 Above-CHWM Load Liability

If «Customer Name» annexes load from another customer with a CHWM Contract that had Above-CHWM Load served with Firm Requirements Power purchased at a Tier 2 Long-Term Rates, Tier 2 Short-Term Rate or a Tier 2 Vintage Rate, then «Customer Name» shall pay any costs that BPA determines apply as a result of such annexation. BPA shall determine such costs, if any, during the 7(i) Process that follows «Customer Name»'s notice of annexation. BPA shall include such cost identified through the 7(i) Process on «Customer Name»'s bill. In no event shall BPA make payment to «Customer Name» as a result of «Customer Name» reducing its amounts of Firm Requirements Power.

2.8 Updates to Total Retail Load Forecast

If «Customer Name» submits an updated Total Retail Load forecast pursuant to section 17.6.2 of the body of the Agreement, and BPA updates «Customer Name»'s forecast Net Requirement consistent with section 1 of Exhibit A and calculates an Above-CHWM Load amount greater than «Customer Name»'s Above-CHWM Load amount established in the Above-CHWM Load Process, then «Customer Name» shall apply Dedicated Resources to serve the difference between (1) the amount established in the Above-CHWM Load Process and (2) any additional Above-CHWM Load amount established through such updated Total Retail Load forecast, for the applicable Rate Period. By March 31 following such calculation and determination, BPA will update Exhibit A with any changes to «Customer Name»'s Dedicated Resource amounts.

Option 1: Include the following for customers that are not JOEs.

2.9 Amounts of Power to be Billed at Tier 2 Rates

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, BPA shall update the table in section 2.9 of this exhibit, consistent with «Customer Name»'s elections for the upcoming Rate Period, with: (1) the planned annual average amounts of Firm Requirements Power that «Customer Name» shall purchase at the Tier 2 Long-Term Rate, Tier 2 Short-Term Rate, and Tier 2 Vintage Rate, if applicable, and (2) any remarketed Tier 2 Rate purchase amounts in accordance with section 10 of the body of this Agreement.

By March 31, 2028, and by March 31 of each Rate Case Year thereafter, BPA shall update the table below with such amounts for each year of the upcoming Rate Period consistent with sections 2.3, 2.4 and 2.5 of this exhibit. The difference between Above-CHWM Load and Tier 2 Rate amounts will be served pursuant to section 2.6 of this exhibit.

Drafter's Note: Leave table blank at contract signing.

Annual Amounts Priced at Tier 2 Rates (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Notes: 1. List each applicable Tier 2 rate in the table above. For the first applicable Tier 2 rate replace No Tier 2 at this time with the name of the applicable Tier 2 rate. For each additional Tier 2 rate, add a new row above the Remarketed Amounts row. If «Customer Name» elects not to purchase at Tier 2 rates, then leave No Tier 2 at this time in the table and leave the remainder of the table blank. 2. Fill in the table above with annual Average Megawatts rounded to three decimal places. 3. Fill in Firm Requirements Power at Tier 2 Rates as the sum of all Tier 2 Rate amounts less any Remarketed or Surplus Tier 2 Vintage Rate amounts.								

End Option 1

Option 2: Include the following for customers that are JOEs.

2.9 Amounts of Power to be Billed at Tier 2 Rates

By March 31, 2028 and by March 31 of each Rate Case Year thereafter, BPA shall update the table in section 2.9 of this exhibit, consistent with «Customer Name»'s elections for the upcoming Rate Period, with: (1) «Customer Name»'s planned annual average amounts of Firm Requirements Power that «Customer Name» shall purchase at the Tier 2 Long-Term Rate, Tier 2 Short-Term Rate, and Tier 2 Vintage Rate, if applicable, and (2) any remarketed Tier 2 Rate purchase amounts in accordance with section 10 of the body of this Agreement.

By March 31, 2028, and by March 31 of each Rate Case Year thereafter, BPA shall update the table below in section 2.9.1 below with such amounts for each year of the upcoming Rate Period consistent with sections 2.3, 2.4 and

2.5 of this exhibit. The difference between Above-CHWM Load and Tier 2 Rate amounts will be served pursuant to section 2.6 of this exhibit.

By March 31, 2028, and by March 31 of each Rate Case Year thereafter, BPA shall update the tables below in sections 2.9.1.1 with each Member's Above-CHWM Load amounts for each year of the upcoming Rate Period consistent with «Customer Name»'s elections for «Customer Name»'s Members in section 2.1 above.

2.9.1 «Customer Name»

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Annual Amounts Priced at Tier 2 Rates (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Notes: 1. List each applicable Tier 2 rate in the table above. For the first applicable Tier 2 rate replace No Tier 2 at this time with the name of the applicable Tier 2 rate. For each additional Tier 2 rate, add a new row above the Remarketed Amounts row. If «Customer Name» elects not to purchase at Tier 2 rates, then leave No Tier 2 at this time in the table and leave the remainder of the table blank. 2. Fill in the table above with annual Average Megawatts rounded to three decimal places. 3. Fill in Firm Requirements Power at Tier 2 Rates as the sum of all Tier 2 Rate amounts less any Remarketed or Surplus Tier 2 Vintage Rate amounts.								

Drafter's Note: Replicate the table in section 2.9.1(1) below and add a new table for each JOE Member with a sequential number. E.g. 2.9.1(1), 2.9.1(2), etc.

2.9.1(1) «JOE Member Name»

Drafter's Note: Leave table blank at contract signing.

«JOE Member Name» Annual Amounts Priced at Tier 2 Rates (aMW)								
Fiscal Year	2029	2030	2031	2032	2033	2034	2035	2036
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Fiscal Year	2037	2038	2039	2040	2041	2042	2043	2044
«No Tier 2 at this time»								
Remarketed or Surplus Power Vintage Rate Amounts								
Firm Requirements Power at Tier 2 Rates								
Notes: 1. List each applicable Tier 2 rate in the table above for each JOE Member. For the first applicable Tier 2 rate replace No Tier 2 at this time with the name of the applicable Tier 2 rate. For each additional Tier 2 rate, add a new row above the Remarketed Amounts row. If «Customer Name» elects not to purchase at Tier 2 rates, then leave No Tier 2 at this time in the table and leave the remainder of the table blank. 2. Fill in the table above with annual Average Megawatts rounded to three decimal places. 3. Fill in Firm Requirements Power at Tier 2 Rates as the sum of all Tier 2 Rate amounts less any Remarketed or Surplus Tier 2 Vintage Rate amounts.								

End Option 2

3. REVISIONS

BPA shall unilaterally revise this exhibit to reflect: (1) «Customer Name»'s elections regarding service to its Above-CHWM Load, and (2) BPA's determinations relevant to this exhibit and made in accordance with this Agreement. All other changes to this Exhibit C will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Exhibit D ADDITIONAL PRODUCTS AND SPECIAL PROVISIONS

1. CF/CT AND NEW LARGE SINGLE LOADS

Option 1: Include the following if customer does NOT have CF/CT loads.

1.1 CF/CT Loads

«Customer Name» has no loads identified that were CF/CTs as of September 1, 1979, as defined in Section 3(13)(A) of the Northwest Power Act.

End Option 1

Option 2: Include the following if customer has CF/CT loads.

Drafter's Note: If customer has more than one CF/CT, number each separately as (1), (2), etc. and indent appropriately.

1.1 CF/CT Loads

The Administrator has determined that the following loads were CF/CTs as of September 1, 1979, as defined in Section 3(13)(A) of the Northwest Power Act, and are subject to PF rates:

End Use Consumer's Name	Facility Name	Facility Location	Date of CF/CT determination	Amount of firm energy contracted for, or committed to (MW)

Note: Amount of Firm Energy is at 100 percent load factor.

CF/CT Description:

End Option 2

Option 1: Include the following if customer does NOT have Potential NLSLs.

1.2 Potential NLSLs

«Customer Name» has no identified Potential NLSLs.

End Option 1

Option 2: Include the following if customer has Potential NLSLs. Update, as needed, at the end of each monitoring period.

Drafter's Note: If customer has more than one Potential NLSL, number each separately as (1), (2), etc. and indent appropriately. Add facility name if there are two Potential NLSLs at same site or as needed.

1.2 Potential NLSLs

«Customer Name» has the following identified Potential NLSLs:

End Use Consumer's Name	Facility Name	Facility Location	Date of BPA facility determination	12-month Monitoring Period
				«Month Day» through «Month Day»

Potential NLSL Description:

End Option 2

Option 1: Include the following if customer does NOT have Planned NLSLs.

1.3 Planned NLSLs

«Customer Name» has no Planned NLSLs.

End Option 1

Option 2: Include the following if customer has Planned NLSLs.

1.3 Planned NLSLs

«Customer Name» has one or more Planned NLSLs and will serve the Planned NLSLs listed below pursuant to section 20.3 and with Dedicated Resource or Consumer-Owned Resource amounts in Exhibit A that are not already used to serve any other portion of «Customer Name»'s Total Retail Load and are listed in section 4 or section 7.4, respectively, of Exhibit A.

Drafter's Note: If customer has more than one Planned NLSL, number each separately as (1), (2), etc. and indent appropriately. Add facility name if there are two Planned NLSLs at same site or as needed. Update, as needed, at the end of each monitoring period.

End Use Consumer's Name	Facility Name	Facility Location	Date of BPA facility determination	12-month Monitoring Period	Date Facility Started Service as Planned NLSL	Manner of Service
				«Month Day» through «Month Day»		«Direct or Transfer»

Planned NLSL Description:

Other Service Details: «Include term of non-federal resource application, Consumer-Owned Resource details, service start date, other necessary details»

End Option 2

Option 1: Include the following if customer does NOT have NLSLs.

1.4 NLSLs

«Customer Name» has no NLSLs.

End Option 1

Option 2: Include the following if customer has NLSLs.

1.4 NLSLs

«Customer Name» has one or more NLSLs and will serve the NLSLs listed below pursuant to section 20.3 of the body of this Agreement and with

Dedicated Resource or Consumer-Owned Resource amounts in Exhibit A that are not already used to serve any other portion of «Customer Name»'s Total Retail Load and are listed in section 4 or section 7.4, respectively, of Exhibit A.

Drafter's Note: If customer has more than one NLSL, letter each separately as (1), (2), etc. and indent appropriately. Add facility name if there are two NLSLs at same site or as needed.

End Use Consumer's Name	Facility Name	Facility Location	Date of BPA facility determination	12-month Monitoring Period	Date Load Determined to be an NLSL	Manner of Service
				«Month Day» through «Month Day»		«Direct or Transfer»

NLSL Description:

Approximate load: «X.XXX» aMW (load measured from «Month Day, Year» through «Month Day, Year»)

Other Service Details: «Include Consumer-Owned Resource details, service start date, other necessary details»

End Option 2

Option 1: Include the following if customer is NOT serving an NLSL with on-site renewable or cogeneration facilities.

1.4.1 Renewable Resource/Cogeneration Exception

«Customer Name»'s end-use consumer is not currently applying an on-site renewable resource or cogeneration facility to an NLSL.

End Option 1

Option 2: Include the following if customer is serving an NLSL with on-site renewable or cogeneration facility.

1.4.1 Renewable Resource/Cogeneration Exception

Option: Choose whether customer is applying a renewable or cogeneration facility.

«Customer Name»'s end-use consumer is applying an on-site «renewable resource or cogeneration facility» to its NLSL listed in section 1.5 of this exhibit. *Sub-Option: Include the following if the customers' on-site renewable or cogeneration facility is served by Transfer.* Consistent with section 14.6 of this Agreement, BPA shall pay for Transfer Service and shall pass through all applicable Transfer Service costs to «Customer Name» related to the application of «Customer Name»'s Dedicated Resources or Consumer-Owned Resources to its NLSL.

End Sub-Option

End Option 2

Drafter's Note: Only include the following for customers served by Transfer Service or served over multiple transmission systems that have a Planned NLSL or NLSL.

1.4.2 Planned NLSLs and NLSLs Served By Transfer Service

Any Dedicated Resource or Consumer-Owned Resource amounts «Customer Name» applies to serve a Planned NLSL or an NLSL that are (1) listed in sections 1.3 or 1.4 above and (2) are served by Transfer Service must meet the terms and conditions of section 14.6.7 of the body of this Agreement, Exhibit G, and section 7 of Exhibit J.

For any such NLSLs listed in section 1.4 above, BPA shall acquire and pay for Transfer Service and pass through any applicable Transfer Service to «Customer Name».

For any such Planned NLSL(s) listed above in section 1.3 above, at the end of the applicable consecutive 12-month monitoring period, BPA will determine if the Planned NLSL became an NLSL in accordance with section 20.3.5 of the body of this Agreement. If the Planned NLSL does not become an NLSL during the monitoring period, then BPA shall credit «Customer Name» for any eligible Transfer Service costs that BPA passed through and «Customer Name» paid related to serving the Planned NLSL. If Transfer Service invoices associated with such Planned NLSLs are amended by the Third-Party Transmission Provider following such credit, then BPA will pass through any charges or credits to «Customer Name» associated with such amended invoices. If the load continues to be monitored as a Planned NLSL, then the applicable provisions of this section 1.4.1 will continue to apply.

End Option

Drafter's Note: Only include the following section 1.5 for customers that have a Potential NLSL, Planned NLSL, or NLSL.

1.5 Load at a Potential NLSL and Planned NLSL Facility

1.5.1 Cumulative Prior Load

Pursuant to section 20.3.5.2 of the body of this Agreement, BPA shall fill in the table in section 1.5.2 below with any «Customer Name» amounts of Potential NLSL and Planned NLSL Cumulative Prior Load.

1.5.2 Load at a Facility Included in Calculation of Power Eligible at PF Rates

Pursuant to section 20.3.5.3 of the body of this Agreement, BPA shall fill in the table below with the fixed amount of load at a facility to be included in the calculation of «Customer Name»'s Firm Requirements Power eligible for service at PF rates.

Drafter's Note: Add a row for each additional Potential NLSL, Planned NLSL, or NLSL that has Cumulative Prior Load and/or load at a facility

included in the calculation of Firm Requirements Power eligible for service at a PF rate. Update at the end of each monitoring period. If customer has none, include N/A and retain «XX.XXX» as applicable.

Load at a Potential NLSL, Planned NLSL, and NLSL Facility				
Facility Name	Status of NLSL	Cumulative Prior Load Energy	Cumulative Prior Load Peak	Load at a Facility Included in the Calculation of Power Eligible at PF Rates
«Name of Potential NLSL, Planned NLSL, or NLSL»	«Potential NLSL, Planned NLSL, or NLSL»	«XX.XXX» aMW	«XX.XXX» MW	«XX.XXX» aMW

End Option

Drafter's Note: Only include the following section 1.6 for customers that have a Planned NLSL.

1.6 Liquidated Damages for Planned NLSLs

This section 1.6 will not apply if «Customer Name»'s Net Requirement is greater than its applicable CHWM for the Fiscal Year(s) coinciding with a consecutive 12-month monitoring period.

If BPA determines that a Planned NLSL has grown by less than ten Average Megawatts in the consecutive 12-month monitoring period just completed, then BPA shall charge and «Customer Name» shall pay BPA the annual liquidated damages charge calculated by BPA as follows:

1.6.1 Load Subject to Liquidated Damages

To calculate the load subject to liquidated damages, BPA will multiply the applicable load by the CHWM Ratio. The applicable load is defined as the metered load at the Planned NLSL(s) during the 12-month monitoring period minus any Cumulative Prior Load. The CHWM Ratio is defined as the lesser of: (1) the difference of the applicable CHWM during the 12-month monitoring period and the average of the applicable Annual Net Requirement(s) during the 12-month monitoring period divided by the applicable load or (2) one. The load calculation described in this section 1.6.1 is expressed in the following formula:

$$\text{Applicable Load} \times \text{CHWM Ratio} = \text{LD Load}$$

Where:

Applicable Load = the metered load at the Planned NLSL(s) – any Cumulative Prior Load of the Planned NLSL

CHWM Ratio =

$$\text{Min} \left(\frac{\text{CHWM} - \text{Average of Net Requirement(s)}}{\text{Applicable Load}}, 1.0 \right)$$

LD Load = load subject to liquidated damages

1.6.2 Annual Liquidated Damages Charge

BPA shall calculate liquidated damages by multiplying the Planned NLSL liquidated damages rate, established in the applicable Power Rate Schedules and GRSPs, by load subject to liquidated damages (LD Load) as stated in section 1.6.1 above.

End Option

Option: Include the following for customers who are eligible to receive irrigation rate discount; delete this section if not applicable.

2. IRRIGATION RATE DISCOUNT

Starting October 1, 2028, subject to the terms specified in BPA's applicable Power Rate Schedules and GRSPs, the following shall apply, provided that the Parties have revised the table below no later than September 30, 2027.

- 2.1 For billing purposes, in the months listed below for each year during the term of this Agreement, BPA shall apply Irrigation Rate Discount to the lesser of the corresponding amount purchased at the Tier 1 Rate in the month or the energy amount in the table below.

Drafter's Note: Leave table blank at contract signing.

Irrigation Amounts (kWh)					
May	Jun	Jul	Aug	Sept	Annual Total

- 2.2 After the end of each irrigation season, the Parties shall administer a true-up process to ensure «Customer Name»'s irrigation load meets or exceeds the total eligible irrigation amount (in kilowatt-hours) listed above.

- 2.3 «Customer Name» shall be responsible for implementing cost-effective conservation measures on irrigation systems in their service territories. «Customer Name» shall report and BPA shall verify all qualifying conservation measures and project savings pursuant to «Customer Name»'s Energy Conservation Agreement or its successor.

End Option

«#». «PLACEHOLDER FOR SPECIAL PROVISIONS»

Drafter's Note: Insert any special provisions unique to the customer here, before the revisions section, and number sections accordingly. Otherwise, delete this section if not applicable.

«#». REVISIONS

BPA shall unilaterally revise section 1, CF/CT and New Large Single Loads to reflect BPA's determinations made in accordance with section 20.3 of the body of the

Agreement and section 1 of this Exhibit D. All other changes to this Exhibit D will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Template Option 1: Include the following for Slice/Block and Block customers that have both interchange and non-interchange meters.

**Exhibit E
METERING**

Drafter’s Notes: Rows will be added to the table to include applicable Points of Metering and Points of Delivery. The table will be sorted first by manner of service then alphabetically by POD name, then POM name under each POD.

Drafter’s Note: Leave table blank at contract signing.

1. METERING

BPA POD Name	BPA POD Number	BPA POM Name	BPA POM Number	POD Location Description	POD Voltage kV	POM Location Description	Direction for PF Billing Purposes	WECC Balancing Authority	Manner Of Service	Manner Of Service Description	Metering Loss Adjust-ment	Exception

2. REVISIONS

Each Party shall notify the other with any requests to update this exhibit. The Parties shall coordinate and seek mutual agreement on any such requested exhibit revisions. Upon such agreement, or if the agreement is unreasonably withheld or delayed, BPA shall revise this exhibit to accurately reflect what BPA determines are the actual characteristics of PODs and meter information described in this exhibit. Unless the Parties otherwise agree, BPA shall not revise the exhibit any sooner than 60 calendar days after the request to update this exhibit. BPA shall provide «Customer Name» with a revised Exhibit E. The effective date will be the date stated at the top of the revised exhibit.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter’s Note: Insert date of finalized contract here}*

End Template Option 1

Template Option 2: Include the following for Slice/Block and Block customers that have ONLY interchange meters.

Exhibit E METERING

1. DESCRIPTION OF INTERCHANGE METERS

For purposes of this exhibit, an “Interchange Point” means the point where two Balancing Authority Areas interconnect and at which the interchange of energy between Balancing Authority Areas is monitored and measured by interchange meter(s). The Parties agree that although the following interchange meters may not be necessary to prepare «Customer Name»’s power bills, inclusion of this information will help both Parties administer this Agreement. Information about the points of interchange and meter to interchange relationships are useful in providing the Parties a better understanding of the scope of «Customer Name»’s and BPA’s Balancing Authority Areas. This information will also help BPA review its forecasting assumptions.

Drafter’s Note: Rows will be added to the table for each meter point. The meter table will be sorted alphabetically according to name of interchange point.

Sub-Option 1: Include if customer’s interchange meters are in their own Balancing Authority Area.

Drafter’s Note: Leave table blank at contract signing.

Name of Interchange Point	Meter Location	Meter Owner

END Sub-Option 1

Sub-Option 2: Include if customer’s interchange meters are in a different Balancing Authority Area.

BPA and «Customer Name’s BAA» have installed interchange telemetry and metering at the locations listed below.

Drafter’s Note: Leave table blank at contract signing.

Name of Interchange Point	Meter Location	Meter Owner	Exception

End Sub-Option 2

2. REVISIONS

Each Party shall notify the other with any requests to update this exhibit. The Parties shall coordinate and seek mutual agreement on any such requested exhibit revisions. Upon such agreement, or if the agreement is unreasonably withheld or delayed, BPA shall revise this exhibit to accurately reflect what BPA determines are the actual characteristics of PODs and meter information described in this exhibit. Unless the Parties otherwise agree, BPA shall not revise the exhibit any sooner than 60 calendar days after the request to update this exhibit. BPA shall provide «Customer Name» with a revised Exhibit E. The effective date will be the date stated at the top of the revised exhibit.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *Drafter's Note: Insert date of finalized contract here*

End Template Option 2

Template Option 1: Include the following for exclusively directly-connected customers.

**Exhibit F
SCHEDULING**

1. SCHEDULING BPA-PROVIDED POWER

1.1 Definitions

- 1.1.1 “Balancing Authority” means the responsible entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.
- 1.1.2 “Balancing Authority Area” means the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.
- 1.1.3 “Electronic Tag” or “E-Tag” means an electronic record that contains the details of a transaction to transfer energy from a source point to a sink point where the energy is scheduled for transmission across one or more Balancing Authority Area(s), consistent with all relevant WECC, NAESB, NERC and FERC requirements.
- 1.1.4 “Heavy Load Hours” or “HLH” means hours ending 0700 through 2200 hours Pacific Prevailing Time (PPT), Monday through Saturday, excluding holidays as designated by the North American Electric Reliability Corporation (NERC).
- 1.1.5 “Interchange Points” means the points where Balancing Authority Areas interconnect and at which the interchange of energy between Balancing Authority Areas is monitored and measured.
- 1.1.6 “Light Load Hours” or “LLH” means: (1) hours ending 0100 through 0600 and 2300 through 2400 hours PPT, Monday through Saturday, and (2) all hours on Sundays and holidays as designated by NERC.
- 1.1.7 “Open Access Transmission Tariff” or “OATT” means the terms and conditions of point-to-point and network integration transmission services, ancillary services, and generator interconnections offered by BPA or a Third-Party Transmission Provider.
- 1.1.8 “Scheduling Hour” or “Scheduling Hour XX” means the 60-minute period ending at XX:00. For example, Scheduling Hour 04 means the 60-minute period ending at 4:00 a.m.

1.1.9 “Slice Scheduling Day” means the applicable day that final Customer Inputs are submitted for a given Slice Operating Day. The Slice Scheduling Day occurs the calendar day before the Slice Operating Day.

Option 1: Include the following for customers with PTP Transmission.

1.2 «Customer Name» shall create E-Tags for all amounts of SOER, Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement. «Customer Name» shall provide copies of such E-Tags to Power Services consistent with the requirements of this exhibit.

End Option 1

Option 2: Include the following for customers with NT service.

1.2 «Customer Name» shall create E-Tags for all amounts of SOER purchased under this Agreement. «Customer Name» shall provide copies of such E-Tags to Power Services consistent with the requirements of this exhibit.

If any E-Tags are required for «Customer Name»’s Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement, then BPA shall create any such E-Tags.

End Option 2

2. COORDINATION REQUIREMENTS

2.1 Hourly Tier 1 and Tier 2 Block Amounts

Consistent with section 4 of the body of the Agreement and sections 1.3 and 2.9 of Exhibit C, BPA shall determine «Customer Name»’s hourly Tier 1 Block Amounts and Tier 2 Block Amounts for all hours of the upcoming Fiscal Year and shall provide «Customer Name» with such amounts at least five Business Days prior to October 1 of each Fiscal Year.

2.2 Prescheduling

«Customer Name»’s submittal of E-Tags, pursuant to section 1 above, shall be due to Power Services in accordance with the parameters specified in section 3.3.4 of this exhibit.

2.3 Real-Time Scheduling

«Customer Name» may submit new or modified E-Tags pursuant to section 1.2. Any E-Tag submitted in real-time shall not adjust any amounts of SOER set in accordance with section 4 of this exhibit.

2.4 After the Fact

Power Services and «Customer Name» shall reconcile all transactions, schedules and accounts at the end of each month (as early as possible within the first ten calendar days of the next month). Power Services and «Customer Name» shall verify all transactions under this Agreement as to product or type of service, hourly amounts, daily and monthly totals, and related charges.

3. SOER SCHEDULING REQUIREMENTS

- 3.1 E-Tags for SOER amounts submitted to Power Services by «Customer Name» shall not exceed the SOER established in the POCSA for such Scheduling Hour.
- 3.2 The timeline within which Power Services shall approve or deny «Customer Name»'s SOER schedules, as represented by «Customer Name»'s E-Tags, shall conform to Power Services' scheduling guidelines as specified in sections 3 and 4 of this exhibit.
- 3.2.1 SOER E-Tags shall: (1) identify Power Services as the generation providing entity, (2) identify «Customer Name» as first downstream purchasing-selling entity, (3) identify hourly energy amounts in megawatt-hours, and (4) maintain all data consistent with applicable industry standards.
- 3.2.2 Changes to SOER E-Tags required by a Balancing Authority for maintaining system reliability, as determined by the responsible Balancing Authority, shall be implemented by Power Services and «Customer Name» at the time of such notification by the Balancing Authority.
- 3.3 «Customer Name» shall verify the sum of its hourly tagged and non-tagged (e.g., transmission loss schedules, etc., that are not tagged) energy amounts is equal to its SOER amounts, pursuant to section 7 of Exhibit L, for each Scheduling Hour.
- 3.3.1 «Customer Name» shall have the right to submit adjusted Customer Inputs to Power Services, pursuant to section 4 of this exhibit, in order to alter the associated Simulated Output Energy Schedules within established SOE Limits, such that «Customer Name»'s SOER amounts is made equal to the sum of its tagged and non-tagged energy amounts for each Scheduling Hour.
- 3.3.2 For each Scheduling Hour, the amount that «Customer Name»'s hourly tagged and non-tagged energy is in excess of its SOER amount shall be subject to the Unauthorized Increase Charge for energy. For each Scheduling Hour, the amount that «Customer Name»'s hourly tagged and non-tagged energy is less than its SOER amount shall be forfeited, subject to any charges in BPA's applicable Power Rate Schedules and GRSPs.
- 3.3.3 SOER E-Tag and SOER amount mismatches that result from Balancing Authority reliability required actions shall not be subject to penalty if such required reliability action is implemented by the Balancing Authority less than 30 minutes prior to the start of the Scheduling Hour in which the mismatch occurs.

- 3.3.4 Unless otherwise mutually agreed, all «Customer Name» preschedule SOER E-Tags will be submitted according to NERC instructions and deadlines for E-Tagging, as specified or modified by the Balancing Authority and WECC.

4. CUSTOMER INPUT AND BOS FLEX SUBMISSION DEADLINE

«Customer Name» shall have until 0800 hours Pacific Prevailing Time on each Slice Scheduling Day to submit revised Customer Inputs and BOS Flex requests for each Slice Operating Day, pursuant to section 7 of Exhibit L.

