CALIFORNIA'S PROGRESS IN RENEWABLE ENERGY:

BUILDING AN ENVIRONMENTALLY AND ECONOMICALLY SUSTAINABLE FUTURE

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Senior Advisor to the Governor for Renewable Energy Facilities

Governor Brown Renewable Energy Goals

- Building 12,000 MW of Localized Electricity Generation

- Building 8,000 MW of Large Scale Renewables

- Planning and Permitting New Necessary Transmission Within 3 Years

- Dealing with Peak Energy Needs and Develop Energy Storage

- Timeline to Make New Homes and Commercial Buildings Zero Net Energy

- Making Existing Buildings More Efficient

- Adopting Stronger Appliance Efficiency Standards

- Increase Combined Heat and Power (COGEN) Production by 6,500 MW

Renewable Projects Seeking Permits

SNAPSHOT OF PROJECTS		
Scale	**Projects**	**Capacity *(MW)***
Seeking ARRA Funds		
200 MW+	21	9,156
100-199	8	949
50-99 MW	6	611
49 MW or less	12	359
Subtotal	***48***	***11,075***
Not Seeking ARRA Funds		
200 MW+	73	54,009
100-199	10	1,972
50-99 MW	16	1,017
49 MW or less	89	2,154
Subtotal	***190***	***56,620***
TOTAL	**238**	**70,227 MW**

New generation needed to achieve 33% goal - 15,000 to 20,000 MW

Total capacity of California's electrical grid - 60,000 MW

Economic Impacts of the 22 Priority Projects

Total Jobs: 12,200

- *Construction* *10,000*
- *Operations* *2,20*

Total Investment: **$20 to $30 billion**
Stimulus into California: **$5 to 10 billion**

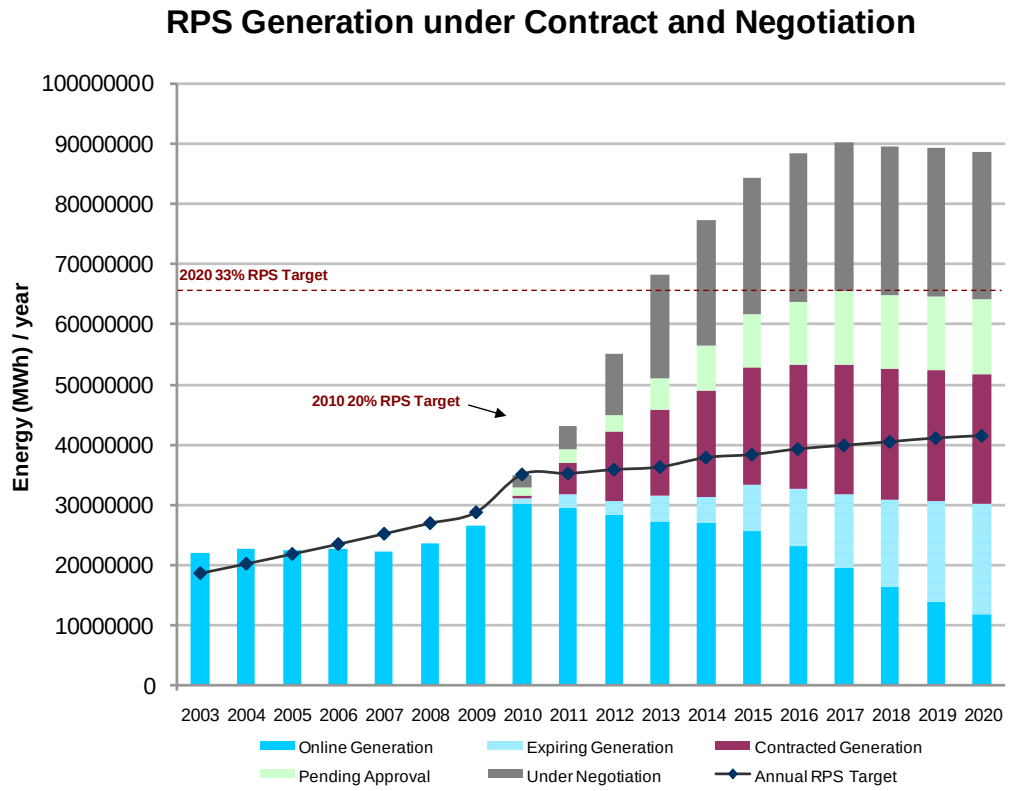
**All of the Economic Impacts are estimates*

