



California Independent  
System Operator Corporation

September 17, 2007

**Via Electronic Filing**

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

**Re: California Independent System  
Operator Corporation  
Docket No. ER06-615-\_\_\_\_  
Second Status Report**

Dear Secretary Bose:

Transmitted herewith for electronic filing in the above-referenced proceeding is the Motion to Late File Second Status Report One Day Out of Time and the Second Status Report of the California Independent System Operator Corporation on the Development of Demand Response.

Thank you for your attention to this matter.

Yours truly,

**/s/ Baldassaro "Bill" Di Capo**

Counsel  
Counsel for the California Independent  
System Operator Corporation

Enclosure  
cc: Service List



November 20, 2006, the CAISO filed with the Commission an earlier status report on Demand Response.

The CAISO prepared a draft of the Second Status Report for internal review and approval within the CAISO. Unfortunately, the CAISO could not complete internal "sign-off" of the document by the approaching 2:00 pm Pacific Daylight Savings Time deadline for filing of the document. Counsel for the CAISO does not believe that the delay of one business day to receive the report will prejudice any party in the proceeding, and we apologize for any inconvenience that may occur.

### **CONCLUSION**

For the foregoing reasons, the CAISO respectfully requests that the Commission grant this Motion for Leave to Late File the Second Status Report.

Dated: September 17, 2007

Respectfully submitted

**/s/ Baldassaro "Bill" Di Capo**

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**CERTIFICATE OF SERVICE**

I hereby certify that I have, this 17<sup>th</sup> day of September 2007, caused to be served a copy of the following documents upon all parties listed on the official service list compiled by the Secretary of the Federal Energy Regulatory Commission in this proceeding:

**Motion to Late File Second Status Report One Day Out of Time and the Second Status Report of the California Independent System Operator Corporation on the Development of Demand Response.**

**/s/ Baldassaro "Bill" Di Capo**

Baldassaro "Bill" Di Capo, an employee  
of the California Independent System  
Operator Corporation

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

California Independent System            )  
Operator Corporation                    )     Docket No. ER06-615-\_\_\_\_

**SECOND STATUS REPORT  
OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR  
ON THE DEVELOPMENT OF DEMAND RESPONSE**

The California Independent System Operator Corporation (“CAISO”) submits this Second Status Report on Development of Demand Response, pursuant to the Commission’s June 25, 2007 Order on Compliance.<sup>1</sup> The CAISO submitted its first Status Report on November 20, 2006.

The June 25, 2007 Order is the most recent order pertaining to the CAISO’s Market Redesign and Technology Update (“MRTU”) Tariff. In the Commission’s initial order on MRTU (the September 21, 2006 Order<sup>2</sup>), the Commission conditionally approved the MRTU Tariff, and also ordered that the CAISO make significant changes to various aspects of the MRTU Tariff. In the September 21, 2006 Order, the Commission also directed the CAISO to work with interested parties to explore avenues for incorporating price-responsive demand into MRTU and ordered the CAISO file a status report on its DR efforts. (September 21, 2006 Order at ¶ 690.) In response, the

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<sup>1</sup> California Independent System Operator Corp. 119 FERC ¶ 61,313 (2007) “June 25, 2007 Order on Compliance Filings” (hereinafter “June 25, 2007 Order”). The Commission extended the deadline for submitting this Status Report until September 14, 2007. See Notice of Extension of Time, Docket No. ER06-615-000, *et al.* (Aug. 8, 2007).

In this report, the CAISO sometimes refers to demand response as “DR” and to demand response resources as “DRR;” the CAISO also alternatively refers to the Federal Energy Regulatory Commission as the “Commission” or “FERC.”

<sup>2</sup> *California Independent System Operator Corp.* 116 FERC ¶ 61,274 (2006) (referred to herein as the “September 21, 2006 Order”).

CAISO conducted an MRTU stakeholder workshop on November 2, 2006, in which over 90 stakeholders participated. The CAISO discussed the results of that stakeholder workshop in its first Status Report, filed on November 20, 2006.

In the subsequent June 25, 2007 Order, the Commission issued further directives to the CAISO on demand response:

[W]e agree with the CPUC [California Public Utilities Commission] that integrating demand resources into the MRTU market design is an important objective. As a result, we direct the CAISO to file a status report, within 60 days of the date of this order, which details the progress made toward these efforts, indicates a future action plan for increased demand response participation in MRTU and documents the results of at least one additional CAISO-sponsored stakeholder forum.<sup>3</sup>

...

