California ISO
Shaping a Renewed Future

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DATE May 17 2011
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IEPR Committee Workshop
Transmission needed to meet State Renewable Policy Mandates and Goals

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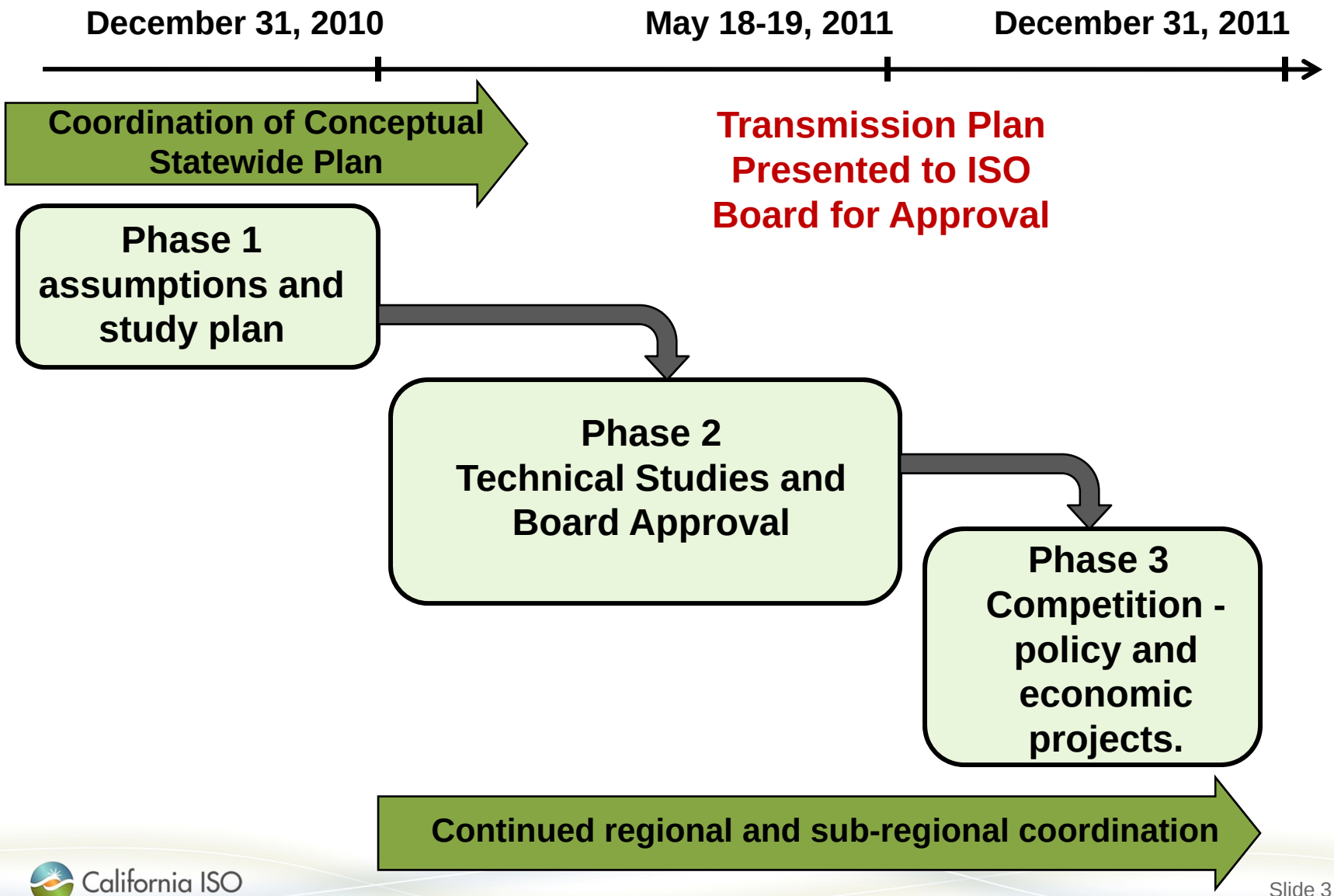
May 17, 2011