Approved Large-Scale Renewables

#	Project Name	Developer	Type	Cap. (MW)	Lead Agency
Projects Already Approved - 5,210 MW					
1	Blythe	Solar Millennium	Thermal	1000	CEC/BLM
2	Alta-Oak Creek	Terra-Gen	Wind	800	Kern
3	Ivanpah	BrightSource	Thermal	370	CEC/BLM
4	Genesis	NextEra	Thermal	250	CEC/BLM
5	Antelope Valley	First Solar	Solar PV	230	LA/Kern
6	Calico Solar	Teserra Solar	PV/Thermal	660	CEC/BLM
7	Palen *	Solar Millennium	Thermal	500	CEC/BLM
8	Beacon	NextEra	Thermal	250	CEC
9	Mojave Solar	Abengoa Solar	Thermal	250	CEC
10	Rice	Solar Reserve	Thermal	150	CEC
11	Imperial Valley	Teserra Solar	Thermal	750	CEC/BLM
Projects Still in the Process - 3,705 MW					
12	Maricopa Valley	Granville Homes	Solar PV	700	Kern
13	Desert Sunlight	First Solar	Solar PV	550	BLM
14	Topaz	First Solar	Solar PV	550	San Luis
15	California Valley	Sun Power	Solar PV	250	San Luis
16	Panoche Ranch	Solargen	Solar PV	420	San Benito
17	North Sky River	NextEra	Wind	300	Kern
18	Pacific Wind	EnXco	Wind	289	Kern
19	Shiloh III	EnXco	Wind	200	Solano
20	Manzana	PG&E	Wind	246	Kern/CPUC
21	Iberdrola	Pacific Wind	Wind	200	BLM

