



A GENERATION AHEAD,  
*today*

Calpine Corp. Proposal  
to Pacific Gas and  
Electric Company  
10/6/11



- RA Capacity  $\neq$  Operational Capabilities
- RA annual procurement  $\neq$  planning horizon (2017+)
- Short term capacity compensation insufficient to preserve capacity for long term needs
- Spain
- Existing unit upgrades may be least cost, most expedient and flexible source of incremental capabilities

- Eligibility
  - Demonstrate physical ability to be available in 2017
- Obligation to LSE
  - LSE retains all RA counting rights
  - Affirmative maintenance obligation
  - New availability requirements consistent with capability needs
- Obligation to CAISO
  - Must offer
  - No self-scheduling (makes full asset flexibility available to CAISO)
  - Participate in the MSG program
- Compensation
  - Capability-differentiated compensation (e.g. higher ramp rate commitment = higher compensation)
  - Not eligible for CPM
  - Seller retains compensation for energy sales and A/S
  - “Circuit breaker” peak energy rent deduction
- Term
  - Minimum 3 year
  - To be superseded by forward capability market

- Eligibility
  - Unit is under existing contract or subject to BCP
- Obligation to LSE
  - Seller agrees to obtain permits and make capital investment to enhance capabilities
- Obligation to CAISO
  - See BCP
  - Enhanced capability made available to the CAISO
- Compensation
  - TBD (associated with nature of enhancement)
  - Possible buyer time-certain strike option
- Term
  - TBD (associated with nature of enhancement)

		CPN CCGT (today)	CPN CCGT (upgrade)	New generation CCGT
Capacity	[1]	550	600	625
Fullload heat rate	[2]	7.0	6.85	6.6
Warm start	[3]	90	30-60	30
Cold start	[4]	240	90	30
Ramp rate	[5]	10-12	20-25	30

## Notes:

- [1] MW (2x1)
- [2] MMBtu/MW HHV (2x1)
- [3] Minutes to achieve Pmin (1x1)
- [4] Minutes to achieve Pmin (1x1)
- [5] MW/minute per engine between Pmin and Pmax