5. SCHEDULING OF DEDICATED RESOURCES AND CONSUMER-OWNED RESOURCES SERVING ON-SITE CONSUMER LOAD

No later than ten calendar days following the end of each month, «Customer Name» shall provide to Power Services all E-Tags that were created or modified during the previous month in association with the delivery of «Customer Name»'s Dedicated Resources and Consumer-Owned Resources Serving On-Site Consumer Load, if any, listed in sections 2, 3, 4 or 7.1 of Exhibit A.

Consistent with section 3 of Exhibit J, BPA shall develop RSS products to support eligible Specified Resources listed in section 2 of Exhibit A and make RSS available starting in FY 2029. Such development shall include scheduling requirements for RSS. BPA shall offer RSS contract provisions as a revision to Exhibit J and this exhibit by July 31, 2026.

6. REVISIONS

BPA may unilaterally revise this exhibit:

- (1) to implement changes that BPA determines are reasonably necessary to allow it to meet its power and scheduling obligations under this Agreement, or
- (2) to comply with requirements of Western Electricity Coordinating Council (WECC), North American Energy Standards Board (NAESB), or NERC, WRAP or their successors or assigns.

BPA shall provide a draft of any unilateral revisions of this exhibit to «Customer Name», with reasonable time for comment, prior to BPA providing written notice of the revision. Such revisions will be effective no sooner than 45 calendar days after BPA provides written notice of the revisions to «Customer Name» unless, in BPA's sole judgment, less notice is necessary to comply with an emergency change to the requirements of WECC, NAESB, NERC, WRAP or their successors or assigns. In such circumstances, BPA shall specify the effective date of such revisions.

All other changes to this Exhibit F will be made by mutual agreement of the Parties.

End Template Option 1

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Template Option 2: Include the following for customers that are either exclusively served by Transfer Service or for customers that are BOTH directly-connected and served by Transfer Service.

Exhibit F SCHEDULING

1. SCHEDULING BPA-PROVIDED POWER

1.1 Definitions

- 1.1.1 “Balancing Authority” means the responsible entity that integrates resource plans ahead of time, maintains demand and resource balance within a Balancing Authority Area, and supports interconnection frequency in real time.
- 1.1.2 “Balancing Authority Area” means the collection of generation, transmission, and loads within the metered boundaries of the Balancing Authority. The Balancing Authority maintains load-resource balance within this area.
- 1.1.3 “Electronic Tag” or “E-Tag” means an electronic record that contains the details of a transaction to transfer energy from a source point to a sink point where the energy is scheduled for transmission across one or more Balancing Authority Area(s), consistent with all relevant WECC, NAESB, NERC and FERC requirements.
- 1.1.4 “Heavy Load Hours” or “HLH” means hours ending 0700 through 2200 hours Pacific Prevailing Time (PPT), Monday through Saturday, excluding holidays as designated by the North American Electric Reliability Corporation (NERC).
- 1.1.5 “Interchange Points” means the points where Balancing Authority Areas interconnect and at which the interchange of energy between Balancing Authority Areas is monitored and measured.
- 1.1.6 “Light Load Hours” or “LLH” means: (1) hours ending 0100 through 0600 and 2300 through 2400 hours PPT, Monday through Saturday, and (2) all hours on Sundays and holidays as designated by NERC.
- 1.1.7 “Open Access Transmission Tariff” or “OATT” means the terms and conditions of point-to-point and network integration transmission services, ancillary services, and generator interconnections offered by BPA or a Third-Party Transmission Provider.
- 1.1.8 “Scheduling Hour” or “Scheduling Hour XX” means the 60-minute period ending at XX:00. For example, Scheduling Hour 04 means the 60-minute period ending at 4:00 a.m.

1.1.9 “Slice Scheduling Day” means the applicable day that final Customer Inputs are submitted for a given Slice Operating Day. The Slice Scheduling Day occurs the calendar day before the Slice Operating Day.

Option 1: Include the following for customers that are partially served by Transfer Service with NT service.

1.2 «Customer Name» shall create E-Tags for all amounts of SOER purchased under this Agreement. «Customer Name» agrees to provide copies of such E-Tags to Power Services consistent with the requirements of this exhibit.

If any E-Tags are required for «Customer Name»’s Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement, then BPA shall be responsible for creating such E-Tags.

If any E-Tags are required for the portion of «Customer Name»’s load located outside the BPA Balancing Authority Area, scheduling and E-Tagging shall be performed in accordance with section 6 of this exhibit.

End Option 1

Option 2: Include the following for customers that are partially served by Transfer Service with PTP transmission service.

1.2 «Customer Name» shall create E-Tags for all amounts of SOER, Tier 1 Block Amounts, and Tier 2 Block Amounts purchased under this Agreement, and serving a portion of «Customer Name»’s load located inside the BPA Balancing Authority Area. «Customer Name» agrees to provide copies of such E-Tags to Power Services consistent with the requirements of this exhibit.

If any E-Tags are required for «Customer Name»’s Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement serving a portion of «Customer Name»’s load located outside the BPA Balancing Authority Area, then BPA shall create such E-Tags.

For any portion of «Customer Name»’s load located outside the BPA Balancing Authority Area, scheduling and E-Tagging shall be performed in accordance with section 6 of this exhibit.

End Option 2

Option 3: Include the following for customers that are exclusively served by Transfer Service.

1.2 «Customer Name» shall create E-Tags for the portion of «Customer Name»’s SOER that is not applied to «Customer Name»’s load. «Customer Name» shall provide copies of such E-Tags to Power Services consistent with the requirements of this exhibit.

«Customer Name» shall schedule the portion of «Customer Name»’s SOER that is applied to «Customer Name»’s load consistent with section 2.2 below and use the Integrated Scheduling Allocation After-the-Fact Calculation

(ISAAC) Portal, or its successor. BPA shall create E-Tags associated with «Customer Name»'s SOER that is applied to «Customer Name»'s load.

If any E-Tags are required for «Customer Name»'s Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement, then BPA shall create such E-Tags.

In addition, scheduling and E-Tagging shall be performed in accordance with section 6 of this exhibit.

End Option 3

2. COORDINATION REQUIREMENTS

2.1 Hourly Tier 1 and Tier 2 Block Amounts

Consistent with section 4 of the body of the Agreement and sections 1.3 and 2.9 of Exhibit C, BPA shall determine «Customer Name»'s hourly Tier 1 Block Amounts and Tier 2 Block Amounts for all hours of the upcoming Fiscal Year and shall provide «Customer Name» with such amounts at least five Business Days prior to October 1 of each Fiscal Year.

2.2 Prescheduling

Except as otherwise stated in section 6 below, all preschedule E-Tags are due to Power Services in accordance with the parameters specified in sections 3.3.4 and 4.3 of this exhibit.

Option 1: Include the following for customers that partially served by Transfer Service customers (PTP or NT).

2.3 Real-Time Scheduling

«Customer Name» shall have the right to submit new or modified E-Tags associated with a change to scheduled deliveries of SOER in real-time in accordance with the parameters specified in section 4 of this exhibit.

End Option 1

Option 2: Include the following for customers that are exclusively served by Transfer Service

2.3 Real-Time Scheduling

«Customer Name» shall coordinate any real-time changes to scheduled deliveries to load served by BPA-provided power consistent with section 6.2 of this exhibit.

End Option 2

2.4 After the Fact

Power Services and «Customer Name» shall reconcile all transactions, schedules and accounts at the end of each month (as early as possible within the first ten calendar days of the next month). Power Services and «Customer Name» shall verify all transactions under this Agreement as to product or type of service, hourly amounts, daily and monthly totals, and related charges.

3. SOER SCHEDULING REQUIREMENTS

- 3.1 SOER schedules, as represented by «Customer Name»'s E-Tags, submitted to Power Services by «Customer Name» shall not exceed the SOER amounts established in the POCSA during any Scheduling Hour.
- 3.2 The timeline within which Power Services shall approve or deny «Customer Name»'s SOER schedules, as represented by «Customer Name»'s E-Tags, shall conform to Power Services' scheduling guidelines as specified in section 4 of this exhibit.
 - 3.2.1 E-Tags submitted to Power Services shall: (1) identify Power Services as the generation providing entity, (2) identify «Customer Name» as first downstream purchasing-selling entity, (3) identify hourly energy amounts in megawatt-hours, and (4) maintain all data consistent with applicable industry standards.
 - 3.2.3 Changes to SOER E-Tags amounts required by a Balancing Authority for maintaining system reliability, as determined by the responsible Balancing Authority, shall be implemented by Power Services and «Customer Name» at the time of such notification by the Balancing Authority.
- 3.3 «Customer Name» shall verify the sum of its hourly tagged and non-tagged (e.g., transmission loss schedules, etc., that are not tagged) energy amounts is equal to its SOER amounts, pursuant to section 7 of Exhibit L, for each Scheduling Hour.
 - 3.3.1 «Customer Name» shall have the right to submit adjusted Customer Inputs to Power Services, pursuant to section 4 of this exhibit, in order to alter the associated Simulated Output Energy Schedules within established SOE Limits, such that «Customer Name»'s SOER amounts is made equal to the sum of its tagged and non-tagged energy amounts for each Scheduling Hour.
 - 3.3.2 For each Scheduling Hour, the amount that «Customer Name»'s hourly tagged and non-tagged energy is in excess of its SOER amount shall be subject to the Unauthorized Increase Charge for energy. For each Scheduling Hour, the amount that «Customer Name»'s hourly tagged and non-tagged energy is less than its SOER amount shall be forfeited, subject to any charges in BPA's applicable Power Rate Schedules and GRSPs.
 - 3.3.3 SOER E-Tags and SOER amount mismatches that result from Balancing Authority reliability required actions shall not be subject to penalty if such required reliability action is implemented by the Balancing Authority less than 30 minutes prior to the start of the Scheduling Hour in which the mismatch occurs.

- 3.3.4 Unless otherwise mutually agreed, all «Customer Name» preschedule SOER E-Tags will be submitted according to NERC instructions and deadlines for E-Tagging, as specified or modified by the Balancing Authority and WECC.

4. CUSTOMER INPUT AND BOS FLEX SUBMISSION DEADLINE

«Customer Name» shall have until 0800 hours Pacific Prevailing Time (PPT) on of each Slice Scheduling Day to submit revised Customer Inputs and BOS Flex requests for each Slice Operating Day, pursuant to section 7 of Exhibit L.

5. SCHEDULING OF DEDICATED RESOURCES AND CONSUMER-OWNED RESOURCES SERVING ON-SITE CONSUMER LOAD

No later than ten calendar days following the end of each month, «Customer Name» agrees that it will provide to Power Services all E-Tags that were created or modified during the previous month in association with the delivery of «Customer Name»'s Dedicated Resources and Consumer-Owned Resources Serving On-Site Consumer Load, if any, listed in sections 2, 3, 4, or 7.1 of Exhibit A.

Option 1: Include the following if customer has no scheduling requirements.

6. SPECIAL SCHEDULING PROVISIONS FOR TRANSFER CUSTOMERS

«Customer Name» currently has no scheduling obligations that are specific to «Customer Name»'s Transfer Service arrangements.

End Option 1

Option 2: Include the following if customer is served by Transfer Service via a General Transfer Agreement (GTA) and currently has no deviation scheduling.

6. SPECIAL SCHEDULING PROVISIONS FOR TRANSFER CUSTOMERS

«Customer Name» shall submit all forecasts in this section 6 using the ISAAC Portal, or its successor.

6.1 «Customer Name» shall submit an hourly load forecast for load served by BPA-provided power to BPA by 0900 PPT the day(s) on which prescheduling occurs, as specified by WECC, for the portion of «Customer Name»'s load that is served outside the BPA Balancing Authority Area.

6.2 «Customer Name» may submit real-time changes to such hourly load forecast for load served by BPA-provided power no later than 30 minutes prior to the hour of delivery for the portion of «Customer Name»'s load served outside BPA's Balancing Authority Area.

6.3 If «Customer Name»'s General Transfer Agreement No. ##### expires, then BPA shall replace this section 6 with provisions that are compatible with the service agreement between BPA and the Third-Party Transmission Provider.

End Option 2

Option 3: Include the following if customer is served by Transfer Service via a General Transfer Agreement (GTA) and does have deviation scheduling.

6. SPECIAL SCHEDULING PROVISIONS FOR TRANSFER CUSTOMERS

«Customer Name» shall submit all schedules and forecasts in this section 6 using the Integrated Scheduling Allocation After-the-Fact Calculation (ISAAC) Portal, or its successor.

6.1 Resources Applied to Load Served by Transfer Service

For purposes of serving Transfer Service load located outside of the BPA Balancing Authority Area, «Customer Name» shall apply Tier 1 Block Amounts and Tier 2 Block Amounts purchased under this Agreement, or any Transfer Service Eligible Resources that are listed in sections 2, 3, 4, 7.1, or 7.4 of Exhibit A to the portion of «Customer Name»'s load served outside the BPA Balancing Authority Area.

6.2 Development of Power Schedules

6.2.1 «Customer Name» shall submit an hourly forecast of the portion of «Customer Name»'s load that is served outside the BPA Balancing Authority Area and that is not served by a Transfer Service Eligible Resource to BPA by 0900 PPT the day(s) on which prescheduling occurs, as specified by WECC.

6.2.2 «Customer Name» shall create all E-Tags necessary for delivery of Transfer Service Eligible Resources to the portion of «Customer Name»'s load that is served outside the BPA Balancing Authority Area.

6.2.3 «Customer Name»'s schedules and E-Tags for the portion of its load served outside the BPA Balancing Authority Area shall represent «Customer Name»'s best available forecast of the load.

6.3 Deviation Scheduling

6.3.1 No later than the fifth Business Day of each month BPA shall notify «Customer Name» of the current deviation balance for «Customer Name» loads served by Transfer Service. In such deviation balance, BPA shall identify separate deviation balances for HLH and LLH for the accrued deviation through the previous month. Such deviation balance shall be based on «Customer Name»'s metered loads served by Transfer Service, including losses, and both federal and Transfer Service Eligible Resource deliveries to such loads, as well as outstanding deviation balances from previous months, if any.

6.3.2 No later than the tenth Business Day of each month, «Customer Name» shall submit to BPA an hourly deviation return schedule. In such hourly deviation return schedule, «Customer Name» shall:

- (1) for both HLH and LLH, identify whether the deviation schedule is to account for energy owed to the Third-Party Transfer Service Provider or energy owed to «Customer Name»;
- (2) schedule the return of the entire deviation balance. The deviation balance in HLH shall be returned in HLH and the deviation balance in LLH shall be returned in LLH;
- (3) ensure such schedule is as flat as possible over the hours remaining in the month; and
- (4) ensure deviation return is no greater than 5 MW in any hour.

6.3.3 If it is impossible for «Customer Name» to meet all the requirements of section 6.3.2(1) through section 6.3.2(4) above due to the amount of accrued deviation and the number of hours remaining in the month, then the Parties shall work together to establish a mutually agreeable hourly deviation return schedule.

End Option 3

Option 4: Include the following for customers served by Transfer Service via an OATT.

6. SPECIAL SCHEDULING PROVISIONS FOR TRANSFER CUSTOMERS

6.1 Resources Applied to Load Served by Transfer Service

For purposes of serving Transfer Service load located outside of the BPA Balancing Authority Area, «Customer Name» shall apply SOER purchased under this Agreement or any Transfer Service Eligible Resources that are listed in sections 2, 3, 4, 7.1, or 7.4 of Exhibit A to the portion of «Customer Name»'s load served outside the BPA Balancing Authority Area.

However, if the portion of «Customer Name»'s load that is served inside the BPA Balancing Authority Area is less than «Customer Name»'s entire Tier 1 Block Amounts and Tier 2 Block Amounts in any hour, then «Customer Name» may, consistent with section 6.2.3 below, apply Tier 1 Block Amounts and Tier 2 Block Amounts to load served by Transfer Service.

6.2 Development of Power Schedules

6.2.1 «Customer Name»'s schedules and E-Tags for the portion of its load served outside the BPA Balancing Authority Area shall represent «Customer Name»'s best available forecast of the load and shall be compliant with the applicable Third-Party Transmission Provider's most current Open Access Transmission Tariff.

6.2.2 If «Customer Name»'s forecast of its load outside the BPA Balancing Authority Area exceeds BPA's rights to firm transmission over the Third-Party Transmission Provider's system, «Customer Name» shall notify BPA and the Parties shall coordinate to obtain the necessary

additional Transfer Service from the Third-Party Transmission Provider.

- 6.2.3 «Customer Name» shall submit all schedules and forecasts in this section 6.2.3 using the Integrated Scheduling Allocation After-the-Fact Calculation (ISAAC) Portal, or its successor. If «Customer Name» applies Tier 1 Block Amounts and Tier 2 Block Amounts to «Customer Name»'s load outside the BPA Balancing Authority Area pursuant to section 6.1 of this exhibit, then: (1) «Customer Name» shall notify BPA of the hourly amounts of Tier 1 Block Amounts and Tier 2 Block Amounts that «Customer Name» will apply to load served by Transfer Service by 0900 PPT the day(s) on which prescheduling occurs, as specified by WECC and (2) may not submit changes to such hourly load forecast in real-time.
- 6.2.4 During a transmission event, which may include a transmission curtailment or a planned transmission outage that affects service to the portion of «Customer Name»'s load that is served outside the BPA Balancing Authority Area, «Customer Name» shall use commercially reasonable efforts to resume full performance. During a transmission event that interrupts service to the portion of «Customer Name»'s load that is served outside the BPA Balancing Authority Area, «Customer Name» may use sources of power to meet such load other than the sources described in section 6.1 of this exhibit. In such event, the Parties shall coordinate to obtain the necessary Transfer Service from the Third-Party Transmission Provider to cover the duration of a transmission event.

6.3 Pass-Through Charges Under OATT Service

Consistent with section 14.6.1 of this Agreement, if BPA receives a charge or credit from the Third-Party Transmission Provider for energy imbalance, redispatch or Unauthorized Increase Charge, then BPA shall charge or credit «Customer Name» accordingly for the energy imbalance, redispatch or Unauthorized Increase Charge associated with the portion of «Customer Name»'s load served by Transfer Service. Such charges or credits will be based on any of «Customer Name»'s E-Tags serving remote loads, metered values for such remote loads, and the charges or credits BPA receives from the Third-Party Transmission Provider. BPA shall reflect any charges or credits on «Customer Name»'s monthly bill.

End Option 4

7. SPECIAL SCHEDULING PROVISIONS FOR RSS

Because scheduling provisions for RSS for Slice/Block customers served by Transfer Service will be specific to the resource and situation, the Parties shall add such provisions after an RSS election is made.

8. REVISIONS

BPA may unilaterally revise this exhibit:

- (1) to implement changes that BPA determines are reasonably necessary to allow it to meet its power and scheduling obligations under this Agreement, or
- (2) to comply with requirements of Western Electricity Coordinating Council (WECC), North American Energy Standards Board (NAESB), or NERC, WRAP or their successors or assigns.

BPA shall provide a draft of any unilateral revisions of this exhibit to «Customer Name», with reasonable time for comment, prior to BPA providing written notice of the revision. Such revisions will be effective no sooner than 45 calendar days after BPA provides written notice of the revisions to «Customer Name» unless, in BPA's sole judgment, less notice is necessary to comply with an emergency change to the requirements of WECC, NAESB, NERC, WRAP or their successors or assigns. In such circumstances, BPA shall specify the effective date of such revisions.

All other changes to this Exhibit F will be made by mutual agreement of the Parties.

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End Template Option 2

Template Option 1: Include the following for customers not served by Transfer Service.

Exhibit G

THIS EXHIBIT INTENTIONALLY LEFT BLANK

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

End Template Option 1

Template Option 2: Include the following exhibit for customers served by Transfer Service.

Exhibit G
TERMS RELATED TO TRANSFER SERVICE

As provided by section 14.6.7 of the body of this Agreement, if «Customer Name» acquires a Transfer Service Eligible Resource, then BPA's support and financial assistance to «Customer Name» shall be consistent with the terms and conditions in this exhibit.

1. DEFINITIONS

- 1.1 “Fiscal Year Transfer Cap” means the annual Average Megawatt cap described in section 2 of this exhibit. The Fiscal Year Transfer Cap establishes the limit under which BPA will provide financial support for Transfer Service to customers' Network Resources.
- 1.2 “Initial Transfer Study Deposit” means the amount of dollars required by a Third-Party Transmission Provider to initiate a Transfer Study.
- 1.3 “Last Transfer Segment” means the transmission and/or distribution facilities of the Third-Party Transmission Provider that (1) interconnect directly to a customer's transmission or distribution facilities, (2) interconnect to BPA transmission facilities that subsequently interconnect with a customer's transmission or distribution facilities, or (3) for deliveries to Transfer Service PODs where BPA uses the facilities of multiple Third-Party Transmission Providers, as noted in Exhibit E, to deliver Firm Requirements Power and Surplus Firm Power from the Primary Points of Receipt to the required facilities of each of these Third-Party Transmission Providers.
- 1.4 “Network Load” shall have the meaning as defined in the Federal Energy Regulatory Commission's (FERC's) current pro forma Open Access Transmission Tariff (OATT), or its successor.
- 1.5 “Network Resource” shall have the meaning as defined in the current FERC pro forma OATT, or its successor. In addition, the term “Network Resource” means any Transfer Service Eligible Resource that has been acquired by a customer and for which the customer has begun the process of acquiring firm transmission to serve the customer's Transfer Service POD(s).
- 1.6 “Transfer Market Purchase” means, for purposes of this Exhibit G, a power purchase or resource that a customer uses to displace a Network Resource.
- 1.7 “Transfer Request” means the written notification by BPA to a Third-Party Transmission Provider to start the required process to accommodate new or modified Transfer Service.

- 1.8 “Transfer Study” means a system impact study, feasibility study, facilities study, or other such study required by a Third-Party Transmission Provider following submission of a Transfer Request.

2. ESTABLISHED CAPS AND LIMITATIONS

- 2.1 This section 2.1 shall not apply for any Transfer Service Eligible Resource: (1) serving a Planned NLSL or an NLSL pursuant to section 1 of Exhibit D and for which BPA is passing through the cost of Transfer Service pursuant to section 14.6.7.1, (2) serving a portion of «Customer Name»’s Total Retail Load that «Customer Name» is obligated to serve with BPA-provided electric power pursuant to this Agreement, or (3) that «Customer Name» is not acquiring and paying for transmission service from Transmission Services for that Transfer Service Eligible Resource. For all other Transfer Service Eligible Resources, BPA shall provide financial support for the transmission capacity associated with the Transfer Service Eligible Resource to all Transfer Service customers up to a maximum of 41 MW per Fiscal Year, cumulative over the duration of this Agreement. This cumulative megawatt limit is shown in the table below.

Fiscal Year	Per Year MW Limit	Cumulative MW Limit
FY 2029	41	41
FY 2030	41	82
FY 2031	41	123
FY 2032	41	164
FY 2033	41	205
FY 2034	41	246
FY 2035	41	287
FY 2036	41	328
FY 2037	41	369
FY 2038	41	410
FY 2039	41	451
FY 2040	41	492
FY 2041	41	533
FY 2042	41	574
FY 2043	41	615
FY 2044	41	656

- 2.2 Application of section 14.6.7 of the body of this Agreement and section 3.2 of this exhibit shall be on a first come, first served basis in each year based on the date each request is received by BPA. Requests not met, in whole or in part, in any Fiscal Year will have priority over subsequent requests the following year. Once granted, BPA shall honor such request for the duration of the resource acquisition period, not to exceed the term of this Agreement.

3. TRANSFER SERVICE FOR TRANSFER SERVICE ELIGIBLE RESOURCES

The terms and conditions of this section 3 are intended to serve as an enabling agreement under which BPA will offer specific terms for delivering Network

Resources to «Customer Name»'s Transfer Service PODs, as identified in Exhibit E. Each Network Resource serving «Customer Name»'s Transfer Service PODs will result in specific terms and conditions, negotiated by the Parties, and be included in section 7 of Exhibit J.

3.1 Obtaining Transfer Service Support

3.1.1 Customer Application

«Customer Name» shall have the right to request Transfer Service support over the Last Transfer Segment from BPA for the delivery of any Transfer Service Eligible Resource that «Customer Name» intends to acquire to serve its Transfer Service POD(s), provided that such request shall be for service of at least one year in duration. «Customer Name»'s request shall comply with the requirements of this section 3.1 and shall be subject to the limitations of section 2 of this exhibit.

To request Transfer Service support from BPA for delivery of any Transfer Service Eligible Resource, «Customer Name» shall complete and submit to BPA the application form that BPA shall make available at a publicly accessible website.

«Customer Name»'s submission of the application to BPA begins the process of acquiring firm transmission for the Transfer Service Eligible Resource. From the submission forward, the Transfer Service Eligible Resource will be referred to as a Network Resource.

«Customer Name» shall submit its completed application form to BPA at least one year prior to the date «Customer Name» anticipates it will start receiving energy from its Network Resource and BPA shall acquire, if possible, firm transmission service for «Customer Name»'s Network Resource over the Last Transfer Segment.

On a case-by-case basis, BPA may, but is not obligated to, consider Transfer Service support requests to obtain firm transmission service for a Network Resource made less than one year prior to the date «Customer Name» anticipates it will start receiving energy from that Network Resource.

3.1.2 BPA Notice and Completing Customer Application

Within ten Business Days of BPA's receipt of «Customer Name»'s application, BPA shall notify «Customer Name» as to the status of the application. Such notice shall inform «Customer Name» of the following: (1) whether the information provided in the submitted application form is sufficient for BPA to request firm transmission service for «Customer Name»'s Network Resource, (2) whether the amount of Transfer Service requested for «Customer Name»'s Network Resource exceeds, or partially exceeds, the current Fiscal Year Transfer Cap, and (3) whether the amount of Transfer Service requested for «Customer Name»'s Network Resource exceeds, or

partially exceeds BPA's forecast of «Customer Name»'s minimum hourly load for «Customer Name»'s Transfer Service POD(s).

If BPA determines the information in «Customer Name»'s application is insufficient, then BPA may ask «Customer Name» for additional information to support BPA's efforts to secure firm transmission service. «Customer Name» shall provide BPA with the requested information within ten Business Days or within such time as the Parties may agree.

If «Customer Name»'s request exceeds or partially exceeds the current Fiscal Year Transfer Cap, then «Customer Name» shall notify BPA within ten Business Days after receipt of BPA's notification whether «Customer Name» will withdraw or proceed with its application.

If «Customer Name»'s request exceeds or partially exceeds BPA's forecast of their minimum hourly load for «Customer Name»'s Transfer Service POD(s), then «Customer Name» shall revise its application within ten Business Days after receipt of BPA's notification so that the Network Resource does not exceed or partially exceed its minimum load.

3.1.3 Obtaining Firm Transmission Service

Once the Parties have completed the requirements in sections 3.1.1 and 3.1.2 of this exhibit, BPA shall pursue designation of the Network Resource and request firm transmission service from the Third-Party Transmission Provider. If the Third-Party Transmission Provider requests from BPA more information than «Customer Name» provided in its completed application form, then the Parties shall obtain and provide such information to the Third-Party Transmission Provider within ten Business Days of the Third-Party Transmission Provider's request.

If the Third-Party Transmission Provider informs BPA that studies are, or construction may be, required to provide firm transmission service for «Customer Name»'s Network Resource, then BPA shall notify «Customer Name» of such studies or construction requirements. If, based on such studies or construction, «Customer Name» chooses to withdraw its request, then «Customer Name» shall notify BPA within five Business Days of receiving notice from BPA of such requirements. If no notice of withdrawal is received, then BPA shall proceed with firm transmission service acquisition for «Customer Name»'s Network Resource and BPA shall pass through to «Customer Name» all study and construction related costs the Third-Party Transmission Provider charges to BPA.

