LADWP Joins Western Energy Imbalance Market

By Carol Tucker

“It’s good for customers and it’s good for the environment” – that’s the elevator pitch for joining the Western Energy Imbalance Market (EIM). It’s a persuasive argument that resonated with LADWP’s power system.

On April 1st, LADWP became the largest vertically integrated, publicly-owned utility to join the Western Energy Imbalance Market (EIM). Operated by the California Independent System Operator (ISO), the EIM is an automated voluntary energy market system that balances supply and demand for electricity every five minutes, using the least-cost energy resources to meet the needs of the statewide electric grid.

“We viewed it as a way to support other power utilities in the Western region while maintaining our autonomy as a vertically integrated utility,” said Reiko Kerr, Senior Assistant General Manager of Power Engineering, Planning and Technical Services. Power System staff investigated the costs and opportunities with joining EIM, and determined it would be feasible as well as beneficial to become fully integrated with other utilities in the West.

“I can’t emphasize enough the significance of this effort, which was extremely complex and involved over 300 staff members and eight different divisions in the Power System,” said Kerr. “This was a model collaboration across the Department. This team trained together, worked together, identified issues and worked through the challenges. In my mind this was a phenomenal success.”

The transition to the Western EIM marked a seismic shift in long-standing bulk power operations and protocols that will benefit customers in Los Angeles and throughout California as well as other western states. Since the transactions occur in real-time when prices are cheaper, the computer-driven market will save millions every year. An analysis conducted by LADWP showed that participating in the EIM offers a potential net benefit of about $12 million per year. Since its inception in 2014, EIM participants have realized a total of $1.2 billion in benefits.

Among other benefits, participating in the Western EIM will help both LADWP and the State of California maintain power reliability and reduce greenhouse gas (GHG) emissions while optimizing the use of variable renewable energy, such as solar and wind power. This will help prevent the need for

curtailment due to over-generation of solar in the state. It will improve reliability throughout the state during a heat wave, when power demand spikes, or during a critical event such as a wildfire. The automated market will find power that is available at the best price among the EIM participants.

ISO officials said LADWP's participation in the EIM will provide operational and resource efficiencies for customers. The integration of LADWP also brought the benefits of accurately modeling new pump-storage operational constraints, and more sophisticated high-voltage DC line optimization and operational modeling in the real-time market, said Khaled Abdul-Rahman, Vice President of Power Systems and Market Technology. "The ISO appreciates the commitment of LADWP's staff to successfully join the real-time energy market."

Over four years in development, the transition was made with all hands-on deck working tirelessly through the night and early morning hours ready to step in and resolve issue at a moment notice, said Project Manager Jaime Pinedo.

From left: Paul Schultz, Kai Leung Choi, Jaime Pinedo, Erick Gallegos and Patrick James Cruz Borricano were part of a team of over 300 staff members that collaborated to transition the Department to the EIM. (Photo by Chris Corsmeier). Not pictured is Michelle Tovar-Mora, who served as workstream lead.

"The most satisfying part of this effort was watching all the different groups and divisions across LADWP come together and work as one unit. We worked vertically, from the person installing the meter to the director authorizing resources, and horizontally, from one side of the house to the other," Pinedo

said. “We were able to improve our system, whether it was metering, software systems or processes, and leave it in a better state.”

Within the Power System, the project brought together staff from seven separate groups: Power Construction and Maintenance; Power External Energy Resources; Power Planning, Development, and Engineering; Power Supply Operations; Power New Business Development and Technology Applications; Energy Control and Grid Reliability; and Power Regulatory Compliance and Specifications.

Other divisions that supported the effort were the City Attorney’s Office, Environmental Services, Financial Services, Governmental Affairs, Information Technology (IT), and Supply Chain.

Pinedo, who was the only staff member besides Kerr to be involved in the project from start to finish, said the team encountered roadblocks at nearly every corner as it maneuvered through planning, metering, procurement, legal matters, financial settlements, system integration and change management. Both ISO and the LADWP project teams dealt with significant integration and modeling challenges to enable the systems to talk to each other. Coordination, inspections and testing involved over 850 metering devices at LADWP generating units. Some required reprogramming or even the installation of new meters.

The EIM project team had the herculean task of procuring or modifying seven separate software systems and integrating them with 14 different software applications used by the EIM participating utilities. The software enables LADWP’s power generators, transmission systems and bulk meters to interface with power system components in California and other participating western states, including Nevada, New Mexico, Arizona, Idaho, Oregon, and Washington.

LADWP’s Energy Control Center has been adjusting to the new work process. They’ve had to get used to “taking their hands off the wheel,” so to speak. In the past, the ECC scheduled the bulk power purchases a day in advance, basing the expected load on prior years’ weather and demand trends, and adjusted the plan as needed throughout the day. Instead of one day at a time, now they are scheduling the power ever five minutes. Or rather, they monitor while computers do the work. It’s a brave new world.

Featured photo: Overlooking LADWP’s Energy Control Center (Photo by Art Mochizuki).