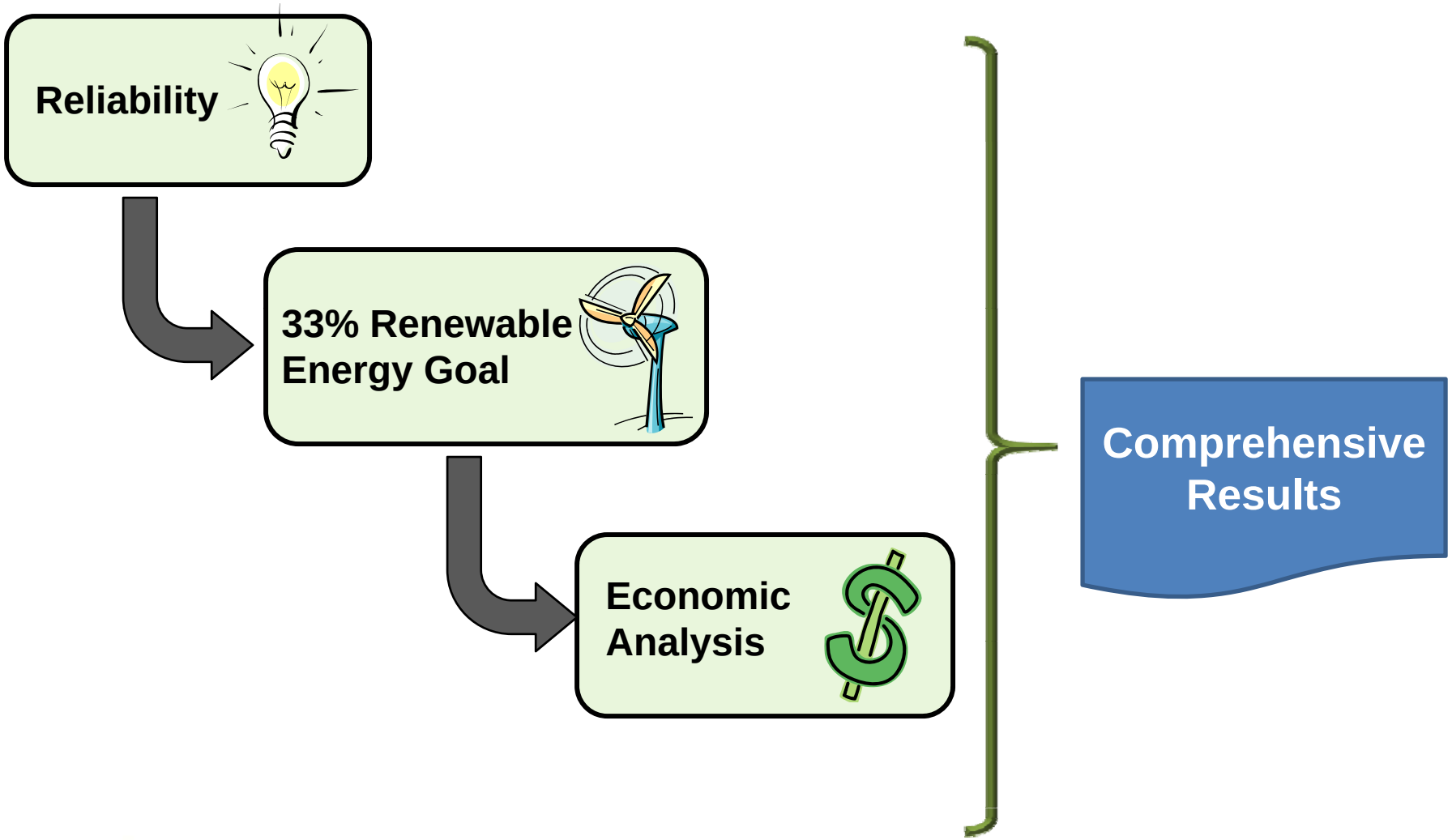
ISO 2010/11 Transmission Plan - the first transmission plan developed with new tariff.