BPA shall make reasonable efforts to coordinate with «Customer Name» and the Third-Party Transmission Provider to complete the

firm transmission service acquisition process as described in this section 3.1.3.

3.1.4 Unavailable Firm Transmission Service for a Network Resource

If the Third-Party Transmission Provider has not agreed to provide firm transmission services for «Customer Name»'s Network Resource within the requested timeframe, then BPA shall not be liable to «Customer Name» for any costs or penalties «Customer Name» may incur associated with the lack of firm transmission service. Further, BPA shall not be obligated to obtain Transfer Service for such Network Resource. «Customer Name» may submit a subsequent request for such Network Resource or another resource pursuant to section 3.1.1 of this exhibit. Such subsequent request may obligate BPA to obtain Transfer Service pursuant to terms of this exhibit and section 14 of the body of this Agreement.

BPA shall pass through to «Customer Name» any costs assessed by the Third-Party Transmission Provider regarding «Customer Name»'s request for Transfer Service support, regardless of whether firm transmission service is obtained for «Customer Name»'s Network Resource.

3.2 Parties' Payment Obligations

Once BPA has obtained firm transmission service for «Customer Name»'s Network Resource from the Third-Party Transmission Provider, the Parties shall be responsible for costs as follows:

3.2.1 Customer Obligations

«Customer Name» shall be responsible for acquiring firm transmission service, and paying for all costs associated with such firm transmission service, necessary to deliver the Network Resource across all intervening transmission systems to the Last Transfer Segment. These costs may include but are not limited to all costs related to transmission, system impact studies, facilities studies, interconnection studies, generation imbalance, and any ongoing costs associated with the «Customer Name»'s Network Resource interconnection.

3.2.2 BPA Obligations

BPA's obligation to acquire and pay for the Transfer Service costs pursuant to section 14.6 of the body of this Agreement for «Customer Name»'s Transfer Service Eligible Resources is limited to Network Resources delivered over the Last Transfer Segment.

BPA shall have no obligation to acquire or pay for Transfer Service for Transfer Service Eligible Resources if the Parties have not agreed to

include such Transfer Service Eligible Resource and the applicable terms and conditions in section 7 of Exhibit J.

3.2.3 Customer Obligation to Pay BPA

BPA shall pass through to «Customer Name» and «Customer Name» shall pay BPA certain Transfer Service costs associated with any Network Resource pursuant to this exhibit and section 14.6 of the body of this Agreement and stated in section 7 of Exhibit J.

3.2.3.1 Pass Through of Network Resource Specific Ancillary Services and Other Costs

BPA shall pass through to «Customer Name» any costs of ancillary services associated with Transfer Service for «Customer Name»'s Network Resource(s).

BPA shall also pass through to «Customer Name» the costs of all other transmission services for Network Resource deliveries including, but not limited to: redispatch costs, congestion management costs, costs associated with adding the Transfer Service Eligible Resource generation as a Network Resource, any costs associated with generation interconnection, direct assigned system upgrade costs, and distribution and low-voltage charges, if applicable.

Such pass through of costs shall be set forth in section 7 of Exhibit J.

3.2.4 Reimbursement of Transfer Costs Above Fiscal Year Transfer Cap

If BPA's Fiscal Year Transfer Cap will be exceeded by «Customer Name»'s Network Resource and «Customer Name» elects to have BPA obtain firm transmission service for «Customer Name»'s Network Resource pursuant to section 3.1.2 of this exhibit, then BPA shall pass through to «Customer Name» all charges assessed by the Third-Party Transmission Provider associated with the delivery of that portion of «Customer Name»'s Network Resource which exceeds the Fiscal Year Transfer Cap. «Customer Name»'s reimbursement of costs shall continue until such time as the Fiscal Year Transfer Cap increases and all of «Customer Name»'s Network Resource may be accommodated under the Fiscal Year Transfer Cap, as described in section 2.2 of this exhibit.

3.3 Network Resource Section of Exhibit J

Consistent with the requirements of this exhibit, the Parties shall include the details and any additional terms and conditions of Transfer Service for each Network Resource that «Customer Name» is using to serve its Transfer Service POD(s) in the Network Resource section 7 of Exhibit J.

3.3.1 Requirements for Adding the Network Resource to Section 7 of Exhibit J

Once «Customer Name»'s Network Resource has firm transmission from the Third-Party Transmission Provider, the Parties shall revise section 7 of Exhibit J to add resource-specific information regarding charges and the terms and conditions for the delivery of «Customer Name»'s Network Resource, including the cost responsibilities for delivering the Network Resource.

3.3.2 Revisions to «Customer Name»'s Network Resource

If any information for «Customer Name»'s Network Resource in section 7 of Exhibit J changes at any time during the term of this Agreement, then the Party that is aware of such change shall notify the other Party. The Parties shall revise the information for «Customer Name»'s Network Resource consistent with the change. Such information may require additional changes to the designation of the Network Resource and may require a new Transfer Request.

3.4 Other Requirements and Limitation on Network Resources

3.4.1 Hourly Transfer Service Limit

«Customer Name»'s hourly right to Transfer Service for the Network Resource(s) shall not exceed «Customer Name»'s Transfer Service POD(s) on any hour.

3.4.2 Resource Removal

BPA shall not obtain or pay for Transfer Service for that portion of «Customer Name»'s Network Resource, or a former Network Resource, that has been removed pursuant to section 10 of the body of this Agreement. If a Network Resource has been removed or is no longer being used to serve «Customer Name»'s Transfer Service POD(s), then BPA may permanently or temporarily undesignate such Network Resource.

3.4.3 Generation Metering Requirements

«Customer Name» shall ensure that any Network Resource that is a Generating Resource meets the metering requirements specified in section 15 of the body of this Agreement and any metering requirements of the generation host Balancing Authority and the Third-Party Transmission Provider.

3.4.4 Scheduling Requirements

«Customer Name» shall be responsible for managing its Network Resource consistent with Exhibit F.

3.5 Undesignation of Network Resource

After BPA has obtained Network Resource designation for «Customer Name»'s Transfer Service Eligible Resource from the Third-Party

Transmission Provider, BPA shall not undesignate such Network Resource except pursuant to section 3.4.2 of this exhibit or for the purposes of accommodating «Customer Name»'s load growth planning. Such undesignation and any subsequent designation shall be consistent with Exhibit A and section 3.1 of this exhibit.

Following any undesignation of a Network Resource, the Parties shall revise section 7 of Exhibit J to reflect such undesignation.

3.6 Transfer Market Purchases

After BPA has obtained firm transmission service for «Customer Name»'s designated Network Resource, «Customer Name» may use a Transfer Market Purchase to displace the designated Network Resource, which BPA shall schedule on secondary network service, provided that:

- (1) such Transfer Market Purchase is only scheduled in preschedule and not modified in real time, consistent with section 4 of Exhibit F, and such Market Purchase is at least one calendar day in duration;
- (2) the megawatt amount of the Transfer Market Purchase does not exceed the amount of the Network Resource that «Customer Name» would have scheduled to its load;
- (3) «Customer Name» does not, under any circumstances, remarket its Network Resource or perform any other operation that would cause BPA to be in violation of its obligations under the Third-Party Transmission Provider's OATT;
- (4) «Customer Name» is responsible for acquiring transmission service, and paying for the costs associated with such transmission service, necessary to deliver the Transfer Market Purchase to the Last Transfer Segment. These costs include, but are not limited to, any additional energy imbalance, redispatch, and Unauthorized Increase Charges that result from a transmission curtailment that impacts the resulting secondary network schedule; and,
- (5) «Customer Name» shall pay all cost obligations described in section 3.2 of this exhibit.

If «Customer Name» violates any of the criteria listed above, BPA shall immediately cease obtaining Transfer Service for «Customer Name» for purposes of displacing «Customer Name»'s Network Resource(s) with Transfer Market Purchases. Such prohibition shall apply to all Network Resources listed in section 7 of Exhibit J, and the prohibition shall continue for the remaining term of this Agreement unless otherwise agreed by BPA in BPA's sole discretion. BPA shall pass through to «Customer Name» all penalties, or other assessed costs, that result from «Customer Name» violating the conditions of this section 3 and section 7 of Exhibit J.

3.7 Transfer Service Using Non-OATT Agreements

When BPA provides Transfer Service to «Customer Name» pursuant to a non-OATT agreement, and notwithstanding the OATT-specific definitions, descriptions and procedures defined in this exhibit, BPA shall, at its sole discretion, determine the appropriate Transfer Service arrangement for «Customer Name»'s Network Resource. In such instance, «Customer Name»'s Transfer Service Eligible Resource shall have characteristics comparable to a Network Resource, and «Customer Name» shall comply with the timelines and information sharing requirements described in section 3.1 of this exhibit and shall be responsible for direct payment and pass through costs on an equivalent basis to what is described in section 3.2 of this exhibit.

3.8 Duties of Cooperation

The Parties shall cooperate to establish the protocols, provisions, and other arrangements that are reasonably necessary to:

- (1) manage any particular characteristic of «Customer Name»'s Network Resource(s), and
- (2) ensure that BPA is able to meet its obligations to the Third-Party Transmission Provider as set out in the applicable transmission service contract.

Such protocols, provisions, and other arrangements shall be reflected in section 7 of Exhibit J.

Requests by either Party for expedited provision of information shall not be unreasonably denied.

4. TERMS AND CONDITIONS FOR ACQUIRING NEW OR MODIFIED TRANSFER SERVICE

4.1 BPA's Agreement to Pursue New or Modified Transfer Service

- 4.1.1 «Customer Name» may request that BPA submit a Transfer Request to a Third-Party Transmission Provider. BPA will consult with «Customer Name» to determine the information needed to submit such Transfer Request. The Parties shall confirm, in writing, their intent to pursue a Transfer Study, if required, including the information to be included in the Transfer Request and the amount of the Initial Transfer Study Deposit. Within 30 calendar days after the Parties consult, BPA shall submit a Transfer Request to the Third-Party Transmission Provider based on the information provided.
- 4.1.2 If the Third-Party Transmission Provider requests more information than BPA-provided in the Transfer Request, then the Parties shall obtain and provide such information to the Third-Party Transmission Provider within ten Business Days of the Third-Party Transmission Provider's request.

If the Third-Party Transmission Provider informs BPA that a Transfer Study is required, then BPA shall notify «Customer Name» of such study. If, based on such Transfer Study requirement, «Customer Name» chooses to withdraw its request, then «Customer Name» shall notify BPA within five Business Days of receiving notice from BPA of such requirements. If no notice of withdrawal is received, then BPA shall continue to proceed with the Transfer Study. If «Customer Name» informs BPA it does not wish to proceed, then BPA shall withdraw the Transfer Request from the Third-Party Transmission Provider.

4.1.3 BPA shall initially pay the Third-Party Transmission Provider for all costs associated with the Transfer Request or the Transfer Study. BPA shall pass through all such costs to «Customer Name», subject to the limitations set forth in section 4.2 of this exhibit.

4.1.4 BPA's obligations under this section 4 are limited to submitting a Transfer Request to, or requesting a Transfer Study from, a Third-Party Transmission Provider and initially incurring any costs associated with such requests. BPA shall not be held liable to «Customer Name» for any acts, omissions, or failures by the Third-Party Transmission Provider related to any Transfer Requests or Transfer Studies. BPA shall not be required to take any further action as a result of this section 4, including but not limited to any of the following:

- (1) renewing or modifying the Transfer Service agreement between BPA and the Third-Party Transmission Provider;
- (2) negotiating or entering into a new transmission arrangement between BPA and the Third-Party Transmission Provider; or
- (3) agreeing to or incurring costs associated with any construction, upgrades, or other improvements to «Customer Name's», BPA's, or the Third-Party Transmission Provider's facilities. The Parties shall revise Exhibit D to include terms and conditions associated with any direct assignment of such costs.

4.1.5 If, for any reason, the Third-Party Transmission Provider requires BPA to agree to any of the actions identified in section 4.1.4 above, then BPA may withdraw the Transfer Request and terminate the Transfer Study immediately after providing «Customer Name» notice of its intent to do so.

4.2 **Coordination of Costs Beyond the Initial Transfer Study Deposit**

As stated in section 4.1.3 of this exhibit, BPA shall pass through to «Customer Name» all costs associated with a Transfer Request or Transfer Study. BPA shall notify and request confirmation related to a Transfer

Request or Transfer Study from «Customer Name» pursuant to the notification provisions of section 4.2.2 below.

4.2.2 If BPA is notified that the costs associated with a Transfer Request or Transfer Study are likely to exceed the Initial Transfer Study Deposit, prior to BPA taking any action that would result in BPA incurring costs that exceed the Initial Transfer Study Deposit, then BPA shall notify and request confirmation from «Customer Name» to determine if «Customer Name» would like to proceed. BPA will notify «Customer Name» in writing as soon as practicable following notice of such additional costs from the Third-Party Transmission Provider. If the amount of such costs is not known, then the following additional provisions shall apply:

- (1) BPA may request an estimate of such costs from the Third-Party Transmission Provider and provide that estimate to «Customer Name»; or
- (2) BPA may estimate the amounts of such costs and provide those amounts to «Customer Name».

Estimates under sections 4.2.2(1) and 4.2.2(2) above, if any, shall not be binding on BPA and shall not alter «Customer Name»'s obligation to pay or reimburse BPA for the final actual costs.

4.2.3 «Customer Name» shall notify BPA in writing by the date specified by BPA in the notice in section 4.2.2 of this exhibit (which shall not be less than seven Business Days) regarding whether BPA should or should not agree to incur such costs.

- (1) If BPA receives a timely notice as stated in this section 4.2.3 in which «Customer Name» requests that BPA agree to incur the costs identified in a notice as stated in section 4.2.2, then BPA shall agree to incur the costs.
- (2) If BPA receives a timely notice as stated in this section 4.2.3 in which «Customer Name» requests that BPA not agree to incur a cost identified in a notice as stated in section 4.2.2 of this exhibit, then: (A) BPA shall not agree to incur such costs; and (B) BPA shall have the right to immediately withdraw the Transfer Request and terminate the Transfer Study process.
- (3) If BPA does not receive a timely notice as stated in section 4.2.2 of this exhibit, then BPA shall have the right to continue the Transfer Study process and pass through the additional costs to «Customer Name».

5. REVISIONS

Revisions to this Exhibit G will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *Drafter's Note: Insert date of finalized contract here*

End Template Option 2

Exhibit H
RENEWABLE ENERGY CERTIFICATES AND ENVIRONMENTAL ATTRIBUTES

1. PURPOSE AND INTENT; DISCLAIMER

The Parties acknowledge that: different jurisdictions, regulatory programs, and entities (federal, state, county, cities, and others) have different definitions for environmental attributes, renewable energy credits/certificates, emissions credits, and similar instruments; the various jurisdictions, programs, and entities are inconsistent in how they define and address these concepts; and these concepts are continually evolving. Accordingly, through this Agreement BPA does not attempt to define these concepts other than by reference to how they may be defined by others, and BPA does not represent or warrant that the items conveyed in this Exhibit H are suitable for a particular purpose or regulatory program. Whatever the regulatorily-defined environmental and non-power characteristics are of the power that customers buy from BPA, the purpose and intent of this Exhibit H is to convey to «Customer Name», in accordance with this Exhibit H, all Environmental Attributes, if any, and to the extent they exist, associated and commensurate with the physical amount of power «Customer Name» buys from BPA and the Attribute Pools associated with «Customer Name»'s purchase obligation under this Agreement. This Exhibit H accomplishes this by BPA: (1) agreeing to register applicable generation, (2) providing for the creation of an Environmental Attribute Accounting Process, (3) producing Inventories of RECs based on power generated, (4) committing to transfer «Customer Name»'s share of RECs based on its BPA power purchases and as determined in accordance with this Exhibit H to «Customer Name», (5) committing to provide an emissions accounting and non-emitting generation accounting for customers' use, and (6) undertaking the other actions identified in this exhibit below.

2. DEFINITIONS

- 2.1 “Attribute Pools” means the results calculated in the Environmental Attribute Accounting Process whereby the physical resources and forecasted power deliveries associated with each of BPA's rates and firm power obligations are determined for the upcoming Rate Period.
- 2.2 “Emissions Allowance” means an authorization in a given jurisdiction to emit a specified amount of carbon dioxide equivalent or other measurement of greenhouse gases, and documented as an emissions credit, certificate, or similar instrument.
- 2.3 “Environmental Attribute Accounting Process” means the public process BPA will conduct each Rate Case Year, after the conclusion of each routine power rate 7(i) Process, during which the allocation methodology and Attribute Pools for BPA's Environmental Attributes for the upcoming Rate Period will be determined.

- 2.4 “Environmental Attributes” means the environmental and non-power characteristics of power, however defined or titled and arising under any federal, state, or local law or regulation, including but not limited to current or future certificates, credits, benefits, and avoided emissions attributable to the generation of energy from a resource. Environmental Attributes do not include the tax credits associated with such resource. One megawatt-hour of energy generation from a resource is associated with one megawatt-hour of Environmental Attributes.
- 2.5 “Inventory” or “Inventories” means the Environmental Attributes, including RECs, that are attributable to the output of generation resources, by Attribute Pool(s).
- 2.6 “Renewable Energy Certificates” or “Renewable Energy Credits” or “RECs” means the tradeable certificates, credits, documentation, or other evidence that demonstrates: (1) that the electricity was generated from a renewable or non-emitting energy generating unit and (2) proof of ownership of the Environmental Attributes of such generated electricity in a REC tracking system. Some jurisdictions and regulatory programs may interpret a REC to include the emissions avoided by the generation of electricity by a renewable or non-emitting generating unit. For purposes of such situations, the Parties’ intent is that the RECs conveyed herein include the associated Environmental Attributes; however, this conveyance is not intended to impact BPA’s reporting in any generation-based emission programs where REC retirement is not required. One megawatt-hour of energy generation from a resource registered with the tracking system under section 5 is associated with one REC.
- 2.7 “Retire” or “Retirement” means an action taken to remove a REC from circulation within a REC tracking system.

3. ENVIRONMENTAL ATTRIBUTE INVENTORY AND ACCOUNTING

The Parties acknowledge that the Environmental Attribute accounting outlined below will be provided consistent with physical deliveries of power.

3.1 Registration of Renewable Energy Generating Units

BPA shall take all reasonable steps to register the applicable renewable energy generating units in BPA’s system mix, including any hydro resources, with the tracking system selected under section 5 of this Exhibit H.

3.2 Environmental Attribute Accounting Process

Starting after issuance of the Final ROD of the BP-29 power rate 7(i) Process, and after the issuance of the Final ROD in each subsequent routine power rate 7(i) Process thereafter through the term of the Agreement, BPA shall conduct an Environmental Attribute Accounting Process for each upcoming Rate Period.

3.3 REC Inventory Accounting

No later than April 15, 2030, and by each April 15 over the remaining term of this Agreement, BPA shall calculate its Inventory for RECs for each Attribute Pool created during the prior calendar year in the applicable Environmental Attribute Accounting Process for the applicable Rate Period.

3.4 Emission Accounting

No later than June 1, 2029 and by each June 1 thereafter, and as an outcome of the Environmental Attribute Accounting Process, BPA will provide emission accounting information and, if applicable, will provide such information consistent with state rules.

3.5 Non-Emitting Electric Generation Accounting

No later than June 1, 2029 and by each June 1 thereafter, and as an outcome of the Environmental Attribute Accounting Process, BPA will provide non-emitting electric generation accounting information and, if applicable, will provide such information consistent with state rules.

4. CUSTOMER'S SHARE OF RECS

Drafter's Note: Include the following paragraph for customers that had a Regional Dialogue CHWM Contract.

All capitalized terms used in this paragraph and the related underlying processes described in this paragraph shall be as defined, determined and calculated under «Customer Name»'s Regional Dialogue CHWM Contract. By April 15, 2029, BPA shall transfer to «Customer Name» or manage a pro rata share of Available Tier 1 RECs from calendar year 2028 based on «Customer Name»'s FY 2028 RHWM divided by the total FY 2028 RHWMs of all customers with Regional Dialogue CHWM Contracts. BPA shall also transfer to «Customer Name» its share of Tier 2 RECs, if applicable, generated during calendar year 2028. «Customer Name» agrees that its REC transfer or management election (WREGIS account, WREGIS subaccount, or remarketing) for Fiscal Year 2028 shall apply for all calendar year 2028.

End Option

By April 15, 2030, and by each April 15 over the remaining term of this Agreement, BPA shall determine «Customer Name»'s share of RECs as a pro rata share of the actual megawatt-hours of power «Customer Name» purchased from BPA the prior calendar year under this Agreement. «Customer Name»'s pro rata share of each Inventory of RECs shall be calculated as the actual megawatt hours of power «Customer Name» purchased from BPA under this Agreement during the prior calendar year from the applicable Attribute Pool divided by the sum of all power purchased from BPA for the applicable Attribute Pool.

5. TRANSFER AND TRACKING OF RECS

By December 1, 2029, «Customer Name» shall provide written notice to BPA stating which one of the three options below it elects for the transfer of «Customer Name»'s share of RECs, for the remaining term of the Agreement. However, «Customer Name» may change its transfer election for the remaining term of the Agreement by

providing written notice to BPA of such change by December 1, 2030 or by any December 1 over the remaining term of the Agreement.

- (1) BPA shall transfer «Customer Name»'s share of RECs into «Customer Name»'s own Western Renewable Energy Generation Information System (WREGIS) account, which shall be established by «Customer Name»; or
- (2) BPA shall transfer «Customer Name»'s share of RECs into a BPA-managed WREGIS subaccount. Such subaccount shall be established by BPA on «Customer Name»'s behalf and the terms and conditions of which shall be determined by the Parties in a separate agreement; or
- (3) BPA shall transfer «Customer Name»'s share of RECs into a third party-managed WREGIS account. «Customer Name» shall notify BPA of the third-party WREGIS account number in its notice provided pursuant to this section 5.

By April 15, 2030, and by each April 15 over the remaining term of this Agreement, BPA shall transfer «Customer Name»'s share of RECs from the prior calendar year to «Customer Name» via WREGIS in accordance with its transfer election.

If «Customer Name»'s WREGIS account number has changed, then «Customer Name» shall notify BPA of such change by December 1, 2028 and by each December 1 over the remaining term of this Agreement.

All references to WREGIS in this Exhibit H should be understood to mean WREGIS or a comparable commercial tracking system. BPA may change commercial tracking systems with reasonable advance notice to «Customer Name». In such case, the Parties shall establish a comparable process for BPA to provide «Customer Name» its share of RECs.

6. FEES

BPA shall pay any reasonable fees associated with: (1) the transfer of «Customer Name»'s RECs into any WREGIS account or WREGIS subaccount and (2) the establishment of any WREGIS subaccounts in «Customer Name»'s name pursuant to section 5 of this exhibit. «Customer Name» shall pay all other fees associated with any WREGIS or successor commercial tracking system, including WREGIS Retirement, reserve, and export fees.

7. EMISSION ALLOWANCES

7.1 BPA Compliance with Emission Allowance Program(s)

If over the term of this Agreement BPA incurs an emissions compliance obligation placed on electricity importers that provide power to «Customer Name»'s service territory, and if based on that compliance program:

- (1) BPA is obligated to obtain Emission Allowances sufficient to cover power purchased under this Agreement to «Customer Name», and

- (2) «Customer Name» is eligible to receive Emission Allowances at no cost from «Customer Name»'s applicable jurisdiction and which can be used directly for compliance,

then «Customer Name» shall transfer, or otherwise provide, Emission Allowances to BPA on the schedule and in the amount agreed to by BPA and «Customer Name» that is sufficient to satisfy BPA's compliance obligations that arise in order to serve «Customer Name»'s load in its state.

The Parties shall revise section 7.2 below to include the specific terms and conditions, such as the calculation of the Emission Allowances to be transferred, and cost responsibilities, if any, associated with the transfer of Emission Allowances to BPA.

If «Customer Name» elects to not revise this Exhibit H to include applicable special provisions in section 7.2 below, then BPA shall apply and «Customer Name» shall pay the applicable Emissions Allowance costs through charges established in the BPA Power Rate Schedules and GRSPs.

7.2 Transfer of Emission Allowances to BPA
Placeholder for special provisions.

Drafter's Note: Include the following for customers with a BPA-managed WREGIS subaccount.

Drafter's Note: Delete this section for all customers at contract offer as, per section 5 above, customer's election for transfer of RECs is by December 1, 2029. This section will be added as applicable after such election.

8. TERMS AND CONDITIONS OF CUSTOMER'S WREGIS SUBACCOUNT

8.1 Establishment of WREGIS Subaccount

In accordance with «Customer Name»'s election under section 5(2) above, BPA shall establish a subaccount in «Customer Name»'s name, if not already established, within BPA's WREGIS account. BPA shall provide «Customer Name» read-only access to its subaccount.

BPA shall use such subaccount for the purposes of administering the provisions of this Agreement related to RECs that «Customer Name» receives from BPA.

«Customer Name» gives its consent to be bound by the terms stated in the WREGIS Account Holder Registration Agreement, also referred to as the WREGIS Terms of Use (WREGIS TOU) Agreement, executed by BPA and including any revisions. BPA shall provide «Customer Name» a copy of the executed WREGIS TOU Agreement upon request.

8.2 Transfer of RECs to Customer's WREGIS Subaccount

BPA shall transfer «Customer Name»'s share of RECs to «Customer Name»'s WREGIS subaccount pursuant to the timeline established in section 5 above.

8.3 Resale, Purchase, and Retirement of RECs

If «Customer Name» wants to sell RECs received from BPA or purchase RECs other than those RECs it receives from BPA, then «Customer Name» shall request that BPA terminate its WREGIS subaccount pursuant to section 8.5 below and «Customer Name» shall establish its own WREGIS account.

Upon receipt of written notice from «Customer Name» of RECs «Customer Name» wants BPA to Retire, BPA shall Retire «Customer Name»'s RECs on its behalf. In such Retirement notice, «Customer Name» shall identify REC quantity, the name of the renewable project(s) which generated the RECs, and the month and year the RECs were generated by the project(s).

8.4 WREGIS Subaccount Fees

BPA shall pay the fees associated with «Customer Name»'s WREGIS subaccount consistent with section 5 of this exhibit. BPA shall pass through to «Customer Name» all other fees associated with «Customer Name»'s WREGIS subaccount including but not limited to any REC Retirement fees. «Customer Name» shall pay all WREGIS fees incurred from the termination of its WREGIS subaccount, and «Customer Name» shall pay all fees associated with establishment of its own WREGIS account.

8.5 Termination of Customer's WREGIS Subaccount

Either Party may terminate «Customer Name»'s WREGIS subaccount after providing written notice to the other Party.

BPA shall not terminate «Customer Name»'s WREGIS subaccount until (1) «Customer Name» has established its own WREGIS account or «Customer Name» has arranged for its RECs to be handled by a third party and (2) BPA has received written notice from «Customer Name» to transfer 100 percent of «Customer Name»'s RECs into «Customer Name»'s own WREGIS account or a third-party WREGIS account. After BPA has transferred «Customer Name»'s RECs from its WREGIS subaccount to «Customer Name»'s new WREGIS account or a third party WREGIS account, «Customer Name» may not have both a WREGIS account and a WREGIS subaccount open at the same time.

Unless otherwise agreed by the Parties, if «Customer Name» asks BPA to terminate its WREGIS subaccount, then BPA shall not establish another WREGIS subaccount for «Customer Name» for the remaining term of this Agreement.

