

Planning, Procuring, and Interconnecting New Sources of Energy



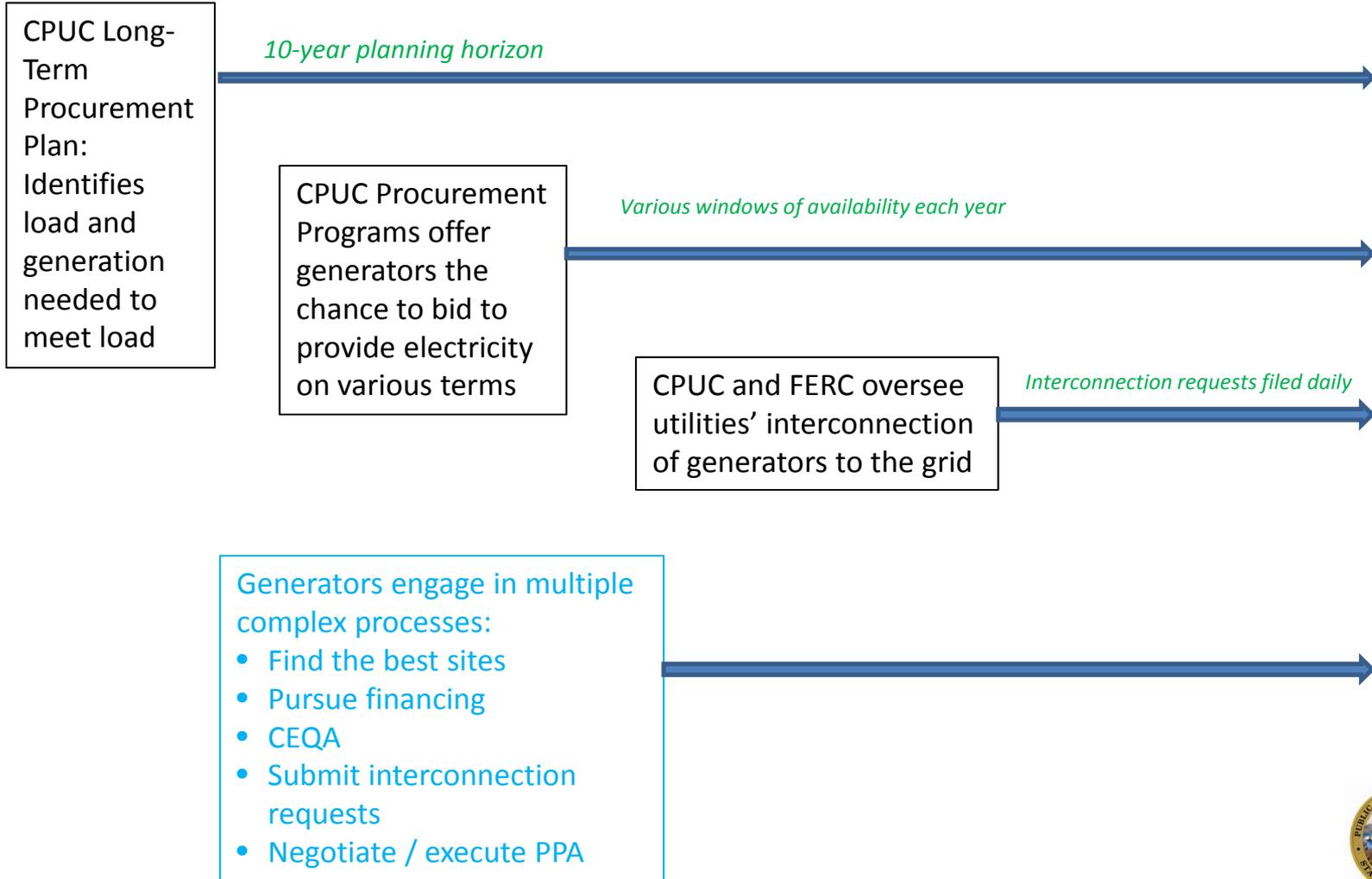
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Fundamental change in design and operation of the electricity grid is underway:

Regardless of size, point of interconnection, generating technology, or utility ownership, if a generator complies with all applicable laws, tariffs, and rules, the generator can be interconnected.



