



# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** May 7, 2015

**Re:** **Update on the 2015 Summer Loads and Resources Assessment**

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*This memorandum does not require Board action.*

## INTRODUCTION

The attached 2015 Summer Loads and Resources Assessment presents the expected supply and demand conditions for the 2015 summer peak demand period. This assessment helps the ISO, industry participants, and other key stakeholders in planning and preparing for the upcoming summer season. The assessment includes the following:

- Discussion of the impact of the California drought on summer power supply;
- Forecasts of ISO peak demand, taking into account scenario forecasts of future economic conditions;
- Projections of generation and imports over a range of predictable operating conditions as well as specific operating scenarios;
- Assessment of risk to the ISO system and the individual northern and southern regions (NP26 and SP26 zones) under diverse operating conditions and scenarios; and
- Discussion of any potential for firm load interruptions based upon the range of probable outcomes for various potential summer operating conditions.

This year all of the analyses provided in the report are based on assumptions for reduced generating capability of hydroelectric generating resources in the ISO due to the ongoing drought in California.

## SUMMARY OF KEY FINDINGS

Even with the ongoing drought concerns, the 2015 Loads and Resources Assessment projects adequate supply during 2015 peak demand conditions at the system wide level and for the NP26 and SP26 regions when considered independently. This projection is

based on examining the operating reserve margins under normal and extreme scenarios with both deterministic and more sophisticated probabilistic approaches.

Although California's severe drought significantly reduces hydro power supply, the hydro generation reduction is not expected to materially impact the reliability of the ISO system this summer due to significant renewable generation additions, sufficient imports, and moderate peak demand growth. However, the unusually dry conditions across the state do create a heightened risk of wildfires, which could impact the use of major transmission lines during periods of critical summer peak demand.

Key findings in this year's assessment include:

- ISO total hydro net qualifying capacity in August is 7,428 MW. This is the maximum capacity eligible and available for meeting the CPUC resource adequacy requirement. However, as a result of the drought, the ISO has determined that a hydro derate in the amount of 1,511 MW under expected conditions and a derate of 2,733 MW under more extreme summer weather conditions should be applied to the net qualifying capacity of 7,428 MW.
- In considering the drought impact on thermal generation for summer 2015, the ISO is tracking the thermal power plants potential to be out-of-service due to water supply curtailments. Among the thermal units greater than 20 MW, four natural gas-fired power plants that were identified to have water supply concerns during 2014 have addressed the issues by establishing alternatives or by monitoring and managing groundwater supply.
- From June 1, 2014, to June 1, 2015, a total of 2,328 MW of additional generation is expected to reach commercial operation, with 1,350 MW in SP26 and 978 MW in NP26. As of April 15, 2015, 2,050 MW of this additional generation was in commercial operation with an additional 278 MW expected by June 1, 2015. Of the 2,328 MW, approximately 96 percent is solar, 3.4 percent is wind, and 0.6 percent is biogas.
- As of April 16, 2015, the Northwest River Forecast Center projected the April to August reservoir storage in Columbia - Dalles Dam to be 80 percent of average. Although current water supply for Pacific Northwest in 2015 is lower than that in 2014, the Bonneville Power Administration does not indicate concerns with Pacific Northwest hydroelectric generation.
- With lower hydro output in California there may be a need for increased imports during peak load conditions; however if certain transmission facilities are out of service, the California – Oregon Intertie (COI) thermal limit could be a limiting condition on imports from the Pacific Northwest during these outage conditions. Nevertheless, it is anticipated that dynamically scheduled and other generation from the Four Corners will be available for surplus energy sales into the ISO during the peak hours.

- The unusually dry conditions across the state do create a heightened risk of wildfires, which could impact the use of major transmission lines during periods of critical summer peak demand. Thus, major wildfires could create grid reliability challenges over the summer, particularly in southern Orange County and San Diego. These two areas have more risk of localized customer outages as a result of the retirement of the San Onofre Nuclear Generating Station, albeit at a lower risk level from 2014 because of transmission upgrades in San Diego and Orange Counties beginning to come on line and providing an overall improvement in these local resource adequacy areas.
- The ISO's 47,188 MW 1-in-2 peak demand forecast for 2015 is 2.1 percent above the 2014 weather normalized peak demand of 46,229 MW. The increase represents a modest economic growth over 2014 based on the economic base case forecast from Moody's Analytics.
- The ISO system-wide planning reserve margin for summer 2015 is projected to be significantly greater than the California Public Utilities Commission's 15% resource adequacy requirements. Operating reserve margins are expected to be more than adequate as well.

The availability of new power generation since June 2014, primarily over 2,000 MW of new solar generation, combined with the modest economic growth, which resulted in moderate peak demand growth, results in an overall adequate summer supply outlook for 2015 to meet a broad range of operating conditions. Ongoing customer additions of behind the meter solar generation is also a contributing factor to the moderate peak demand growth. Although the risk of power supply shortages increases under extreme load conditions, coupled with more extreme unavailability of hydro generation, the net addition since last summer of 2,328 MW of generation reaching commercial operation and out-of-state imports will help to moderate these risks. Furthermore, California hydro resources are primarily system resources, so the reduction in hydro generation will not impact local reliability areas.

Producing this report and publicizing its results is one of many activities the ISO undertakes each year to prepare for summer operations. Other activities include coordinating summer preparedness with the Western Electricity Coordinating Council, Cal Fire, natural gas providers and neighboring balancing authorities. The ISO's ongoing relationships with these entities help ensure everyone is prepared during times of system stress.