[A]s the CAISO works to integrate existing demand response programs and new demand response products into its market design, we direct the CAISO in the interim to create procedures that recognize existing demand response programs in RUC by MRTU Release 1. To this end, we direct the CAISO to address the following two concerns. First, the CAISO must have the capability in place to receive communications from the LSE regarding the amount of demand response that the LSE is relying upon when it submits its day-ahead load bid.<sup>4</sup> ... Second, the CAISO must be able to verify the amount of demand response that is expected to actually occur.<sup>5</sup>

...

[W]e direct the CAISO to include in its 60-day status report how it will incorporate demand response within the RUC process by MRTU Release 1 or explain why such work-arounds cannot be deployed in MRTU Release 1. To the extent that the CAISO believes it cannot incorporate demand response resources into RUC in MRTU Release 1 for reliability or other reasons, it may reflect its concerns in its 60-day status report.<sup>6</sup>

## **EXECUTIVE SUMMARY**

The CAISO has structured this Second Status Report into three major parts.

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<sup>3</sup> June 25, 2007 Order at ¶ 219.

<sup>4</sup> June 25, 2007 Order at ¶ 220 (footnote omitted).

<sup>5</sup> June 25, 2007 Order at ¶ 221.

<sup>6</sup> June 25, 2007 Order at ¶ 221.

Part I. Narrative Discussion: CAISO's Efforts to Date to Promote Demand Response and Coordination with State Level Efforts.

Part I contains a narrative discussion of events after the CAISO's First Status Report, filed November 20, 2006. As discussed therein, the CAISO, the CPUC and the California Energy Commission ("CEC") continued to work to launch a California Demand Response Initiative ("CADRI") process, from January through May, and then decided in May to establish a five working group process, instead of CADRI, to serve as a collaborative process to advance DR and better integrate the Investor Owned Utility ("IOU") DR products into MRTU. This working group process will take place in parallel with a CPUC DR Rulemaking Proceeding that opened in January. The CAISO is working with the CPUC on the details for linking the working group process to the CPUC DR proceeding.

The five working group activities and creation of the work-around. The CAISO is leading the first two working groups, which overlap in terms of membership and general work. The first working group, the MRTU Release 1 working group, developed the interim process to recognize existing IOU DR programs in MRTU Release 1, as the FERC directed the CAISO to do in the June 25, 2007 Order. This process is contained in a draft User Guide, which CAISO has posted on a Demand Response Initiative Web page. Proposals for consideration by the second group, the MRTU Post Release 1 working group, have been presented in the working group one workshops, and are discussed in a white paper and a workshop presentation, posted on the Web page. The second working group will assist in the CAISO's development of additional functionality of MRTU software to highly integrate demand response resources into the CAISO's market design.

The CPUC DR Proceeding. The CPUC DR Proceeding outlines four elements to address the further refinement of IOU DR programs. The fourth element considers what modifications to IOU DR programs are needed to align the programs with the CAISO's MRTU market design protocols. The CPUC, CEC and the CAISO are discussing how the working group process and deliverables will link back to the DR Proceeding.

Part II: Correlation of Efforts and Scheduled Future Activities to the Commission's Directives

Part II of this report correlates the CAISO's efforts, to date, and the scheduled future activities, with the Commission's directives in the June 25, 2007 Order.<sup>7</sup> The activities are listed in a table format. With regard to the Commission's directive to hold at least one additional stakeholder forum, the CAISO had already sponsored a Market Issues Forum in January and, in addition, has conducted working group workshops over the summer. The CAISO held the Market Issues Forum in conjunction with a CAISO Board of Governor's meeting, regarding the promotion of demand response, including the integration of demand response resources into the CAISO's MRTU market design. The forum included panel presentations related to the CAISO's potential role for advancing DR as a utility grade resource in California. Panel members included Commissioners from the CEC and the CPUC, David Kathan of the FERC, and public interest group and industry representatives.

The working group workshops have resulted in the development of a work-around process to include existing IOU DR resources into RUC for MRTU Release 1. Future scheduled events for the MRTU Post Release 1 working group will assist in the

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<sup>7</sup> As noted in Section II of this report, the Commission's June 25, 2007 Order addressed events occurring up until November-mid December 2006. By the time of the June 25, 2007 order, the CAISO had already conducted activities which were responsive to directives issued in the order. Those activities are included in this report.

CAISO's development of additional functionality for MRTU software, to accomplish the integration of demand response resources into the CAISO's market design.

