Memorandum

To: ISO Board of Governors

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

Date: October 31, 2013

Re: Update on renewables in the generator interconnection queue

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This memorandum does not require Board action.

EXECUTIVE SUMMARY

The information included in this briefing represents the status of renewable generation in the California Independent System Operator Corporation's generator interconnection queue as of September 27, 2013. Key highlights include:

1. The current ISO queue contains approximately 36,000 MW (23,730 MW renewable) actively seeking to interconnect to the ISO controlled grid;

2. Changes in renewable projects in the queue since the last generator interconnection queue update include approximately 500 MW of projects that reached commercial operation and 1,100 MW of project withdrawals;

3. Compared to the amount of new generation needed to meet the mandated 33% Renewables Portfolio Standard by 2020, the ISO queue currently contains approximately two times that amount, 82% of which has completed the study process; and

4. Cluster 5 is in Phase II studies, Cluster 6 is in Phase I studies.

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, 2013 to September 27, 2013 period the queue experienced a reduction of 1,624 MW.

Figure 1

Change in renewable capacity in ISO queue since June 2011

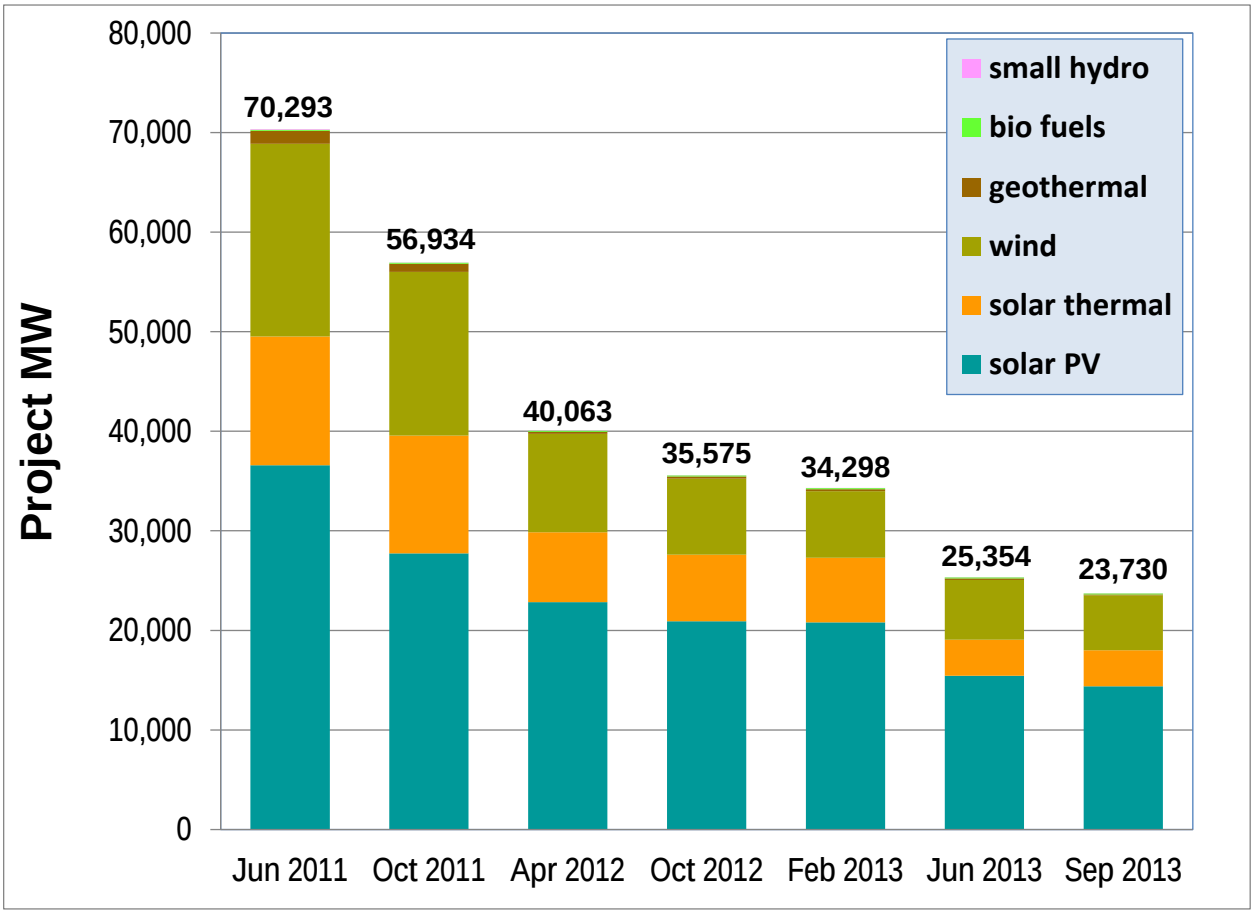


Figure 2 displays the amount of renewable capacity in the queue by study group and shows the capacity reductions within each study group. The blue portion of each bar represents the October 2013 capacity that remains in the queue. Since the July update 1,624 MW of renewable capacity exited the queue, 1,109 MW coming from project withdrawals, and 515 MW from projects that reached commercial operation.

Figure 2

Renewable generation capacity in the ISO queue by study group (changes by study group since June 2013 update)