- Enhanced collaboration - statewide conceptual transmission plan;
- New “policy-driven” category of transmission - state and federal public policy;
- Greater opportunity for independent transmission developers – compete to build policy-driven elements;
- More opportunities - stakeholder participation and input.

Development of Annual Transmission Plan



Development of Annual Transmission Plan



32 Reliability Projects totaling $1.2 Billion

Cottonwood-Red Bluff:
- New span of 60 kV line
- New 230/60 kV substation near Red Bluff
- $43 million - $57 million

South of Palermo 115 kV Reinforcement Project:
- Reconductor 115 kV lines
- $80 million - $100 million

Vaca Dixon-Davis Project:
- Convert the 60 kV facilities to 115 kV
- $70 million - $107 million

Southern Orange County:
- Reconfiguration and upgrade of Talega 138kV system
- Re-build Capistrano substation
- New 230 kV lines
- $347.6 million

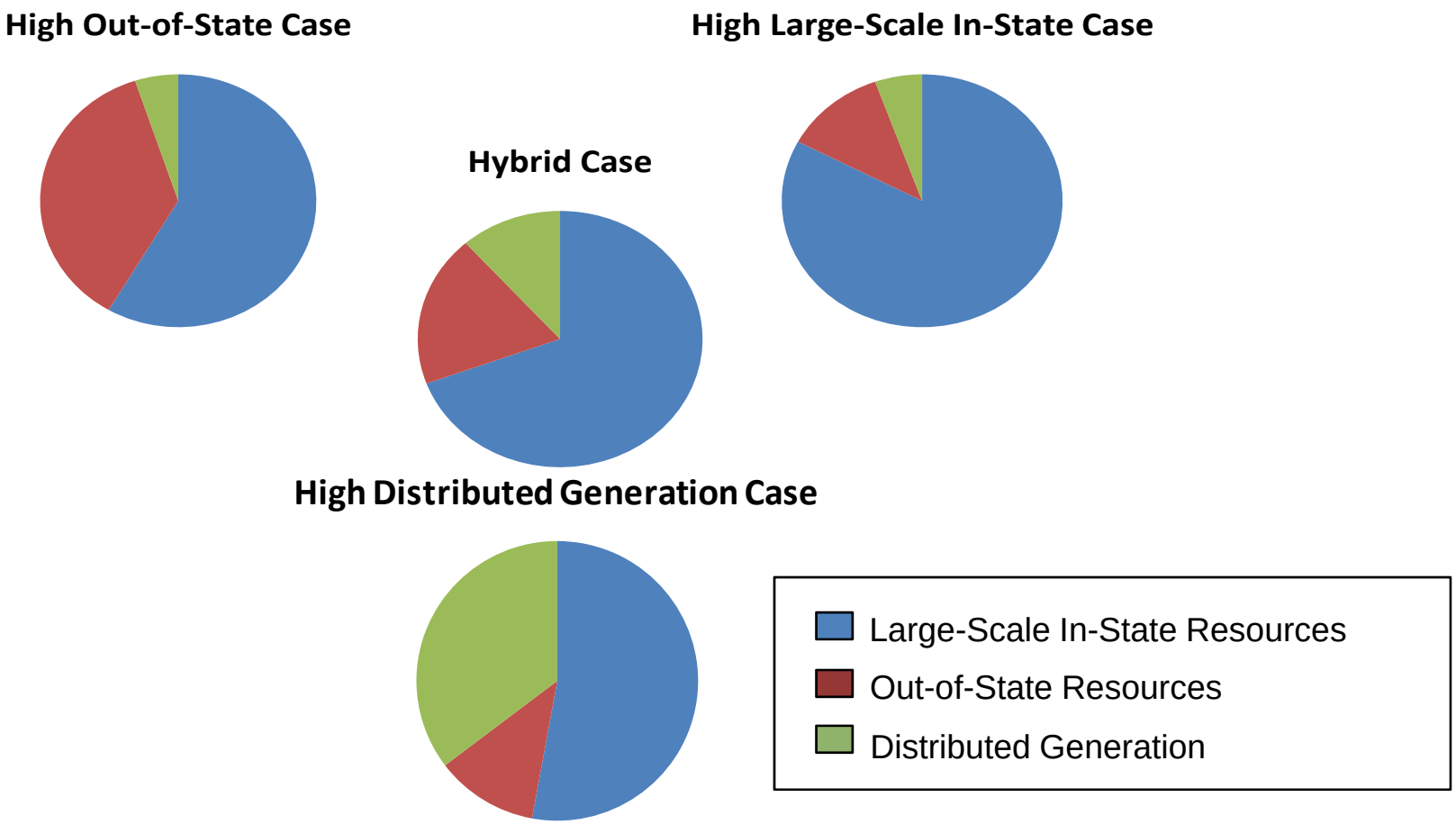
Policy driven projects were based on renewable energy zones and resources.

