



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Carlson, Mital, Helgeson, Schlossberg, and Brown
FROM: Susan Ackerman, Chief Energy Officer, Mike McCann, Generation Manager,
Megan Capper, Interim Portfolio Management Supervisor
DATE: September 20, 2019
SUBJECT: Regional Electric Resource Adequacy
OBJECTIVE: Information Only

Issue

Driven in large part by expanding Renewable Portfolio Standards (RPS) and state and local policies surrounding carbon and Greenhouse Gas (GHG) emissions, the anticipated future electric resource mix throughout the northwest region (region) is shifting rapidly. As part of that shift, the region has seen a significant increase in the pace of coal and gas generation retirements. This has been accompanied by increased integration of variable renewable generation such as wind and solar, but without any corresponding increase in baseload, dispatchable generation. Given the fact that most utilities periodically rely on market purchases of energy, especially during peak demand periods, this has led to some concern in the northwest about the impact these changes may have on regional Resource Adequacy (RA):

Resource Adequacy means there is adequate physical generating capacity dedicated to serving all load requirements to meet peak demand and planning and operating reserves, at or deliverable to locations and at all times.

This memo focuses on RA and making sure that, on a long-term planning basis, our regional grid has access to the generation necessary to serve load under extreme conditions. (e.g., low hydro, high load events).

Background

Delivering reliable power to consumers in the region requires the coordinated efforts of generating plants, transmission operators, local distribution systems and control and communication systems to provide highly dependable moment-to-moment load service. When coordinated integration with any one of these contributing systems fails, load service may be interrupted.

Shape of the Generation Output

In order to maintain RA, both baseload and peaking generators are required. Baseload generators run constantly, for extended periods (e.g., nuclear) at low variable cost. Peaking generators, like single-cycle combustion turbines, tend to have higher variable costs and are flexible to meet short-term peaks. Hydroelectric generation has the advantage of serving a range of grid reliability needs.

In planning for system reliability, neither wind nor solar are expected to contribute significantly to peak events because their output generally cannot be counted upon or dispatched (controlled) to serve load when needed. Wind generally does not blow in very cold or hot weather, and even during sunny days cloud cover can reduce the reliability of solar generation.

Changes in the Regional Generation Supply

The region continues to forecast significant increases in new renewable generation, while continuing economic and policy pressures have resulted in accelerated planned coal retirements. The result is a replacement of baseload generation with non-dispatchable renewable generation the regional mix. These changes in the region's forecasted resource supply are prompting broad conversations around (1) whether there is enough planned regional generation to serve peak load, and (2) what the financial impact of the migration from baseload to renewable generation will be to northwest utilities.

Discussion

At this time, staff believes that EWEB has access to adequate resources to serve our loads over the next five years. This is generally due to the low probability of a lack of market liquidity, and an even lower probability of a market event occurring over multiple days. However, given the potential risk and impact of regional RA on our customer owners, staff continues to monitor this situation closely. The tightening of the regional power supply could have financial consequences on all utilities and the resulting resource adequacy concerns may impact the region's ability to reliably serve our customers. It is, therefore, in the best interest of all northwest utilities, including EWEB, to understand these issues, and to work to influence a coordinated approach to RA on a regional level. To that point, a group of regional power executives, including EWEB's Frank Lawson, are leveraging the structure provided by the Northwest Power Pool (NWPP) to address the regional RA situation.

Physical and Financial Energy Risk

EWEB has historically relied on market liquidity to meet our peak load needs and to balance our loads and resources as needed. Because of this reliance, any reduction in market liquidity has the potential to increase EWEB's market risk during times of scarcity or other market events (i.e., gas pipeline explosion, etc.). This market risk exposure is best summarized in terms of both physical and financial energy risk.

Physical energy risk is the risk of failing to deliver energy to serve load. Load, as used here, includes both EWEB's retail service obligations and its wholesale market obligations (i.e., capacity or energy sales EWEB has made to another entity). Given the historically robust nature of northwest markets, EWEB's physical risk has traditionally been low, even in periods of extreme scarcity.

While the ultimate responsibility of physical energy delivery falls to EWEB's Balancing Authority, the Bonneville Power Administration, in the case of a failure to procure when short energy, EWEB would be exposed to significant financial penalties if BPA were forced to step in. As a result, EWEB's physical risk is ultimately represented in financial terms. *Here, our financial risk is the cost uncertainty associated with acquiring energy in a scarce market; in addition to the potential penalties should BPA be required to meet our physical obligations.*

Consistent with industry standards, EWEB adheres to its Power Risk Management Procedures, as developed in accordance with Board Strategic Direction Policy 8 (SD8). Through adherence to these procedures, in addition to the risk tolerances built into the Long Term Financial Plan, EWEB continues to manage both its physical and financial risk exposure. In addition to these procedural means for managing risk, EWEB has implemented a Financial Reserves Policy which is intended to ensure that we have sufficient reserves to deal with both load and market uncertainties, and to protect our customer owners from unexpected rate increases.

Conclusion

At this time, no action is necessary or recommended. However, the available information highlights the need for EWEB executives and staff to continue to work with our regional partners to identify and propose an RA solution the region can accept. Going forward, EWEB's 2021 Integrated Resource Plan will further analyze EWEB's market reliance during extreme weather conditions, and determine whether additional action is necessary to mitigate our identified risks.

Requested Board Action

This update is for informational purposes only.