



Initiative #5: Western Energy Imbalance Market

INITIATIVE INFORMATION

Business Unit/Division	Power Supply & Strategic Planning BU/Power Management Division						
Initiative Executive Sponsor	Robert Cromwell & Bernie Ziemianek						
Initiative Project Manager	Sarah Davis						
Legally mandated/Required?	No						
(\$000's)	2019	2020	2021	2022	2023	2024	Total
O&M \$ Amount	0	0	0	0	0	0	0
CIP \$ Amount	0	0	0	0	0	0	0
Total \$ Request*	0	0	0	0	0	0	0
FTEs Added	0	0	0	0	0	0	0

* No additional funding requested as this project is funded in the 2018 – 20 budget.

INITIATIVE SUMMARY

- a) **Description:** Participation in the Energy Imbalance Market (EIM) presents both a positive revenue opportunity for City Light customers, as well as an opportunity to enhance environmental objectives by aiding the region in variable energy resource (VER) integration. The EIM is a real-time wholesale energy trading market that enables participants to buy and sell energy when needed.

The purchase and integration of VERs such as wind and solar continues to accelerate in the region. These resources provide an increased societal value but are costly to integrate into the grid due to their variability. The EIM was developed in part to provide an efficient market solution for the integration of VERs. In practice, it also provides for a more efficient dispatch of resources across balancing areas and therefore a more cost effective regional generation solution.

- b) **Component(s)/Objective(s) of initiative:** Increase revenue by offering our hydroelectric resources in the EIM to leverage market flexibility.
- c) **Business Value:** Participation will allow City Light to more efficiently use generation and transmission assets, buy and sell energy in shorter term increments, and use pricing to match loads and resources

across more buyers and sellers than existing markets currently permit. By doing this, City Light will more effectively integrate renewable energy across the West due to its flexible hydro capacity. City Light is planning to begin participating in the market in the spring of 2020.

2019 – 2024 INITIATIVE MILESTONES AND DELIVERABLES

Milestone	Due Date	Milestone Definition and Comments
Initiative Start	07/2019	Validation of Full Network Model- This milestone is completed upon modeling SCL into the Independent System Operator (ISO) Full Network Model in the Energy Management System (EMS) in a non-production test environment using the ISO's network and resource modeling process and the complete validation of all Supervisory Control and Data Acquisition (SCADA) points from SCL; completion of testing of the new Full Network Model; and validation of the Outage and State Estimator applications with the SCL Network Model included.
	09/2019	Connectivity Testing- California Independent System Operator (CAISO) makes available the Market Simulation ("MAP Stage") environment for connectivity testing prior to the start of Market Simulation; SCL Network Model and EMS functionality incorporated into CAISO Full Network Model and EMS in the Market Simulation Environment; Market Simulation for the 2019 Fall Release is stable such that SCL testing can begin.
	12/2019	Begin Market Simulation- Testing focuses on specific scenarios to ensure SCL and CAISO software applications are performing correctly, and simulated settlements are correct under specific conditions (e.g. manual dispatches, mitigation, contingency events). Scenarios will be specified in the Market Simulation Plan. Transactions use a single recurring Operating Day. Structure Simulation is executed during normal business hours but requires continuous data feeds from SCL to keep the Market solving normally 24x7.
	02/2020	Begin Parallel Operations- Activate Parallel Operations to practice EIM activities with production grade systems, integration, market processes and operating procedures. Confirm compliance with the EIM readiness criteria set forth in the CAISO tariff. Parallel Operations is 24x7 and uses actual Production data (e.g. load forecast, VER forecast).
	04/2020	Go-live- Complete upon the first financially binding production energy imbalance market trade date. The SCL and the ISO may elect to perform a non-binding parallel production prior to the first binding production trade date.
Initiative Complete	4/1/20	

SOCIAL EQUITY

There are no discrete, geographic impacts to the EIM project as it will impact all customers equally via our retail rates, with the potential for making retail rates more affordable than they otherwise would be without the EIM project. The EIM Project will utilize City Light's existing contracting and procurement process to obtain operational technology and supporting consulting services; which will include Women and Minority Business Enterprise (WMBE) evaluation criteria, as is our standard practice.

METRICS FOR SUCCESS AND METHOD FOR MEASUREMENT

Success will be based on joining the market on time and within budget, all system and architectural changes are successfully implemented, testing and training have been completed, and SCL passes readiness criteria during parallel operations with the ISO. Standard project management tools will be utilized for measurement.