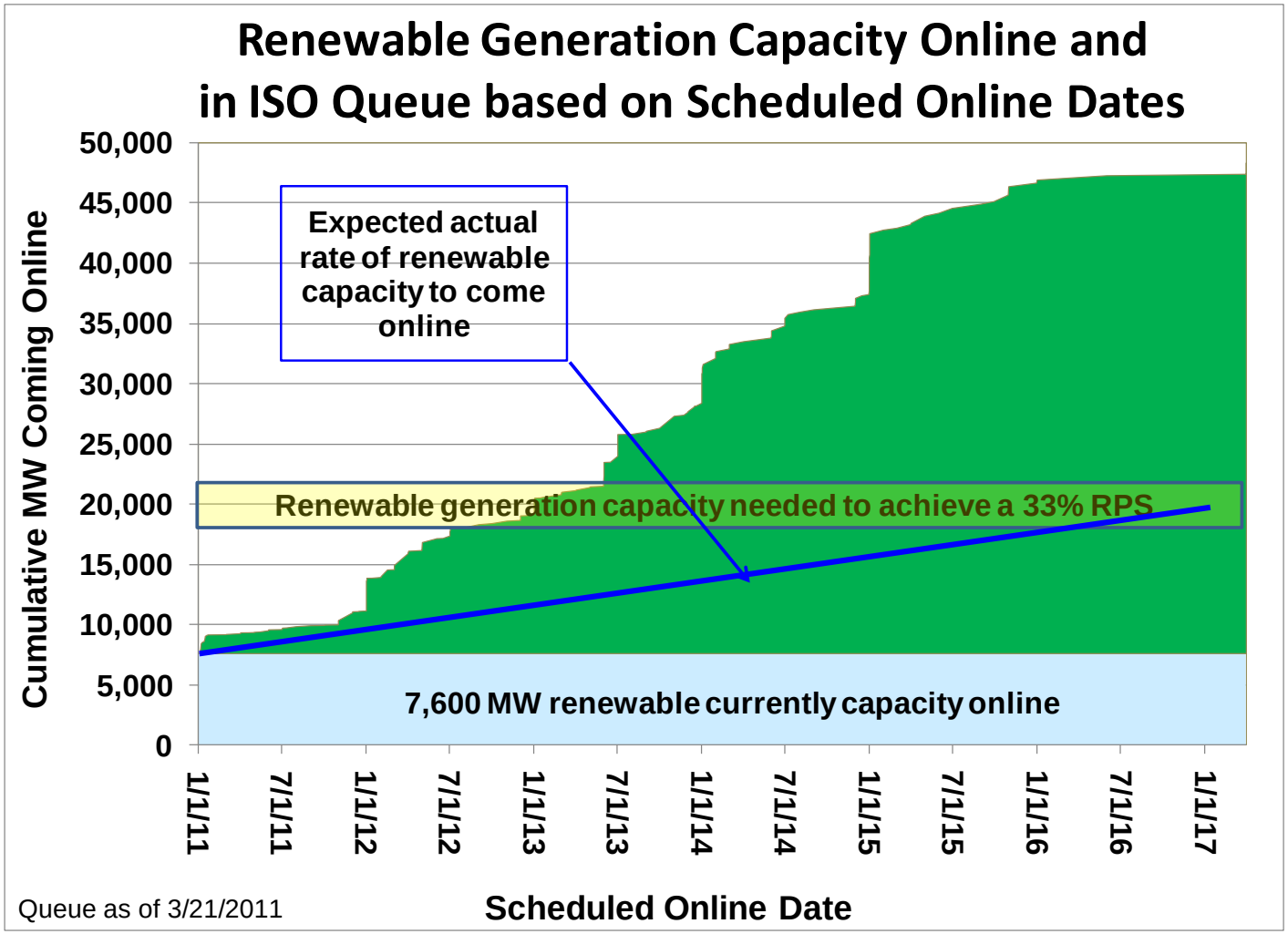
Approved	***5,210 MW***
Pending	***3,705 MW***
Total:	***8,915 MW***

RPS Generation Under Contract



Source: California Public Utilities Commission, 2nd Quarter 2010

Queue currently holds more than double the generation capacity needed to achieve a 33% RPS



REPG, REAT & DRECP

Renewable Energy Policy Group *(REPG)*

- *Office of the Governor*
- *Office of the Secretary of Interior*

Renewable Action Team *(REAT)*

- *California Energy Commission*
- *U.S. Bureau of Land Management*
- *California Department of Fish and Game*
- *U.S. Fish and Wildlife Service*

