

Memorandum

To: ISO Board of Governors

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

Date: November 7, 2014

Re: Update on renewables in the generator interconnection queue

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The information included in this update represents the status of renewable generation in the California Independent System Operator Corporation's generator interconnection queue as of October 10, 2014. Key highlights include:

1. There has been little change to the generation interconnection queue since the last Board briefing on this subject in July 2014. This is attributable to the fact that there were no financial security posting due dates or open windows for submitting new projects or downsizing requests since last July.
2. There are 259 active projects in the ISO queue representing approximately 34,400 MW (20,200 MW renewable) seeking to interconnect to the ISO controlled grid.
3. Changes in renewable projects in the queue since the last update include 801 MW that reached commercial operation and a net reduction of 79 MW coming from project withdrawals, and new project additions.
4. Compared to the amount of new generation needed to meet the mandated 33% Renewables Portfolio Standard by 2020, the ISO queue currently contains approximately three times that amount, 78% of which has completed the study process.

DISCUSSION

The following graphs illustrate the renewables in the ISO queue from several perspectives.

Figure 1 shows the amount of renewable generation in the interconnection queue over time and breaks down the types of renewable capacity. During the June 17 to October 10, 2014 period the queue experienced a reduction of 880 MW in renewable projects.

Figure 1
Change in renewable capacity in ISO queue since June 2011

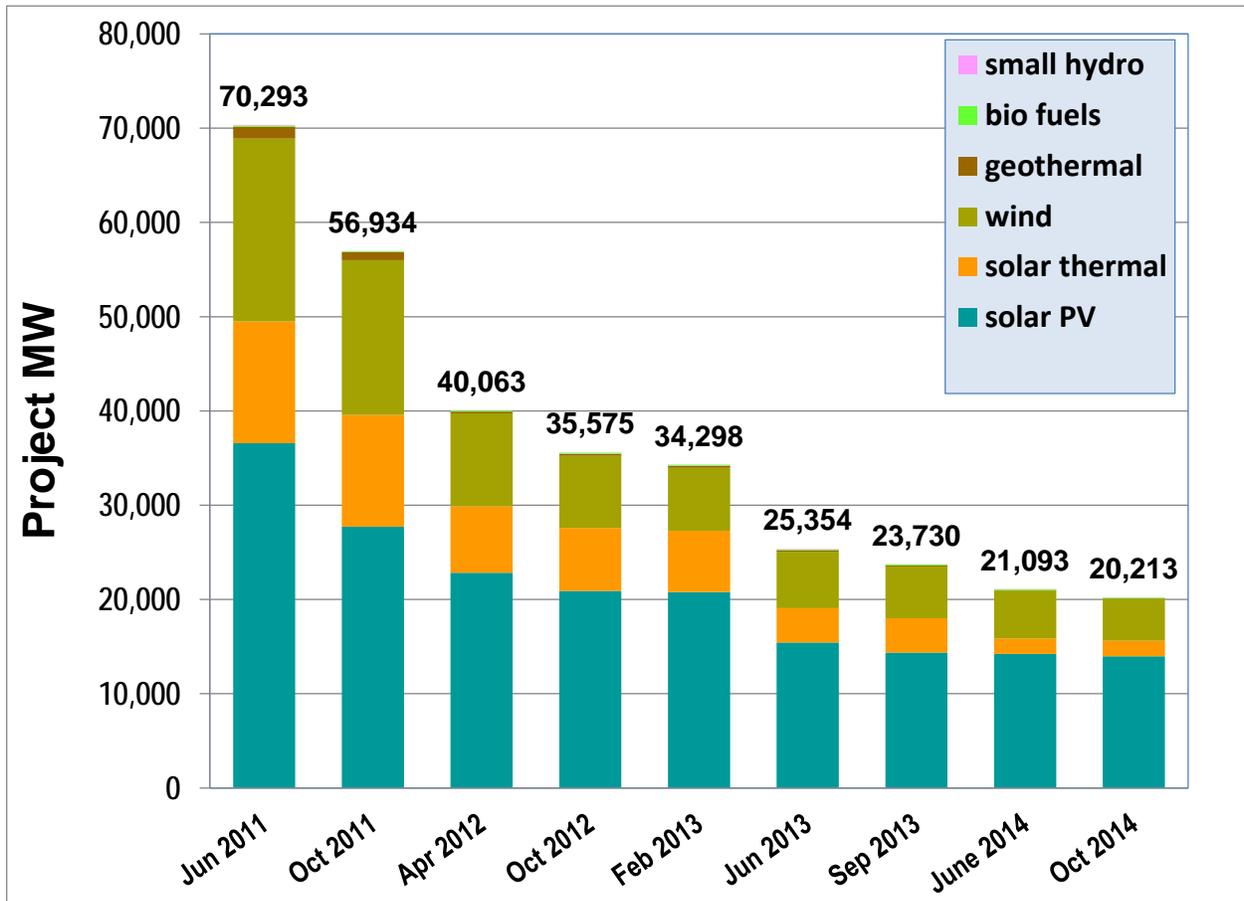


Figure 2 displays the amount of renewable capacity in the queue by study group and shows the capacity reductions within each study group. The blue portion of each bar represents the active project capacity in the queue as of October 2014 (including a new Independent Study Process (ISP) project and a project that transferred into the ISO queue from the Southern California Edison Wholesale Distribution Access Tariff interconnection queue). Capacity reductions since the July 2014 update are a result of 801 MW reaching commercial operation and 432 MW of project withdrawals.

Figure 2
Renewable generation capacity in the ISO queue by study group
(changes by study group since July 2014 update)

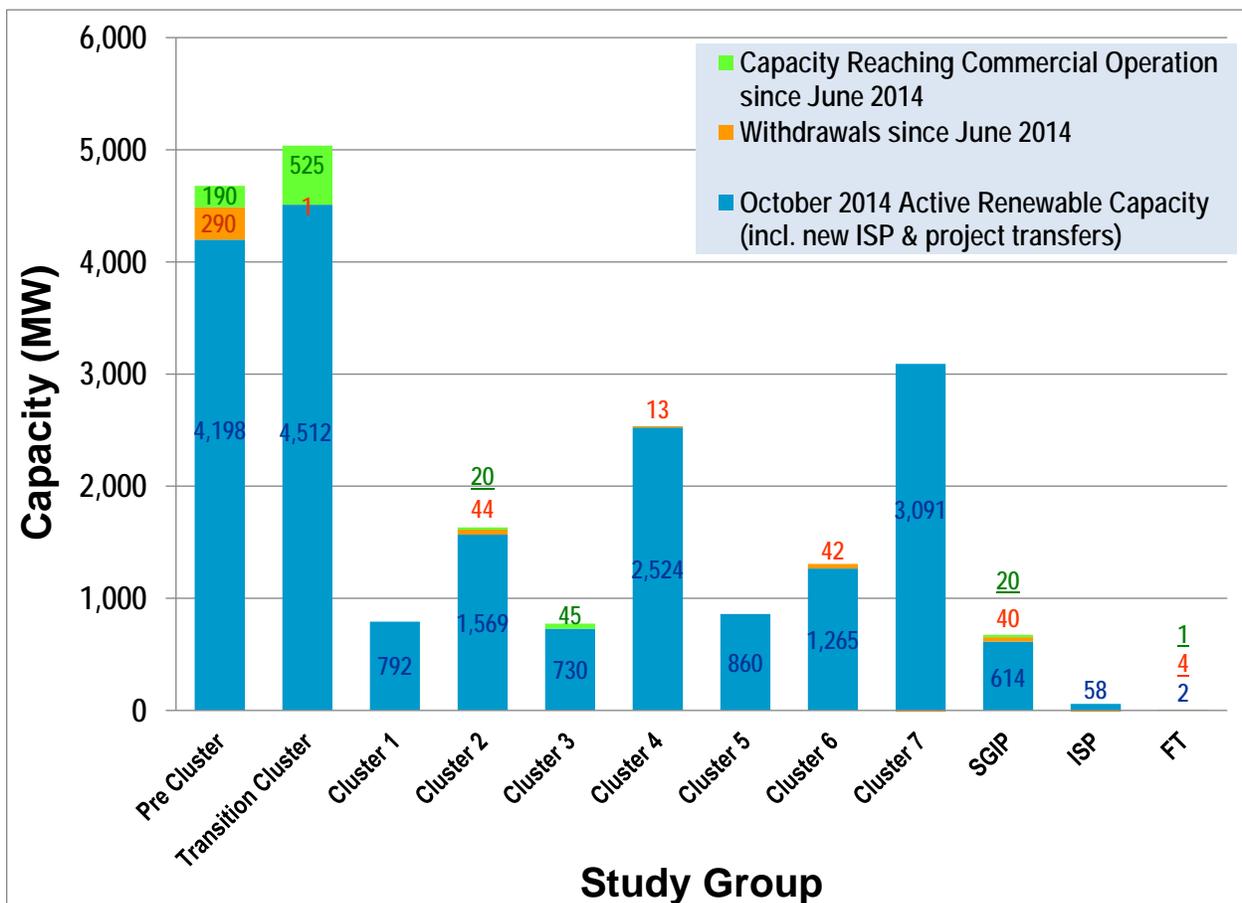


Figure 3 provides insight into the amount of generation capacity in the ISO queue by project size and type. Solar PV is the dominant generating technology for all size ranges except for the 500 to 1,000 MW category. Figure 3 also provides a breakdown of the capacity in the ISO queue by the number of projects for each project size category. Projects in the 100 to 500 MW category make up 71% of project capacity; however, the 1 to 20 MW category continues to contain the largest number of projects.