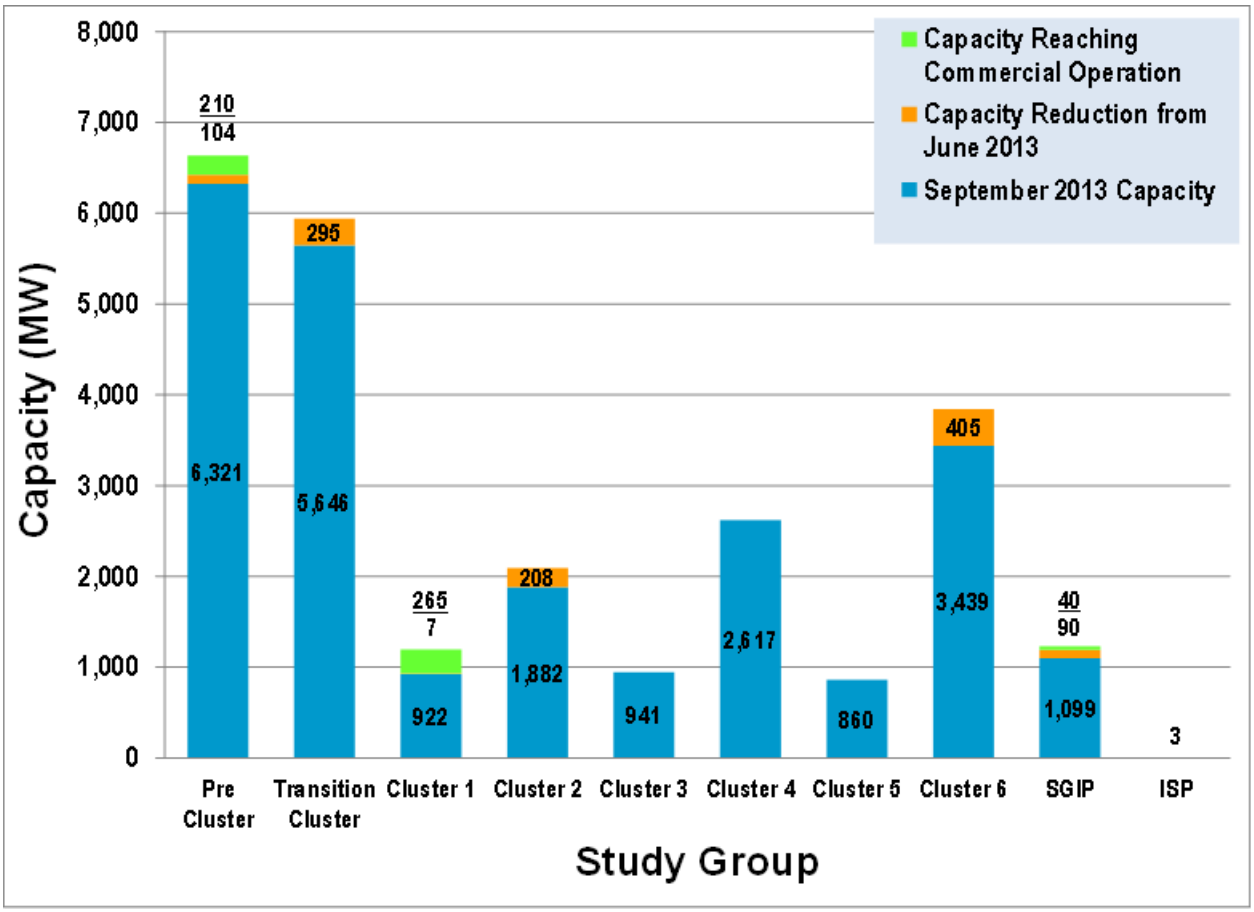


Figure 3 provides insight into the amount of generation capacity in the ISO queue by project size and type. Solar PV is the dominant generating technology for all size ranges. Figure 3 also provides a breakdown of the capacity in the ISO queue by the number of projects for each project size category. Projects in the 100 to 500 MW category make up 70% 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 by size and type