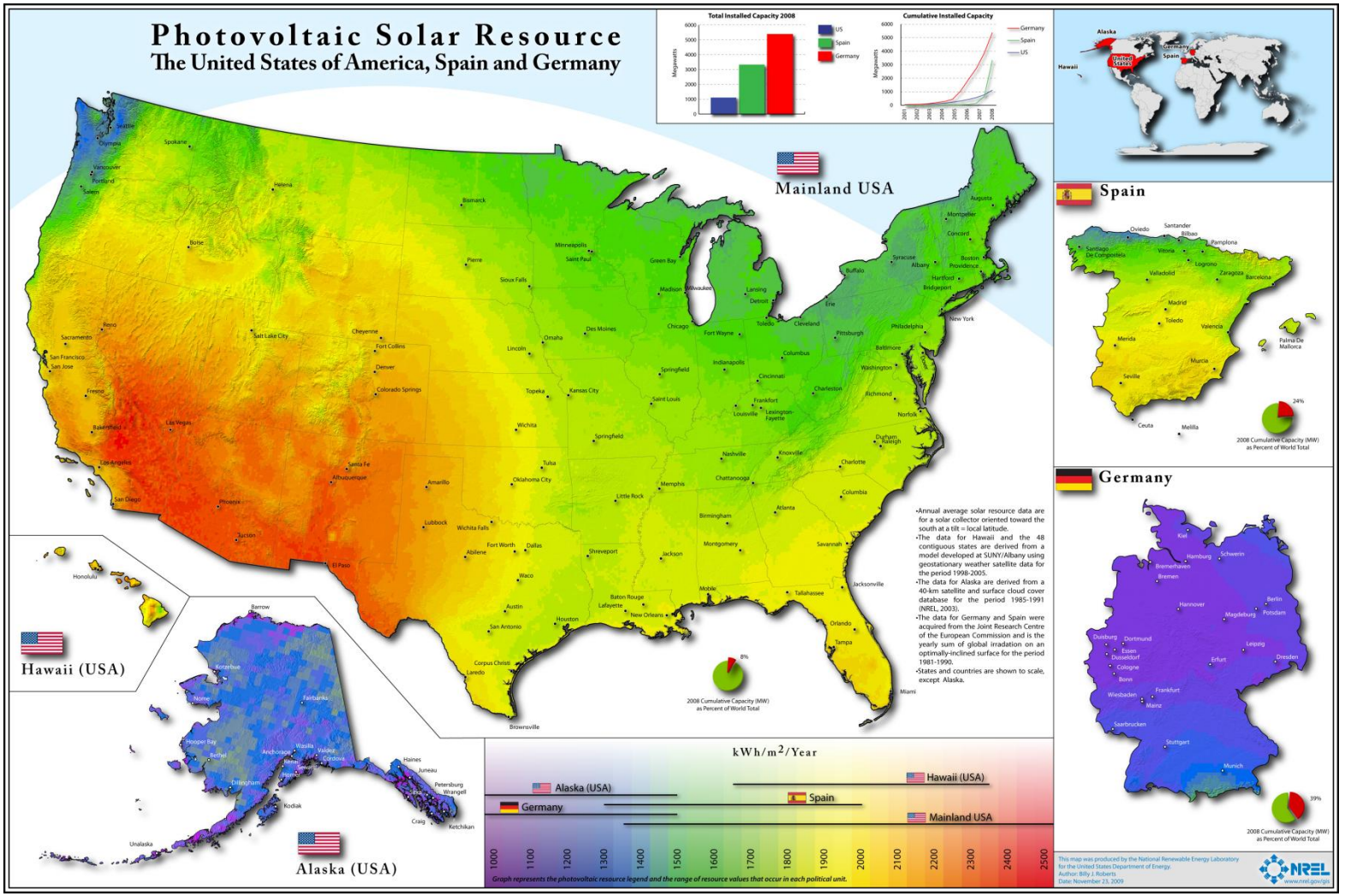
DRECP Steering Committee

- *California Energy Commission*
- *Department of Fish and Game*
- *California Resources Agency*
- *Bureau of Land Management*
- *US Fish and Wildlife Service*