End Option

«#». REVISIONS

BPA may unilaterally revise this exhibit:

- (1) to add or remove the terms and conditions of «Customer Name»'s WREGIS subaccount following either «Customer Name»'s election of a WREGIS subaccount pursuant to section 5 of this exhibit or either Party's notice for termination of a WREGIS subaccount; and

- (2) to incorporate any significant edits related to a change to the commercial tracking system, pursuant to the last paragraph of section 5 of this exhibit.

All other changes to this Exhibit H will be made by mutual agreement of the Parties. As discussed in section 1 of this exhibit, BPA and «Customer Name» acknowledge that the regulatory concepts covered in this exhibit are not well settled and are continually evolving. Accordingly, if future regulatory concepts change such that the spirit and intent of this exhibit are not being met, then BPA agrees to discuss such situations with customers and, as needed, to attempt in good faith to agree on mutually acceptable amendments to this exhibit.

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Exhibit I
NOTICES AND CONTACT INFORMATION

1. NOTICES AND CONTACT INFORMATION

1.1 Notices

Any notice required under this Agreement that requires such notice to be provided under the terms of this section shall be provided in writing to the other Party in one of the following ways:

- (1) delivered in person;
- (2) by a nationally recognized delivery service with proof of receipt;
- (3) by United States Certified Mail with return receipt requested;
- (4) electronically, with verification of the electronic notice's origin, date, time of transmittal and receipt; or
- (5) by another method agreed to by the Parties.

Notices are effective when received.

1.2 Contact Information

The Parties shall deliver notices to the following people and address(es):

Reviewer's Note: Customers can work with their Power Account Executives at contract offer and over the term of the Agreement to add additional customer contacts to this section, if necessary.

If to «Customer Name»:

«Full Name of Customer»
«Street Address»
«P.O. Box »
«City, State, Zip»
Attn: «Contact Name»
«Contact Title»
Phone: «###-###-####»
E-Mail: «E-mail address»

**Additional «Customer Name»
Contact:**

«Full Name of Customer»
«Street Address»
«P.O. Box »
«City, State, Zip»
Attn: «Contact Name»
«Contact Title»
Phone: «###-###-####»
E-Mail: «E-mail address»

If to BPA:

Bonneville Power Administration
«Street Address»
«P.O. Box»
«City, State, Zip»
Attn: «AE Name - Routing»
Power Account Executive
Phone: «###-###-####»
E-Mail: «E-mail address»

Additional BPA Contact:

Bonneville Power Administration
«Street Address»
«P.O. Box»
«City, State, Zip»
Attn: «Manager Name - Routing»
«Eastern or Western» Power
Customer Services Manager
Phone: «###-###-####»
E-Mail: «E-mail address»

2 OPERATIONAL CONTACT INFORMATION

As applicable, the Parties shall notify the following people using the following methods for operations related to this Agreement, including scheduling:

Reviewer's Note: Customers can work with their Account Executives at contract offer and over the term of the Agreement to add additional customer contacts to this section, as necessary.

If to «Customer Name»:

«Include necessary operational contact information and details: Function, e-mail, phone, etc. or Not Applicable»

Or another mutually agreed upon form of notification.

If to BPA:

Preschedule

E-Mail: PBLPresched@bpa.gov

Real Time: See E-Tag for contact

Slice operational contacts

Slice Group

Phone: 503-230-3130

E-Mail: SliceSupport@bpa.gov

Slice Desk

Phone: 503-230-5502

Or another mutually agreed upon form of notification.

3. REVISIONS

Each Party shall notify the other Party of changes to their contact information above. After such notice, BPA may unilaterally revise section 1.2 and section 2 of this exhibit to reflect such changes to the Parties' contact information. All other changes to this Exhibit I will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Exhibit J

SUPPORT SERVICES; ADDITIONAL RESOURCE AND ENERGY STORAGE DEVICE REQUIREMENTS

1. CUSTOMER RESOURCE ELECTIONS SUMMARY

Drafter's Note: Fill in the table below with "X"s, except for RSS Elections. For RSS Elections, list types of RSS elected by customer. If customer has multiple resources, add additional rows for each resource.

Drafter's Note: Leave table blank at contract signing.

Elected Services by Resource		
Resource Name	Applied to Tier 1 Allowance Amount	RSS Elections
«Resource 1 name or N/A»		

Option 1: Include the following for customers that are not JOEs.

2. TIER 1 ALLOWANCE AMOUNT

«Customer Name»'s total amount of Specified Resources that are applied to the Tier 1 Allowance Amount, as identified in section 2.1 of Exhibit A, are stated below. BPA shall calculate the Tier 1 Allowance Amount limit in accordance with section 3.5.2 of the body of this Agreement. If «Customer Name»'s CHWM changes, then BPA shall revise the Tier 1 Allowance Amount and Tier 1 Allowance Amount limit in the table below in accordance with section 3.5.2 of the body of this Agreement.

Drafter's Note: For the first column, add the total of the Nameplate Capability amounts listed in all Resource Profile tables in section 2 of Exhibit A that have an X under the field 'Applied to Tier 1 Allowance Amount'. If the customer has no resources applied to their Tier 1 Allowance Amount, put N/A in the first column. For the second column, add the customer's Tier 1 Allowance Amount Limit (regardless of whether they have a Specified Resource applied to the Tier 1 Allowance Amount). This limit is subject to change with any adjustment to the customer's CHWM (e.g. Small Utility subsequent adjustments).

Drafter's Note: Leave table blank at contract signing.

Tier 1 Allowance Amount (MW)	Tier 1 Allowance Amount Limit (MW)
«X.XX»	«X.XX»

End Option 1

Option 2: Include the following for customers that are JOEs.

2. TIER 1 ALLOWANCE AMOUNT

Each «Customer Name» Member's total amount of Specified Resources that are applied to the Tier 1 Allowance Amount, as identified in section 2.1 of Exhibit A, are stated below. BPA shall calculate each «Customer Name» Member's Tier 1 Allowance Amount limit in accordance with section 3.5.2 of the body of this Agreement. If a «Customer Name» Member's CHWM changes, then BPA shall revise the applicable Member's Tier 1 Allowance Amount and Tier 1 Allowance

Amount limit in the table below in accordance with section 3.5.2 of the body of this Agreement.

Drafter's Note: For the 'Tier 1 Allowance Amount' column, add the total of the Nameplate Capability amounts listed in all Resource Profile tables in section 2 of Exhibit A that have an X under the field 'Applied to Tier 1 Allowance Amount' for each JOE Member. If a JOE Member has no resources applied to their Tier 1 Allowance Amount, put N/A in the first column for that Member. For the 'Tier 1 Allowance Amount Limit' column, add the JOE Member's Tier 1 Allowance Amount Limit (regardless of whether they have a Specified Resource applied to the Tier 1 Allowance Amount). This limit is subject to change with any adjustment to the JOE Member's CHWM (e.g. Small Utility subsequent adjustments).

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Member	Tier 1 Allowance Amount (MW)	Tier 1 Allowance Amount Limit (MW)
«JOE Member Name»	«X.XX»	«X.XX»
«JOE Member Name»	«X.XX»	«X.XX»

End Option 2

3. RESOURCE SUPPORT SERVICES

3.1 BPA shall develop Support Services consisting of RSS and other Support Services to support eligible Dedicated Resources listed in sections 2 and 3 of Exhibit A and eligible Consumer Owned-Resources Serving On-Site Consumer Load listed in section 7 of Exhibit A.

RSS may include, but are not limited to, providing forced outage services or services to firm up variable generation. Other Support Services may include but are not limited to scheduling services and curtailment management services. BPA shall offer an amendment to this Agreement with RSS and other Support Services contract provisions by July 31, 2026. Prior to that date, BPA shall provide «Customer Name» a reasonable opportunity to provide input into the development or refinement Support Services and the related contract provisions. RSS shall only be available to «Customer Name» to support renewable resources that are New Resources used to serve Total Retail Load that are added after September 30, 2023. BPA shall make RSS and other Support Services available starting in FY 2029.

3.2 If «Customer Name» adds an eligible New Resource to meet its obligations to serve Above-CHWM Load, consistent with the notice requirements in section 3.5.1 of the body of this Agreement, then «Customer Name» may purchase RSS or a combination of RSS and other Support Services from BPA to support such resource.

4. THIS SECTION INTENTIONALLY LEFT BLANK

5. WRAP PASS-THROUGH CHARGES

Pursuant to section 22.1.2 of the body of this Agreement, «Customer Name» may pass through WRAP charges to BPA in instances where the charge is related to one

or more of the following: (1) non-performance of the FCRPS as planned under this Agreement, or (2) failure by BPA to meet the requirements of section 22.1.1 of the body of this Agreement. Upon request, «Customer Name» shall provide supporting documentation related to any pass through of charges under this section pursuant to section 17 of the body of this Agreement.

Any pass through of charges to BPA associated with this section shall be included as a one-time credit on «Customer Name»'s monthly bill.

If BPA finds that only a portion of such WRAP charge is related to one of the conditions above, then BPA shall only credit «Customer Name» for the portion of the WRAP charge related to such conditions. BPA shall not be responsible for charges that are related to the failure of third party-provided Support Services.

6. ENERGY STORAGE DEVICES

The data included in this section 6 is intended for informational purposes.

6.1 Definitions

For purposes of this section 6, the following terms shall have the meaning as defined.

- 6.1.1 “Cycle” means an Energy Storage Device has discharged an amount of energy equal to its maximum rated storage capacity and been recharged to 100 percent of that rated capacity.
- 6.1.2 “Cycles per Day” means the number of times, or fraction thereof, that an Energy Storage Device can complete a Charge Cycle within a normal 24-hour period.
- 6.1.3 “Hours of Maximum Discharge” means the number of hours, or fraction thereof, an Energy Storage Device can discharge at its Maximum Single Hour Discharge.
- 6.1.4 “Maximum Charge Rate” means the maximum rate at which an Energy Storage Device can be charged from either a full or partial discharge to either a higher level of charge or a full charge, in percentage of full charge per hour.
- 6.1.5 “Maximum Single Hour Discharge” means the maximum megawatt-hours that an Energy Storage Device is rated for discharge on a single hour.
- 6.1.6 “Round Trip Efficiency” means the percent of energy used in charging an Energy Storage Device that later can be discharged to the alternating current electrical system.
- 6.1.7 “Storage Capacity” means the megawatt-hours of energy an Energy Storage Device is designed and rated to be able to store and discharge to the alternating current electrical system on an ongoing basis.

6.2 Notice of Energy Storage Device Connection

«Customer Name» shall provide notice to BPA of its or its consumer's intent to connect an Energy Storage Device to «Customer Name»'s distribution system. Such notice shall be provided no fewer than 30 calendar days prior to the Energy Storage Device connection and shall include the information specified in section 6.3.1.3 below. BPA will populate the table in section 6.3.1.3 within 60 calendar days of receiving the notice.

6.3 List Of «Customer Name» and Consumer-Owned Energy Storage Devices

Option 1: Include the following if customer does NOT have any ESDs.

«Customer Name» does not have any Energy Storage Devices at this time.

End Option 1

Option 2: Include the following if customer has ESDs and complete subsections 1-3 for each resource. When listing multiple resources renumber each resource as 6.3.2, 6.3.3, etc.

6.3.1 «ESD Facility Name»

6.3.1.1 Facility Functions and Special Provisions

Drafter's Note: Under "Facility Functions," add all of the following that apply: Load Management, Price Optimization, Generation Smoothing, Transmission/Distribution Support, Voltage/Frequency Support, Other (describe).

Ownership:

Facility Function(s):

Installation date:

Expected life:

Special Provisions: *Drafter's Note: If none, state 'None'.*

6.3.1.2 Election for Use by Rate Period

By July 31 of a Forecast Year, «Customer Name» shall identify the entities that will use the capabilities of «facility name» that «Customer Name» or its consumer have access to for the upcoming Rate Period. Unless changed in writing by July 31 of a Forecast Year, the existing election will continue to apply for the upcoming Rate Period.

Sub-Option 1: Include the following if customer or their retail consumer will only use the ESD stored energy on the customer's system.

«Customer Name» and its consumer will use all capabilities of «facility name» only on «Customer Name»'s system.

End Sub-Option 1

Sub-Option 2: Include the following if customer or their retail consumer will use the ESD stored energy on other non-customer systems.

«Customer Name» and its consumer will provide the capabilities of «facility name» to users off «Customer Name»'s system. Consistent with section 20.5 of the body of this Agreement, all energy used to charge «facility name» for users off «Customer Name»'s system will be scheduled to «Customer Name» from a third-party power provider and E-Tagged to «facility name».

End Sub-Option 2

Drafter's Note: In the table below, under "Storage Type", fill in one of the following: Battery, Flow Battery, Gravity (Pumped Hydro, Rail, Other (named)), Compressed gas (gas type), Momentum (Flywheel), Thermal Energy, or Other (name). If the customer does not have a removal date, state 'None'.

6.3.1.3 Facility Profile

Drafter's Note: Leave table blank at contract signing.

Storage Type	Date ESD applied to Utility Load	Date of ESD Removal	Storage Capacity (MWh AC)	Facility Interconnect AC Nameplate (MW)	Source of Charge (could be one or both)	
					AC Transmission/Distribution	Specific Resource

End Option 2

Option: Only include the following section 7 for customers served by Transfer Service.

7. NON-FEDERAL NETWORK RESOURCE INFORMATION FOR TRANSFER SERVICE

Option 1: Include the following if customer does NOT have any non-federal Network Resources.

«Customer Name» does not have any non-federal Network Resources at this time.

End Option 1

Option 2: Include the following if customer has non-federal Network Resources and complete section 7.1 for each resource. If customer has more than one non-federal Network Resource for Transfer Service, number each separately as 7.1, 7.2, etc. and indent appropriately.

All of «Customer Name»'s non-federal Network Resources are listed below.

Drafter's Note: This template is intended to be a starting point to work from when drafting this section of the exhibit. Headings and content are expected to change to accommodate unique situations associated with the relevant non-federal Network Resource.

7.1 «Resource Name»

7.1.1 General Description of Non-Federal Network Resource:

(1) **Resource type:** «Generating or Contract Resource»

- (2) **Resource fuel type:** «hydro, gas, bio-mass, co-generation, coal, etc»
- (3) **Physical Location:** «City, County, State»
- (4) **Generation meter number:** «#####»
Drafter's Note: N/A for Contract Resource. When meter number is available, information needs to be added, or should match Exhibit E.
- (5) **Counterparty:** «xxxx»
- (6) **Balancing Authority Area in which «Resource Name» is located:** «xxxx»
- (7) **Generator unit(s) size (nameplate) and quantity of capacity from that unit being designated as the non-federal Network Resource:** «xxxx»
- (8) **MW amount of designation from Contract Resource:** «xxxx»
- (9) **Amount of Above-CHWM Load to be served with «Resource Name»:** «### MW(s)»

7.1.2 Operating Characteristics of Non-Federal Network Resource

- (1) **Operating restrictions:**
 - (i) Periods of restricted operations: «routine limitations, i.e. fuel»
 - (ii) Maintenance schedules: «xxxx»
 - (iii) Must-run unit designations: «xxxx»
- (2) **Operational protocols:** «xxxx»
- (3) **Metering responsibilities:** «xxxx»

7.1.3 General Description of Transmission Arrangements made by «Customer Name»

- (1) «Customer Name»'s BPA Network Transmission (NT) contract number: «#####-#####»
- (2) List reference number(s) assigned by OASIS for transmission reservations made: «#####» (include current status of any transmission arrangements made associated with «Resource Name»)
- (3) List inter-connection arrangements (if any) made by «Customer Name»: «xxxx»
- (4) List the location at which «Customer Name» will take possession of the power: «xxxx»
- (5) List Point of Receipt (POR) on the Third-Party Transmission Provider's system where «Resource Name» will be delivered: «xxxx»
- (6) Firming or sleeving arrangements:

7.1.4 Cost Obligations

BPA shall charge «Customer Name» and «Customer Name» shall pay for the following costs of Transfer Service for «Resource Name»:

- ☐ (1) Redispatch
- ☐ (2) Congestion management
- ☐ (3) Distribution and low-voltage delivery
- ☐ (4) Real power losses
- ☐ (5) Ancillary services

- ☐ (a) Scheduling, System Control and Dispatch

Drafter's Note: Applies only if the resource is located in the same Balancing Authority Area as the customer's load and is not recovered through a separate arrangement

- ☐ (b) Generation Imbalance
- ☐ (c) Regulation and Frequency Response
- (d) Operating Reserves
 - ☐ (i) Spinning
 - ☐ (ii) Non-Spinning

Drafter's Note: Includes all costs directly assigned to BPA related to the study, maintenance, expansion or construction of new transmission facilities necessary to transmit power from the resource to the customer's load

- ☐ (6) Direct Assignment Costs

Drafter's Note: Includes all transmission costs associated with energy which exceed the Above Fiscal Year Transfer Cap

- ☐ (7) Other costs

End Option 2

End Option

Option 1: Include the following for customers that are not JOEs.

Drafter's Note: For customers that are directly connected, renumber this section to section 7.

8. REVISIONS

BPA shall unilaterally revise this exhibit to reflect: (1) «Customer Name»'s resource elections and requirements in section 1 of this exhibit; (2) «Customer Name»'s Tier 1 Allowance Amount in section 2 of this exhibit; (3) resource adequacy requirements in section 5 of this exhibit; and (4) updates or additions to Energy Storage Devices in section 6 of this exhibit. Additionally, BPA shall unilaterally revise section 3, Resource Support Services, of this exhibit to implement an established BPA rate for such products or services.

All other changes to this Exhibit J will be made by mutual agreement of the Parties.

End Option 1

Option 2: Include the following for customers that are JOEs.

Drafter's Note: For customers that are directly connected, renumber this section to section 7.

8. REVISIONS

BPA shall unilaterally revise this exhibit to reflect: (1) «Customer Name»'s resource elections and requirements in section 1 of this exhibit; (2) «Customer Name» Members' Tier 1 Allowance Amounts in section 2 of this exhibit; (3) resource adequacy requirements in section 5 of this exhibit; and (4) updates or additions to Energy Storage Devices in section 6 of this exhibit. Additionally, BPA shall

unilaterally revise section 3, Resource Support Services, of this exhibit to implement an established BPA rate for such products or services.

All other changes to this Exhibit J will be made by mutual agreement of the Parties.

End Option 2

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Exhibit K
ANNUAL SLICE PERCENTAGE AND FIRM SLICE AMOUNTS

1. ANNUAL SLICE PERCENTAGE

Option 1: Include the following for customers that are NOT a JOE and NOT cooperative or tribal utilities.

By March 31 concurrent with BPA's calculation of «Customer Name's» Net Requirement pursuant to section 1 of Exhibit A, BPA shall enter «Customer Name's» formula inputs and Slice Percentage, calculated pursuant to section 5.3 of this Agreement, into the table below.

Drafter's Note: Enter values as a percentage rounded to the fifth digit, and as a decimal value rounded to the seventh digit.

Drafter's Note: Leave table blank at contract signing.

Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	Customer CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxx)
FY 2035							xx.xxxxx %	(0.xxxxxx)
FY 2036							xx.xxxxx %	(0.xxxxxx)
FY 2037							xx.xxxxx %	(0.xxxxxx)
FY 2038							xx.xxxxx %	(0.xxxxxx)
FY 2039							xx.xxxxx %	(0.xxxxxx)
FY 2040							xx.xxxxx %	(0.xxxxxx)
FY 2041							xx.xxxxx %	(0.xxxxxx)
FY 2042							xx.xxxxx %	(0.xxxxxx)
FY 2043							xx.xxxxx %	(0.xxxxxx)
FY 2044							xx.xxxxx %	(0.xxxxxx)

End Option 1

Option 2: Include the following for customers that are NOT JOEs and ARE cooperative or tribal utilities.

By March 31 concurrent with BPA's calculation of «Customer Name's» Net Requirement pursuant to section 1 of Exhibit A, BPA shall enter «Customer Name's» formula inputs and Slice Percentage, calculated pursuant to section 5.3 and section 21.9 of the body of this Agreement, into the table below. «Customer Name's» de minimis threshold applicable to its Slice Percentage is «0.X» percent.

Drafter's Note: Enter values as a percentage rounded to the fifth digit, and as a decimal value rounded to the seventh digit.

Drafter's Note: Leave table blank at contract signing.

Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	Customer CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxxx)
FY 2035							xx.xxxxx %	(0.xxxxxxx)
FY 2036							xx.xxxxx %	(0.xxxxxxx)
FY 2037							xx.xxxxx %	(0.xxxxxxx)
FY 2038							xx.xxxxx %	(0.xxxxxxx)
FY 2039							xx.xxxxx %	(0.xxxxxxx)
FY 2040							xx.xxxxx %	(0.xxxxxxx)
FY 2041							xx.xxxxx %	(0.xxxxxxx)
FY 2042							xx.xxxxx %	(0.xxxxxxx)
FY 2043							xx.xxxxx %	(0.xxxxxxx)
FY 2044							xx.xxxxx %	(0.xxxxxxx)

End Option 2

Option 3: Include the following for a JOE customer with Members that are public bodies (not cooperative or tribal utility Members).

By March 31 concurrent with BPA's calculation of «Customer Name's» Net Requirement pursuant to section 1 of Exhibit A, BPA shall enter «Customer Name's» formula inputs and Slice Percentage for the applicable Fiscal Year, calculated pursuant to section 5.3 of this Agreement, into the table below. BPA shall enter the formula inputs and Member Slice Percentage for each «Customer Name» Member for the applicable Fiscal Year into the tables below.

Drafter's Note: Enter values as a percentage rounded to the fifth digit, and as a decimal value rounded to the seventh digit.

Drafter's Note: Leave table blank at contract signing.

1.1 «Customer Name's» Slice Percentage

«Customer Name's» Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxxx)

«Customer Name»'s Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2035							xx.xxxxx %	(0.xxxxxx)
FY 2036							xx.xxxxx %	(0.xxxxxx)
FY 2037							xx.xxxxx %	(0.xxxxxx)
FY 2038							xx.xxxxx %	(0.xxxxxx)
FY 2039							xx.xxxxx %	(0.xxxxxx)
FY 2040							xx.xxxxx %	(0.xxxxxx)
FY 2041							xx.xxxxx %	(0.xxxxxx)
FY 2042							xx.xxxxx %	(0.xxxxxx)
FY 2043							xx.xxxxx %	(0.xxxxxx)
FY 2044							xx.xxxxx %	(0.xxxxxx)

Drafter's Note: Replicate the table in section 1.1(1) below and add a new table for each JOE Member with a sequential number. E.g. 1.1(1), 1.1(2), 1.1(3) etc.

Drafter's Note: Leave table blank at contract signing.

1.1(1) «JOE Member Name»'s Member Slice Percentage

«JOE Member Name»'s Member Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxx)
FY 2035							xx.xxxxx %	(0.xxxxxx)
FY 2036							xx.xxxxx %	(0.xxxxxx)
FY 2037							xx.xxxxx %	(0.xxxxxx)
FY 2038							xx.xxxxx %	(0.xxxxxx)
FY 2039							xx.xxxxx %	(0.xxxxxx)
FY 2040							xx.xxxxx %	(0.xxxxxx)
FY 2041							xx.xxxxx %	(0.xxxxxx)
FY 2042							xx.xxxxx %	(0.xxxxxx)
FY 2043							xx.xxxxx %	(0.xxxxxx)
FY 2044							xx.xxxxx %	(0.xxxxxx)

End Option 3

Option 4: Include the following for customers that are JOEs that have Members that are cooperative or tribal utilities.

By March 31 concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall enter «Customer Name»'s formula inputs and Slice Percentage, calculated pursuant to section 5.3 and section 21.8 of the body of this Agreement, into the table below. BPA shall enter the

formula inputs and Member Slice Percentage for each «Customer Name» Member for the applicable Fiscal Year into the tables below.

Drafter's Note: Enter values as a percentage rounded to the fifth digit, and as a decimal value rounded to the seventh digit.

Drafter's Note: Leave table blank at contract signing.

1.1 «Customer Name»'s Slice Percentage

«Customer Name»'s Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxxx)
FY 2035							xx.xxxxx %	(0.xxxxxxx)
FY 2036							xx.xxxxx %	(0.xxxxxxx)
FY 2037							xx.xxxxx %	(0.xxxxxxx)
FY 2038							xx.xxxxx %	(0.xxxxxxx)
FY 2039							xx.xxxxx %	(0.xxxxxxx)
FY 2040							xx.xxxxx %	(0.xxxxxxx)
FY 2041							xx.xxxxx %	(0.xxxxxxx)
FY 2042							xx.xxxxx %	(0.xxxxxxx)
FY 2043							xx.xxxxx %	(0.xxxxxxx)
FY 2044							xx.xxxxx %	(0.xxxxxxx)

Drafter's Note: Use the following table for JOE Members that are cooperatives or tribal utilities. Replicate the table in section 1.2(1) below and add a new table for each JOE Member with a sequential number. E.g. 1.2(1), 1.2(2), 1.2(3) etc.

Drafter's Note: Leave table blank at contract signing.

1.2(1) «JOE Member Name»'s Slice Percentage

The de minimis threshold applicable to «JOE Member Name»'s Member Slice Percentage is «0.X» percent.

«JOE Member Name»'s Member Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxx %	(0.xxxxxxx)
FY 2030							xx.xxxxx %	(0.xxxxxxx)
FY 2031							xx.xxxxx %	(0.xxxxxxx)
FY 2032							xx.xxxxx %	(0.xxxxxxx)
FY 2033							xx.xxxxx %	(0.xxxxxxx)
FY 2034							xx.xxxxx %	(0.xxxxxxx)
FY 2035							xx.xxxxx %	(0.xxxxxxx)

«JOE Member Name»'s Member Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2036							xx.xxxxxx %	(0.xxxxxxx)
FY 2037							xx.xxxxxx %	(0.xxxxxxx)
FY 2038							xx.xxxxxx %	(0.xxxxxxx)
FY 2039							xx.xxxxxx %	(0.xxxxxxx)
FY 2040							xx.xxxxxx %	(0.xxxxxxx)
FY 2041							xx.xxxxxx %	(0.xxxxxxx)
FY 2042							xx.xxxxxx %	(0.xxxxxxx)
FY 2043							xx.xxxxxx %	(0.xxxxxxx)
FY 2044							xx.xxxxxx %	(0.xxxxxxx)

Drafter's Note: Use the following table for JOE Members that are public bodies (not cooperatives or tribal utilities). Replicate the table in section 1.3(1) below and add a new table for each JOE Member with a sequential number. E.g. 1.3(1), 1.3(2), 1.3(3) etc.

Drafter's Note: Leave table blank at contract signing.

1.3(1) «JOE Member Name»'s Member Slice Percentage

«JOE Member Name»'s Member Slice Percentage								
Fiscal Year	TRL forecast (aMW)	Existing Resources (aMW)	NLSL (aMW)	Tier 1 Allowance Amount (aMW)	CHWM (aMW)	Annual CHWM System (aMW)	Slice Percentage (percent value)	Slice Percentage (decimal value)
FY 2029							xx.xxxxxx %	(0.xxxxxxx)
FY 2030							xx.xxxxxx %	(0.xxxxxxx)
FY 2031							xx.xxxxxx %	(0.xxxxxxx)
FY 2032							xx.xxxxxx %	(0.xxxxxxx)
FY 2033							xx.xxxxxx %	(0.xxxxxxx)
FY 2034							xx.xxxxxx %	(0.xxxxxxx)
FY 2035							xx.xxxxxx %	(0.xxxxxxx)
FY 2036							xx.xxxxxx %	(0.xxxxxxx)
FY 2037							xx.xxxxxx %	(0.xxxxxxx)
FY 2038							xx.xxxxxx %	(0.xxxxxxx)
FY 2039							xx.xxxxxx %	(0.xxxxxxx)
FY 2040							xx.xxxxxx %	(0.xxxxxxx)
FY 2041							xx.xxxxxx %	(0.xxxxxxx)
FY 2042							xx.xxxxxx %	(0.xxxxxxx)
FY 2043							xx.xxxxxx %	(0.xxxxxxx)
FY 2044							xx.xxxxxx %	(0.xxxxxxx)

End Option 4

2. CHWM SYSTEM

By March 31 concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the table below with the CHWM System monthly Average Megawatts. The CHWM System is an

input in the calculation of «Customer Name»'s Firm Slice Amount pursuant to section 5.4 of this Agreement.