Part III: CAISO Future Action Plan: A Roadmap for Demand Response

Part III of this report sets forth a proposed roadmap for further actions, to ultimately integrate and increase participation from DR resources into the CAISO's market and operations. The three major phases are:

Phase 1: (2007-2008) Establishing a foundation for DR, through the working group activities (creating a shared vision for DRR (working group three); defining DR requirements and specifications (working group four); determining how to model DR (working group two));

Phase 2: (2008-2009) Implementing DR (developing tools and market and business rules; specifying and budgeting for infrastructure; developing new DR products and services for the next cycle of IOU DR Programs); and

Phase 3: (2009-2011) Production and Refinement of DR (i.e. by refining requirements and specifications for products and market rules, performing measurement and evaluation assessments, and other specified activities).

Attachment A: Timeline. Finally, the report includes an attachment detailing, in chronological order, the timeline of the CAISO's efforts on demand response, from November 2006 to the date of filing of this report.

**I. NARRATIVE DISCUSSION: CAISO’S EFFORTS TO DATE TO PROMOTE DEMAND RESPONSE AND COORDINATION WITH STATE LEVEL EFFORTS**

**A. Efforts to Develop a CADRI Process Transitioned into a Five Working Group Process in Tandem with a CPUC Demand Response Rulemaking**

In the CAISO’s earlier compliance filings to the Commission, the CAISO stated that it would work to establish a CADRI, similar to the New England Demand Response Initiative (“NEDRI”) and the Mid-Atlantic Distributed Resources Initiative (“MADRI”), as a mechanism to capture the benefits of working collaboratively with the CPUC, the CEC, as well as California IOUs, municipal entities, third-party aggregators and other interested parties, to expand demand response resources and integrate them into MRTU. The CPUC stated, in its comments submitted to the FERC, that the CAISO also should utilize CADRI as the forum to vet how to incorporate into MRTU Release 1 the ability to account for existing day-ahead demand response programs in the CAISO’s Residual Unit Commitment (“RUC”) process.<sup>8</sup> The Commission took note of the CAISO’s commitment to investigate the formation of a CADRI organization (June 25, 2007 Order, ¶ 200) and expressed its support for efforts to establish a collaborative process to address questions on how to develop and integrate DRR into MRTU. (June 25, 2007 Order, ¶ 218.)

The CAISO’s initial thought was that CADRI would be a useful forum for the state energy agencies, the IOUs, and other interested parties to resolve technical issues, provide input on strategic and policy directions for demand response initiatives, and further expand how demand resources could compete and fully function within the wholesale electricity market. The CAISO stated in its filing to the Commission that it

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<sup>8</sup> June 25, 2007 Order at ¶ 204.

proposed to use CADRI to: 1) in the near term, assess the inventory of existing demand response programs offered by the Load Serving Entities (“LSEs”); 2) in future MRTU releases, modify the existing DR programs and/or tariff and software to integrate the DR programs in the CAISO markets, and 3) develop new DR products that could be integrated into the CAISO markets.<sup>9</sup>

The CPUC shared in the commonly expressed sentiments to the FERC supporting the development of CADRI. Contemporaneously, the CPUC launched its second major rulemaking for demand response<sup>10</sup>. The CPUC issued a proposed DR rulemaking in December 2006, to develop load impact and cost-effectiveness protocols for IOU DR programs, set DR goals for 2008 and beyond, and align the IOU DR programs with the CAISO’s MRTU market design. On January 25, 2007, the CPUC formally adopted its proposed order and opened its proceeding (CPUC Proceeding R.07-01-041). Accordingly, by the end of January, there were parallel efforts underway to refine DRR and work toward alignment with MRTU, the first being the CADRI, which the CAISO was endeavoring to launch, largely in response to the FERC’s directives to promote demand response in the CAISO’s wholesale markets, and the second being the CPUC’s DR proceeding.

From January to March 2007, representatives from the CAISO undertook efforts with CPUC and CEC representatives to get the CADRI process underway. Each of the three entities designated representatives to work on creating the CADRI, and several meetings and teleconferences were held, for the purpose of structuring a mission

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<sup>9</sup> June 25, 2007 Order at ¶ 216.

<sup>10</sup> The CPUC’s first major DR rulemaking was R.02-06-001 (Order Instituting Rulemaking on policies and practices for advanced metering, demand response, and dynamic pricing) which it opened June 2006 and closed in November 2005, via CPUC Decision 05-11-009. (The proceeding documents are accessible at <http://www.cpuc.ca.gov/proceedings/R0206001.htm#decisions>.)

statement and identifying next steps. Ultimately, however, representatives of the CPUC raised concerns about the formality of a CADRI approach and the potential for overlap with the CPUC's DR Proceeding.