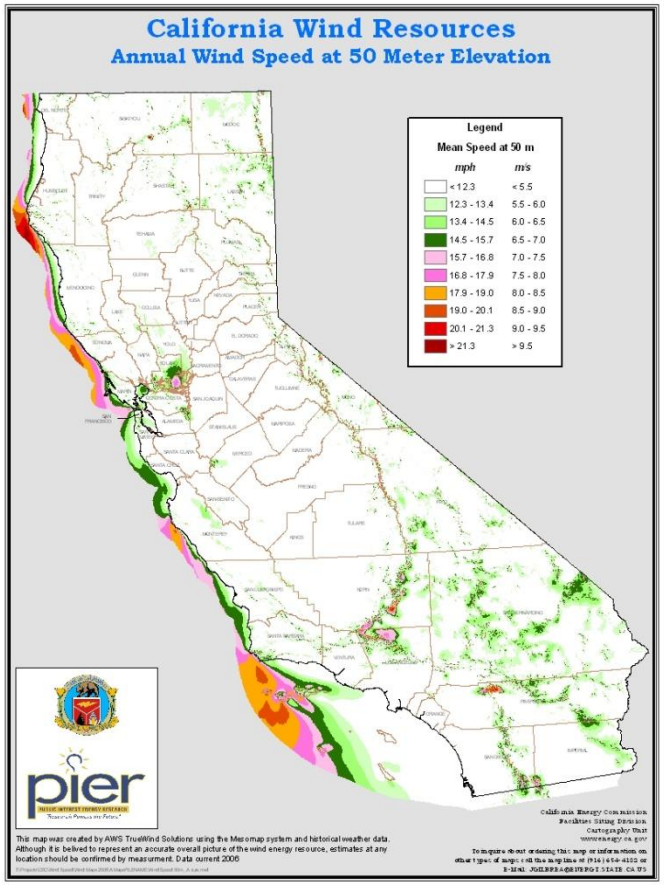
SCIENCE PANEL

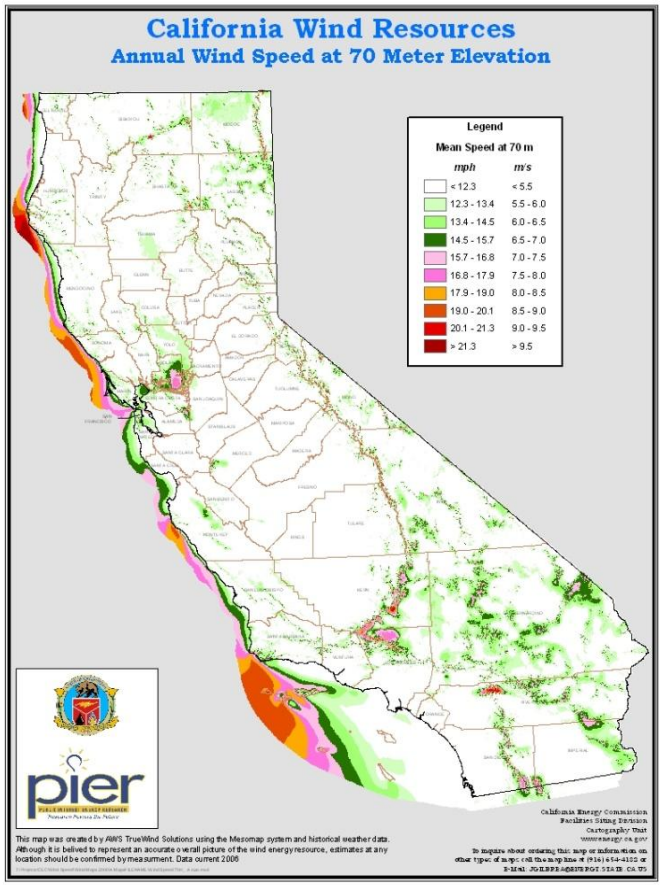
STAKEHOLDER INPUT

California's Solar Resource Value

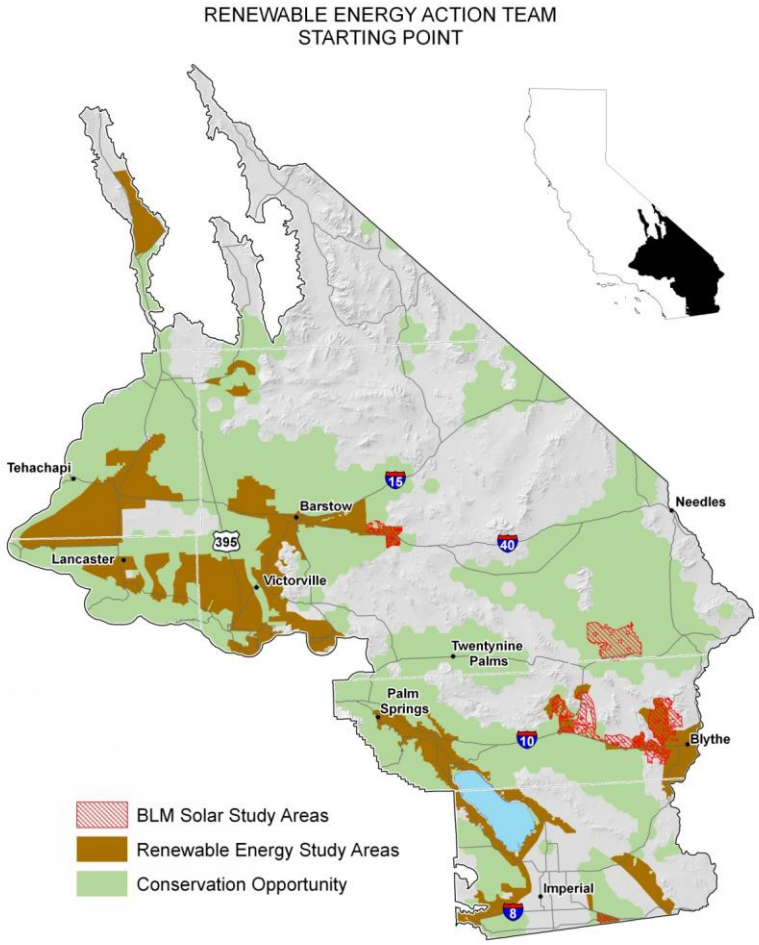