Drafter's Note: Leave table blank at contract signing.

CHWM System (aMW)													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
FY 2029													
FY 2030													
FY 2031													
FY 2032													
FY 2033													
FY 2034													
FY 2035													
FY 2036													
FY 2037													
FY 2038													
FY 2039													
FY 2040													
FY 2041													
FY 2042													
FY 2043													
FY 2044													

Note: Fill in the table above with Average Megawatt values rounded to a whole number xxx decimal places.

Option 1: Include the following for customers that are not JOEs.

3. FIRM SLICE AMOUNT

By March 31 concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the table below with «Customer Name»'s Firm Slice Amount calculated pursuant to section 5.4 of this Agreement.

Drafter's Note: Leave table blank at contract signing.

Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2030													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2031													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2032													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Energy (MW)													

Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2034													
Energy (MWh)													
Energy (MW)													
Fiscal Year 2035													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2036													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2037													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2038													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2039													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2040													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2041													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2042													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2043													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2044													
Energy (aMW)													
Energy (MWh)													
Note: Fill in the table above with megawatt-hour values rounded to a whole number, and Average Megawatt values rounded to three decimal places.													

End Option 1

Option 2: Include the following for customers that are JOEs.

3. **FIRM SLICE AMOUNT**

By March 31 concurrent with BPA's calculation of «Customer Name's Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the table below with «Customer Name's Firm Slice Amount and the portion of «Customer Name's Firm Slice Amount attributable to each of «Customer Name's Members calculated pursuant to section 5.4 of this Agreement.

3.1 «Customer Name»'s Firm Slice Amount

Drafter's Note: Leave table blank at contract signing.

«Customer Name» Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2030													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2031													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2032													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Energy (MW)													
Fiscal Year 2034													
Energy (MWh)													
Energy (MW)													
Fiscal Year 2035													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2036													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2037													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2038													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2039													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2040													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2041													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2042													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2043													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2044													
Energy (aMW)													
Energy (MWh)													

«Customer Name» Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Note: Fill in the table above with megawatt-hour values rounded to a whole number, and Average Megawatt values rounded to three decimal places.													

3.2 Member's Portion of Customer's Firm Slice Amount

By March 31 concurrent with BPA's calculation of «Customer Name»'s Net Requirement pursuant to section 1 of Exhibit A, BPA shall update the tables below with each Member's portion of the «Customer Name»'s Firm Slice Amount calculated pursuant to section 5.4 of this Agreement.

Drafter's Note: Replicate the table in section 3.2(1) below and add a new table for each JOE Member with a sequential number. E.g. 3.2(1), 3.2(2), 3.2(3) etc.

3.2(1) «JOE Member Name»'s Portion of Customer's Firm Slice Amount

«JOE Member Name»'s Portion of «Customer Name»'s Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2029													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2030													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2031													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2032													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2033													
Energy (MWh)													
Energy (MW)													
Fiscal Year 2034													
Energy (MWh)													
Energy (MW)													
Fiscal Year 2035													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2036													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2037													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2038													
Energy (aMW)													
Energy (MWh)													

«JOE Member Name»'s Portion of «Customer Name»'s Firm Slice Amount													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	annual aMW
Fiscal Year 2039													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2040													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2041													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2042													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2043													
Energy (aMW)													
Energy (MWh)													
Fiscal Year 2044													
Energy (aMW)													
Energy (MWh)													
Note: Fill in the table above with megawatt-hour values rounded to a whole number, and Average Megawatt values rounded to three decimal places.													

End Option 2

4. REVISIONS

BPA shall unilaterally revise the tables in sections 1, 2 and 3 of this Exhibit K for each Fiscal Year in accordance with the terms of this Exhibit K. All other changes to this Exhibit K will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

Exhibit L

PROVIDER OF CHOICE SLICE APPLICATION

1. PROVIDER OF CHOICE SLICE APPLICATION – GENERAL DESCRIPTION

The Provider of Choice Slice Application (POCSA) is a proprietary BPA computer application developed and maintained by BPA in consultation with «Customer Name» and other Slice Operations Forum (SOF) members. The POCSA consists of the Slice Water Routing Simulator, the Balance of System Module, the Default User Interface, and other related processes used for scheduling, tagging, and accounting of Slice Output and communication of information, all as described below.

The POCSA calculates the Slice Output Energy amount that BPA makes available to «Customer Name» in each Scheduling Hour. The total amount of Slice Output Energy in each Scheduling Hour is comprised of the results of the Simulator and the BOS Module, as set forth in section 7 of this exhibit. «Customer Name» shall use the POCSA on a day-ahead timeframe to submit Customer Inputs and BOS Flex Requests to BPA for each Scheduling Hour in the next Slice Operating Day, pursuant to section 4 of Exhibit F.

2. DEFINITIONS

The following definitions apply only to this Exhibit L.

- 2.1 “Algorithm Tuning Parameters” means factors, coefficients, or variables that are embedded within Simulator algorithms or formulas and are adjusted by Power Services as needed to appropriately implement provisions of this Agreement.
- 2.2 “Bypass Spill” means Spill that occurs at a hydroelectric project associated with lock operations, leakage and fish bypass systems.
- 2.3 “Forced Spill” means Spill other than Bypass Spill, Elective Spill, or Fish Spill that occurs at a hydroelectric project and is unavoidable in order to operate the project within applicable Operating Constraints.
- 2.4 “Incremental Side Flows” means the portion of a hydroelectric project’s natural inflow that enters the river on which the project is located between that project and the next-upstream project.
- 2.5 “Logic Control Parameters” means flags or toggles that are embedded within the POCSA logic and are set by Power Services as needed to appropriately implement provisions of this Agreement.
- 2.6 “Simulator Initialization Time” means the date and time that represents the beginning of the first one-hour period of the Simulator Modeling Period.
- 2.7 “Simulator Modeling Period” means the variable time period represented by the Simulator output, including between 216 and 241 one-hour time periods, as described in section 3.1.2 of this exhibit.

3. SLICE WATER ROUTING SIMULATOR

3.1 General Description

The Simulator is designed to determine «Customer Name»'s potential range of available Simulated Output Energy Schedules and SOE Limits associated with the Simulator Projects. «Customer Name» shall utilize the Simulator to simulate the routing of available stream flow through the Simulator Projects in compliance with established Simulator Parameters. Power Services is responsible for establishing and managing Simulator Parameters within the Simulator, pursuant to section 3.2 of this exhibit, and «Customer Name» is responsible for establishing and managing Customer Inputs within the Simulator, pursuant to section 3.3 of this exhibit.

3.1.1 «Customer Name» shall have access to the Simulator for the purpose of running various Simulated Operating Scenarios.

3.1.2 The Simulator produces Simulated Operating Scenarios in one-hour time periods for no less than 216 hours and no more than 241 hours depending upon the Simulator Initialization Time.

The one-hour time periods used in the Simulated Operating Scenarios shall begin with the first hour of the day following the most recent operating day that «Customer Name» submitted Customer Inputs pursuant to section 4 of Exhibit F.

3.1.3 The Simulator incorporates approximate hydraulic time lags between Simulator Projects.

3.1.4 The Simulator reflects the application of all Operating Constraints in effect for each Simulator Project, including compliance with Operating Constraints in effect at downstream projects.

3.1.5 The Simulator calculates simulated inflows to Grand Coulee based upon forecast (or measured when available) discharges from upstream projects plus forecast Incremental Side Flows between those projects and Grand Coulee, as adjusted for forecast Banks Lake irrigation pumping flows.

3.1.6 The Simulator calculates the simulated Grand Coulee discharge, generation, and forebay elevation based on «Customer Name»'s Customer Inputs. Such computed discharge is used to establish «Customer Name»'s simulated Chief Joseph inflow, given appropriate time lags, and as adjusted for forecast Chief Joseph Incremental Side Flows.

3.1.7 The Simulator calculates simulated inflows to McNary based upon forecast (or measured when available) discharges from Priest Rapids and Ice Harbor after considering approximate hydraulic time lags between those projects and McNary, as adjusted for forecast McNary

Incremental Side Flows. The Simulator also incorporates «Customer Name»'s Hydraulic Link Adjustment, pursuant to section 3.7 of this exhibit, into «Customer Name»'s simulated McNary inflow.

- 3.1.8 The Simulator calculates the simulated McNary discharge, generation, and forebay elevation based on «Customer Name»'s Customer Inputs. Such calculated discharge is used to establish «Customer Name»'s simulated John Day inflow, given appropriate time lags, and as adjusted for forecast John Day Incremental Side Flows.
- 3.1.9 The Simulator calculates the simulated discharge, generation and forebay elevations for John Day, The Dalles and Bonneville, as well as simulated inflows into The Dalles and Bonneville for «Customer Name», in the manner described in section 3.1.8 above.
- 3.1.10 The Simulator does not accept aggregated Customer Inputs for the Lower Columbia Complex or the Coulee-Chief Complex. «Customer Name» may develop aggregated Customer Inputs for use in its in-house processes but must translate such aggregated Customer Inputs into individual Customer Inputs for each Simulator Project to enable the POCSA to validate «Customer Name»'s simulated operation of individual Simulator Projects against Operating Constraints.

3.2 Simulator Parameters

BPA shall monitor and update the Simulator Parameters, as specified in this section 3.2, applicable to each Simulator Project to reflect: (1) Operating Constraints in effect or to take effect at the actual Tier 1 System Resource, and (2) forecast system conditions used by BPA in the operation of the Tier 1 System Resources, for the entire Simulator Modeling Period. BPA shall designate each Operating Constraint established as a Simulator Parameter as either an Absolute Operating Constraint, a Hard Operating Constraint, or a Soft Operating Constraint. BPA shall notify Slice Customers of any Absolute Operating Constraint or Hard Operating Constraint that cannot be modelled in the POCSA. The simulated operating capability available from the Simulator Projects as affected by the Simulator Parameters shall reasonably represent the actual operating capability available from the Tier 1 System Resources that comprise the Simulator Projects as affected by the associated Operating Constraints. To the maximum extent practicable, BPA shall monitor the operating conditions that affect the Simulator Projects and shall revise the Simulator Parameters as necessary to reflect changes.

- 3.2.1 BPA shall update the Simulator Parameters applicable to each Scheduling Hour in the Simulator Modeling Period no later than three hours prior to the Customer Inputs submission deadline in section 4 of Exhibit F on each calendar day. BPA shall have the right to revise Simulator Parameters applicable to each Scheduling Hour up to 75 minutes prior to the Customer Inputs submission deadline in section 4 of Exhibit F.

3.2.2 The Simulator Parameters shall include:

- (1) Hourly regulated inflows (Grand Coulee and McNary only);
- (2) Hourly Incremental Side Flows;
- (3) Initial forebay elevations;
- (4) Water to energy conversion factors (H/ks);
- (5) Content to elevation conversion tables;
- (6) Project turbine capacities;
- (7) Spill limitations and requirements, including Bypass Spill quantities;
- (8) Generation limitations and requirements;
- (9) Discharge limitations and requirements as needed to meet both discharge and tailwater elevation requirements;
- (10) Forebay limitations and requirements;
- (11) System wide requirements that affect the Simulator Projects (e.g. Vernita Bar, chum spawning, or Operating Reserves);
- (12) Algorithm Tuning Parameters;
- (13) Logic Control Parameters that affect the Simulator Projects (e.g. CGS Displacement election, PSB enforcement flag, etc.); and
- (14) Simulator Parameters as implemented pursuant to section 5.12 of the body of this Agreement and included in the specification manual described in section 3.5.1 of this exhibit.

3.3 **Customer Inputs and Use of the Simulator**

«Customer Name» shall be responsible for accessing the Simulator and submitting at least one Customer Input for each of the Simulator Projects for each one-hour time period for the entire Simulator Modeling Period. «Customer Name» is required to submit Customer Inputs to the Simulator separately from all other Slice Customers' Customer Inputs.

3.3.1 Customer Inputs shall include:

- (1) Generation requests;

- (2) Elevation requests;
- (3) Discharge requests; and,
- (4) Customer Inputs as implemented pursuant to section 5.12 of the body of this Agreement and included in the specification manual described in section 3.5.1 of this exhibit.

3.3.2 Customer Inputs shall be stated in terms of whole project capability rather than «Customer Name»'s Slice Percentage of project capability.

3.3.3 The Simulator shall apply a fixed prioritization of Customer Inputs among generation, elevation, and discharge requests.

3.3.4 The Simulator shall process «Customer Name»'s Customer Inputs to determine a Simulated Operating Scenario. The simulated generation values resulting from each Simulated Operating Scenario shall represent «Customer Name»'s potential Simulated Output Energy Schedules. Simulated Output Energy Schedules are not considered schedules for power delivery.

3.3.5 For each Simulated Operating Scenario the POCSA will provide «Customer Name» with a report stating for each Simulator Project:
(1) the resulting simulated generation, discharge and elevation values,
(2) which, if any, Absolute or Hard Operating Constraints limited the Simulated Operating Scenario, and (3) which, if any, Absolute or Hard Operating Constraints were violated.

3.3.6 If «Customer Name» submits Customer Inputs for a Simulated Operating Scenario that would otherwise result in violations of one or more Absolute or Hard Operating Constraints, the Simulator shall, to the extent possible, establish a Simulated Operating Scenario that conforms to the Absolute or Hard Operating Constraints. In such event, «Customer Name» shall elect to either cancel the submission of its Customer Inputs or accept the results of the Simulated Operating Scenario. «Customer Name» shall contact the Power Services duty scheduler on shift no earlier than three hours prior to the Customer Inputs submission deadline in section 4 of Exhibit F and no later than thirty minutes prior to the Customer Inputs submission deadline to request shielding from Simulated Operating Scenario constraint violations for the next Slice Operating Day. Shielding eliminates the energy reduction at the Simulator Project where the constraint violation occurred. The Power Services duty scheduler on shift or other position designated by BPA shall have the sole discretion to approve or deny shielding requests. Shielding requests will not be approved by BPA after the fact. «Customer Name» shall resubmit a final feasible Simulated Operating Scenario for such shielding to take place.

- 3.3.7 «Customer Name» shall have the right to modify and submit its Customer Inputs for each Scheduling Hour included in the next Slice Operating Day prior to the Customer Inputs submission deadline in section 4 of Exhibit F.

The Simulator will process the last submitted Customer Inputs after the Customer Inputs submission deadline to calculate «Customer Name»'s final Simulated Operating Scenario and associated final Simulated Output Energy Schedules. The final Simulated Operating Scenario and final Simulated Output Energy Schedules are inputs to the calculation of «Customer Name»'s Slice Output Energy Request (SOER), pursuant to section 7 of this exhibit, applicable to each Scheduling Hour in the next operating day.

- 3.3.8 For the Customer Inputs listed in section 3.3.1 of this exhibit, «Customer Name» shall produce and submit to BPA at least one preliminary and one final Simulated Operating Scenario. «Customer Name» final Simulated Operating Scenario shall demonstrate that all Simulator Projects are in compliance with all applicable Operating Constraints for the duration of the Simulator Modeling Period. «Customer Name» shall produce and submit a preliminary Simulated Operating Scenario to BPA no earlier than 17 hours prior to the Customer Inputs submission deadline in section 4 of Exhibit F and no later than four hours prior to the Customer Inputs submission deadline. The preliminary Simulated Operating Scenario shall demonstrate that all Simulator Projects are at a minimum in compliance with all applicable Operating Constraints for the duration of the next Slice Operating Day that «Customer Name» is preparing to submit Customer Inputs for. «Customer Name» shall produce and submit the final Simulated Operating Scenario to BPA no later than the Customer Input submission deadline in section 4 of Exhibit F. If «Customer Name» does not submit a final Simulated Operating Scenario to BPA that complies with the requirements of this section 3.3, then «Customer Name»'s preliminary Simulated Operating Scenario shall become its final Simulated Operating Scenario for the applicable time period. BPA may suspend this requirement during periods when BPA determines «Customer Name» is not able to comply due to conflicting Operating Constraints.

3.4 Simulator Output

Based on the Simulator Parameters and Customer Inputs in effect, the Simulator produces the following results for each one-hour time period for the entire Simulator Modeling Period:

- 3.4.1 «Customer Name»'s potential Simulated Output Energy Schedules (simulated generation), simulated discharge, and simulated forebay elevation associated with each Simulator Project.

- 3.4.2 A list of Customer Inputs that resulted in violation of Operating Constraints within the Simulated Operating Scenario, pursuant to section 3.3.6 of this exhibit, or that were not achieved by the Simulator, for each Simulator Project.
- 3.4.3 A list of Operating Constraints that were violated within «Customer Name»'s simulated operation for each Simulator Project.
- 3.4.4 An explanation for each occurrence listed pursuant to sections 3.4.2 and 3.4.3 of this exhibit.
- 3.4.5 «Customer Name»'s Hydraulic Link Adjustment amounts as established pursuant to section 3.7 of this exhibit.

3.5 Simulator Documentation, Performance Test, and Accuracy

3.5.1 Simulator Documentation

BPA, with «Customer Name»'s input, shall develop an updated Slice Water Routing Simulator (SWRS) manual with specifications describing the Simulator computations, processes and algorithms. The SWRS manual contents shall be established by the SOF.

3.5.2 Simulator Performance Test

BPA shall conduct the Simulator Performance Test specified in this section 3.5.2 of this exhibit, and as required pursuant to section 5.9.4 of the body of this Agreement and section 3.5.3.2 of this exhibit.

3.5.2.1 Storage Content Test

Using actual stream flows (including calculated Incremental Side Flows), operating constraints, initial monthly Simulator Project forebay elevations, and Simulator Project discharges for the months of January through September 2025 as input parameters, BPA shall produce Simulated Operating Scenarios for each month of that period. BPA shall calculate the hourly Storage Content difference for each Simulator Project as the difference between the simulated Storage Content and the actual Storage Content for each such Simulator Project for each hour of the test period. For each month of the test period, a Simulator Project will have passed the Storage Content test if: (1) the hourly Storage Content difference is greater than the Storage Content value contained in column A of the table below on no more than four percent of the hours in the month; and, (2) no hourly Storage Content difference during the month is greater than the lesser of (A) the Storage Content value contained in column B of the table below or (B) one-half of the applicable monthly available Storage Content. If a Simulator Project fails either of these tests for a month, then such Simulator

Project will have failed the Storage Content test for such month.

Simulator Project	Column A	Column B
Grand Coulee	5 ksfd	15 ksfd
Chief Joseph	5 ksfd	11.5 ksfd
McNary	5 ksfd	15 ksfd
John Day	5 ksfd	15 ksfd
The Dalles	5 ksfd	12.5 ksfd
Bonneville	5 ksfd	15 ksfd

The overall Storage Content test will be deemed to have failed if one or more of the following occurs:

- (1) Grand Coulee fails the test in one or more of the nine months;
- (2) More than 25 percent of the 54 monthly tests fail;
- (3) Four or more Simulator Projects fail the test in any single month; or
- (4) Any of the Simulator Projects fail the test in all 9 months.

3.5.2.2 Energy Test

Using actual stream flows (including calculated Incremental Side Flows), operating constraints, initial monthly Simulator Project forebay elevations, Simulator Project discharge values, and Simulator Project H/ks (for the months of January through September 2025) as input parameters, BPA shall produce Simulated Operating Scenarios for each month of that period. BPA shall calculate the daily and monthly differences between the simulated generation and actual generation for each Simulator Project. For each month of the test period, a Simulator Project will have passed the energy test if: (1) for each day of the month the daily generation difference is no greater than five percent of the associated Simulator Project's actual daily generation; and, (2) the monthly generation difference is no greater than three percent of the associated Simulator Project's actual monthly generation. The overall energy test will be deemed to have failed if one or more of the following occurs:

- (1) Grand Coulee fails the test in one or more of the 9 months;
- (2) More than 25 percent of the 54 monthly tests fail;

- (3) Four or more Simulator Projects fail the monthly test in any single month; or
- (4) Any of the Simulator Projects fail the test in all 9 months.

3.5.2.3 **Peaking Test**

BPA shall produce a separate Simulated Operating Scenario as specified below, for the hottest consecutive 3-day period and the coldest consecutive 3-day period that occurred during the period January through September 2025

The 3-day test periods shall be determined by BPA based on the weighted-average temperatures for three major load centers: Portland, Seattle, and Spokane. The weighted-average temperatures for these load centers will be determined as follows:

- (1) Each city's daily maximum and daily minimum temperature will be averaged;
- (2) The resulting day-average temperature from each city will be weighted by applying load center percentage weightings, which will be determined by BPA and will sum to 100 percent for the three cities; and
- (3) The resulting weighted day-average temperatures for each city will then be combined to determine each day's weighted-average load center temperature.

The daily weighted-average load center temperatures will be averaged for each consecutive 3-day period for the January 2025 through September 2025 period. The lowest such average will establish the coldest 3-day period, and the highest such average will establish the hottest 3-day period.

The Simulated Operating Scenarios will be developed using actual stream flows (including calculated Incremental Side Flows), operating constraints, and initial Simulator Project forebay elevations from the 3-day test periods as input parameters. Each Simulator Project's hourly generation request will be set equal to such Simulator Project's actual generation value from the representative test periods. BPA will compare each of the Simulator Project's simulated hourly generation values to such Simulator Project's actual hourly generation values for each of the six peak hours on any of the test days. The six peak hours shall be established as the six hours with the largest combined actual Simulator Project

generation each day. The peaking test will be deemed to have failed if either of the following occurs:

- (1) The Simulator Projects' combined simulated generation value deviates from the Simulator Projects' combined actual generation value by more than 200 aMW over the six peak hours on any of the test days; or
- (2) The Simulator Projects' combined simulated generation value deviates from the Simulator Projects' combined actual generation value by more than 400 MW on any of the six peak hours on any of the test days.

3.5.2.4 Ramp Down Test

Using actual stream flows (including calculated Incremental Side Flows), operating constraints, initial Simulator Project forebay elevations, and Simulator Project generation values from the dates specified below as input parameters, BPA shall develop a separate Simulated Operating Scenario for each specified date. BPA shall calculate the difference between the simulated Grand Coulee generation change and the actual Grand Coulee generation change for each two consecutive hours between Scheduling Hour 20 and Scheduling Hour 02 for each study day. The ramp down test will be deemed to have failed if one or more of the following occurs:

- (1) The difference between the simulated and actual Grand Coulee generation change is greater than 300 MW on any two consecutive hours between Scheduling Hour 20 and Scheduling Hour 02, on any ramp down test date.
- (2) The average difference between the simulated and actual Grand Coulee generation change is greater than 100 MW for each two consecutive hours between Scheduling Hour 20 and Scheduling Hour 02 on any ramp down test date.
- (3) BPA shall determine the ramp down test dates and provide such dates to «Customer Name» no later than October 31, 2027.

3.5.2.5 Changes to Simulator Performance Test Criteria

If the Simulator Performance Test fails, and after BPA discusses the results of the test with «Customer Name», and the Parties agree the test criteria is unreasonable, inappropriate, or unattainable, then the Parties may mutually agree to either deem the Simulator Performance

Test as having passed, or alter the test criteria prior to conducting subsequent Simulator Performance Tests.

3.5.3 Simulator Accuracy

«Customer Name» and BPA acknowledge that model errors are inevitable. No cumulative accounting of model error impacts shall be required or established.

3.5.3.1 To minimize such errors BPA shall ensure Simulator Parameters established for the Simulator reasonably reflect the expected values for forecasted inflows and Operating Constraints and that the Simulator reasonably represents the operational attributes of the Simulator Projects. BPA shall develop a process to account and correct for differences between forecasted and measured inflows and H/k values reflected in the Simulator in an effort to minimize cumulative deviations. «Customer Name» shall accept such inputs and corrections, and shall ensure that Customer Inputs established for the Simulator reasonably reflect «Customer Name»'s intended use of hourly scheduling flexibility within the established SOE Limits.

3.5.3.2 As an ongoing check of the Simulator's accuracy, BPA shall run a retrospective Simulator Performance Test, as described in section 3.5.2 of this exhibit, after major changes to the Simulator have occurred, at BPA discretion. The Simulator accuracy criteria for each Simulator Performance Test shall be set equal to actual Simulator accuracy associated with the preceding Simulator Performance Test results, unless the Parties agree otherwise through the SOF process. The test criteria for each Simulator Performance Test may be modified as agreed by the Parties through the SOF process pursuant to section 5 in the body of this Agreement. BPA shall provide the results of each such test to «Customer Name» within a reasonable timeframe.

3.5.3.3 If any Simulator Performance Test results are not within the accuracy criteria established pursuant to section 3.5.3.2 of this exhibit, BPA, in consultation with «Customer Name» and other members of the SOF, shall make a plan to promptly implement modifications necessary to bring the Simulator output in compliance with such accuracy criteria pursuant to section 5.12 of this Agreement.

3.5.4 Documentation of Simulator Updates, Upgrades, or Replacements and Required Actions

At least 30 calendar days prior to BPA implementing any major updates, upgrades, or replacements to the Simulator, the Simulator specifications manual described in section 3.5.1 of this exhibit shall be

revised by BPA, with «Customer Name»'s input, and distributed to «Customer Name»'s SOF representative. Within such 30 day period «Customer Name» shall test its systems and provide sufficient training to its staff to allow it to prudently manage the changes resulting from the updates, upgrades, or replacements.

3.6 Forecasted H/k, Corrected H/k, Bypass Spill, and Fish Spill

- 3.6.1 The POCSA shall automatically calculate forecasted H/k values for each Simulator Project for use as H/k Simulator Parameters. Forecasted H/k values shall be calculated using observed turbine discharge and gross generation amounts associated with the most recent contiguous periods that include hours ending 2300 through 0600 and hours ending 0700 through 2200, separately. The forecast H/k values shall be applied to all hours of each future, like, contiguous period within the Simulator Modeling Period. Such applied forecasted H/k values shall be adjusted for each Scheduling Hour based upon the ratio of «Customer Name»'s hourly simulated head associated with the prior Scheduling Hour and the observed head associated with the applicable observed contiguous period.
- 3.6.2 The POCSA shall automatically calculate observed hourly H/k values for each Simulator Project for use in deviation accounting. Observed hourly H/k values shall be based on observed turbine discharge and gross generation amounts for each hour and shall be adjusted based upon the ratio of «Customer Name»'s simulated head and the observed head for each hour. Observed hourly H/k values shall be applied to «Customer Name»'s final simulated turbine discharge values associated with the same hour to determine corrected SOER amounts and H/k correction return amounts («Customer Name»'s Slice Percentage of the corrected SOER minus «Customer Name»'s Slice Percentage of the final SOER). The sum of «Customer Name»'s H/k correction return amounts for each hour shall be applied to «Customer Name»'s SOER for the Scheduling Hour that occurs 168 hours after the applicable observed hour.
- 3.6.3 The POCSA shall automatically apply forecasted Bypass Spill amounts to «Customer Name»'s simulations for the entire Simulation Modeling Period. The POCSA shall calculate hourly observed Bypass Spill amounts as soon as practicable following each hour. Such hourly observed Bypass Spill amounts shall replace the forecasted Bypass Spill amounts for the Scheduling Hour that occurs 24 hours after the applicable observed hour.