Therefore, in an attempt to reach consensus on a process going forward, the three entities met with the IOUs, in San Francisco, on May 15, 2007, in a meeting entitled "Advancing DR and MRTU and Beyond." After much discussion and refinement of issues, the attendees agreed that, rather than moving forward with a formal CADRI effort, five key working groups would be established, as a collaborative process to advance demand response under MRTU. Leadership responsibility for each individual working group would be assigned among the CPUC, the CEC, and the CAISO, and all interested parties would be welcomed and encouraged to attend.

We provide this background of events to the Commission to provide context regarding the efforts that the CAISO has undertaken to establish a forum to coordinate with state level DR activities, and involve state representatives and DR participants in the CAISO's further development of DR within its wholesale markets. The CADRI effort, which we originally intended to serve as the collaborative forum, has been changed to the five working group approach. Accordingly, the present intention of the CPUC, CEC and CAISO is that demand response development will progress on two parallel, but somewhat interrelated, tracks, the first being the new five working group track and the second being the CPUC DR Proceeding.

The CAISO is leading the first two working groups, and it intends for the five working group process to serve as the primary mechanism for the CAISO to meet the Commission's directives to CAISO on demand response, set forth in the Commission's

September 21, 2006 Order and June 25, 2007 Order. While we have not worked out all of the details, the CAISO, CPUC, and CEC all intend that the five working group process will link back to the CPUC proceeding, and will inform that proceeding, by having identified and distilled issues and proposals for consideration in the CPUC proceeding.

**B. The CPUC DR Rulemaking Proceeding: Laying the Foundation for IOU DR Product Refinement and Integration with the CAISO MRTU Market Design**

The CPUC's DR rulemaking proceeding (R.07-01-041) focuses on the mechanics of demand response, with the following intended outcomes:

1. Establish a comprehensive set of protocols for estimating the load impacts of demand response programs;
2. Establish methodologies to determine the cost-effectiveness of demand response programs;
3. Set demand response goals for 2008 and beyond, and develop rules on goal attainment; and
4. Consider modifications to demand response programs needed to support the California Independent System Operator's (CAISO) efforts to incorporate demand response into market design protocols.<sup>11</sup>

The CAISO is actively participating in this CPUC proceeding, as is the CEC. To date, the parties' efforts in the proceeding have focused on elements one and two, for which draft protocols have been prepared and discussed in a series of proceeding workshops that took place from April through August 2007.

Initially, the parties in the CPUC DR Proceeding have focused on load impact and cost-effectiveness protocols which analyze IOU DR programs from the IOU's perspective, for use in procurement planning and resource adequacy counting, rather than from the perspective of operating the programs in the CAISO's wholesale

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<sup>11</sup> CPUC Order Instituting Rulemaking (hereinafter, "CPUC OIR" at p. 1. The CPUC OIR can be viewed on the CPUC's Internet Web site at [http://www.cpuc.ca.gov/word\\_pdf/FINAL\\_DECISION/64245.pdf](http://www.cpuc.ca.gov/word_pdf/FINAL_DECISION/64245.pdf).

electricity markets. As such, the CPUC, CEC, and CAISO representatives are discussing the possibility that the working groups may need to discuss and recommend additional load impact protocols for the CAISO's operational needs. In workshops, the parties expressed to the CAISO that they did not want to add the CAISO's operational needs to the straw proposals being discussed, mainly because the time constraints imposed by the schedule would not permit the additional work to be completed by September 2007, when the proposals were to be finalized. At this time, the parties are discussing the point in the CPUC proceeding at which to introduce the subject of evaluating the IOU DR programs against the CAISO's operational needs.

The fourth element of the CPUC DR Proceeding is intended to address the current disconnect between California IOU demand response resources and the wholesale markets. The CPUC has described this disconnect, from its own perspective, in its decision closing out the CPUC's first demand response policymaking proceeding:

One of the struggles that has become clear over the course of this proceeding is between our desire to promote price-responsive demand and how the utilities and the CAISO treat demand response resources for purposes of resource planning and meeting resource adequacy standards. Unlike energy efficiency, which has a long history of success, adopted measurement protocols, and is well integrated into the resource planning process, demand response programs have a shorter history, are not well integrated into the planning process, and do not have adopted measurement and evaluation protocols. At this time, it appears that the CAISO continues to purchase energy in the market in order to ensure sufficient energy in the event that all demand response resources do not deliver. It is our belief that until the industry develops further trust that demand response will deliver demand reductions when needed, demand response will continue to be dismissed in the resource planning and acquisition process. In order to build that trust, we need to develop industry protocols for measuring load response capability and results so that the ratepayers are not paying twice for the same capacity, once for demand response programs, and then again for short-term resource acquisition by the CAISO. In addition, more precise demand reduction

estimates derived from an accepted measurement methodology are a necessary prelude to performing accurate cost-effectiveness analysis.<sup>12</sup>