California's Wind Resource Value





DRECP Starting Point Maps



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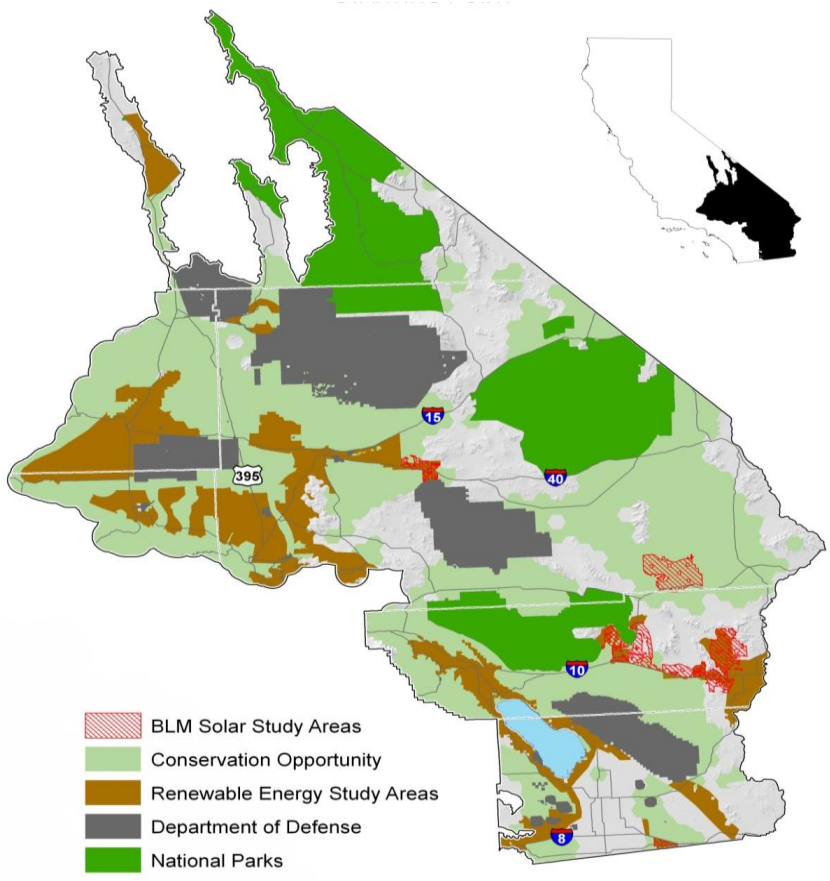

