

# Memorandum

**To:** ISO Board of Governors  
**From:** Steve Berberich, President and Chief Executive Officer  
**Date:** April 27, 2017  
**Re:** CEO report

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*This memorandum does not require Board action.*

## OVERALL SYSTEM CONDITIONS

Operating conditions are normal for the shift from winter to spring conditions although we continue to have challenges with repeated storm systems and the corresponding impact on solar and wind output and variability. Our forecasting team and software continue to learn from each weather pattern and update our forecasting algorithms and operating procedures accordingly. Generation movements of 1,000 MWs in thirty minutes have not been uncommon.

With persistent negative market prices, hydro power operators have indicated they are spilling water rather than generating power because of the low power prices. Hydro is a key provider of ancillary services and when hydro is spilling, those services must be provided by other resources.

## THE “DUCK”

Operating conditions first forecasted by the simulations that brought the “Duck Chart” have clearly been evident this late winter and spring. Incidences of oversupply and steep ramp are best indicated by system prices. From late morning until mid-afternoon, we have seen persistent negative prices in the real-time market and then relatively high prices during the steep late afternoon ramp. Now, negative prices are occurring regularly in the day-ahead market. Historically, negative prices have occurred only infrequently in the day-ahead market since the market went live in 2009.

When the original duck simulation was produced, a number of opportunities were identified to mitigate oversupply and ramping. These include:

- Energy storage
- Time of use rates to shift demand patterns
- Deeper regional coordination
- Fuels production using surplus energy
- Diversified resource portfolio

- Using renewables for ramp conditions
- Targeted energy efficiency to reduce the ramps

Unfortunately, limited progress has been made on these mitigation measures. As California further positions to lead the transition to a low carbon energy system, it's critical that these be accelerated.

## **SOLAR ECLIPSE**

On August 21, a solar eclipse will occur over much of the West Coast. Most impacted will be the Northwest US and a path cutting across the middle US but California will also experience significant obscuration impacting California large scale solar as well as the distributed solar on the system. We expect several thousands of megawatts of movement on the system when the eclipse starts and when it ends. At this Board meeting, we will provide a more detailed briefing on the impact and options being considered for managing reliability.

## **ENERGY IMBALANCE MARKET GOVERNING BODY**

Congratulations to Chair Kristine Schmidt on her re-nomination to the Energy Imbalance Market Governing Body. During the process of staggering the turns, Chair Schmidt received the one year term slot and will now serve a full three year term.

## **BONNEVILLE POWER ADMINISTRATION / ISO COORDINATED TRANSMISSION AGREEMENT**

In March, the ISO and the Bonneville Power Administration entered into a coordinated transmission agreement that will benefit both of our organizations and the customers we serve. The key tenet of the arrangement is implementation of tools and data exchanges to better manage Energy Imbalance Market flows on the BPA transmission system. The agreement clearly spells out how the ISO's EIM dispatches will stay within BPA defined limits while BPA will send real time flow information to the ISO for use in optimizing those same EIM dispatches. Ultimately, this information exchange and more efficient and effective management of the transmission system may eliminate the need for costly transmission upgrades.

## **RENEWABLE ENERGY PRODUCTION**

There have been several new solar production peaks since the last Board meeting. The most recent solar peak of 9,868 MW occurred on April 21, 2017 12:08 pm. The wind generation peak of 4,773 MW was set on April 24, 2016 at 5:48 pm. Geothermal, small hydro and other renewables also contribute to California's renewables mix.