Planning and Procurement that Precedes Interconnection



CPUC's Long-Term Procurement Plan (LTPP)

- 2010 LTPP currently underway, final decision expected in December 2011
- Biannual proceeding with 10-year planning horizon (2010-2020)
- Requires investor-owned utilities (Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric) to submit procurement plans to CPUC that show:
 - That forecast resource needs will be met
 - That needs will be met in part by procuring renewable resources in order to achieve the 33% Renewable Portfolio Standard
 - That the procurement process will be competitive
 - That the plan increases “diversity of ownership and diversity of fuel supply”



Competitive Procurement of Renewable Energy

	Program	Statewide Program Size Goal	Installed and Contracted Capacity (MW)	Market Opportunity / Activity	Participating Buyers	Eligible Technologies	Generator Capacity Size Limit (MW)
CPUC Competitive Procurement Programs	RPS Annual Bid Solicitation	33% of electricity sold by IOUs must be renewable by 2020	2,002 MW in commercial operation as of Q1 2011 589 MW additional capacity slated to come online in 2011	Annual solicitation	Any RPS-eligible generator	RPS eligibility as defined in law	None
	Renewable Auction Mechanism (RAM)	1,000 MW	New Program	2 auctions per year First auction to occur Q3/Q4 2011	3 large IOUs	All RPS-eligible technologies	Up to 20
	IOU Solar PV Programs Utility-owned generation (UOG) Independent Power Producer (IPP)	1,100 MW	<u>SCE:</u> 4.8 UOG online 35 UOG under construction 50 IPP under contract <u>PG&E:</u> 2 UOG online 50 UOG under construction	<u>SCE:</u> Auction rules and standard PPAs awaiting CPUC approval <u>PG&E:</u> Auction held 3/2/2011 Executed PPAs target filing Q3 2011 <u>SDG&E:</u> Auction rules and standard PPAs awaiting CPUC approval	3 large IOUs 526 UOG 574 IPP	Solar PV	SCE: 1 - 2 PG&E: 1 - 20 SDG&E: 1 - 5
	Qualifying Facility Combined Heat and Power Competitive Procurement	No limit but minimum targets in both MW and GHG reductions	New Program	First solicitation anticipated before October 31, 2011.	3 large IOUs	CHP facilities meeting PU Code 216.6 definition of cogeneration and federal standards	> 5



Final Step to Exporting Power: Interconnection

The point of interconnection is paramount:

- Transmission or distribution grid?
- Amount of existing load?
- Capacity of existing equipment?
- Number of generators already using the existing equipment?
- Number of generators already in queue to use the existing equipment?
- Utility and generator plans to upgrade equipment, who will pay for upgrades, and amount of capacity then available?

Determining the above information about the point of interconnection demonstrates that generators operate in a competitive world

Interconnection tariffs play a significant role in creating a level playing field and providing a pathway to interconnection

- Rule 21:
 - Point of interconnection : Distribution grid
 - Jurisdiction: CPUC
- Wholesale Distribution Access Tariff:
 - Point of interconnection: Distribution grid
 - Jurisdiction: FERC
- CAISO tariff:
 - Point of interconnection: Transmission grid
 - Jurisdiction: FERC



Interconnection Tariffs and Leveling the Playing Field

- Technical:
 - Tariffs identify the utility’s technical operating requirements:
 - Required technology for the generator so that the grid can handle multi-directional power flow (some equipment is designed for one-way flow);
 - Metering to track the generator’s net output
 - Ability to shut off power flow for grid safety or reliability.
- Fairness:
 - Tariffs identify terms for any upgrades to transmission or distribution grid required to accommodate the generator:
 - Allocation of costs between the generator and utility customers
 - Allocation of costs among generators
- Certainty and transparency:
 - Tariffs set out specific, clear terms so that the generator has knowledge going in:
 - Technical criteria that the utility will employ when studying a generating facility for interconnection
 - Rules for determining each generator’s place in the interconnection request queue
 - Rules for maintaining one’s place in queue



Interconnection Problems and CPUC Response

- The volume of requests plus the electrical interaction of generators with each other is creating unprecedented levels of complexity for utilities to study and manage, and for the CPUC to regulate
- Result: Generators face cost, delay, and uncertainty after filing interconnection request
- Primary issues for utilities:
 - Increasingly complex engineering studies and modeling to understand impact of volume and technical characteristics of generators; must comply with basic charge of ensuring grid safety and reliability
 - Negotiating with generators to execute interconnection agreements once the generator's share of equipment upgrades is identified
- Primary issues for CPUC:
 - Exercise of our regulatory authority in complex and fast-moving generation market
 - Alignment of planning, procurement, and interconnection policy in the midst of rapid market change
- CPUC Actions to Address Interconnection Problems
 - Rule 21 Working Group: Reform Rule 21 to make it a more functional tariff for generators seeking to continuously export to the distribution grid
 - Strong Commissioner and staff commitment to achieving 33% RPS standard
 - Commitment to complete the transition to a fundamentally changed electric grid