CA transmission upgrades can deliver renewable requirements (CA ISO March, 2011)

	Transmission Upgrade	Aproval Status CAISO	Aproval Status CPUC	Renewable Potential MW	Renewable Potential TWh/year
1	Carrizo-Midway	Pending LGIA	Not yet filed	900	2.1
2	Sunrise Powerlink	Approved	Approved	1,700	4.1
3	Eldorado - Ivanpah	LGIA	Decision Pending	1,400	3.6
4	Pisgah-Lugo	LGIA	Not yet filed	1,750	4.1
5	Valley - Colorado River	Approved	Approved*	4,700	8.6
6	West of Devers	LGIA	Not yet filed		
7	Tehachapi	Approved	Approved	4,500	15.2
	Other - CAISO Grid Upgrades	Mixed	Mixed	2,700	7.2
	Other - Outside of CAISO Grid	N/A	N/A	3,300	8.4
	Total				53.3

*Petition to modify CPCN pending.

CAISO Balancing Area Needs for 33% 44

	Transmission Upgrade	Primary Type of Upgrade	Expected COD
1	Carrizo-Midway	Reconductor 230 kV lines	2012
2	Sunrise Powerlink	New 500 kV & 230 kV lines	2012
3	Eldorado - Ivanpah	Convert 115 kV lines to 220 kV	2013
4	Pisgah-Lugo	Convert 230 kV lines to 500 kV	2017
5	Valley - Colorado River	New 500 kV lines	2013
6	West of Devers	Reconductor 230 kV lines	2017
7	Tehachapi	New 500 kV & 220 kV lines	2015

Some additional transmission upgrades to support grid reliability and generation delivery to load centers will be needed.

CTPG Renewables Transmission Projects (February, 2011)

Utility Side Distributed Generation Programs

	Program Size (MW)	Participating Buyers and Sellers	Eligible Technologies	CPUC Status	Market Opportunity
Feed-in Tariff **(AB 1969)**	500	All IOUs	All RPS-Eligible Technologies Up to 1.5 MW	Fully implemented per D.07-07-027	Contracts accepted on an ongoing basis until cap is reached
Senate Bill 32 (Negrete-McLeod 2009)	750 total (Includes 500 MW listed above)	IOUs and municipal utilities	All RPS-Eligible Technologies Up to 3 MW	CPUC working to implement statute for IOUs	Contracts accepted on an ongoing basis until cap is reached
RAM	1000	3 large IOUs	All RPS-Eligible Technologies Up to 20 MW	Proposed Decision	Proposes 2 auctions per year
SCE SPVP	500	250 MW utility-owned generation (UOG) 250 MW IPP	Solar PV primarily rooftop 1 – 2 MW	Fully implemented per D.09-06-049	At least 1 auction per year, first auction occurred in April 2010
PG&E Solar Program	500	250 MW UOG 250 MW IPP	Solar PV primarily ground-mount 1 – 20 MW	D.10-04-052 approved program, Energy Division implementing the decision	At least 1 auction per year, first auction will occur in Q1 2011
SDG&E Solar Program	100	26 MW UOG 74 MW IPP	Solar PV primarily ground-mount 1 – 5 MW	Decision approved program, SDG&E will file an advice letter with the Commission within 60 days	At least 1 auction per year, following program implementation
SCE RSC Program	250	IPPs	All RPS-Eligible Technologies Up to 20 MW	N/A	SCE accepting bids in September 2010