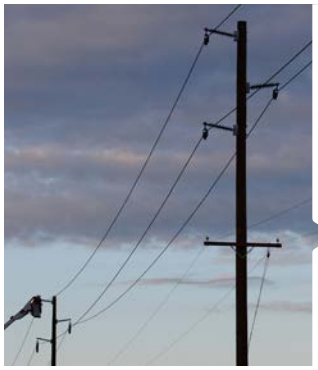

PUGET SOUND ENERGY

Energy Imbalance Market

PSE participating in the California ISO Energy Imbalance Market

In the spring of 2015, PSE announced its intentions to participate in an Energy Imbalance Market (EIM) operated by the California Independent System Operator (ISO) beginning on Oct. 1, 2016. This decision was driven in large part by realizing the benefits of improving system reliability for our electric customers and by reducing the power costs associated with serving load.

An EIM is an automatic, sub-hourly way to economically match customer demand (load) and supply (dispatch of resources). The market is operated by an independent, non-profit market operator—the ISO—which optimizes and leverages generation resources within the EIM service areas, and dispatches the most economic resources to serve demand in the few minutes before the power is needed. Market participants such as PSE voluntarily bid resources into the market to gain the benefits of a more overall efficient dispatch.

Economic and environmental benefits

Currently, real-time power transactions are primarily conducted over the phone on an hourly basis. The recent growth of wind and solar generation in the west, which is balanced by 38 independent balancing authorities, has made it increasingly challenging to cost-effectively and efficiently dispatch energy resources. Because the environmental and economic benefits of renewable generation are important, utilities have identified the formation of an EIM as a cost-saving way to enhance grid coordination and reliability in the Northwest.

The eight-state footprint of the ISO EIM realizes its benefits by broadening resource diversity that enables more efficient matching of supply with demand. On the supply side, there are a variety of energy resources, such as wind and solar, which, across the larger EIM geographic footprint, reach their optimal generating output at different times of the day. And with two time zones that span the EIM and different seasonal trends, the demand across the EIM footprint varies greatly as well. Efficiencies will be gained from coordination and communication across a larger geographic area, thus enabling participants to better optimize the use of renewables and conventional resources, often transferring low cost renewables when they may otherwise need to be curtailed.

PSE customer savings

According to a third-party study by Energy and Environmental Economics, the realization of benefits outlined below will contribute to a projected $18 million to $30 million in annual savings that will be passed back to PSE customers.

- Enhanced reliability: Greater visualization of within-the-hour system operations through aggregating and sharing real-time data of the interconnected system
- Maximizing load efficiency: Savings based on efficiency of sub-hourly dispatch (using 5 and 15 minute intervals) between multiple participants in the EIM footprint
- Transmission efficiency: More efficient transmission utilization among the 38 separate balancing authorities
- Optimizing renewable resources: Allowing renewable generation to flow on the grid when it would otherwise be curtailed

pse.com/eim

Participants of this EIM include the following:

- ISO — manages the flow of electricity for about 80 percent of California
- PacifiCorp — serves customers in Washington, Oregon, Idaho, Utah, Wyoming and California
- NV Energy — serves the majority of customers in Nevada
- PSE — serves customers in Washington (scheduled to participate on Oct. 1, 2016)
- Arizona Public Service (APS) — serves customers in Arizona (scheduled to participate on Oct. 1, 2016).

Next steps

Work is underway at PSE to integrate into the EIM in October 2016.

Beginning this summer and continuing into 2016, PSE will conduct a stakeholder process for transmission customers and other stakeholders to make changes to its open access tariff needed to implement the EIM. PSE will then seek FERC acceptance in mid-2016.