Somewhat in contrast, the CAISO characterized the alignment issue as follows, in our comments in the current CPUC proceeding:

In addition, as the Commission has noted, timing and alignment of the resource is necessary, so that the load reduction commitment is presented within CAISO timing parameters for unit commitment tabulation for the day-ahead and real time markets. In this connection, as CAISO has explained in a recent filing in the [CPUC] Resources Adequacy Proceeding<sup>13</sup>, from CAISO's perspective, there are essentially two distinct categories of DR products: 1) DR that is triggered by a staged emergency event (which is an uncertain event contingency) and 2) DR that is triggered by price or by some other event that is known in advance.<sup>14</sup> Under CAISO's MRTU Residual Unit Commitment (RUC) process, CAISO cannot consider the contribution from the first category of DR, since such programs cannot be factored into the CAISO's day-ahead planning and forecasting process [fn omitted]. However, RUC can consider demand response as described in the second category of DR, that is certain of being curtailed and will result in a lower demand forecast and, therefore, a lower RUC procurement target.<sup>15</sup>

Moreover, emergency/interruptible DR programs that are dispatchable when the CAISO is already in an emergency will not be considered in RUC. The CAISO operates in a manner to reliably serve all forecast load. This includes the "non-firm" load associated with utility operated emergency/interruptible DR programs. Accordingly, the CAISO cannot lower the demand forecast in anticipation of a yet unknown emergency event and the associated emergency-load interruption. (Prehearing Conference Statement of the California Independent System Operator, dated March 9, 2007, filed in CPUC R 07-01-041, emphasis in original.)

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<sup>12</sup> CPUC Decision 05-11-009 (Decision Closing this Rulemaking and Identifying Future Activities Related to Demand Response), issued November 18, 2005 in CPUC Rulemaking 02-06-001 (Filed June 6, 2002) [the CPUC's first DR proceeding.]. The CAISO has added underlining in the excerpt, for emphasis. The CPUC decision can be viewed on the CPUC's Internet Web site at [http://www.cpuc.ca.gov/word\\_pdf/FINAL\\_DECISION/51376.doc](http://www.cpuc.ca.gov/word_pdf/FINAL_DECISION/51376.doc).

<sup>13</sup> Proposals of the California Independent System Operator Corporation on Track 1 Issues, filed January 26, 2007 in R.05-12-013 [footnote in original]

<sup>14</sup> The [CPUC] OIR notes that emergency DR is intended to relieve threats to system reliability, whereas price-triggered DR in economic, intended to address spikes in market prices. (CPUC OIR at p. 2.) [footnote in original]

<sup>15</sup> Of course, this assumes that the second category DR programs are coordinated with the CAISO and are aligned with CAISO's operational timelines. [footnote in original]

In sum, the CAISO is engaged in the CPUC's DR Proceeding to better understand the issues before the CPUC and perspectives of the participants there, and to work for the advancement of policies that support the integration of the IOU retail DR programs and pricing into the wholesale electricity market. The parties are working on establishing the procedural details to link the CPUC DR Proceeding and the working group activities, with the objective of refining the IOU DR programs to yield products that can participate in the CAISO's Day-Ahead Market ("DAM") and Real Time Market ("RTM").

### **C. Integrating IOU DR Programs into MRTU, Both in the Near-Term and Longer-Term, Through the Five Working Group Process**

As mentioned above, the five working group process is the CAISO's intended vehicle to accomplish the Commission's directives in the September 21, 2006 and June 25, 2007 Orders, to work collaboratively with market participants to present additional opportunities for Demand Response resources to participate in the CAISO market, and to work with LSEs to develop methods for the accounting of expected demand response within the CAISO RUC procurement process. The CAISO considers the five working group process to be a primary component of the CAISO's "Demand Response Initiative." The CAISO is regularly posting, on the CAISO's Internet Web site, information on the ongoing efforts of the working groups and supporting documents from their meetings.<sup>16</sup>

The five working groups, developed in the May 15, 2007 meeting, are as follows:

#### **1. DR Participation in MRTU Release 1**

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<sup>16</sup> The Demand Response Initiative web page is found at <http://www.caiso.com/1893/1893e350393b0.html> .