Figure 3
MW of renewable projects in ISO queue
as of October 2014 by size and type

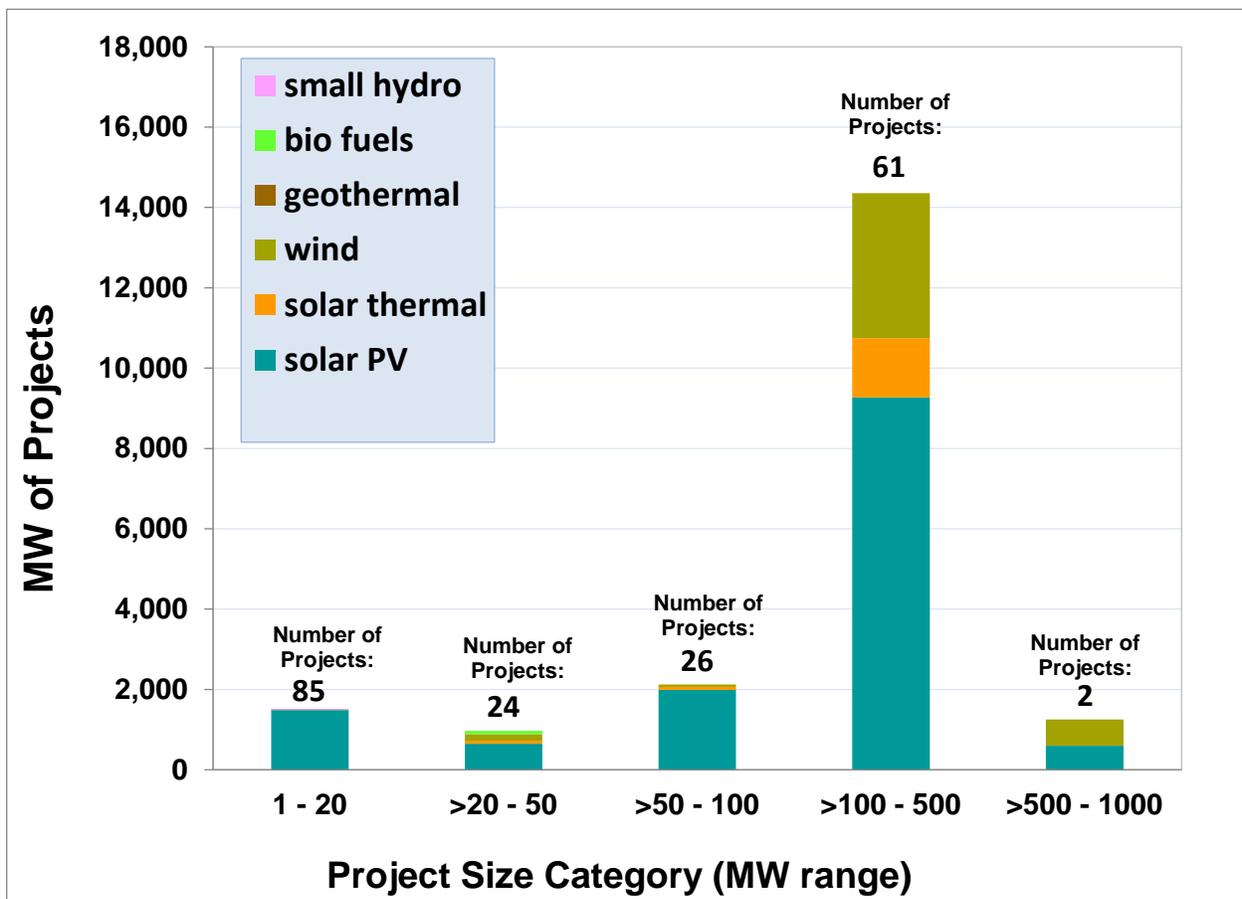
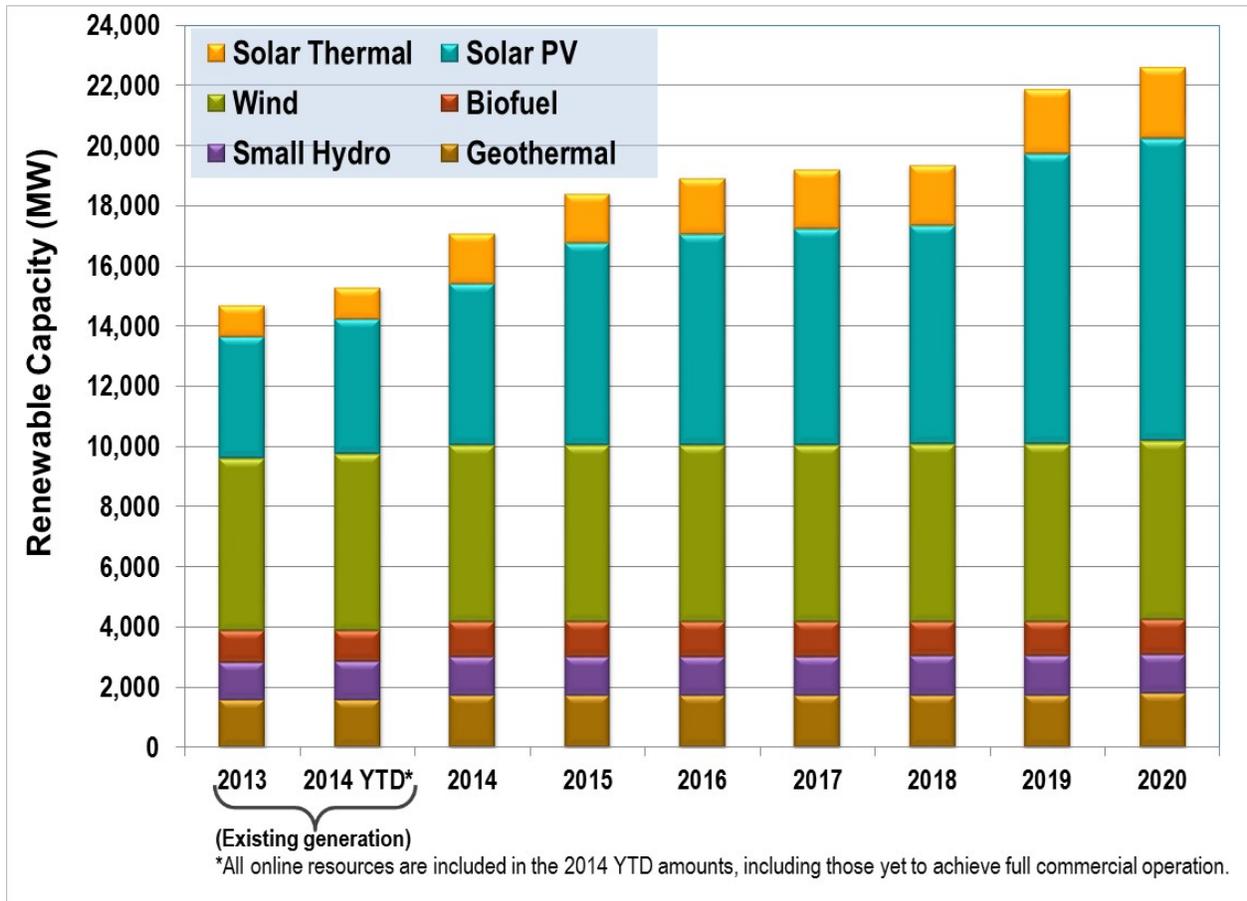


