

May 04, 2017

MEMORANDUM

To: Energy and Environment Committee
From: Tony Kilduff
Subject: City Light's request to enter the California Energy Imbalance Market

INTRODUCTION

At the Energy and Environment Committee ("Committee") meeting on September 26, 2016, City Light presented [legislation](#) (CB 118798) authorizing it to join an Energy Imbalance Market ("EIM") operated by California's Independent (electric grid) System Operator ("CAISO"). Although this was not the first time the Committee had been briefed on energy imbalance markets as a concept, it was the first time the Committee had been presented with a specific proposal for City Light to join such a market.

The Committee, while generally favorable to the potential environmental benefits of City Light's participation in the market, was not satisfied with the analysis City Light presented in support of the financial benefits of participation. The Committee directed City Light to refine the analysis of the costs and revenues associated with its participation, and to present its findings to the Committee by April 10, 2017.

City Light presented its updated analysis to the Committee at the March 28, 2017 meeting, and the question of whether, in light of that new analysis, to permit City Light to proceed is once again before the Committee.

The Committee has asked Central Staff to review City Light's revised analysis to assess whether, and to what extent, the new analysis addresses the shortcomings identified in the analysis originally presented to the Committee in September 2016.

STAFF ANALYSIS

This section identifies the specific concerns the Committee had with the original presentation, and provides a summary review and assessment of City Light's responses in the two key areas.

Costs

The Committee's concern with the cost estimates City Light originally presented was that they were based on City Light's preliminary internal assessment and its discussions with existing participants and prospective entrants. City Light acknowledged at the time that a full gaps analysis, conducted by a competent external entity, would provide greater certainty around the costs of the project, but that had not been done.

City Light has since engaged Utilicast, a consultancy with expertise specifically in this area, to conduct the gaps analysis. The analysis identified the computing system capabilities City Light would need in order to operate effectively in the EIM, and also the changes to its operating procedures and business processes it would need to undertake prior to entry.

Based on the work done by the consultant, City Light has increased the estimate for upfront costs from \$8.8 million to \$12.3 million.¹ For comparison, the average upfront costs reported by existing participants is \$14.4 million. City Light argues that its costs will be lower because its system is relatively simple in comparison and because, for reasons entirely unrelated to the EIM, it has already made some of the system improvements others needed to make to join the EIM.

After review of the Utilicast gaps analysis, City Light believes its original estimate of \$2.8 million in ongoing annual direct costs is still justified. For comparison, the average direct ongoing cost reported by existing participants is \$3.3 million.

Using City Light's estimate, it would need to average at least \$3.7 million per year in incremental revenue to cover its ongoing costs (\$2.8 million in direct costs plus \$0.9 million in foregone transmission sales revenue). If it found it could not cover those costs, it would have to leave the market. In that event, some of the ongoing costs would end almost immediately, but some, including those related to additional staffing, would take time to resolve.

For comparison, City Light would need to earn at least \$4.2 million annually to cover ongoing costs experienced by the existing market participants.

Revenues

The Committee also expressed concern that the incremental revenue from participation in the EIM was based on the assumption that City Light would have perfect knowledge of prices and market conditions. The Committee requested that City Light develop a more realistic estimate.

City Light's Power Management group took the lead in updating the revenue projection originally presented to the Committee. The update reflected the resource portfolio the utility will have in 2019 when it would plan to join the EIM. The update also used more sophisticated models of how its system interacts with regional markets to determine the scale of resources it could realistically commit to the EIM. While these are both improvements to the original estimate, City Light retained the perfect foresight assumption that the Committee found troubling. In an effort to address the Committee's concern about that assumption, City Light reduced the revenue from the updated analysis by 20%. The resulting incremental revenue projection is \$6.3 million annually.

¹ The utility made the decision to increase the estimate after its presentation to the Committee on March 28. It intends to release a new business plan reflecting the higher number.

This figure depends critically on City Light's assessment that 20% is the correct amount by which to reduce calculated revenues to account for perfect foresight. There is no way to verify that percentage, or perhaps, even to assess its reasonableness. It is, in essence, a matter of judgement. The larger that adjustment the less favorable the business case for the project; at a penalty of 38% for perfect foresight the project does not cover its costs.

The revenue picture is further complicated by estimates of incremental revenues produced by City Light's Risk Oversight group. The Risk Oversight group is responsible for performing independent analysis of potential market interactions on behalf of the utility. To be clear, the revenue projections of the Risk Oversight group are not part of the official business case City Light is presenting to the Committee. The utility has provided the results in the interests of transparency as they differ materially from those in the business case.

The Risk Oversight group attempted to address the Committee's concern about the perfect foresight assumption by varying underlying parameters such as the size of the market available and the ability of City Light's resources to exploit that market depth and re-running the analysis. In that sense it is a "scenario analysis" rather than an analysis under true uncertainty, but it does provide a sense of how sensitive the revenue outcomes are to the underlying assumptions.

The annual average incremental revenue from the relevant scenarios² analyzed by the Risk Oversight group is \$4.4 million. This is sufficient to cover the ongoing costs, both as estimated by City Light and for the higher comparison group of existing market participants.

SUMMARY

This section summarizes the technical information provided above and attempts to provide a limited risk analysis of City Light's participation in the EIM.

There are two estimates of both upfront and ongoing costs: those developed by City Light and those reported by existing market participants.

There are two incremental revenue projections: the official City Light point estimate from the Power Management group and a set of estimates from the Risk Oversight group reflecting different scenarios. These range from a high of plus \$8.4 million to a low of minus \$1.5 million.

² The results limit the market depth and/or City Light's ability to respond to 200 megawatts of capacity.

Table 1 summarizes the cost estimates discussed.

Table 1: Cost to Participate in the EIM (millions)

	Upfront	Ongoing
City Light Projections	\$12.3	\$3.7
Market Participant Experience	\$14.4	\$4.2
Percent Difference	17%	13%

Although market participants have experienced higher costs generally, City Light’s estimates are within 20% of them and it argues the lower estimates for both upfront and ongoing costs are warranted.

Table 2 summarizes the revenues discussed.

Table 2: Incremental Revenue from Participation in the EIM (millions)

	Average	Minimum	Maximum
City Light Official Estimate	\$6.3	\$6.3	\$6.3
Risk Oversight group	\$4.4	(\$1.5)	\$8.4

Table 3 uses the multiple scenarios produced by the *Risk Oversight group* to calculate the percentage of cases in which revenue would at least covers ongoing costs.

Table 3: Percentage of Scenarios in which Annual Revenue Covers Ongoing Costs

City Light’s Estimated Costs	62%
Market Participant Costs	53%

The results show that in 38% of the scenarios the annual average revenue over the life of the project would be insufficient to cover even the ongoing costs as estimated by City Light, meaning that it would have to cease participation in the market. The initial investment would be lost and the utility would have to release or redeploy the eight staff involved in the EIM. If the ongoing costs are similar to those experienced by existing participants, the percentage of scenarios in which average annual revenue does not cover costs rises to 47%.

cc: Kirstan Arestad, Central Staff Director
Dan Eder, Deputy Director