Proxy Demand Resource (PDR) & Reliability Demand Response Resource (RDRR) Participation Overview
CAISO has introduced two products both relying on the same technical functionality and infrastructure.

<table>
<thead>
<tr>
<th>Design</th>
<th>Acronym</th>
<th>Services</th>
<th>Market dispatch</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy Demand Resource</td>
<td>PDR</td>
<td>Energy, non-spin, residual unit commitment (RUC)</td>
<td>Economic day-ahead and real-time</td>
<td>Bids into ISO markets as supply</td>
</tr>
<tr>
<td>Reliability Demand</td>
<td>RDRR</td>
<td>Energy</td>
<td>Economic day-ahead, reliability real-time</td>
<td>Bids into ISO markets as supply; used for reliability purposes</td>
</tr>
<tr>
<td>Response Resource</td>
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</table>
PDR participates in the CAISO comparable to a supply resource

PDR can bid economically into the following markets:

- Day-Ahead energy market
- Day-Ahead and Real-Time Non-Spinning Reserve market
- 5-Minute Real-Time Energy market

PDR must have minimum load curtailment:

- 0.1 MW (100 kW) for Day-Ahead and Real-Time energy
- 0.5 MW (500 kW) for Day-Ahead and Real-Time energy Non-Spinning Reserve
- Smaller Loads may be aggregated together to achieve minimum
RDRR enables emergency responsive demand response resource participation in the ISO market and operations

RDRR participates in the ISO as follows:
- Day-Ahead Market
- Respond to a reliability event for the delivery of “reliability energy” in Real-Time
- May not submit RUC availability or Ancillary Service bids.
- May not self-provide Ancillary Services.

RDRR must have the following characteristics:
- Minimum load curtailment = 0.5 MW (500 kW)
- Deliver reliability energy in real-time reaching full curtailment within 40 minutes
  - Minimum run time > (1) hour
  - Maximum run time < (4) hours

RDRP resources may elect to receive discrete dispatches (all or nothing)
- Limited in size up to 50 MW
Resource aggregations are required to be within a single sub-Load Aggregation Point (LAP).

- Ensures demand response resource dispatch does not create additional congestion

- A sub-LAP is an ISO-defined subset of pricing nodes (Pnodes) within a default LAP.

- 24 sub-LAPs were created to reflect major transmission constraints within each utility service territory (default LAP).

- Developed initially for congestion revenue rights (CRRs)
Resource aggregations are required for a single load serving entity (LSE)

✓ Provides visibility of DR awards to LSEs

✓ Ensures ability to identify individual default load adjustment (DLA) contribution of LSE specific location performance
Resource aggregations of 10 MW and above and those providing ancillary services require telemetry.

- Ensures visibility for real-time operation of the grid and compliance to mandatory and enforceable NERC and WECC approved reliability standards.

- RDRR does not require telemetry
- Telemetry is provided for the aggregate resource
- A single remote intelligent gateway (RIG) can represent multiple DR resources
Sequential activities prepare for PDR/RDRR market participation

Pre-Market Activities

- Secure Agreements
  - Access DRS Demand Response System
  - Begin: Provide end use load location info
  - End: Receive Market Resource ID

- Registration Process
  - Begin: Provide end use load location info
  - End: Receive Market Resource ID

Market

- PDR (economic):
  - DA
  - RT
  - A/S non-spin

- RDRR (reliability):
  - Discrete dispatch

Post-Market Activities

- Meter Data Submission:
  - Historical meter data for baseline
  - Event Meter Data

- Baseline Calculation:
  - Performance Measurement
  - Default Load Adjustment

- Settlement:
  - SC DRP
  - PDR/RDRR performance
  - SC LSE
  - Default Load Adjustment

Approximately 30 BD

ISO Agreement/DRS Access

7 minimum - 265 maximum BD

T + 8B
T + 48B
T + 172B
T + 3B
T + 12B
T + 55B
Registration process - aggregated participation to multiple entities.

**Create location**
- UDC account # primary key
- validations
  - duplication check across DRP locations
  - completeness validation

**Create registration**
- locations aggregated to create registration
- validations
  - duplicate location across registrations
  - Sub-Lap/LSE/total load reduction

**LSE/UDC/ISO registration review**
- UDC/LSE review registration including locations

**Create resource and confirm**
- resource ID provided, Resource data template submitted
- masterfile updated
Timelines are affected by level and type of participation

**Pre-defined resource – no telemetry**

- **7 minimum - 41 maximum**
- **1 - 10 BD**
- **1 - 10 BD**
- **1 - 10 BD**
- **3 - 10 BD**

- DRP Creates Locations
- Submits Registration
- LSE/UDC Registration Review
- ISO review and reservation of resource ID
- DRP submits RDT
- ISO updates Master File
- ISO confirms registration and notify DRP effective date
- Begin Participation

**Customized resource or telemetry required**

- **188 minimum - 265 maximum**
- **3 -- 20 BD**
- **180 – 210 CD**
- **1 – 15 CD**
- **1 - 10 BD**
- **3 - 10 BD**

- DRP Registration review completed, Custom ID or Telemetry required
- NRI: Manage FNM & DB build Processes
- A/S Certification
- DRP submits RDT
- ISO updates Master File
- ISO confirms registration and notify DRP effective date
- Begin participation
Deadlines for DR resources remain consistent with timelines for all resource types including load.

**Meter data submitted by SC as SQMD**
- historical meter data for baseline
- event meter data

**Calculation in DR system**
- baseline
- performance measurement
- only

**Settlement**
- Direct settlement of PDR/RDRR performance with DRP’s SC
- Default load adjustment calculated and applied to LSE load meter data if applicable

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>T + 8B</td>
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Participants have options for their baseline methodology.

- **Baselines supports DR participation with separation between DRP and LSE**

- 10 in 10 non-event day baseline methodology will be calculated by ISO

- Alternative baseline can be used with ISO approval

- Conform to North American Energy Standards Board (NAESB) standards

- May require tariff amendment

- Submitted as generation meter data
  - “Hourly Gen” choice in DRS

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CAISO website has comprehensive training material for PDR and RDRR participation

Reliability Demand Response Resource link:

Proxy Demand Resource link:
http://www.caiso.com/Pages/documentsbygroup.aspx?GroupId=F5B0124F-E035-45C3-A482-7F1F3F8B590A