Figure 4 shows the projected build-out of renewable capacity by technology type based on projections from the investor owned utilities through 2017 and using the CPUC RPS

calculator¹ thereafter. The 22,600 MW estimated amount shown for 2020 is the projected renewable generation to be in operation in 2020, and approximates the amount needed to reach the 33% RPS requirement for that year. The ISO currently has approximately 15,300 MW of operating renewable generation within its footprint, which leaves approximately 7,300 MW of additional renewables needed between now and 2020 to reach 33%. The majority of this need is presently under contract with the three California IOUs and expected to satisfy much of the yearly amounts depicted in the 2015 through 2020 timeframe in Figure 4. The 15,300 MW of current operating renewables is approximately 1,800 MW less than the 2014 end of year projection. Some of that shortfall is expected to be made up during 2015.

Figure 4
Projected RPS capacity build-out through 2020
(IOU data through 2017 and RPS Calculator data 2018 – 2020)



¹ The 33% RPS Calculator is a model developed for the CPUC by Energy + Environmental Economics (E3) to aggregate renewable resource cost and performance data and select renewable resources needed to meet the RPS target.

Figure 5 is a map of all projects in the generation interconnection queue and shows the general location and capacity by project type, including conventional generation projects. Kern County, key code 27, represents the Tehachapi area and contains the largest amount of renewable capacity and the largest amount of wind capacity in the state. Riverside County, key code 31, has the largest amount of solar capacity. Los Angeles/Orange Counties have the largest amount of conventional capacity in the state, partially due to capacity seeking to replace the once-through cooled units in those counties.

Figure 5
ISO Queue Map – Conventional & Renewables
As of October, 2014