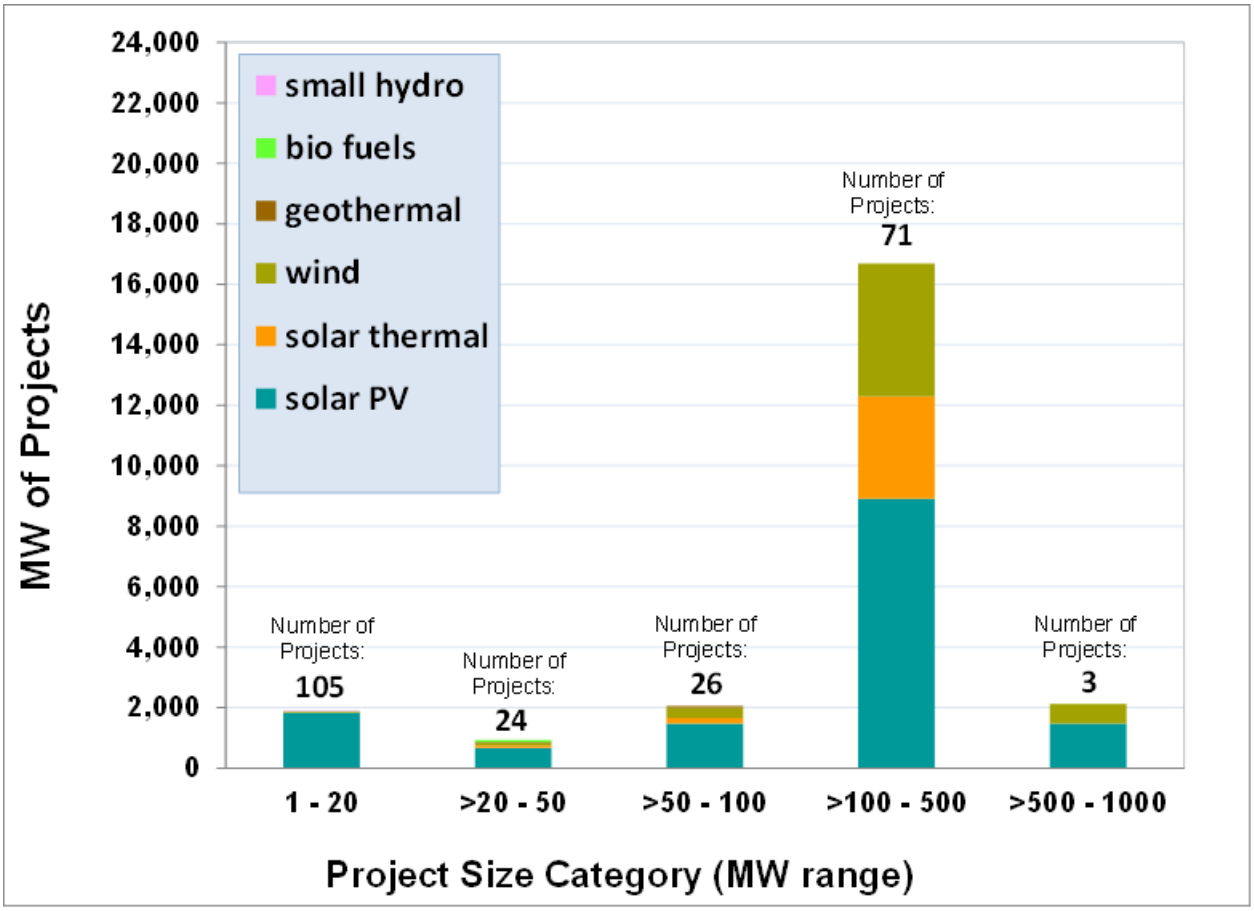
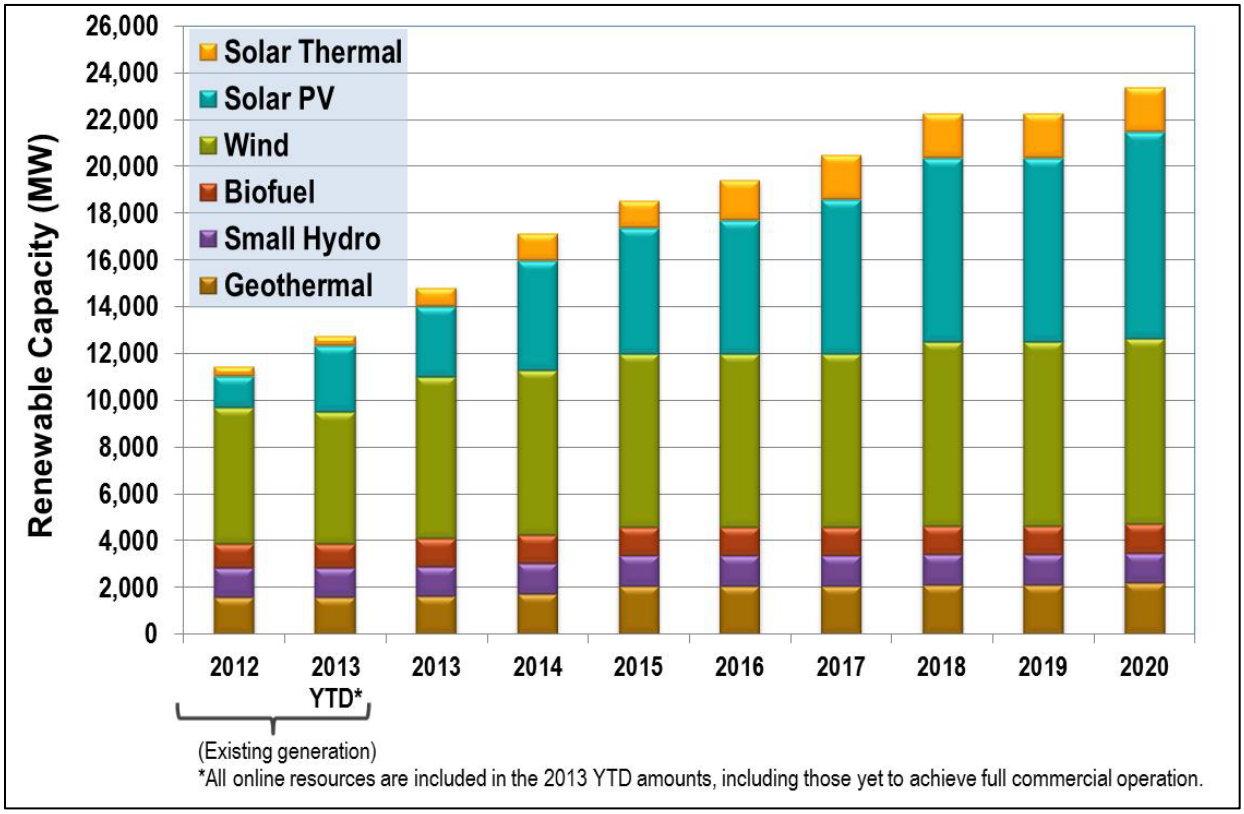


Figure 4 shows the projected build-out of renewable capacity by technology type based on projections from the investor owned utilities through 2017 and using the CPUC RPS calculator[1] thereafter. The 23,383 MW estimated amount shown for 2020 is the expected renewable generation needed to reach the 33% RPS requirement for that year. The ISO currently has approximately 12,700 MW of operating renewable generation within its footprint, which leaves approximately 10,700 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 2013 through 2020 timeframe in Figure 4.