3.7 Calculation and Application of the Hydraulic Link Adjustment

- 3.7.1 «Customer Name»'s Hydraulic Link Adjustment values shall be determined for each hour of this Agreement, beginning October 1, 2028.

3.7.2 «Customer Name»'s Hydraulic Link Adjustment values shall be equal to «Customer Name»'s Chief Joseph simulated discharge for each hour, minus the Chief Joseph measured discharge for the same hour.

3.7.3 «Customer Name»'s Hydraulic Link Adjustment values shall be applied as a component of «Customer Name»'s simulated inflow to McNary after considering appropriate lag times and smoothing functions.

4. **BALANCE OF SYSTEM (BOS) MODULE**

The BOS Module calculates: (1) the BOS Base amounts, (2) the BOS Flex amounts, and (3) «Customer Name»'s BOS Deviation Return amounts, all as specified below.

4.1 **BOS Base Amount**

Consistent with the following provisions, the BOS Base amount shall be determined by Power Services and provided to «Customer Name».

4.1.1 The BOS Base amount, for each Scheduling Hour, shall be equal to the sum of: (1) BPA's latest planned or scheduled generation amounts associated with the BOS Complex projects, (2) the amount of Elective Spill BPA implements on the BOS Complex projects, (3) the amount of CHWM Modeled Augmentation, and (4) the forecast amount of energy associated with Designated System Obligations. Energy associated with CHWM Modeled Augmentation included in the BOS Base amount shall be applied in equal amounts each hour of each Fiscal Year.

4.1.2 «Customer Name»'s hourly BOS Base schedules shall be equal to the hourly BOS Base amounts multiplied by «Customer Name»'s Slice Percentage.

4.1.3 BPA shall have the right to revise BOS Base amounts to reflect changes in items listed in sections 4.1.1(1) through 4.1.1(4) affecting each Scheduling Hour up to 75 minutes prior to the Customer Inputs submission deadline in section 4 of Exhibit F.

4.2 **BOS Flex Amount**

Consistent with the following provisions, the BOS Flex amount shall be determined by BPA and made available to «Customer Name» on an as-available basis.

4.2.1 The BOS Module will: (1) determine if there is sufficient flexibility to reshape the hourly generation associated with the Lower Snake Complex that is included in the BOS Base amount, and if so, (2) provide as output the resulting amount by which the BOS Base amount can be increased or decreased on any given hour. The BOS Module will specify the BOS Flex amounts that are available for the current calendar day and the subsequent calendar day.

- 4.2.2 Such BOS Flex amounts shall reflect, in the judgment of BPA, the amount by which the BOS Base amount can reasonably be reshaped using the flexibility available in the Lower Snake Complex, taking into account the Operating Constraints and stream flow conditions.
- 4.2.3 «Customer Name» shall determine its planned hourly use of the BOS Flex and submit to BPA, positive and negative hourly BOS Flex schedules that sum to zero for each day. A positive hourly BOS Flex schedule shall reflect an increase relative to the BOS Base amount and a negative hourly BOS Flex schedule shall reflect a decrease relative to the BOS Base amount.
- 4.2.4 «Customer Name» shall update its hourly BOS Flex schedules to comply with revised BOS Flex amounts.
- 4.2.5 The BOS Flex available to «Customer Name» shall be equal to the BOS Flex amounts determined pursuant to this section 4.2 multiplied by «Customer Name»'s Slice Percentage.
- 4.2.6 If «Customer Name» determines it has a significant risk of not meeting its firm load service at any time, then «Customer Name» may request that BPA assess the ability to modify the established BOS Flex amounts within applicable Operating Constraints. If BPA, as time permits and in its sole discretion, alters such BOS Flex amounts, then such updated values shall apply to all Slice Customers. «Customer Name» acknowledges that such assessment by BPA may result in an increase, decrease or no change to any of the remaining hourly BOS Flex amounts.
- 4.2.7 BPA shall have the right to revise BOS Flex amounts to reflect changes in items listed in sections 4.2.1(1) and 4.2.1(2) and section 4.2.6 affecting each Scheduling Hour up to 75 minutes prior to Customer Inputs submission deadline in section 4 of Exhibit F.

4.3 BOS Deviation Return Amounts

The BOS Module will calculate and establish «Customer Name»'s BOS Deviation Return amounts as established in section 4.2.1 of Exhibit M.

4.4 Total BOS Amounts

«Customer Name»'s total BOS amount shall be equal to the sum the following components:

- (1) the BOS Base schedule as established pursuant to section 4.1 of this exhibit;
- (2) the BOS Flex schedule as established pursuant to section 4.2 of this exhibit; and

- (3) the BOS Deviation Return amount described in section 4.3 of this exhibit.

5. DEFAULT USER INTERFACE AND CUSTOMER FACING INTERFACE

5.1 BPA shall maintain a Default User Interface (DUI) and a Customer Facing Interface (CFI) for «Customer Name» to access the POCSA. «Customer Name» may utilize the DUI as its primary interface for the POCSA or may use an alternate interface, provided that such alternate interface shall be reviewed and approved by BPA prior to usage and interfaces with the CFI. Any alternative interface shall be compliant with BPA's system standards and cyber security requirements as determined by BPA. «Customer Name» shall provide BPA all information, data, and documentation that BPA determines to be necessary for testing and validation of the alternative interface, including but not limited to cyber security requirements. BPA does not guarantee that an alternative interface will be compatible with BPA's systems and requirements, nor does it guarantee that it will be approved for use by «Customer Name». If «Customer Name»'s primary interface is not the DUI or CFI, then «Customer Name» shall maintain back-up functionality through, and staff capability to operate, the DUI or CFI in the event «Customer Name»'s alternate interface is unavailable. The DUI and CFI shall include the functional capabilities listed below:

- (1) Provide «Customer Name» access to the Simulator for submittal of Customer Inputs and to run Simulated Operating Scenarios.
- (2) Provide «Customer Name» feedback and reports from the Simulator and BOS Module as set forth in sections 3.4 and 4.2.1 of this exhibit.
- (3) Provide «Customer Name» input/output displays related to the Simulator and BOS Module.

5.2 Customer Unable to Utilize DUI or CFI

If, as of the POCSA Deployment Date, «Customer Name» is not functionally ready to access and utilize the DUI or CFI, then beginning on the POCSA Deployment Date and continuing until 30 calendar days after «Customer Name» provides BPA with written notice that it is functionally ready to utilize the DUI or CFI, then BPA shall use the POCSA to determine «Customer Name»'s hourly SOERs in accordance with the following procedures:

5.2.1 BPA Actions - Customer Inputs

- (1) BPA shall set «Customer Name»'s Customer Inputs (generation requests) for Grand Coulee and Chief Joseph equal to Power Services' planned Grand Coulee and Chief Joseph's respective generation.

- (2) BPA shall set «Customer Name»'s Customer Inputs (elevation requests) for the LCOL Complex projects such that those projects pass inflow on an hourly basis.
- (3) BPA shall set «Customer Name»'s hourly BOS amount equal to «Customer Name»'s Slice Percentage multiplied by the BOS Base amount (no BOS Flex allowed).
- (4) BPA shall communicate «Customer Name»'s SOERs to «Customer Name» via a mutually agreed upon delivery method as determined by the Parties.

5.2.2 BPA shall revise «Customer Name»'s Customer Inputs applying the same criteria in section 5.2.1 of this exhibit. BPA shall provide «Customer Name» its revised SOERs, as needed to reflect BPA's latest estimated generation, inflow and BOS Base values no later than one hour prior to the Customer Input submission deadline in section 4 of Exhibit F.

5.2.3 Submission of Electronic Tags

«Customer Name» shall submit E-Tags to Power Services on a day-ahead timeframe, pursuant to Exhibit F, which shall indicate energy amounts equal to «Customer Name»'s hourly SOERs established under this section 5.2

- (1) If energy amounts indicated on «Customer Name»'s E-Tags are greater than its hourly SOERs, then «Customer Name» shall receive the electronic tag amounts and shall incur additional charges or penalty charges as established in the Power Rate Schedules and GRSPs, including the Unauthorized Increase Charge, or its successor, for the energy that is in excess of the Slice Output Energy amount.
- (2) If energy amounts indicated on «Customer Name»'s E-Tags are less than its hourly SOERs, then «Customer Name» shall receive the E-Tag amounts and shall forfeit the remaining Slice Output Energy amount.

5.2.4 SOE Limit Adjustments

Except as described in section 5.2.3, SOE Limit adjustments established in Exhibit M shall not be assessed for the first 90 calendar days that the circumstances described in this section 5.2 are in effect.

6. POCSA REPORTS

- 6.1 As soon as practicable, but no later than 30 minutes past the end of each Scheduling Hour, the POCSA shall provide «Customer Name» a detailed automated report that specifies: (1) «Customer Name»'s hourly Storage Offset Adjustment (SOA) amounts as defined in section 2.2 of Exhibit M, and

as specified in section 4 of Exhibit M, and (2) the after-the-fact Simulator Project data used to calculate hourly SOA amounts. The POCSA shall apply the SOA amounts to each Simulator Project 48 hours after the difference in stream flows occurred.

- 6.2 The POCSA shall provide «Customer Name» a report that specifies all changes to Simulator Parameters that have been made by BPA between a user specified start date/time and end date/time. The report shall include brief, concise explanatory statements coincidental with significant Simulator Parameter changes.
- 6.3 The POCSA shall provide «Customer Name» a report that specifies all Prudent Operating Decisions implemented by BPA in the Simulator, between a user-specified start date/time and end date/time. The report shall include the reason for imposing the Prudent Operating Decision and the manner in which BPA incorporated the Prudent Operating Decision into the Simulator Parameters.

7. SOER FOR EACH SCHEDULING HOUR

«Customer Name»'s SOER in each Scheduling Hour shall be equal to the sum of the following components, rounded to a whole number:

- (1) the sum of «Customer Name»'s final Simulated Output Energy Schedules established in accordance with section 3.3.7 of this exhibit for each of the Simulator Projects multiplied by «Customer Name»'s Slice Percentage;
- (2) «Customer Name»'s total BOS amount, established pursuant to section 4.4 of this exhibit;
- (3) «Customer Name»'s reduction penalty amount established in accordance with section 5.1.4 of Exhibit M, multiplied by -1; and
- (4) «Customer Name»'s H/k correction return established in accordance with section 3.6.2 of this exhibit.

Any revision to «Customer Name»'s SOER shall conform to the requirements of section 3 of Exhibit F and the scheduling deadline in section 4 of Exhibit F.

8. POCSA TEST VERSIONS AND TRIAL PERIODS

- 8.1 BPA shall facilitate at least four week-long POCSA trial periods. During these trial periods, BPA shall maintain and provide «Customer Name» with access to a single test version of the POCSA in a form as near to production status as possible, including the functionality for «Customer Name» to submit Customer Inputs and run the Simulator to produce Simulated Operating Scenarios and final Simulated Operating Scenarios through the DUI and through the secure network protocols, and to receive results from the submittal processes.

- 8.2 In this test version of the POCSA «Customer Name» shall have the ability to modify Simulator Parameters. The test version of the POCSA availability shall be no less than 90 percent uptime. The test version of the POCSA shall use production data from the most recent two-year period.
- 8.3 The selection of specific weeks for such trial periods will be coordinated through the SOF, but shall begin no earlier than April 1, 2027 and shall end no later than 14 calendar days prior to the date when the POCSA is revised with the day-ahead functionality on October 1, 2028. Results and feedback of the trial periods will be reported to the SOF at which time any suggestions for improving the SCA, the Simulator, or the processes necessary to support and maintain the POCSA will be discussed and considered by the Parties.

9. REVISIONS

- 9.1 BPA may unilaterally revise the deadline for BPA to update Simulator Parameters in section 3.2.1 of this exhibit as necessary to comply with BPA's obligations as stated in the Western Power Pool Western Resource Adequacy Program tariff, or its successor. BPA shall provide «Customer Name» notice of the revised deadline in section 3.2.1 at least 60 calendar days prior to the effective date of such revision.
- 9.2 BPA may unilaterally revise Forecasted H/k, Corrected H/k, Bypass Spill, and Fish Spill in section 3.6.1 of this exhibit if such changes are approved by the SOF pursuant to section 5.12 of the body of this Agreement. BPA shall provide «Customer Name» notice of such revision at least 30 calendar days prior to the effective date of such revision.
- 9.3 All other changes to this Exhibit L will be made by mutual agreement of the Parties.

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Exhibit M SLICE OPERATING PROCEDURES

1. SLICE OPERATING PROCEDURES – GENERAL DESCRIPTION

The procedures established in this Exhibit M shall be used by BPA and «Customer Name» in conjunction with Exhibit L to implement deliveries of Slice Output Energy sold to «Customer Name» under the Slice Product.

2. DEFINITIONS

- 2.1 “Actual Slice Output Energy” or “ASOE” means the actual amount of «Customer Name»’s Slice Output Energy BPA makes available to «Customer Name» at the Scheduling Points of Receipt.
- 2.2 “Multiyear Hydroregulation Study” means a hydroregulation study that simulates the prospective monthly operation of the Tier 1 System, typically for a 12-month period, given a range of stream flow sequences.
- 2.3 “Slice Purchase Obligation End Date” or “SPOED” means the earlier of (1) 2400 hours Pacific Prevailing Time on September 30, 2044, or (2) the effective date of a conversion to another power product under section 11 of this Agreement, or (3) the date of termination of this Agreement.
- 2.4 “Storage Offset Adjustment” or “SOA” means the hourly difference between forecasted and observed inflows for each Simulator Project that are to be applied 48 hours after its calculation, pursuant to section 4 of this exhibit.

3. DATA PROVIDED BY POWER SERVICES

In addition to information exchanged and provided through provisions of Exhibit L, and to assist «Customer Name» in managing and planning the use of its Slice Output, BPA shall provide «Customer Name» the following information.

- 3.1 Tier 1 System operational information pursuant to sections 7, 8 and 9 of this exhibit.
- 3.2 «Customer Name»’s SOA amounts and BOS Deviation Account balance pursuant to section 4 of this exhibit.

4. STORAGE OFFSET ADJUSTMENT AND DEVIATION ACCOUNTING

BPA shall calculate and apply to «Customer Name»’s Provider of Choice Slice Application (POCSA) a separate Storage Offset Adjustment (SOA) for each Simulator Project that represents simulated water deviation accounting 48 hours after the difference in inflow occurred. BPA shall also calculate and apply to «Customer Name» a BOS Deviation Account balance that represents energy deviation accounting.

- 4.1 «Customer Name»’s SOAs shall be established for each Simulator Project each Scheduling Hour and shall account for the differences between forecasted and observed stream flow values. SOAs shall be applied as

adjustments to «Customer Name»'s associated Simulator Project inflows 48 hours after the hour for which the SOA is calculated. For example, an SOA that is calculated for Grand Coulee for hour 14 shall be applied to Grand Coulee's simulated inflow for Scheduling Hour 14 two calendar days later. BPA shall communicate SOAs to Slice Customers as soon as practicable.

- 4.2 Beginning on October 1, 2028 and ending on «Customer Name»'s SPOED, «Customer Name»'s BOS Deviation Account, expressed in MWh, shall be equal to the sum of (1) the cumulative difference between (A) «Customer Name»'s BOS Base amount for each Scheduling Hour and (B) Actual BOS Generation multiplied by «Customer Name»'s Slice Percentage for each such hour, (2) the mathematical remainder resulting from rounding «Customer Name»'s hourly Slice Output Energy Request (SOER) to whole numbers, and (3) miscellaneous deviation adjustments, such as those related to fish spill discrepancies. «Customer Name»'s BOS Deviation Account balance shall be adjusted based on the following procedures:
- 4.2.1 Beginning on October 1, 2028 and ending on «Customer Name»'s SPOED, when the absolute value of «Customer Name»'s BOS Deviation Account balance, as of 2400 hours Pacific Prevailing Time on any calendar day, is greater than «Customer Name»'s Slice Percentage multiplied by 2400 MWh (Slice Percentage * 2400 MWh), a BOS Deviation Return will be triggered 24 hours later for the next available scheduling day starting at HE 01 Pacific Prevailing Time. When a BOS Deviation Return is triggered, the following shall occur:
- (1) «Customer Name»'s BOS Deviation Account balance shall be adjusted toward zero by an amount equal to «Customer Name»'s Slice Percentage multiplied by 2400 MWh (Slice Percentage * 2400 MWh); and
 - (2) BOS Deviation Return amounts shall be applied to «Customer Name»'s total BOS amount, as described in section 4.5 of Exhibit L, for each hour of the next Slice Operating Day that «Customer Name» is preparing Customer Inputs for submission. For example, if «Customer Name»'s BOS Deviation Account balance associated with 2400 hours on a Monday, as determined the following Tuesday, triggers a BOS Deviation Return, then «Customer Name»'s total BOS amounts for the following Wednesday shall include BOS Deviation Return amounts. BOS Deviation Return amounts shall be rounded to the nearest tenth of a megawatt. BOS Deviation Return amounts shall be applied in equal amounts for each hour of the associated calendar day. Such BOS Deviation Return amounts shall be applied as positive or negative values in accordance with the sign of «Customer Name»'s BOS Deviation Balance that triggers the associated BOS Deviation Return.

- 4.2.2 Each calendar day the POCSA shall calculate the hourly deviation of observed and forecast BOS between hour ending 2300 of the previous day and hour ending 2200 Pacific Prevailing Time of the current day as well as any observed value that has changed in the previous 45 calendar days. The POCSA will apply this BOS deviation, expressed in MWh, to «Customer Name»'s BOS Deviation Account balance by an amount equal to «Customer Name»'s Slice Percentage multiplied by the BOS deviation calculated for each 45-day period.
- 4.3 «Customer Name» shall make all reasonable efforts to adjust its Simulated Operating Scenario to make its simulated forebay elevations equal to Power Services' forecasted forebay elevations on «Customer Name»'s SPOED. Any differences between «Customer Name»'s simulated project forebays and the measured project forebays as of the SPOED shall be converted to energy amounts by multiplying such differences (simulated minus actual) by the associated federal downstream H/ks. The resulting energy amounts shall be summed with «Customer Name»'s BOS Deviation Account balance as of one month after the SPOED. The resulting amount of energy, expressed in MWh, if positive, shall be delivered by Power Services to «Customer Name», or if negative, delivered by «Customer Name» to Power Services, within the next 60 calendar days after «Customer Name» SPOED.

5. OPERATING CONSTRAINT VIOLATIONS AND BOS FLEX VALIDATIONS

5.1 Operating Constraint Violations

The Simulator is designed such that «Customer Name»'s Simulated Operating Scenario maintains compliance with all Hard and Absolute Operating Constraints that BPA can accurately model in the POCSA. BPA shall notify Slice Customers of any Hard or Absolute Operating Constraints that cannot be accurately modeled in the POCSA. «Customer Name» shall comply with such constraints in its Simulated Operating Scenario. However, BPA and «Customer Name» recognize there may be occasions where one or more Hard or Absolute Operating Constraints are violated within a Simulated Operating Scenario. In the event the Customer Inputs submitted by «Customer Name» result in the violation of one or more Hard or Absolute Operating Constraints in a final Simulated Operating Scenario, as established pursuant to section 3.3.7 of Exhibit L, BPA shall establish operating guidelines based upon its determination of how BPA would operate the system under similar conditions, such as operating to a minimum flow constraint, that «Customer Name» shall follow until such time as «Customer Name»'s final Simulated Operating Scenario is in compliance with all Operating Constraints.

- 5.1.1 «Customer Name» shall be responsible for monitoring and anticipating potential Operating Constraint violations on a prospective basis and adjusting Customer Inputs as needed to maintain compliance.
- 5.1.2 Hourly Operating Constraint validations and violations associated with the Simulator Projects shall be based on Customer Inputs

established by «Customer Name» in the SCA and submitted to BPA no later than the Customer Inputs submission deadline pursuant to section 4 of Exhibit F.

- 5.1.3 Grand Coulee's Project Storage Bound (PSB) validations and «Customer Name's actions for associated violations shall be determined pursuant to section 6 of this exhibit.
- 5.1.4 BPA shall have the right to reduce «Customer Name's SOER by up to 100 percent of «Customer Name's total Simulated Output Energy Schedule for the Lower Columbia (LCOL) Complex for lower Columbia Simulator Project violations, or the Coulee-Chief Complex for Grand Coulee or Chief Joseph Simulator Project violations, on any Scheduling Hour, taking into account the extent to which BPA determines it would face consequences under similar conditions, subject to the following provisions:
 - 5.1.4.1 Only for each Scheduling Hour in which «Customer Name's final Simulated Operating Scenarios are in violation of a Hard or Absolute Operating Constraint at one or more Simulator Projects, which includes instances where there is a Soft Constraint of the same value applicable to the same Simulator Project as the Hard or Absolute Operating Constraint that is violated;
 - 5.1.4.2 Only to the extent BPA notifies «Customer Name», pursuant to section 3.2.1 of Exhibit M, of the reduction at least 75 minutes prior to the Customer Input submission deadline pursuant to section 4 of Exhibit F for the applicable Slice Scheduling Day, and;
 - 5.1.4.3 Only to the extent «Customer Name» fails to remedy the Operating Constraint violation prior to the Customer Input submission deadline pursuant to section 4 of Exhibit F.

5.2 BOS Flex Validations

SOE Limit validations associated with BOS Flex amounts shall be based on «Customer Name's BOS Flex requests submitted to BPA as of the BOX Flex submission deadline pursuant to section 4 of Exhibit F. «Customer Name's BOS Flex schedules shall be limited to «Customer Name's Slice Percentage multiplied by such BOS Flex amounts.

6. GRAND COULEE PROJECT STORAGE BOUNDS

When Grand Coulee's upper or lower PSB is established as either a Soft or Hard Operating Constraint, «Customer Name's simulated Grand Coulee forebay elevation shall be validated against such Grand Coulee's PSB at least once each day pursuant to section 3.3.8 of Exhibit M. When Grand Coulee's upper or lower PSB is established as an Absolute Operating Constraint, «Customer Name's simulated

Grand Coulee forebay elevation shall be validated against such Grand Coulee's PSB in each Shour in each day.

6.1 Determination of Grand Coulee PSB

Power Services shall estimate the upper and lower Grand Coulee PSB associated with the end of month requirement, and/or within month requirement, of the following three months as part of each 3-month forecast submitted pursuant to section 8 of this exhibit and shall update such Grand Coulee PSB as conditions change and as needed to reflect updated Operating Constraints. To determine Grand Coulee's PSBs, Power Services shall calculate the Storage Content associated with the Grand Coulee upper and lower ORCs as established by Operating Constraints in effect. Power Services shall apply a Storage Content difference between the upper and lower Grand Coulee PSB equivalent to at least one-half foot at all times except when Grand Coulee is required to fill to 1290.0 feet for verification of refill or another specific elevation. Power Services may specify other conditions under which this one-half foot difference does not apply.

6.2 Application of the Grand Coulee PSB

Power Services shall designate each Grand Coulee PSB that does not represent an Absolute Operating Constraint as either a Hard Operating Constraint or a Soft Operating Constraint. Unless designated otherwise by Power Services, Grand Coulee PSB associated with date-specific required forebay elevations shall be designated as Hard Operating Constraints and Grand Coulee PSB associated with interpolated points in effect on days between such date-specific required forebay elevations shall be designated as Soft Operating Constraints. «Customer Name» shall maintain its simulated Grand Coulee forebay elevation within the upper and lower Grand Coulee PSB that are designated as Hard Operating Constraints, or be subject to penalties as pursuant to section 5.1.4 of this exhibit. «Customer Name»'s simulated Grand Coulee forebay may exceed the upper or lower Grand Coulee PSB designated as Soft Operating Constraints without penalties. However, «Customer Name» recognizes that simulating Grand Coulee's forebay outside of the upper or lower Grand Coulee PSB designated as Soft Operating Constraints increases «Customer Name»'s risk of violating the Grand Coulee PSB designated as Hard Operating Constraints and incurring the associated penalties.

7. COMMUNICATIONS

- 7.1 «Customer Name» shall be able to utilize the DUI and CFI, pursuant to section 5 of Exhibit L, to review the Simulator Parameters established by BPA.
- 7.2 BPA shall make reasonable efforts to promptly notify «Customer Name» of potential and significant system conditions or operational changes via e-mail, XML messaging, and/or the daily conference call pursuant to section 7.4 of this exhibit.

- 7.3 BPA shall communicate Federal Operating Decisions and Prudent Operating Decisions to «Customer Name» in the following manner:
- 7.3.1 An initial listing and description of Federal Operating Decisions and Prudent Operating Decisions that affect the Simulator Projects and are in effect as of September 30, 2028;
- 7.3.2 A publication via the POCSA as soon as practicable after BPA is informed of Federal Operating Decisions, or BPA makes either Federal Operating Decisions or Prudent Operating Decisions affecting the Simulator Projects; and
- 7.3.3 A verbal report to the attendees during the next scheduled daily conference call pursuant to section 7.4 of this exhibit regarding Federal Operating Decisions or Prudent Operating Decisions that have a material impact on the operation of the Simulator Projects, BOS Complex, or Designated System Obligations.
- 7.4 Beginning September 28, 2028, and on each Business Day thereafter, BPA shall initiate an informational conference call with «Customer Name» and the other Slice Customers at a time established by the SOF to discuss current and upcoming operating parameters and other related matters. The time and frequency of the call may be changed upon the mutual agreement of BPA, «Customer Name», and the other Slice Operations Forum (SOF) members. «Customer Name» shall receive notice from BPA via e-mail at least three Business Days prior to any such change.

8. 3-MONTH FORECAST OF SLICE OUTPUT

- 8.1 Prior to September 24, 2028 and prior to the 24th day of each month thereafter, BPA shall provide «Customer Name» with the results of a 3-month forecast, pursuant to section 8.2 of this exhibit. BPA shall revise such forecast during the month in the event conditions change significantly and shall make such revised forecast available to «Customer Name» in a timely manner.
- 8.2 BPA, consistent with its internal study processes, shall perform two single-trace hydroregulation studies that incorporate the expected stream flow condition for the upcoming 3-month period in weekly time periods. One study shall operate Grand Coulee as needed to satisfy the minimum Simulator Project flow constraint to attain the highest reservoir elevations possible at Grand Coulee, limited by its upper Operating Rule Curves, and one study shall operate Grand Coulee as needed to satisfy the Simulator Project maximum flow constraint in order to attain the lowest reservoir elevations possible at Grand Coulee, limited to its lower ORC. Both studies shall reflect a pass-inflow operation at all other Simulator Projects and the expected operation at all other Tier 1 System Resources and non-federal projects that are represented in the study, such as Brownlee, Seli's Ksanka Qlispe' Dam (SKQ), and the mid-Columbia projects. BPA shall initialize the starting reservoir Storage Content for each study equal to the Storage Contents

projected to occur at midnight on the study initialization date. Based on the results of these studies, Power Services shall provide to «Customer Name» the weekly natural inflow, turbine discharge, generation, spill discharge, and ending elevation for each of the Simulator Projects, the Snake Complex projects, Libby, Hungry Horse, Dworshak, and Keenleyside (Arrow); the weekly generation forecasts for the sum of the remaining BOS projects, excluding CGS; the weekly CGS generation forecast; and the weekly forecast of the individual Designated System Obligations. BPA shall also provide a summary of weekly aggregated planned generator maintenance outages for all Tier 1 System Resources, expressed in total megawatts, as well as the estimated Grand Coulee upper and lower PSB associated with the end of month requirement and/or within month requirement for the study period.

