



CALIFORNIA ISO

California Independent
System Operator

Demand Response Program Overview / Processes



Demand Response Goals

- **Minimize Frequency and Duration of Firm Load Curtailments**
- Attract New Demand Response
- Manage Expected Resource Shortages
- Maintain Non-Firm Tariff Resources
- Develop Environmentally Sound Solutions



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ISO Demand Response Programs

- Participating Load Program(Ancillary Services/Supplemental); (PLP)
- Demand Relief Program (DRP)
- Discretionary Load Curtailment Program (DLCP)
- Voluntary Load Curtailment Program



Normal Operation

Operating Reserves
above 7%

- Ancillary Service Load Program
- Discretionary Load Curtailment Program

Stage 1 Emergency

Operating Reserves forecasted
to be below 7%

- Public Alert
- Voluntary Load Curtailment Program
- Discretionary Load Curtailment Program



Stage 2 Emergency

Operating Reserves forecasted
to be below 5%

- Curtail UDC Interruptible Loads
- Curtail Demand Relief Program Loads

Stage 3 Emergency

Operating Reserves
actually below 1.5%

- Emergency Resources
- Begin Firm Load Curtailments



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Participating Load Program (PLP)

- Participation in ISO markets (not limited to summer):
 - Ancillary Services (Non-Spinning Reserve and Replacement Reserve)
 - Capacity payment if successful in Day Ahead auction
 - Energy payment if dispatched in real-time
 - Supplemental Energy
 - Energy payment if dispatched in real-time



Participating Load Program (PLP)

- A Scheduling Coordinator bids a Load into the markets as agreed by the Load
- Dispatch occurs through ISO Automated Dispatch System to the SC
- Settlements occur through the SC
- Accommodates aggregated Loads 1MW and greater



Participating Load Program - What's needed

- 1) Participating Load Agreement with ISO
- 2) Load, ESP, or Aggregator Relationship with SC
 - SC schedules load and receives dispatch notifications through Automated Dispatch System
 - SC is responsible for submitting Settlement Quality Meter Data



Participating Load Program - What's needed

- 3) Review and adhere to Technical Standards
 - Operational Requirements (scan rates, visibility, characteristics to provide A/S)
 - Telemetry requirements for A/S only, not Supplemental Energy
 - Metering Infrastructure required
 - Security and Meter Data Validation



Participating Load Program - What's needed

- 4) Conduct Participating Load Acceptance Test (PLAT)
 - PLAT validates connectivity stability
 - Connectivity made using a Data Processing Gateway (DPG) similar to telemetry for Generators.
 - ISO encourages other vendor solutions for data processing applications



Participating Load Program - What's needed

5) Settlement Quality Meter Data (SQMD)

- Ensure that SQMD is available to the ISO revenue Meter Data Acquisition System (MDAS)

6) Conduct A/S certification

- A/S testing for certification described in ISO Operating Procedure G-213



Demand Relief Program (2001)

- Program operates from June through September
- Last Step Before Firm Load Curtailments
- Length of interruption is 4 hrs (2 equal blocks) between 11am and 7pm
- Max monthly operation is 24 hrs
- Curtailment is Optional after 24 hr limit is met; energy payment for extra curtailments in May & Oct
- Monthly Reservation Payment
- Energy Performance Payment



Demand Relief Program (2001)

- Requires Demand Relief Agreement with ISO
- Interval Meter Required
- Single or Aggregated Loads $\geq 1\text{MW}$
- Meter Data Submitted to ISO Outside Normal Settlements Process
- ISO Performs Performance Calculations
- Program runs from June 1 to Sept. 30, 2001



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Discretionary Load Curtailment Program (DLCP)

- Flexible Metering Requirements
 - Interval Meter, Statistical Estimation, Sub-Metering
- Performance Calculated by Approved Measurement and Verification Plan
- Curtailment Requested on a Day-Ahead or Day-Of Basis
- Participant Selects Times to Curtail
- ISO Provides Confirmation



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DLCP continued

- Settlements through SC
- DLCP Agreement with ISO required
- Performance Rate starting at \$350/MWhr
- “Open” enrollment through March 31, 2002



Voluntary Load Curtailment Program

- Operated throughout the year after the ISO has declared a Stage 1
- Voluntary Load Participants notify the ISO to be on a pre-defined broadcast list; no compensation is made for curtailment
- Curtailment requests issued to pre-defined list via e-mail



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Contact Information

- Contracted Loads are assigned an ISO Client Relations Representative
- General inquiries can be e-mailed to Keoni Almeida (kalmeida@caiso.com) or Cathy Young (cyoung@caiso.com).