Figure 4

Projected 33% RPS build-out through 2020

(IOU data through 2017 and RPS Calculator beyond 2017)

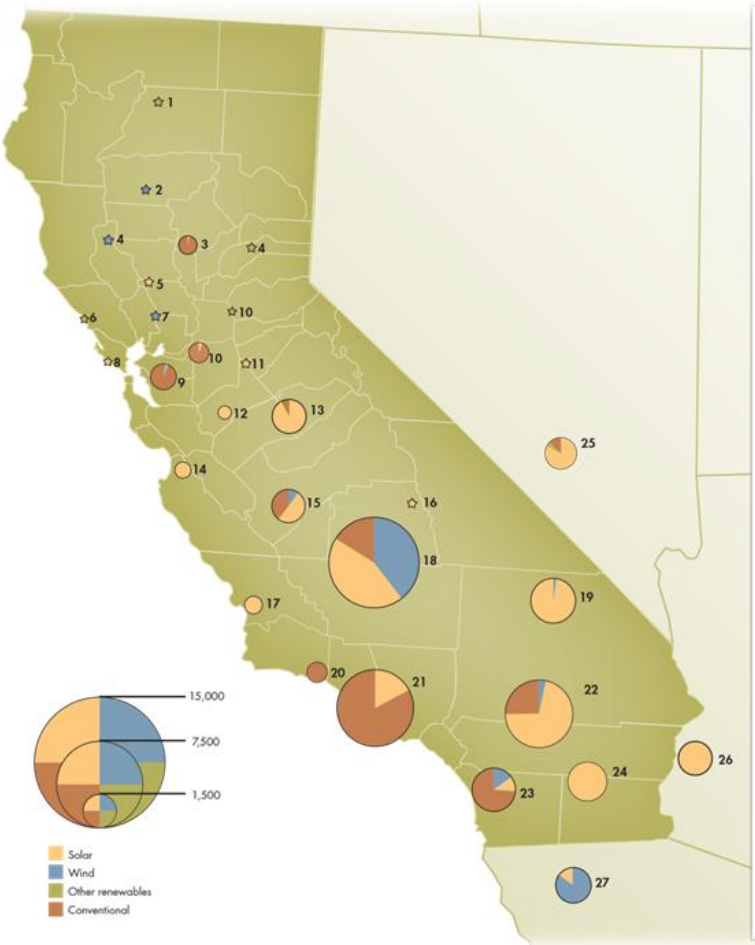


[1] The 33% RPS Calculator is a model developed for the CPUC by Energy + Environmental Economics (E3) to aggregate renewable resource cost and performance data and select renewable resources needed to meet the RPS target.

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 18, represents the Tehachapi area and contains the largest amount of renewable projects in the state.

Figure 5

ISO Queue Map – Conventional & Renewables
As of September 27, 2013



Interconnection queue by county

	County	# of Projects	Megawatts Renewables	Conventional	Total
1	Shasta	1	27		27
2	Butte, Glenn, Tehama	3	66		66
3	Sutter, Yuba	2	20	600	620
4	Placer	1	16		16
5	Yolo	1	12		12
6	Marin, Sonoma	3	68		68
7	Solano	3	270		270
8	San Francisco	1	20		20
9	Alameda, Contra Costa, Santa Clara	8	93	843	936
10	San Joaquin	6	40	619	659
11	Stanislaus, Tuolumne	2	50		50
12	Merced	4	430		430
13	Fresno, Madera	36	1,215	75	1,290
14	Monterey, San Benito	2	520		520
15	Kings	16	685	600	1,285
16	Tulare, Inyo	3	160		160
17	San Luis Obispo, Santa Barbara	5	650		650
18	Kern	59	6,885	1,381	8,266
19	San Bernardino	16	2,809		2,809
20	Ventura	1		778	778
21	Los Angeles, Orange	30	1,122	4,521	5,643
22	Riverside	16	3,181	1,070	4,251
23	San Diego	23	716	1,419	2,135
24	Imperial	11	1,720		1,720
	In-state Totals	254	20,775	11,906	32,681
25	Nevada	10	714	160	874
26	Arizona, New Mexico	4	920		920
27	Mexico	4	1,321		1,321
	Out-of-state Totals	18	2,955	160	3,115
	TOTAL ALL PROJECTS	**272**	**23,730**	**12,066**	**35,796**

as of September 27, 2013