9. 12-MONTH FORECAST OF SLICE OUTPUT

- 9.1 Prior to June 30, 2027, and prior to each June 30 thereafter during the term of this Agreement, BPA shall initiate a conference call with Slice Customers to discuss and review inputs, assumptions, and content of the Multiyear Hydroregulation Study used to develop the 12-month forecast pursuant to section 9.4 of this exhibit.
- 9.2 Prior to July 31, 2027, and prior to each July 31 thereafter during the term of this Agreement, BPA shall provide «Customer Name» with results from the 12-month forecast, pursuant to section 9.4 of this exhibit.
- 9.3 Prior to August 31, 2027, and prior to each August 31 thereafter during the term of this Agreement, BPA, «Customer Name», and other Slice Customers shall meet to discuss the results of the 12-month forecast pursuant to section 9.4 of this exhibit.
- 9.4 BPA, consistent with its internal study processes, shall perform a single Multiyear Hydroregulation Study for the upcoming October through September period during the term of this Agreement that represents a range of potential stream flow traces, using the number of traces used by BPA for its internal study purposes. The study shall reflect Grand Coulee operating to its ORC at times when its upper and lower ORC are equal. At times when Grand Coulee's upper and lower ORC are not equal, the study shall reflect Coulee operating in a manner that achieves all Simulator Project flow constraints when possible. The study shall represent a pass-inflow operation at all other Simulator Projects and the expected operation at all other Tier 1 System Resources and non-federal projects that are represented in the study, such as Brownlee, SKQ, and the mid-Columbia projects. BPA shall initialize the starting reservoir Storage Contents for this study at the Storage Contents projected to occur at midnight on the study initialization date. Based on the results of this study, BPA shall provide to «Customer Name» the monthly natural inflow, turbine discharge, generation, spill discharge, and ending elevation for each of the Simulator Projects, the Snake Complex projects, Libby, Hungry Horse, Dworshak, and Keenleyside (Arrow); the monthly generation forecasts for the sum of the remaining BOS projects, excluding

CGS; the monthly CGS generation forecast; and the monthly forecast of the individual Designated System Obligations. Power Services shall also provide a summary of monthly aggregated planned generator maintenance outages, expressed in total megawatts, for all Tier 1 System Resources.

- 9.5 Any updates or revisions to the Multiyear Hydroregulation Study shall be completed at BPA's sole discretion, including the decision to perform a subsequent Multiyear Hydroregulation Study to incorporate changes in operations.

10. BPA OPERATIONAL INFORMATION CONFIDENTIALITY AND DISCLOSURE

BPA considers all prospective operational information associated with the Tier 1 System or any Tier 1 System Resource to be proprietary and business sensitive. Such information that is provided by BPA to «Customer Name» or its scheduling agent pursuant to Exhibit L or this Exhibit M shall be treated as confidential by «Customer Name». «Customer Name» and any third parties it has designated to use the POCSA shall execute a POCSA Access and Use Agreement with BPA pursuant to section 5.10 in the body of this Agreement. «Customer Name» shall limit its use of such information to its employees solely for the implementation of the terms of this Agreement. BPA reserves the right to withhold such operational information from scheduling agents that BPA determines are significant, active participants in WECC footprint wholesale power or transmission markets and that are not Slice Customers. If «Customer Name» enlists the services of a scheduling agent that is not a Slice Customer, then «Customer Name» shall require its scheduling agent to develop systems or procedures that create functional separation between Slice related operational information and the scheduling agent's marketing functions.

If «Customer Name» is required by applicable law, rule or regulation, including without limitation state public records laws, or by legal or administrative process to disclose any operational information described in this section 10, then «Customer Name» may disclose such operational information in accordance with applicable law; provided, however, that «Customer Name» shall notify BPA as soon as practicable of a request or requirement received under applicable law and prior to such disclosure.

11. MONTHLY RSO TEST, ANNUAL RSO TEST, AND CHARGES

11.1 Monthly RSO Test

At the conclusion of each month during the Fiscal Year BPA shall perform a Monthly RSO Test that compares: (1) «Customer Name»'s Slice-To-Load during each month with (2) «Customer Name»'s RSO for each such month.

11.1.1 «Customer Name» shall pass the Monthly RSO Test if either of the following conditions are met:

- (1) If «Customer Name»'s monthly Slice-to-Load is greater than or equal to 85 percent of its RSO for the applicable month, then «Customer Name» passed the Monthly RSO Test; or

- (2) If «Customer Name»'s: (A) monthly Slice-To-Load is less than 85 percent of its RSO for the applicable month, and (B) ASOE for the applicable month is less than 110 percent of its RSO for the applicable month, and (C) monthly Slice-To-Load is greater than 85 percent of its ASOE for the applicable month, then «Customer Name» passed the Monthly RSO Test.

11.1.2 If «Customer Name» does not pass the Monthly RSO Test, then BPA shall apply a Monthly RSO Test failure charge and «Customer Name» shall pay such charge. BPA shall calculate «Customer Name»'s Monthly RSO Test failure charge using one of the following calculations:

- (1) If «Customer Name»'s ASOE is greater than 110 percent of its RSO for the applicable month, then BPA shall calculate the Monthly RSO Test failure charge by multiplying the applicable monthly Failed RSO Rate by the difference between 85 percent of «Customer Name»'s RSO and its Slice-to-Load; or
- (2) If «Customer Name»'s ASOE is less than 110 percent of its RSO for the applicable month, then BPA shall calculate the Monthly RSO Test failure charge by multiplying the applicable monthly Failed RSO Rate by the difference between 85 percent of «Customer Name»'s ASOE and its Slice-to-Load.

11.1.3 BPA shall notify «Customer Name» the results of the monthly RSO test for the preceding calendar month no later than the 20th Business Day of each calendar month.

11.2 Annual RSO Test

At the conclusion of each Fiscal Year BPA shall perform an Annual RSO Test that compares (1) the sum of «Customer Name»'s annual Slice-to-Load for all months of the Fiscal Year with (2) the sum of «Customer Name»'s monthly RSO for all months of the Fiscal Year.

11.2.1 «Customer Name» shall pass the Annual RSO Test if either of the following conditions are met:

- (1) If «Customer Name»'s annual Slice-to-Load is greater than or equal to 90 percent of its annual RSO for the applicable Fiscal Year, then «Customer Name» passed the Annual RSO Test; or
- (2) If «Customer Name»'s: (A) annual Slice-To-Load is less than 90 percent of its RSO for the applicable Fiscal Year, and (B) the sum of its monthly ASOE for the applicable Fiscal Year is less than 110 percent of the sum of its monthly RSO for the applicable Fiscal Year, and (C) annual sum of its monthly Slice-To-Load is greater than 90 percent of its annual sum of

its monthly ASOE for the applicable Fiscal Year, then
«Customer Name» passed the Annual RSO Test.

11.2.2 If «Customer Name» does not pass the Annual RSO Test, then BPA shall apply an Annual RSO Test failure charge and «Customer Name» shall pay such charge. BPA shall calculate «Customer Name»'s Annual RSO Test failure charge using one of the following calculations:

- (1) If the sum of «Customer Name»'s monthly ASOE for the applicable Fiscal Year is greater than 110 percent of the sum of its monthly RSO for the applicable Fiscal Year, then BPA shall calculate the Annual RSO Test failure charge by
(A) multiplying the average of the monthly Failed RSO Rates during the Fiscal Year by (B) the difference between 90 percent of «Customer Name»'s annual RSO for the applicable Fiscal Year and its annual Slice-to-Load for the applicable Fiscal Year, then (C) subtracting any Monthly RSO Test failure charges applied during the Fiscal Year. If the sum of the Monthly RSO Test failure charges during the applicable Fiscal Year is greater than the Annual RSO Test failure charge calculated in (1) above, then the Annual RSO Test failure charge shall be zero.
- (2) If the sum of «Customer Name»'s monthly ASOE for the applicable Fiscal Year is less than 110 percent of the sum of its monthly RSO for the applicable Fiscal Year, then BPA shall calculate the Annual RSO Test failure charge by
(A) multiplying the average of the monthly Failed RSO Rates during the Fiscal Year by (B) the difference between 90 percent of «Customer Name»'s annual ASOE for the applicable Fiscal Year and its annual Slice-to-Load for the applicable Fiscal Year, then (C) subtracting any Monthly RSO Test failure charges applied during the Fiscal Year. If the sum of the Monthly RSO Test failure charges during the applicable Fiscal Year is greater than the Annual RSO Test failure charge calculated, then the Annual RSO Test failure charge shall be zero.

11.2.3 BPA shall notify «Customer Name» of the results of the Annual RSO Test no later than the 20th Business Day of October.

12. REVISIONS

Revisions to this Exhibit M will be made by mutual agreement of the Parties.

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*



Department of Energy
Bonneville Power Administration
P.O. Box «###»
«City, State Zip Code»

POWER SERVICES

**PROVIDER OF CHOICE FINAL
SLICE CREDITWORTHINESS AGREEMENT
(06/18/25)**

DRAFT «mm dd, yyyy»

In reply refer to: PS«X»-«Location»

Contract No. 26PS-«#####»
CREDITWORTHINESS AGREEMENT

«Mr/Ms. _____, Title
Customer Name
P.O. Box #####
Anywhere, OR 97####»

Dear «Mr/Ms. _____ »:

The BONNEVILLE POWER ADMINISTRATION (BPA) and «FULL NAME OF CUSTOMER» («Customer Name») intend to enter into Contract No. 26PS-#####, Slice/Block power sales agreement (Slice Agreement). This Creditworthiness Agreement (Agreement) is only applicable to «Customer Name»'s Slice Agreement. BPA and «Customer Name» are sometimes referred to individually as "Party" and jointly as "Parties."

BPA and «Customer Name» agree as follows:

1. **TERM.** This Agreement takes effect on the date the Slice Agreement is signed by BPA and «Customer Name», and shall continue in effect until the date, after termination or expiration of the Slice Agreement, on which all payment obligations of «Customer Name» to BPA in connection with the purchase of electric power by «Customer Name» under section 5 of the Slice Agreement have been satisfied.
2. **DEFINITIONS**
 - (a) "Acceptable Credit Support" means the following, as determined by BPA, provided that BPA may in its discretion agree that other arrangements may qualify:

No. 09PB-«#####», «Customer Name»
DRAFT 8/8/2025 12:21 PM

- (1) The deposit of cash by «Customer Name» in an escrow or trust account managed by a bank; provided, that, such deposit shall qualify as Acceptable Credit Support only if the amounts required under this Agreement have been deposited in such account for a minimum of six continuous months (or such other continuous period as shall defeat a voidable preference under Federal bankruptcy law then in effect). If «Customer Name» utilizes an escrow or trust account, then such account shall be managed by a bank BPA has accepted. The account shall be managed by the bank pursuant to the terms and conditions of an agreement that BPA has accepted;
- (2) (A) An irrevocable standby letter of credit (LOC) issued by: (i) a federally insured bank having at least \$1 billion in deposits and whose senior unsecured debt is rated “A” or better by at least two Major Credit Rating Companies; (ii) the National Rural Utilities Cooperative Finance Corporation, so long as its senior unsecured debt is rated “A” or better by at least two Major Credit Rating Companies; or (iii) an institution of equivalent creditworthiness, as determined by BPA.

(B) The terms and conditions of the LOC shall provide that:

- (i) It must be payable in full solely to BPA not later than three Business Days after written demand by BPA and without further conditions;
- (ii) It must guarantee payment and not performance;
- (iii) It must waive diligence, presentment, demand, protest, notice of acceptance or any other notice;
- (iv) It must not be terminable by «Customer Name» without BPA’s approval;
- (v) It must be subject to amendment only with BPA’s approval;
- (vi) It must be non-transferable and the issuer of the LOC must be obligated to notify BPA of any assumption or assignment thereof;
- (vii) Except as otherwise stated in section 2(a)(2)(B)(i-vi), this LOC is subject to International Standby Practices 1998, International Chamber of Commerce Publication No. 590 (ISP98), and as to matters not addressed by the ISP98 this letter of credit shall be governed by, and construed in accordance with, the laws of the State of New York, without regard to principles of conflicts of laws, except that to the extent the Parties’ rights and obligations are required to be governed by

United States Federal law, then such rights and obligations shall be governed by United States Federal law.

From time-to-time, the Parties may agree to attach hereto a form of LOC to be used by «Customer Name» if Acceptable Credit Support must be posted pursuant to this Agreement.

- (b) “Business Day” means any day that is normally observed by «Customer Name» as a workday. If the last day of a period during which an action is to be taken under this Agreement falls on a day that is not a Business Day, the last day of such period shall be the next Business Day.
- (c) “Major Credit Rating Companies” means Standard & Poor’s, Moody’s Investors Services, Inc., Fitch Ratings, or their respective affiliates and successors.
- (d) “Maximum Annual Power Billing” means: (1) at a given time other than in the first year in which power is to be sold to «Customer Name» under the Slice Agreement, an amount equal to twelve times the greatest monthly amount billed to «Customer Name» by BPA for power sold under section 5 of the Slice Agreement in the preceding twelve months, and (2) at a given time in the first year in which power is to be sold to «Customer Name» under the Slice Agreement, an amount equal to twelve times the greatest monthly amount forecast to be billed to «Customer Name» by BPA for power sold under Section 5 of the Slice Agreement in such year calculated consistent with BPA’s then-applicable Power Rate Schedules and GRSPs, regardless of whether or not such schedules and GRSPs are final proposed schedules or have been confirmed by the Federal Energy Regulatory Commission on a provisional or final basis. In the case of both (1) and (2) hereof, the Maximum Annual Power Billing shall not include any amounts for Slice True-Up Adjustment Charge, or the Tier 1 Marginal Energy True-Up Charge, as defined in the PRDM.
- (e) “Public Rate Design Methodology” or “PRDM” shall have the meaning as defined in the Slice Agreement.
- (f) “Unenhanced” means, with respect to debt of «Customer Name», that such debt is secured by the revenues of «Customer Name» only and is not supported by another entity whether through bond insurance, guarantee, or another financial product. In addition, the term is meant to exclude project financed debt and debt that is outstanding but defeased or escrowed to maturity.

3. CREDIT REVIEW AND ACCEPTABLE CREDIT SUPPORT

- (a) **Credit Review.** BPA shall conduct a credit review of «Customer Name» to determine the amount of Acceptable Credit Support, if any, that «Customer

Name» must post on or before the date power deliveries by BPA commence under the Slice Agreement.

- (b) **When Acceptable Credit Support Will Not Be Initially Required.** At the time power deliveries by BPA commence, **«Customer Name»** shall have no obligation to post Acceptable Credit Support under either of the following conditions:

- (1) as of August 1, 2028, **«Customer Name»**'s senior, unenhanced debt, if any, is rated by one or more of the Major Credit Rating Companies; and: (A) none have rated such debt below investment grade (BBB- or its equivalent); and (B) in the case of any such debt having a rating at the lowest investment grade (BBB- or its equivalent), **«Customer Name»** is not on negative credit watch, or
- (2) as of August 1, 2028, BPA internally rates **«Customer Name»** BBB- or greater after completion of the credit review pursuant to section 3(a).

- (c) **When Acceptable Credit Support is Required.** If BPA determines that **«Customer Name»** does not meet the criteria outlined in section 3(b), then **«Customer Name»** shall post Acceptable Credit Support at the time power deliveries by BPA commence under the Slice Agreement, assuming timely provision of information by **«Customer Name»** under section 3(d). BPA shall notify **«Customer Name»** of the result of such a determination no later than August 1, 2028. If BPA timely notifies **«Customer Name»** that Acceptable Credit Support is required at the time power deliveries by BPA commence under the Slice Agreement, then **«Customer Name»** must post Acceptable Credit Support on or before the time power deliveries by BPA commence under the Slice Agreement in the amount, if any, determined by BPA; provided, however, that the amount of Acceptable Credit Support may not at any time exceed the product of 0.120 and the Maximum Annual Power Billing.

- (d) **«Customer Name»'s Failure to Submit Credit Application and Related Information.** If BPA has not received a completed credit application and other information to BPA's satisfaction by April 1, 2028, BPA, without any credit review, may require that **«Customer Name»** post Acceptable Credit Support in an amount equal to the product of the Maximum Annual Power Billing and 0.120 at the time power deliveries by BPA commence under the Slice Agreement. In such event, **«Customer Name»** must maintain that amount of Acceptable Credit Support until such time as BPA determines otherwise; provided, however, that BPA shall complete the comprehensive credit review of **«Customer Name»** as soon as practicable after the receipt of a credit application.

4. **CONTINUING CREDIT REVIEW.** From the time power deliveries by BPA commence under the Slice Agreement until the termination or expiration of this Agreement, **«Customer Name»** shall be subject to continuing credit review by BPA. BPA may periodically review **«Customer Name»**'s creditworthiness and determine,

consistent with the terms of this Agreement, the amount, if any, of Acceptable Credit Support that «Customer Name» must post and maintain; provided, however, that «Customer Name» shall not be required to post or maintain Acceptable Credit Support in excess of the product of 0.120 and the Maximum Annual Power Billing. Within three Business Days of receipt by «Customer Name» of notice by BPA to post or increase the amount of Acceptable Credit Support, «Customer Name» shall post or increase the amount of Acceptable Credit Support to the amount determined and provided in the notice by BPA. BPA shall promptly review any Acceptable Credit Support proposed by «Customer Name» to determine whether it satisfies the requirements of this Agreement. From time-to-time during the term of this Agreement, BPA may request and «Customer Name» shall provide updated information of the type described in section 3(d); provided, however, that such information must be reasonably necessary to BPA's evaluation of «Customer Name»'s creditworthiness, and, provided further, that «Customer Name» shall have no obligation to provide BPA with any confidential or business sensitive information.

The following events or conditions are grounds for BPA to determine that «Customer Name» post or increase the amount of Acceptable Credit Support under this section 4:

- (a) BPA has knowledge that «Customer Name» has defaulted on or is not performing its payment obligations under power marketing contracts, or loans, notes, bonds, or other evidences of indebtedness;
- (b) «Customer Name» has senior, unenhanced debt that is either:
 - (1) Rated by at least one Major Credit Rating Company as non-investment grade at or below BB+ or its equivalent, or
 - (2) Rated by at least one Major Credit Rating Company at the lowest investment grade (BBB- or its equivalent) and «Customer Name» is on a negative credit watch issued by that Major Credit Rating Company;
- (c) The enactment by any legislative body with competent jurisdiction over «Customer Name» of legislation that would render unlawful: (1) the performance by «Customer Name» of any absolute or contingent obligation to make a payment or to receive delivery in respect of the Slice Agreement, or of any other material provision of the Slice Agreement; or (2) the performance by «Customer Name» of any material contingent or other obligation that «Customer Name» has under this Agreement, the Slice Agreement or any Acceptable Credit Support relating to this Agreement;
- (d) «Customer Name» takes an official position in any legal proceeding to which it is a party that its performance under the Slice Agreement is unlawful or unauthorized;
- (e) Any litigation is filed against «Customer Name», or by «Customer Name», contesting the validity or enforceability of «Customer Name»'s obligations

under the Slice Agreement or this Agreement, or any material provision of the Slice Agreement or this Agreement;

- (f) Substantial changes in market prices occur that materially and adversely impact «Customer Name»'s ability to make payments under the Slice Agreement;
- (g) Other material changes in «Customer Name»'s financial condition have occurred that may adversely impact «Customer Name»'s ability to make payments under the Slice Agreement; or
- (h) Failure of «Customer Name» to provide BPA with information requested by BPA, and to the extent that «Customer Name» does not provide the requested information, BPA is free to draw any conclusion about the creditworthiness of «Customer Name» with respect to the subject matter of the request.

5. OBLIGATION TO PROVIDE EVIDENCE OF ACCEPTABLE CREDIT SUPPORT. «Customer Name» shall provide BPA with copies of any Acceptable Credit Support immediately upon execution of such Acceptable Credit Support, «Customer Name» shall provide BPA reliable evidence that Acceptable Credit Support is in effect in the amount required by this Agreement within two Business Days of notice by BPA.

6. DISPUTES

- (a) «Customer Name» may dispute BPA's determinations for the posting of or an increase in the amount of Acceptable Credit Support under this Agreement only if «Customer Name» timely posts the amount so determined by BPA, not to exceed the product of 0.120 and the Maximum Annual Power Billing. «Customer Name» shall maintain such Acceptable Credit Support until the dispute is finally resolved or BPA agrees otherwise.
- (b) «Customer Name» may dispute whether BPA's requests for information are consistent with the terms of this Agreement only if «Customer Name» posts Acceptable Credit Support in an amount determined by BPA, not to exceed the product of 0.120 and the Maximum Annual Power Billing. «Customer Name» must maintain such Acceptable Credit Support until the dispute is finally resolved or BPA agrees otherwise.
- (c) «Customer Name» may dispute a determination by BPA whether a LOC or other form of security meets the requirements of an Acceptable Credit Support only if «Customer Name» posts or maintains security acceptable to BPA and in an amount determined by BPA, not to exceed the product 0.120 and the Maximum Annual Power Billing.
- (d) In the event of a dispute arising under this section 6, the dispute resolution procedures in section 19 of the Slice Agreement shall apply.

7. **REQUESTS TO REEVALUATE CREDITWORTHINESS.** «Customer Name» may request, at any time during the term of this Agreement, that BPA reevaluate «Customer Name»'s creditworthiness. Upon such request, BPA shall determine, consistent with the provisions of this Agreement, whether to reduce the amount of Acceptable Credit Support then required to be posted or maintained by «Customer Name».
8. **FAILURE TO POST OR MAINTAIN SECURITY.** In the event «Customer Name» does not: (a) post or maintain Acceptable Credit Support in the amount required hereunder; or (b) provide reasonably reliable evidence thereof, in each case as provided in this Agreement, «Customer Name» is in default of this Agreement. «Customer Name» has three Business Days from the date of receipt by «Customer Name» of notification by BPA of such default to cure such default by posting Acceptable Credit Support in the amount required hereunder, or, as the case may be, by providing BPA with reasonably reliable evidence thereof. If the default is not so cured within such period, «Customer Name» is in material breach of this Agreement and the Slice Agreement, and BPA may terminate its obligation to deliver electric power under the Slice Agreement as provided in section 24 thereof.
9. **ACCESS TO AND USE OF FUNDS**
 - (a) **Access to Funds Available Under Acceptable Credit Support.** BPA is entitled under this Agreement to draw on or receive the funds available under an Acceptable Credit Support only if «Customer Name» has been billed under section 16.1 of the Slice Agreement, and the amount so billed remains unpaid, in whole or in part, after the 45 day cure period outlined in section 16.4 of the Slice Agreement. This section shall not be interpreted to require that BPA meet any condition of demand, satisfaction, presentment or other notice prior to drawing on or receiving the funds provided under any credit support provided under this Agreement.
 - (b) **Use of Funds Available Under Acceptable Credit Support.** If BPA draws on or receives the funds available under an Acceptable Credit Support, such funds shall be used by BPA first to satisfy all liabilities due and owing from «Customer Name» to BPA pursuant to the terms of the Slice Agreement arising from or related to the delivery of power to «Customer Name» under section 5 of the Slice Agreement, and second to any other amounts that are due and owing BPA, but that are unpaid under the Slice Agreement including without limitation amounts billed to «Customer Name» thereunder, any interest thereon, and any Slice True-Up Adjustment Charge (as defined in the PRDM). If the amount of the funds provided to BPA exceeds the sum of all such liabilities, the amount remaining after all such liabilities are satisfied shall be promptly returned by BPA to «Customer Name», with interest on the excess funds from the date BPA took possession of those funds to the date the excess funds are returned to «Customer Name». Such interest shall be calculated by dividing the Prime Rate for Large Banks as reported in the Wall Street Journal on the date BPA took possession of those funds by 365, and applying the resulting interest rate to the excess funds returned

to «Customer Name» for each day of the period for which interest is due under this section.

- (c) **No Affect On Other Credit Support Obligations.** BPA's rights to credit support under this Creditworthiness Agreement shall be in addition to and not in derogation of any other credit support or performance assurance provided under the Slice Agreement or any other agreement.

10. NOTICES.

Any notice required under this Agreement shall be provided in writing to the other Party in one of the following ways:

- (a) Delivered in person;
- (b) By a nationally recognized delivery service with proof of receipt;
- (c) By United States Certified Mail with return receipt requested;
- (d) Electronically, with verification of the electronic notice's origin, date, time of transmittal and receipt; or
- (e) By another method agreed to by the Parties.

Notices are effective when received.

11. SIGNATURES

This Agreement may be executed in several counterparts, all of which taken together will constitute one single agreement, and may be executed by electronic signature and delivered electronically. The Parties have executed this Agreement as of the last date indicated below.

«FULL NAME OF CUSTOMER»

UNITED STATES OF AMERICA
Department of Energy
Bonneville Power Administration

By _____

By _____

Name _____
(Print/Type)

Name _____
(Print/Type)

Title _____

Title _____

Date _____

Date _____

(PS«X/LOC»- «File Name with Path».docx) «mm/dd/yy» *{Drafter's Note: Insert date of finalized contract here}*

SUMMARY and FISCAL NOTE

Department:	Dept. Contact:	CBO Contact:
City Light	Siobhan Doherty	Christie Parker

1. BILL SUMMARY

Legislation Title: AN ORDINANCE relating to the City Light Department; authorizing the execution of a 16-year power purchase agreement with the Bonneville Power Administration and related agreements.

Summary and Background of the Legislation: This legislation authorizes the execution of a 16-year power purchase agreement to ensure that City Light can purchase its portion of the Federal Columbia River Power System managed by the Bonneville Power Administration (“BPA”) during the 16-year contract delivery period, from October 1, 2028 through September 30, 2044. The BPA currently supplies power to meet a portion of City Light’s electric load (approximately 40 percent) under an existing 2012-2028 power supply contract. As a public preference customer within the BPA system, City Light has access to the lowest cost rates in the region. Alternative power sources from new, firm generation are approximately two to three times the cost of BPA’s power rates.

The power purchase agreement, known as BPA’s “Provider of Choice” contract, will allow City Light to purchase federal power at one or more cost-based power rates. Accordingly, this legislation authorizes the General Manager and CEO for the City Light Department to sign a final Provider of Choice power sales agreement with BPA similar to the form attached to this ordinance as Attachment B, a related creditworthiness agreement similar to the form attached to this ordinance as Attachment C, along with other supporting agreements, as needed. This legislation also allows the General Manager and CEO of the City Light Department to agree to modifications and amendments to such forms as reasonably necessary.

The exact amount of BPA power that City Light will be allowed to buy from BPA under a Provider of Choice contract at a Tier 1 (BPA’s lowest) rate depends on a maximum right to purchase Tier 1 power that BPA sets for all customers, the Contract High Water Mark. BPA will determine City Light’s Contract High Water Mark through a 2026 process. The 2026 process will determine City Light’s Contract High Water Mark based on City Light’s weather normalized actual retail load during the Federal fiscal year (FY) 2023 (October 2022 – September 2023), and BPA’s plans to acquire additional resources to provide additional Tier 1 power service prior to the new contract.

At this time, City Light expects to be offered a Contract High Water Mark of approximately 570 average megawatts (aMW) of firm power that it can purchase at BPA’s Tier 1 rate, an increase of about 15 aMW from our current Contract High Water Mark. BPA’s power rates are updated periodically in rate cases to reflect BPA’s statutory requirement to set rates based on BPA’s costs to provide power to City Light and other public utility customers. These rate cases involve a

public process that allows stakeholder input from City Light and other parties. During the new contract period, BPA is expected to conduct two-year rate cases in alternate years, beginning in October 2028 for the FY 2029 – FY 2030 rate period. BPA’s current wholesale power rates average about \$41 per MWh, and BPA forecasts that its Provider of Choice rate design principles will keep our power rates at a similar average rate. In comparison, City Light’s 2024 Integrated Resource Plan (IRP) update recommended procuring firm energy costing up to \$134 per MWh to meet our growing loads in the 2030’s.