<b>Objective :</b>	To resolve how existing DR programs will participate in MRTU Release 1 and prevent double procurement in RUC.		
<b>Deliverable:</b>	A User Guide, detailing how existing DR programs will integrate into Release 1 and the functional requirement specification.		
<b>Sponsoring Agency</b>	<b>Project Lead</b>	<b>Begin Date*</b>	<b>End Date*</b>
CAISO	Margaret Miller	June 2007	November 2007

\*Note: All begin and end dates for all of the working groups are approximate timeframes, subject to change.

## **2. DR Participation in MRTU Post-Release 1**

<b>Objective :</b>	To determine how demand response resources will be modeled and fully integrated into markets and grid operations.		
<b>Deliverable:</b>	A comprehensive user guide and functional requirements specifications, detailing how demand response resources will fully integrate into MRTU.		
<b>Sponsoring Agency</b>	<b>Project Lead</b>	<b>Begin Date</b>	<b>End Date</b>
CAISO	Jim Price	June 2007	July 2008

## **3. Vision for Demand Resources**

<b>Objective :</b>	To establish a shared vision for demand response resources that addresses the needs of end-users, DR providers, markets and grid operations.		
<b>Deliverable:</b>	A vision statement and accompanying guiding principles document that provides a foundation for assessing demand response resources.		
<b>Sponsoring Agency</b>	<b>Project Lead</b>	<b>Begin Date</b>	<b>End Date</b>
CPUC	Jason Salmi Klotz	August 2007	February 2008

## **4. Demand Resources Product Specification**

<b>Objective :</b>	To define requirements and specs for demand resource products that can meet the CAISO's wholesale market requirements and to research the possibilities for new products and services from demand response resources.		
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<b>Deliverable:</b>	Recommendations for new DR products and services that meet specifications.		
<b>Sponsoring Agency</b>	<b>Project Lead</b>	<b>Begin Date</b>	<b>End Date</b>
CEC	Pat McAuliffe	August 2007	November 2007

## 5. Infrastructure for Demand Resources

<b>Objective :</b>	To advance the development of integrated infrastructure in order to facilitate integration of demand response resources into the CAISO's market design.		
<b>Deliverable:</b>	Documentation of changes to infrastructure of the CAISO, the IOUs, aggregators and end-users, necessary to advance CAISO market design, including standards to be considered by CEC.		
<b>Sponsoring Agency</b>	<b>Project Lead</b>	<b>Begin Date</b>	<b>End Date</b>
CEC	Mike Gravely	August 2007	April 2008

Specific objectives have been developed for each group, along with related work product deliverables, to achieve an over-arching objective of enabling greater participation from demand resources in the wholesale power markets.

### 1. Near Term Integration: The Demand Response Participation MRTU Release 1 (Working Group One)

The focus of effort for this working group has been to incorporate existing IOU DR programs into MRTU. There is some useful overlap of the Demand Response Participation MRTU Release 1 and the Demand Response Participation Post Release 1 working groups; the CAISO sees these two working groups as a continuum, with efforts of the first working group evolving into that of the second, with a carry-over of essentially the same participants.

The MRTU Release 1 Working group has held three full-day workshops on June 26 and July 17, and September 12, 2007. In these sessions, the parties have

discussed and refined a proposal to integrate existing IOU DR resources into the CAISO's RUC process. The CAISO has distilled the refined the process into a draft User Guide, and we posted it on the CAISO's Demand Response Initiative Web page, on August 30, 2007.<sup>17</sup> The User Guide was further vetted by the stakeholders at the September 12, 2007 workshop, for finalization. The CAISO will post the final version of the User Guide on the Demand Response Initiative Web page shortly.

The interim process for incorporating the existing DR programs into RUC can be generally described as follows:

For Day-Ahead and Day-Of Price Responsive Programs<sup>18</sup>:

1. DR Provider Daily DR Forecast of Forecasted DR-- Each DR Provider will fill out a standardized Excel spread sheet containing the Daily DR Forecast for the day that the DR Provider is planning to call the program. The forecast shall be based on historical performance, and will be broken down by specific program, applicable RUC zone, and relevant hours.
  - a. The spreadsheet will have sections for both Day-Ahead and Day-of DR programs for a specific day. If a Day-Ahead DR event is called, the DR provider will transmit the spreadsheet to the CAISO by no later than 10 a.m. for the Day-Ahead which corresponds to the Day-Ahead Market close time.
  - b. The DR Provider shall email the Daily DR Forecast to designated CAISO email addresses.
2. For the Day-Ahead Market (DAM)--The CAISO will then incorporate the Daily DR Forecast into the Residual Unit Commitment (RUC) Process through a manual work-around. The RUC process generally compares the CAISO Forecast of CAISO Demand (CFCD) to the Demand scheduled in the Integrated Forward Market (IFM), to arrive at the RUC procurement target. The CAISO will manually adjust the RUC procurement downward, based on the MW quantity of forecasted DR submitted to the CAISO.

