



Memorandum

To: ISO Board of Governors

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

Date: March 17, 2016

Re: Briefing on preliminary 2016 Summer Loads and Resources Assessment results

This memorandum does not require Board action.

INTRODUCTION

The ISO's annual 2016 Summer Loads and Resources Assessment, projected to be published in early May, will present the expected supply and demand conditions for the 2016 summer peak demand period. This annual assessment helps the ISO, industry participants, and other key stakeholders in planning and preparing grid operation for the upcoming summer season. This briefing provides the ISO Board of Governors with preliminary results and information on the following topics that will be included in this year's assessment:

- Forecast of ISO peak demand, taking into account scenario forecasts of future economic conditions;
- Assessment of reserve margins in the ISO system and the individual northern and southern regions (NP26 and SP26 zones) under diverse operating conditions and scenarios;
- Discussion of current hydro conditions and expectations for the summer power supply;
- Generation additions and retirements; and
- Discussion on the potential impacts on system reliability related to the operating constraints of the Aliso Canyon gas storage facility.

Summary

The results presented in this memo are based on preliminary results from the 2016 Summer Loads and Resources Assessment (Summer Assessment). This year's analyses are based on current projections for normal hydroelectric conditions at the end of the snow accumulation season.

Preliminary results of the Summer Assessment project adequate supply during 2016 under all anticipated operating conditions impacting the ISO system as well as the NP26 and SP26 zones when considered independently. These projections are based on examining the operating reserve margins under a wide range of supply and demand scenarios assessed using stochastic production cost model simulations. These preliminary results do not include consideration of any potential grid reliability issues in southern California due to limitations of the Aliso Canyon gas storage facility. This issue is currently under assessment and results will be incorporated into the final Summer Assessment once they become available.

Forecasted Peak Demands

The ISO's 2016 1-in-2 peak demand forecast is 47,529 MW, which is 0.8 percent above the 2015 weather normalized peak demand of 47,167 MW. The modest demand increase is a result of projected modest economic growth over 2015, based on the economic base case forecast from Moody's Analytics, and utility projections of new behind the meter solar installations for 2016. The ISO's 2016 1-in-10 peak demand forecast is 49,879 MW.

Assessment of Reserve Margins

The projected 1-in-2 system operating reserve margin for the ISO system is 24.4%, which includes all resources that are in a state that would enable them to produce energy if called upon to meet system demand. The projected 1-in-2 minimum operating reserve margins for the NP26 and SP26 zones are 21.3% and 25.6%, respectively, when considered independently. These projected operating reserve margins for summer 2016 are significantly greater than the California Public Utilities Commission's 15% planning reserve margin requirement for resource adequacy.

Hydro Conditions

As of March 16, 2016, the statewide snow water content for the California mountains was 93% of average for that date. California hydroelectric capability is projected to be near normal for the 2016 spring and summer seasons.

As of March 16, 2016, the Northwest River Forecast Center projected the April to August reservoir storage in Columbia - Dalles Dam to be 102 percent of average. Current water supply for Pacific Northwest in 2016 is higher than that in 2015. There are no concerns with Pacific Northwest hydroelectric generation.

Generation Additions

From June 1, 2015, to June 1, 2016, approximately 2,300 MW of additional generation is expected to reach commercial operation, with approximately 1,500 MW in SP26 and 800 MW in NP26. Of the 2,300 MW, approximately 85 percent is solar, 6 percent is

natural gas, 4 percent is wind, 4 percent is hydro, and 1 percent is biofuel. During this same period, 335 MW of generation retired in SP26.

Aliso Canyon

The Aliso Canyon gas storage facility (Aliso Canyon) is one of the largest natural gas storage facilities in the United States and can hold a maximum of 86 billion cubic feet (Bcf) of natural gas serving 11 million citizens in the Los Angeles Basin. Aliso Canyon is also the only gas field that can effectively support gas demand changes within the LA Basin. There are 17 gas-fired power plants in the LA Basin, representing about 9,500 MW of capacity located in the Los Angeles Department of Water & Power and the California ISO Balancing Authority Areas (BAAs). These plants represent the electric generation most directly affected by Aliso Canyon's reduced capabilities.

In October 2015, operability of Aliso Canyon changed as one of the wells had an uncontrolled gas leak that lasted until February 2016 when the well was sealed. The gas leak incident caused the California Public Utility Commission (CPUC) to issue an order directing Southern California Gas Company to draw down the field to 15 Bcf. No new injections to the gas storage facility are currently permitted. Limited withdrawal capability exists to maintain energy reliability.

A team comprised of the CEC, CPUC, CAISO, LADWP and SoCalGas has been formed. The team's task is to identify potential risks, as well as possible mitigation measures and address potential electric reliability concerns for the coming year, both across the LA Basin and throughout Southern California. A risk assessment and action plan is under development, in preparation for a public workshop this spring.

The results discussed in this memo do not include consideration of any potential implications of the Aliso Canyon gas storage facility. However, the final Summer Assessment, which is on track to be published in early May, will include a more extensive discussion of this issue based on the study team's findings.