CAISO Demand Response
Vision & Role

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Mr. John Goodin, California ISO
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FSC/CAISO interviewed various stakeholders and reviewed FERC filings

- CPUC
- CEC
- PG&E
- SCE
- SDG&E
- TURN
- CLECA
- CAISO Board member
- NCPA
- EnerNOC

There is a lot of agreement regarding the importance of DR and the logical roles and responsibilities of various stakeholders
Roles and Responsibilities

- Virtually all parties welcomed CAISO involvement in helping realize the full value of DR in CA.
- The CPUC has been, and will continue to be, a key driver of DR resource development in CA:
  - Rate setting
  - Approval and funding of DR programs
  - Rulings on advanced metering
  - Cost-effectiveness proceedings
- The CEC will play an important role in developing the long-run DR infrastructure through building standards that encourage or require the installation of enabling technology.
- Utilities and aggregators will continue to play a key role in DR resource development.
Other Areas of General Agreement

- Advanced meters, communicating thermostats and other technology will significantly increase DR potential and will make DR more acceptable to consumers
- Most stakeholders envisioned a similar end-state in which DR would participate directly in energy, capacity and ancillary services markets operated by CAISO
- Nearly all stakeholders saw significant value in initiating a collaborative process in which a wide variety of issues can be addressed
Other Areas of General Agreement

- There are many disconnects and gaps that need to be addressed before DR will reach its full potential
  - DR goals are being set with little cost-effectiveness analysis underlying them (an OIR to address this issue was just instituted)
  - DR programs are being designed with limited knowledge or consideration of CAISO operational needs and key market timelines
  - DR programs are, at times, being triggered without communicating with CAISO concerning market conditions or operational needs
  - No direct connection between market prices and program incentives or dynamic tariffs
  - A disconnect between CPUC resource adequacy requirements and CAISO operational needs
  - A large gap between subscribed DR and delivered DR
Demand Response Vision Statement

The CAISO will actively work with regulators, utilities and other stakeholders to realize the full value of demand response resources in California’s electricity markets and to incorporate demand response resources into the reliable operation of California’s electric system.
Three Potential CAISO Roles Have Emerged

- **Product Specification and Market Refinement**
  - Develop functional requirements for DR products so that they contribute to reliability and integrate into wholesale markets
  - Refine the wholesale market design and rules to enable greater participation from DR resources

- **Value Determination**
  - Quantify the value of DR products through markets

- **Communication/Education**
  - Educate decision-makers and stakeholders about CAISO operational/reliability needs and how DR products can help meet them and provide input into relevant regulatory venues
The Vision Can Be Realized By:

- Establishing an effective forum that enables collaboration and communication, identifies issues and proposes solutions
- Developing and communicating the CAISO’s market and operational needs
- Inventorying and assessing existing utility DR programs
- Developing a plan to establish the systems, tools and market rules necessary to fully integrate DR into CAISO run markets and operations
- Developing DR products and measuring and evaluating their performance
# Proposed Road Map

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
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<tbody>
<tr>
<td><strong>Foundation</strong></td>
<td><strong>Infrastructure</strong></td>
<td><strong>Production &amp; Refinement</strong></td>
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<tr>
<td><strong>Organize &amp; Participate in Collaborative Forum</strong></td>
<td><strong>Develop Implementation Plan</strong></td>
<td><strong>Implement DR Products</strong></td>
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<td>• Organize a collaborative forum to enable key stakeholders to identify barriers to the participation of DR resources in the wholesale markets and CAISO grid operations and seek ways to overcome those barriers.</td>
<td>• Develop an implementation plan to incorporate appropriate existing and new DR programs/products into the wholesale electricity markets.</td>
<td>• Implement new and existing demand response products and market enhancements.</td>
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<tr>
<td><strong>Define Requirements</strong></td>
<td><strong>Develop Tools &amp; Rules</strong></td>
<td><strong>M&amp;E Assessment</strong></td>
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<td>• Develop and publish a functional requirement specification that defines the characteristics of demand response resources so that they can contribute to reliability and participate in the wholesale energy and capacity markets.</td>
<td>• Identify system, tools, market rules necessary to incorporate DR into the operations of the market and grid.</td>
<td>• Perform M&amp;E assessment periodically.</td>
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<tr>
<td><strong>Perform Assessment</strong></td>
<td><strong>Develop M&amp;E Protocols</strong></td>
<td><strong>Refine Requirements</strong></td>
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<td>• Use functional requirement specification to assess CPUC sponsored DR programs and determine if they can be “used and useful” for reliability and market purposes.</td>
<td>• Develop measurement and evaluation (M&amp;E) protocols to determine the contribution from DR resources to the wholesale market and in meeting reliability needs.</td>
<td>• Refine &amp; publish functional requirement specification to address changes in market design and/or rules.</td>
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<td><strong>Develop DR Products</strong></td>
<td><strong>Implement Road Map</strong></td>
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<tr>
<td><strong>M&amp;E Assessment</strong></td>
<td>• Implement identified strategies from the DR Road Map.</td>
<td>• Create a Demand Response Road Map to identify strategies to grow and develop DR resources beyond existing levels.</td>
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<td><strong>Refine Requirements</strong></td>
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<td>• Implement Road Map</td>
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