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<sup>17</sup> The draft User Guide can be viewed on the CAISO's Demand Response Initiative Web page at <http://www.caiso.com/1893/1893e350393b0.html> .

<sup>18</sup> In "price-responsive" programs, customers choose how much load reduction they can provide, based on either the electricity price or a per-kilowatt (kW) or Kilowatt-hour (kWh) load reduction incentive. (CPUC D.06-11-049 at p.11 fn7). This can be contrasted to "reliability-triggered" programs, where customers agree to reduce their load to some contractually-determined level, in exchange for an incentive, often a commodity price discount. (CPUC D.05-01-056 at p. 4.)

- a. Changes in the RUC procurement target will be logged into SLIC (Scheduled and Logging system for the ISO of California) by the CAISO Operator and communicated to the market in the form of a report posted on the CAISO Web site.
3. For the Real Time Market (RTM)--the CAISO will need to again adjust the RUC Real-Time CFCD to account for the DR Provider's Forecast by adjusting the CFCD downward for the hours that the DR program will be triggered. (This is because the CAISO MRTU process generates new load forecasts for the RTM, rather than re-using the load forecast that had been run in the IFM.)
4. Monitoring Actual DR Performance--Actual DR Performance will be monitored by DR Providers reporting on a separate spreadsheet, which the DR Provider shall transmit to the CAISO within 7 days of the trade day after the event.

For Emergency DR Programs:

1. DR Forecast--DR Providers will fill out the section for Day-Of Programs for the relevant Emergency Program in the Daily DR Forecast spreadsheet and email the spreadsheet to the CAISO as described above.
2. Triggering DR Programs--The CAISO will continue to follow an established procedure to make requests to a DR Provider to trigger an Emergency Program.
3. No RUC Adjustment--The CAISO will not adjust the RUC Procurement Target or Real-Time CFCD to account for DR resources provided by Emergency Programs.

The CAISO intends to publish DR results as part of its Monthly Market Performance Report posted on the CAISO's Web site. The monthly report will include a new section on DR.

2. Expanded Integration in the Longer Term: The Demand Response MRTU Post Release 1 Working Group (Working Group Two)

The MRTU Post Release 1 Working Group is tasked with further detailing how demand response resources will be modeled and fully integrated into the wholesale electricity markets and CAISO grid operations. This effort will likely involve the development of proposed changes to the MRTU software and could potentially involve changes to the CAISO tariff. Some of the modeling functionality has already been

imbedded into the coding of the MRTU software, but the software needs further refinement before it is put into production, post MRTU Release 1.

A proposed design for consideration by the MRTU Post Release 1 Working Group will allow demand response resources, also known as Participating Load, to submit three-part bids similar to a generator's start-up, minimum load and multi segment energy bid. The three parts would consist of: i) load curtailment cost, ii) minimum load reduction cost, and iii) a multi-segment load energy bid. Under this model, Participating Load will have the opportunity to bid directly into the Day-Ahead energy market, RUC, Non-Spinning Reserve, and the Real-Time Imbalance Energy Market.

Specific tasks for working group two include identifying the attributes and characteristics that are important for modeling demand response resources, identifying data needs, data flow and associated timelines, developing MRTU functional specifications related to demand response, and providing recommendations to develop business rules and to outline the business process that will be necessary to accomplish the integration.<sup>19</sup>

## **II. CORRELATION OF EFFORTS AND SCHEDULED FUTURE ACTIVITIES TO THE COMMISSION'S DIRECTIVES**

The June 25, 2007 Order is predicated primarily upon the CAISO's compliance filings submitted November 20, 2006 and December 20, 2006 and comments filed by parties in response (see June 25, 2007 Order, ¶ 3), and thus addresses events surrounding DR that transpired through the time period November-early December

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<sup>19</sup> For further information on proposals for consideration by MRTU Post Release 1 Working Group, see the Issue Paper *Post release 1 MRTU Functionality for Demand Response*, posted on the CAISO's Demand Response Initiative web page( <http://www.caiso.com/1893/1893e350393b0.html> ) as the last item from the Release 1 Working Group June 26, 2007 workshop (<http://www.caiso.com/1c08/1c0810a2e527b0.pdf> ).