- ✓ Solar
- ✓ Wind
- ✓ Geothermal

Hybrid case: Statewide Net-Short could be met with less in-state large scale generation and more DG and Out-of-State.

Portfolio		Hybrid Case	High Large Scale In-state Resources	High Out-of-State	High Distributed Generation
LGIP Projects	MW	12,909	15,730	10,314	9,282
	GWh	36,599	43,660	30,812	27,909
Out-of-State (OOS)	MW	3,842	2,292	7,458	2,292
	GWh	10,085	6,240	19,281	6,240
Distributed Generation (DG)	MW	2,930	1,303	1,223	9,248
	GWh	6,080	2,864	2,671	18,615
Total	**MW**	**19,680**	**19,325**	**18,995**	**20,822**
	GWh	**52,763**	**52,764**	**52,764**	**52,764**

Hybrid Portfolio represents a balanced approach to meeting the 33% RPS



Transmission underway to meet 33% RPS in 2020

Total cost = $7.2 billion

	Transmission upgrade	Approval status		Renewable Potential		Online
		ISO	CPUC	MW	TWh/Yr	
1	Carrizo-Midway	Pending LGIA	Not yet filed	900	2.1	2012
2	Sunrise Powerlink	Approved	Approved	1,700	4.1	2012
3	Eldorado-Ivanpah	LGIA	Approved	1,400	3.6	2013
4	Pisgah-Lugo	LGIA	Not yet filed**	1,750	4.1	2017
5	Valley-Colorado River	Approved	Approved*	4,700	8.6	2013
6	West of Devers	LGIA	Not yet filed			2017
7	Tehachapi	Approved	Approved	4,500	15.2	2015
8	Tehachapi Wind/Solar Diversity	N/A	N/A	1,000	3.0	2015
9	Cool Water-Lugo	Pending LGIA	Not yet filed	600	1.4	2018
10	South Contra Costa	LGIA	Not yet filed	300	0.8	2015
11	Borden-Gregg	LGIA	Not yet filed	800	2.0	2015
12	Path 42	Pending approval	Not yet filed	1,400	3.5	2015
Other-Outside of ISO Grid		N/A	N/A	3,300	8.4	
			Total	**22,350**	**56.8**	
	TWh/year needed in ISO area to meet 33% goal:				***44***	