The Provider of Choice contract offers three power supply product options: Block, Slice/Block, and Load Following. The Block product provides a monthly, predetermined block of energy (MW) that has several shaping options. City Light currently takes the Block product under the existing BPA 2012-2028 contract. The Slice/Block product provides both a monthly, predetermined block of energy (MW) and a “slice” of the BPA system output and capability on a day-ahead basis. Finally, the Load Following product provides power to meet customer hourly load requirements less customer owned resources. City Light staff within the Power Supply Business Unit conducted a thorough analysis of the three product options throughout the contract term using an integrated resource planning (IRP) model. The Slice/Block product will provide the highest economic benefits in the future contract and is best suited to complement City Light’s future power generation portfolio and power marketing strategies based on the financial results of the IRP model.

The Provider of Choice power sales agreement listed as Attachment B is in template form and is customized for the Slice/Block product selection. BPA intends to offer a proposed final version of a Provider of Choice contract customized for City Light in August or September 2025, with the expectation that City Light will review, execute, and return the contract by December 5, 2025 so that BPA can finalize and countersign the Provider of Choice contract by December 31, 2025. It is in the best interest of City Light to enter into a new agreement with the BPA as this power supply option is expected to be the region’s least-cost resource throughout the contract term.

2. CAPITAL IMPROVEMENT PROGRAM

Does this legislation create, fund, or amend a CIP Project? ☐ Yes ☒ No

3. SUMMARY OF FINANCIAL IMPLICATIONS

Does this legislation have financial impacts to the City? ☒ Yes ☐ No

Expenditure Change (\$); General Fund	2025	2026 est.	2027 est.	2028 est.	2029 est.
Expenditure Change (\$); Other Funds (Light Fund)	2025	2026 est.	2027 est.	2028 est.	2029 est.
				-\$17,000,000	-\$1,000,000

Revenue Change (\$); General Fund	2025	2026 est.	2027 est.	2028 est.	2029 est.

Revenue Change (\$); Other Funds	2025	2026 est.	2027 est.	2028 est.	2029 est.

Number of Positions	2025	2026 est.	2027 est.	2028 est.	2029 est.
Total FTE Change	2025	2026 est.	2027 est.	2028 est.	2029 est.

3.a. Appropriations

☐ This legislation adds, changes, or deletes appropriations.

Appropriations Notes: This Ordinance will not affect City Light’s appropriations until October 1, 2028, when power deliveries begin under the new BPA power purchase contract.

3.b. Revenues/Reimbursements

☐ This legislation adds, changes, or deletes revenues or reimbursements.

3.c. Positions

☐ This legislation adds, changes, or deletes positions.

Position Notes: Since City Light already employs staff to implement the current BPA power sales contract, no new hires will be necessary to implement the Provider of Choice power purchase agreement. New staff related to our Slice/Block power product implementation will be requested in the 2027-2028 budget. The focus of this legislation is the authority to execute a new power purchase agreement; a fiscal ordinance related to staffing the power marketing function of our business unit will be addressed later.

3.d. Other Impacts

Does the legislation have other financial impacts to The City of Seattle, including direct or indirect, one-time or ongoing costs, that are not included in Sections 3.a through 3.c? If so, please describe these financial impacts.

This legislation does not have other financial impacts to The City of Seattle that are outside of Sections 3.1 through 3.c.

If the legislation has costs, but they can be absorbed within existing operations, please describe how those costs can be absorbed. The description should clearly describe if the absorbed costs are achievable because the department had excess resources within their existing budget or if by absorbing these costs the department is deprioritizing other work that would have used these resources.

City Light expects to continue purchasing power from the BPA through long-term power purchase agreements and therefore creates its O&M budget expecting power costs to be relatively stable based on BPA rate design. City Light's 2025 adopted and 2026 endorsed O&M budgets provide the resources necessary to acquire power under the existing contract.

Please describe any financial costs or other impacts of *not* implementing the legislation.

Failing to implement this legislation would have a significant, negative impact on City Light's ratepayers. City Light would need to purchase replacement power (in the amount of approximately 570 aMW) beginning October 1, 2028, from other power sources that Power Supply Business Unit predicts will cost two to three times the cost of BPA power. Similarly, developing new, renewable generation of equivalent firm capacity would be very expensive and require several years for project origination.

Please describe how this legislation may affect any City departments other than the originating department.

This legislation is not expected to affect any City departments other than the originating department.

4. OTHER IMPLICATIONS

- a. Is a public hearing required for this legislation?**
No.
- b. Is publication of notice with The Daily Journal of Commerce and/or The Seattle Times required for this legislation?**
No.
- c. Does this legislation affect a piece of property?**
No.
- d. Please describe any perceived implication for the principles of the Race and Social Justice Initiative.**
 - i. How does this legislation impact vulnerable or historically disadvantaged communities? How did you arrive at this conclusion? In your response please consider impacts within City government (employees, internal programs) as well as in the broader community.**

The adoption of this Ordinance allows City Light to purchase long-term power through a contract process first originated in 1980 under the federal Pacific Northwest Electric Power Planning and Conservation Act. As a public utility, City Light is given preference rights and is offered the lowest cost power rates in the region. This low-cost rate structure has a position impact on all communities with City Light's service territory, particularly those communities that have a higher energy burden. The alternative to this low-cost, hydroelectric power source would cost two to three times

more to procure and would require significant resources for project origination over decades.

ii. Please attach any Racial Equity Toolkits or other racial equity analyses in the development and/or assessment of the legislation.

The adoption of this Ordinance allows City Light to purchase long-term power through a contract process first originated in 1980 under the federal Pacific Northwest Electric Power Planning and Conservation Act. As a public utility, City Light is given preference rights and is offered the lowest cost power rates in the region. This low-cost rate structure has a position impact on all communities with City Light's service territory, particularly those communities that have a higher energy burden. The alternative to this low-cost, hydroelectric power source would cost two to three times more to procure and would require significant resources for project origination over decades.

iii. What is the Language Access Plan for any communications to the public?

Not applicable to this ordinance.

e. Climate Change Implications

i. Emissions: How is this legislation likely to increase or decrease carbon emissions in a material way? Please attach any studies or other materials that were used to inform this response.

This resolution supports a neutral carbon emissions position by continuing to provide energy from majority non-emitting, firm federal hydroelectric facilities. BPA is committed to providing a power supply portfolio that supports statewide clean energy initiatives.

ii. Resiliency: Will the action(s) proposed by this legislation increase or decrease Seattle's resiliency (or ability to adapt) to climate change in a material way? If so, explain. If it is likely to decrease resiliency in a material way, describe what will or could be done to mitigate the effects.

This resolution supports Seattle's resiliency to climate change by allowing City Light to continue to purchase long-term power from one of the largest federal power marketing administrations. This power supply purchase adds diversity to City Light's power resource portfolio ensuring the future generation mix is comprised of non-emitting resources.

f. If this legislation includes a new initiative or a major programmatic expansion: What are the specific long-term and measurable goal(s) of the program? How will this legislation help achieve the program's desired goal(s)? What mechanisms will be used to measure progress towards meeting those goals?

N/A

- g. Does this legislation create a non-utility CIP project that involves a shared financial commitment with a non-City partner agency or organization?**

No.

5. ATTACHMENTS

Summary Attachments: None.

2028 Provider of Choice Contract ORD

Sustainability, City Light, Arts & Culture Committee

September 5, 2025



WE POWER SEATTLE

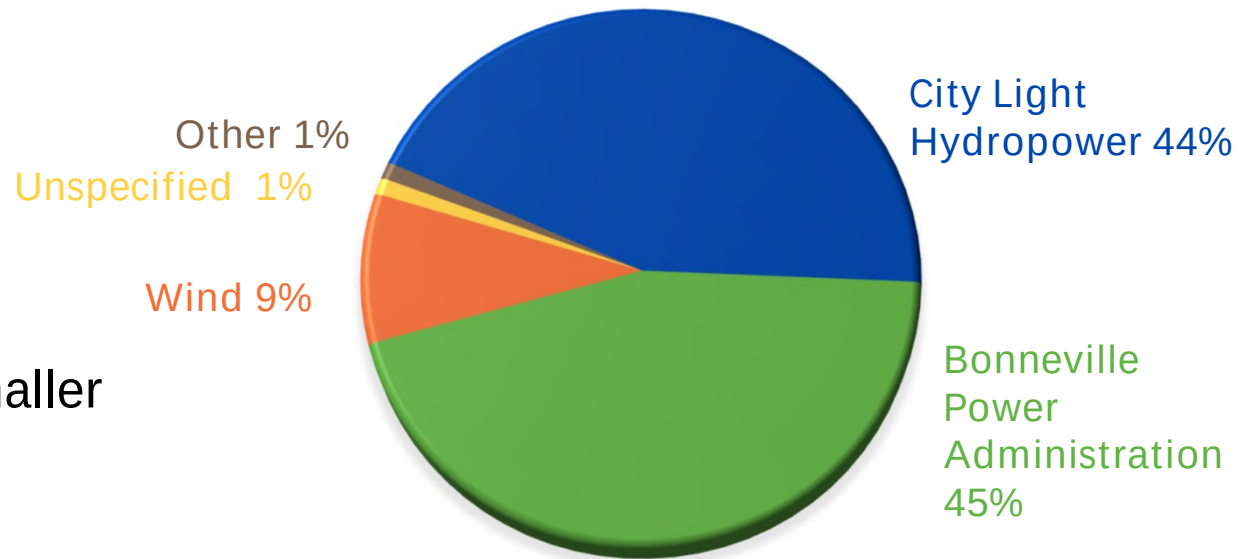
Agenda

- Background
 - SCL Power Supply Resources
 - BPA Overview
- BPA Post-2028 Provider of Choice Contract
 - Process Overview
 - Contract Overview
- Ordinance – BPA Post-2028 Provider of Choice Contract Execution
 - Request: Authorize the execution of 16-year power purchase agreement with the BPA

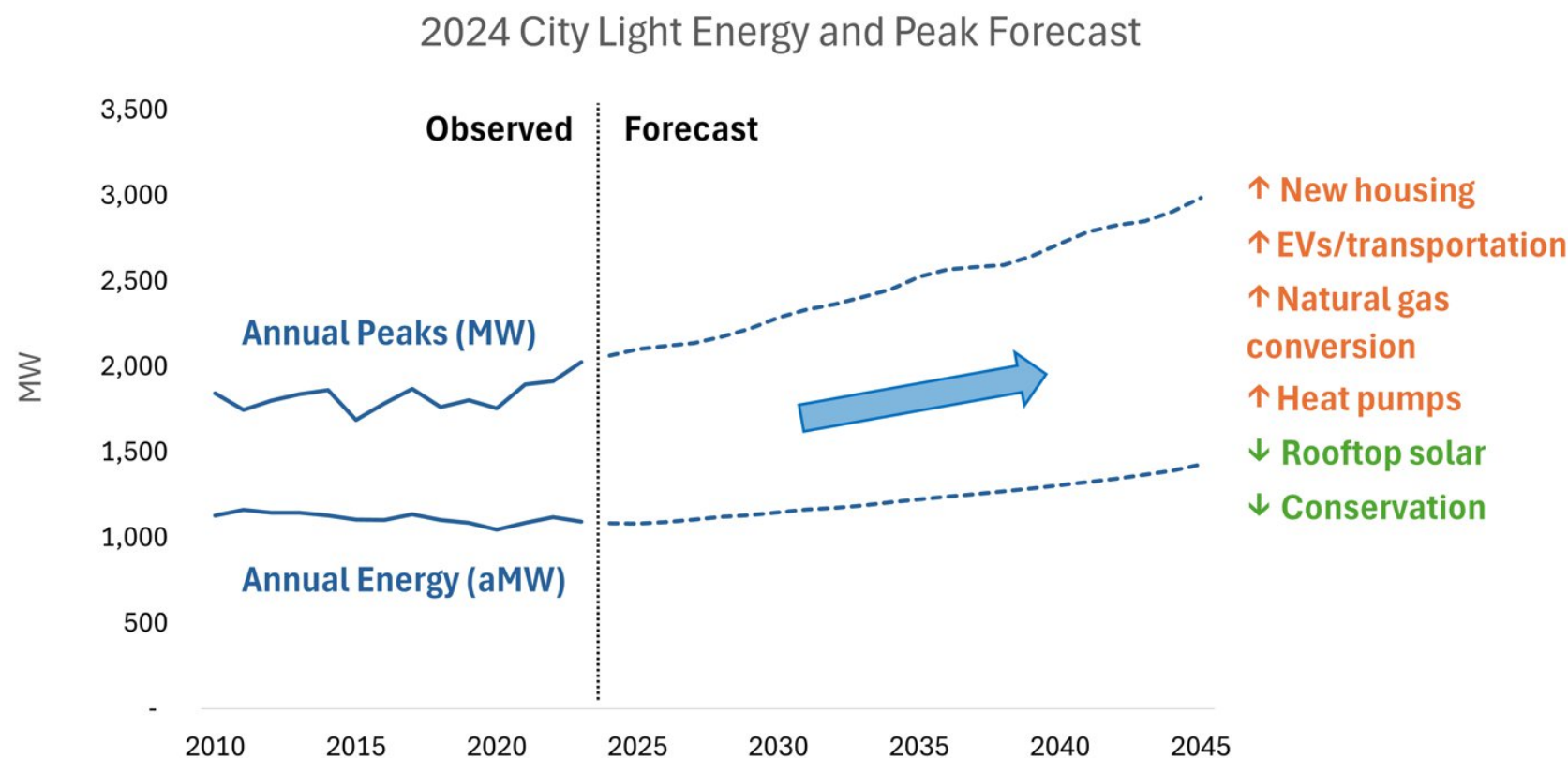
Background: SCL Power Supply Resources

- Power Supply Portfolio:

- City Light owned generation
- Wind power purchase agreement
- BPA long term contract
- Unspecified: several smaller long-term contracts



Background: SCL Electricity Demand Increasing



Overview: Bonneville Power Administration (BPA)

- BPA delivers reliable and affordable hydropower to Northwest public utility customers
 - Provides 28% of the power in the Northwest
 - Provides power to 3 million people in the Northwest
 - BPA is primarily funded by public power through cost-based rates

Bonneville
POWER ADMINISTRATION



Overview: Bonneville Power Administration (BPA)

- Sells electricity from 31 federal dams
- Several statutes dictate BPAs mission and operations



Overview: BPA Provider of Choice Process

- City Light partnered with BPA on multiple contract design elements
- Formal stakeholder process began in 2021
- Influenced policy and rate design through regional collaboration
- Resulted in mutually agreed contract terms between BPA and customers

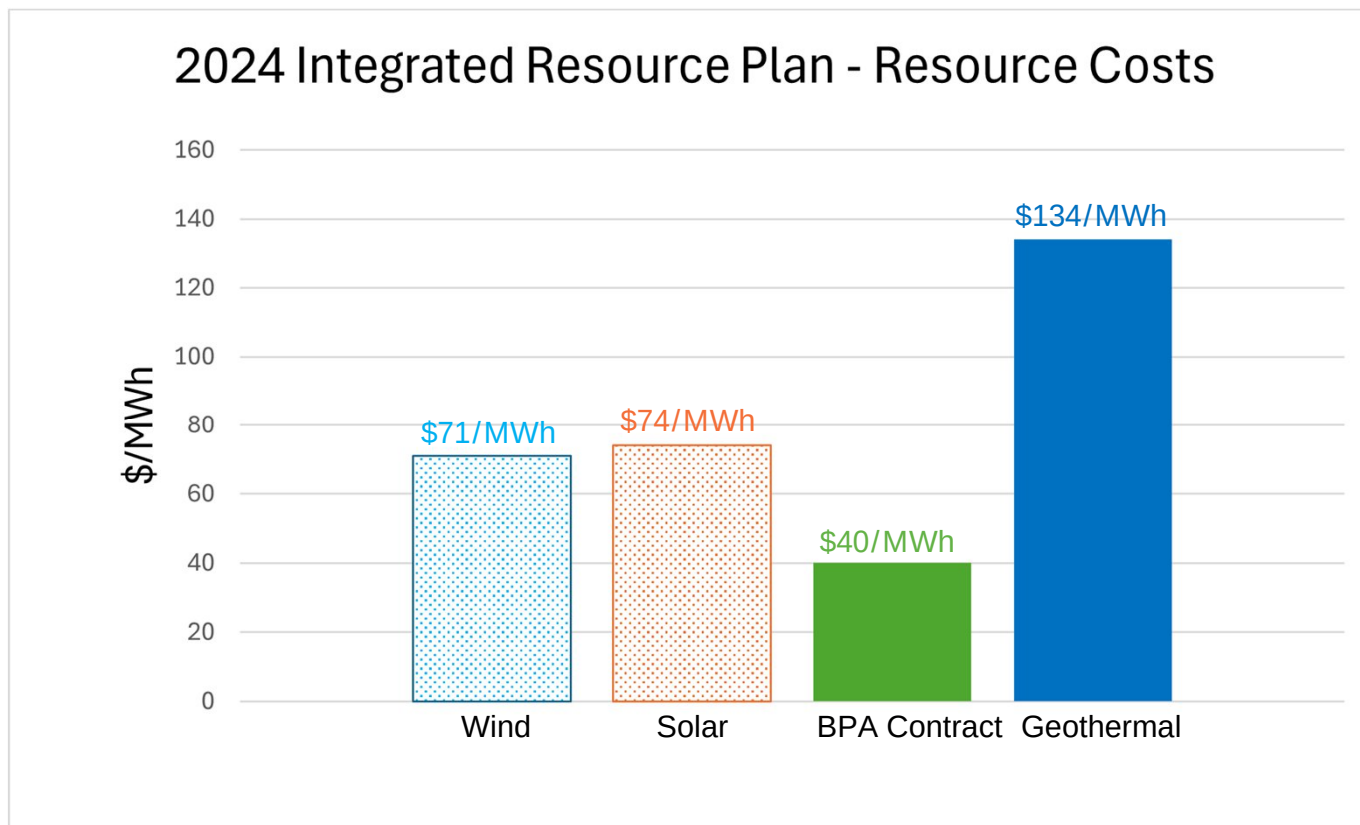


Overview: BPA Provider of Choice Contract

- Power purchase agreement for 16 years
- Similar power supply offering relative to current contract
- Current contract expires September 30, 2028
- Option to renew contract through September 30, 2044, total ~\$3B

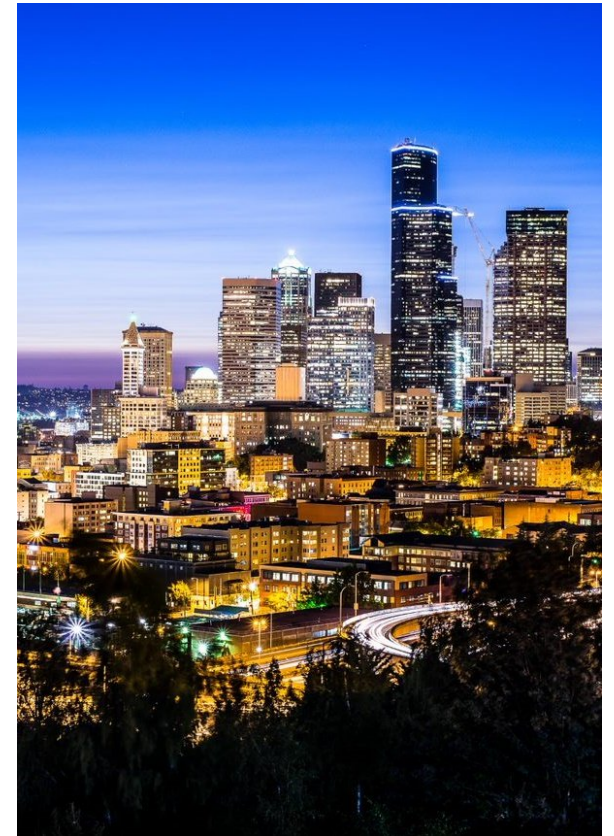


Value of BPA Contract



Ordinance – BPA Post-2028 Contract Authority

- BPA will continue to offer the region's least-cost resource through 2044
- BPA is a key regional partner for new power agreements
- Conclusion: We request approval of ordinance granting authority to execute new 16-year BPA power purchase agreement and associated contract documents



Questions



Seattle City Light



THANK YOU



Seattle City Light



seattle.gov/city-light



YouTube

Mission, Vision & Values

Mission

Seattle City Light provides our customers with affordable, reliable and environmentally responsible energy services.

Vision

Create a shared energy future by partnering with our customers to meet their energy needs in whatever way they choose.

Values



Customers First



Environmental Stewardship



Equitable Community Connections



Operational and Financial Excellence



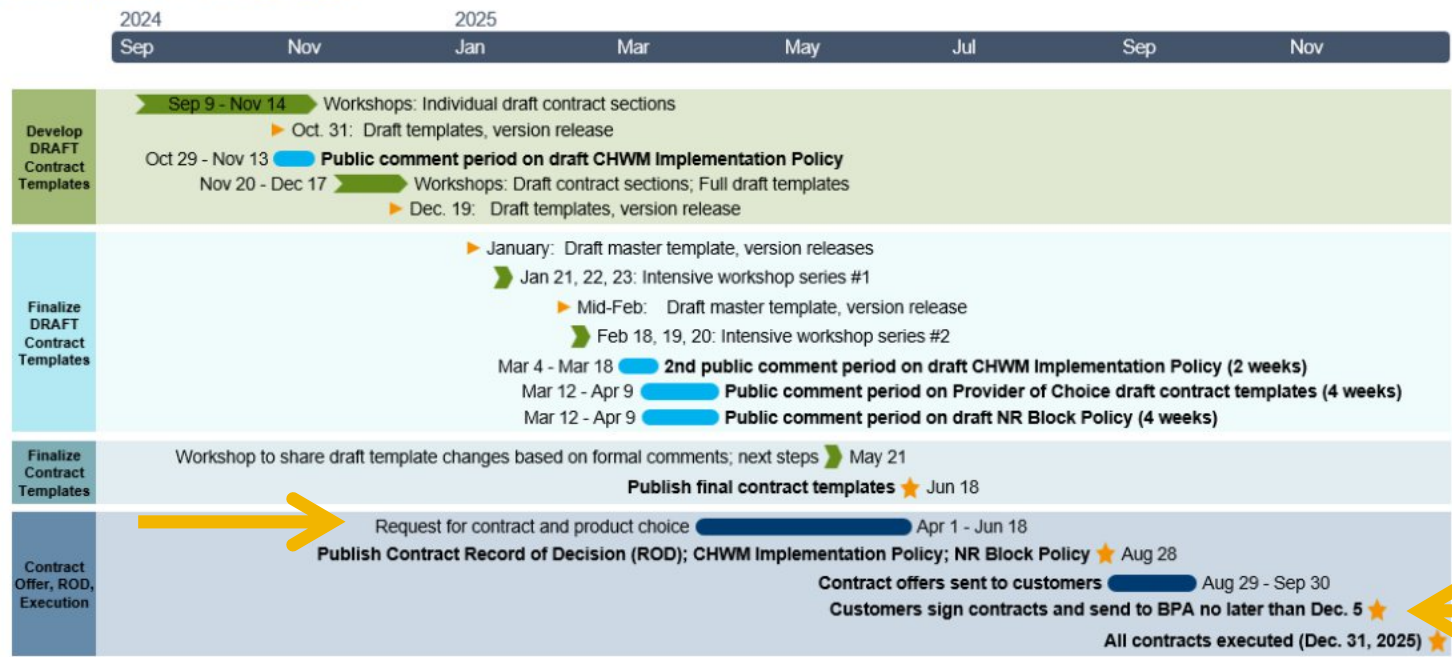
Safe and Engaged Employees

Provider of Choice Process



Pr. of Ch. Detailed Timeline Through Dec. 31, 2025

Last Updated Feb. 20, 2025



August 20, 2025

MEMORANDUM

To: Sustainability, City Light, Arts and Culture Committee
From: Eric McConaghy, Analyst
Subject: Council Bill 121062: 2028 Provider of Choice Contract Ordinance

On September 5, 2025 the Sustainability, City Light, Arts and Culture Committee (Committee) will discuss and possibly vote on Council Bill (CB) 121062. This legislation would authorize Seattle City Light (SCL) to execute a 16-year power purchase agreement with the Bonneville Power Administration (BPA) and related agreements beginning in 2028.

This memorandum provides relevant background information on the BPA power purchase agreement, briefly summarizes the bill and its attachments, and describes next steps.

Background and Summary

The new power purchase agreement would continue SCL's current and longstanding relationship with BPA extending back multiple decades¹. Under the existing 2012-2028 power supply contract, SCL purchases from BPA about 45 percent of the power SCL requires to serve its customers. Council authorized the execution of this contract via [Ordinance 122805](#) in 2008 and the previous contract spanning 2001 to 2011 via [Ordinance 120068](#).

Currently, BPA's wholesale power rates average about \$41 per megawatt-hour (MWh). Under the proposed agreement, SCL estimates that this level of purchasing from BPA would continue at a similar price. SCL, along with other electrical utilities, would participate with BPA in a rate setting process every two years known as [Public Rate Design Methodology \(PRDM\)](#), consistent with the provisions of the [Northwest Power Act](#). In comparison, SCL's [2024 Integrated Resource Plan Progress Report](#) estimated energy purchases from non-BPA sources costing between \$71 and \$134 per MWh in the 2030s.²

Consistent with [Resolution 31383](#), SCL estimates the total costs and revenues to deliver power to its customers on a two-year cycle and proposes to Council the utility's updated Strategic Plan and rate path based on the calculations. Council typically adopts an updated SCL Strategic Plan and associated rate path by resolution in advance of passing an ordinance to establish new retail rates in the Seattle Municipal Code (SMC) later in the same year. City Light prepares its budget based on the codified rates. SCL includes BPA power purchase costs in this biennial engagement thus providing opportunity for Council oversight at least every other year. Council will next consider SCL's updated Plan and new rates in 2026.

¹ A detailed history is out of scope here. More information at: <https://www.bpa.gov/about/who-we-are/our-history> and <https://www.ppcpdx.org/about/public-power-history/>

² Wind power at \$71/MWh; Solar power at \$74/MWh; and Geothermal power at \$134/MWh

Actual BPA power costs can vary from the estimated costs. This variation is accommodated by provisions in [Seattle Municipal Code \(SMC\) 21.49.081](#) for an automatic BPA power cost adjustment (also known as a “pass-through”). SCL must apply the pass-through to customer bills to adjust to changes in BPA costs greater than \$1.5 million over 12 months. SCL sets the amount of the BPA cost adjustment upwards or downwards such that the cost difference, including taxes, is collected from or credited to customers over the subsequent 12-month period from the onset of the rate adjustment.

In summary, CB 121062 would authorize SCL’s General Manager and Chief Executive Officer (GM) for and on behalf of the City to sign and enter:

- a 16-year Provider of Choice power sales agreement with BPA;
- a related creditworthiness agreement with BPA; and
- and other related contracts necessary for implementation

These agreements will include a Provider of Choice Slice/Block Power Sales Agreement, and a Creditworthiness Agreement similar to the forms attached to this ordinance. The GM would also be authorized to agree to modifications and amendments of the forms throughout the 16-year term of the power sales agreement to the extent the GM determines such modification or amendment to be reasonably necessary to meet the needs of SCL.

Next Steps

If the Committee votes to recommend approval of CB 121062 on September 5, then Council could take final action on the CB as soon as September 16, 2025.

cc: Ben Noble, Director
Calvin Chow, Supervising Analyst