



Memorandum

To: ISO Board of Governors

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

Date: March 8, 2017

Re: Briefing on preliminary 2017 Summer Loads and Resources Assessment results

This memorandum does not require Board action.

INTRODUCTION

The ISO's 2017 Summer Loads and Resources Assessment, expected to be published in early May, will present the expected supply and demand conditions for the 2017 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 for 2017;
- Assessment of reserve margins in the ISO system 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 status of the Aliso Canyon gas storage facility.

Summary

The results presented in this memo are based on preliminary results from the 2017 Summer Loads and Resources Assessment. This year's analyses are based on above normal hydroelectric conditions for 2017.

Preliminary results of the summer assessment project adequate supply during 2017 under all anticipated operating conditions impacting the ISO system. 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 – though the final assessment will include a summary discussion of the potential reliability risks that have been identified through other study work. However, the completion of the Vincent-Mira Loma 500kV line in late 2016 provides the LA Basin with access to renewable resources in the Tehachapi area, which improves the nonlocal electric supply availability for Southern California.

Forecasted Peak Demands

The ISO's 2017 1-in-2 peak demand forecast is 46,877 MW, which is 0.6 percent above the 2016 weather normalized peak demand of 46,602 MW. The slight increase in peak demand is a result of projected modest economic growth over 2016, based on the economic base case forecast from Moody's Analytics, and offset to some extent by utility projections of new behind the meter solar installations by summer 2017. The ISO's 2017 1-in-10 peak demand forecast is 48,845 MW.

Assessment of Reserve Margins

The projected 1-in-2 system operating reserve margin for the ISO system is 19.5%, which includes all resources that are projected to be available to meet system demand. The projected minimum system operating reserve margin is 12.8%, based on the results of the 2,000 scenarios modeled in the summer assessment analyses. While these projected operating reserve margins should provide adequate generation to meet a broad range of operating conditions, they do not take into account any significant transmission outages that potentially could occur during the summer.

Hydro Conditions

As of March 6, 2017, the statewide snow water content for the California mountain regions was 182% of average for that date and 167% of the April 1 average when snowpack typically reaches its maximum level for the year. Statewide snow water content is tracking slightly below the maximum amount recorded, while statewide precipitation is tracking to exceed the wettest year recorded. California hydroelectric capability will be above normal for 2017 providing greater than normal hydro energy during the spring and summer seasons.

As of March 6, 2017, the Northwest River Forecast Center projected the April to August reservoir storage in the Columbia - Dalles Dam to be 114 percent of average. Current 2017 water supply projections for the Pacific Northwest are similar to 2016 levels. There are no concerns with Pacific Northwest hydroelectric generation.

Generation Additions

From June 1, 2016, to June 1, 2017, approximately 3,060 MW of additional resources are expected to reach commercial operation, with 2,536 MW in the southern portion of

the ISO system (SP26), 514 MW in the northern portion of the ISO system (NP26), and 10 MW in the Valley Electric Association service territory located in western Nevada. Of the 3,060 MW, approximately 75 percent is solar, 23 percent is natural gas, 2 percent is battery, and a fraction of a percent are hydro and biofuel. During this same period, 3,149 MW of generation retired, primarily once-through cooled facilities.

Aliso Canyon

Natural gas needs in Southern California are met by a combination of major gas pipelines, distribution gas infrastructure and gas storage facilities. Four major gas storage facilities are located in the Southern California Gas system, the largest of which is the Aliso Canyon gas storage facility. Aliso Canyon and other gas storage facilities are used year-round to support the delivery of gas to core and non-core users. Among the non-core users are electric generators, which help meet electric demands throughout the day. Aliso Canyon directly affects seventeen gas-fired power plants with a combined total 9,800 MW of electric generation in the Los Angeles basin and indirectly affects forty eight plants with a combined total 20,120 MW of electric generation across Southern California. Aliso Canyon is an important component of the Southern California electric supply system because, in certain circumstances, gas supplies to electric generators cannot be met by pipeline supplies alone. This is due to the combined magnitude of needed gas supplies and the hydraulic speed of gas flow in the piping network.

On January 17, 2017, the Department of Conservation's Division of Oil, Gas, and Geothermal Resources announced that it had completed its comprehensive safety review at the Aliso Canyon Storage Facility. A total of 114 wells have been ordered to be thoroughly tested. As of January 23, 2017, 34 wells have passed all tests, 79 wells have been taken out of operation and one is pending test results. A decision on whether injection of gas into the storage facility can resume will not occur until the public has an opportunity to comment on the findings of the comprehensive safety review. Two public meetings occurred in February 2017, in which public input was garnered on the safety review. The CPUC will make a decision on the potential for reopening the field following the assessment of public comment. On February 15, 2017 and subsequently updated on February 17, 2017 Southern California Gas announced a Storage Safety Enhancement Plan that would also affect the gas withdrawal capability of La Goleta, Playa Del Rey and Honor Rancho Storage facilities for this summer.

The results discussed in this memo do not include consideration of any potential implications of the Aliso Canyon gas storage facility or the impacts of the Storage Safety Enhancement Plan on the Southern California Gas other storage facilities. However, an updated summer assessment, which is expected to be published in May, will include a more extensive discussion of this issue.