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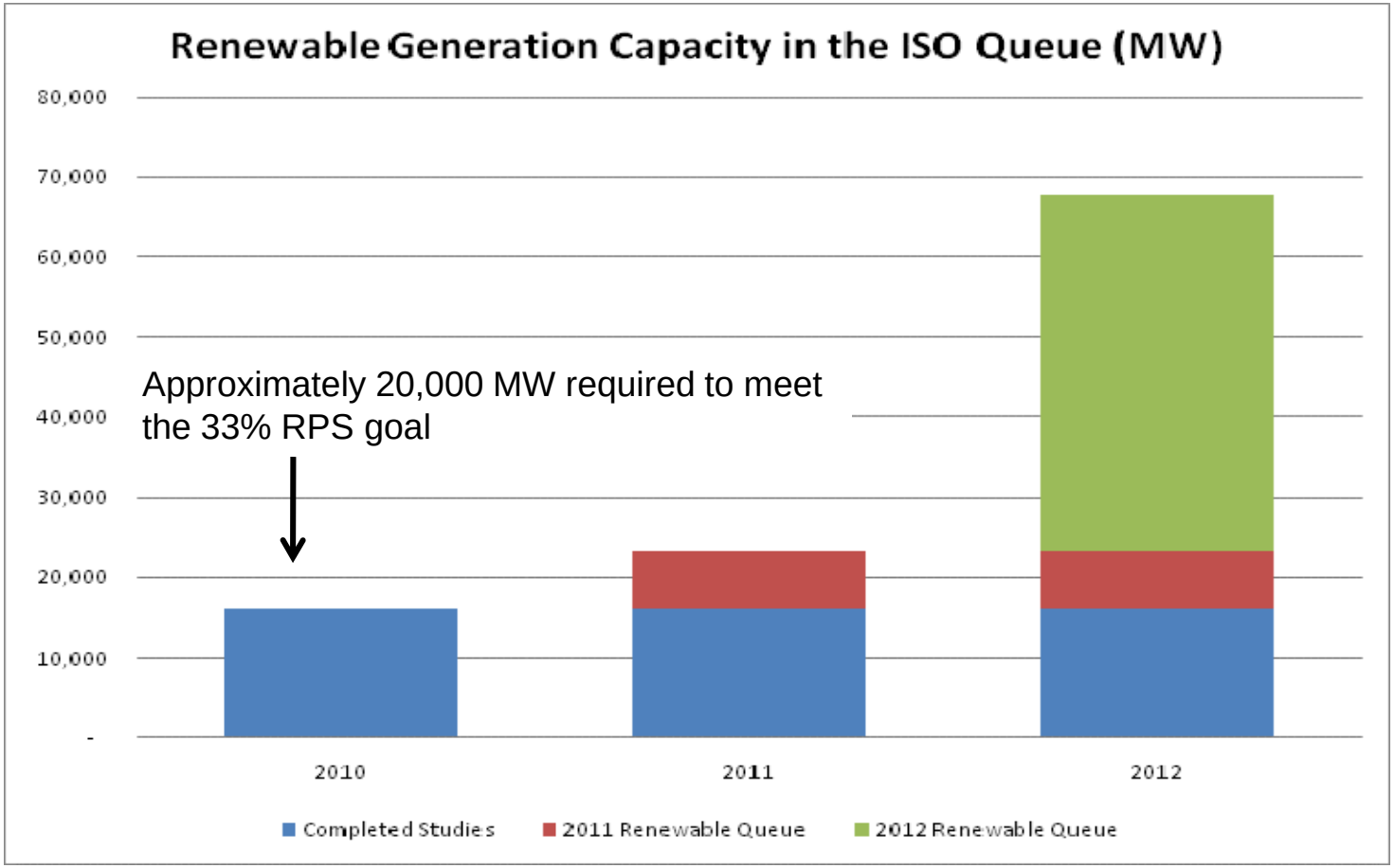
** Petition to modify CPCN pending. ** Large Generator Interconnection Agreement*

Renewable generation capacity in the ISO queues



Conclusions

- Transmission approved to date within ISO footprint can accommodate a diverse range of 33% resource portfolios for meeting the 33% RPS. – No new major projects needed at this time.
- As assumptions change going forward, the ISO will reassess transmission needs through its annual planning process.
- The ISO is relying on the CPUC portfolios in the 2011/2012 planning cycle.
- Focus within the state now should be on permitting the identified transmission.