2006. Accordingly, the information below correlates (to the June 25, 2007 Order's directives on DR) activities from the period of the CAISO's first Status Report, filed November 20, 2006, to the present. In addition, we have included the future activities of the working groups, because their approximate time frames are presently scheduled.

**Commission Directives (Paragraph 219):**

File a Status Report that:

- Details progress made toward integrating DR into MRTU;
- Indicates a future action plan to increase demand response participation;
- Documents the results of one additional CAISO-sponsored stakeholder forum on demand response.

The Report should:

- Identify actions accomplished and measurable milestones in incorporating DR into CAISO markets;
- Include goals and benchmarks and a timeline to accomplish these tasks.

**CAISO's Compliance Actions:**

Jan 25, 2007	1. The CAISO hosted a Market Issues Forum on January 25, 2007, in conjunction with a CAISO Board of Governor's meeting, on the subject of promoting demand response and integrating demand response resources into MRTU. The forum included panel presentations and discussions related to DR and the CAISO's potential role for advancing DR as a utility grade resource in California. Members of the panel included Commissioner Arthur Rosenfeld of the CEC, Commissioner Rachelle Chong of the CPUC, David Kathan of FERC, and public interest group and industry representatives. This was the CAISO's first sponsored stakeholder forum following the CAISO's first Status Report dated November 20, 2007 and December 20, 2006 filing, upon which the June 25, 2007 Order is predicated (See June 25, 2007 Order at ¶ 3.). The three workshops for working group one, held over the summer, constitute additional CAISO-sponsored stakeholder forums since the filings upon which the June 25, 2007 Order is based.
Jan-May, 2007	2. The CAISO met with representatives of the CPUC and CEC over the months of January through May, to start up a CADRI

	<p>organization for advancement of demand response. These efforts culminated in the creation of the five working group process as the collaborative forum to advance demand response. Each working group is assigned specific tasks and deliverables, and time frames in which to complete them. The CAISO is leading two of the working groups.</p> <p>The tasks assigned to the working groups incorporate the actions that the CAISO had previously proposed to accomplish through the CADRI process: i) assess the inventory of existing DR programs offered by the LSEs; ii) in future MRTU releases, modify the existing DR programs or tariff and software to integrate the DR programs into the CAISO markets and iii) develop new demand response products that would later be integrated into the CAISO markets.</p> <p>The CAISO's Demand Response Initiative Web page (<a href="http://www.caiso.com/1893/1893e350393b0.html">http://www.caiso.com/1893/1893e350393b0.html</a>) lists the public events that the CAISO has held: working group workshops, the January 25 CAISO Market Issues Forum, and the CAISO's November 2, 2006 Demand Response Workshop discussed in the first Status Report. The CAISO Web page also contains hyperlinks to supporting documents for the events, such as agendas, presentations, proposals, and the draft User Guide. A hard copy of the Web page is attached to this Second Status Report as Attachment B.</p>
May 2007	3. Representatives of the CPUC, the CEC, and the CAISO established a five working group process as the collaborative process for further development of demand response resources in MRTU.
June-Sept 2007	4. The CAISO lead the three workshop sessions held for the MRTU Release 1 working group (working group one). As part of its work, the working group assessed the inventory of existing DR programs offered by the three IOUs. The CAISO then drafted the User Guide, which sets forth a "work-around" process for integration of certain existing IOU demand response programs into MRTU Release 1. The draft User Guide can be accessed on the CAISO Demand Response Initiative Web page. A final version will be posted shortly.
Aug 30, 2007; Sept 12,	5. The CAISO posted an Issue Paper that contains proposals for further integration of demand response resources into the CAISO's MRTU market design, for the Post Release 1 period.

2007	The CAISO has presented the options to the MRTU Release 1 working group. The CAISO will lead the efforts of MRTU Post Release 1 working group (working group two), including hosting and facilitating the workshops.
Projected for the Fall of 2007.	6. The Demand Resources Product Specification working group (working group four) will develop requirements and specifications for demand response resource products that can meet the CAISO's wholesale market requirements. This working group will be lead by the CEC. Workshops for this working group have been tentatively scheduled for the fall of 2007. However, in August 2007, the schedule in the CPUC DR Proceeding was modified to extend, by about one month, the deadline to finalize draft protocols for load impact and cost effectiveness. Those protocols are in some sense a foundational step to the refinement of future IOU DR products. Accordingly, the schedule extension may have the effect of delaying startup of the working group four until mid-fall.

**Commission Directives (Paragraph 219):**

Also report on:

- Promoting automation and demand response;
- Shaping requirements to meet the CAISO's operational needs;
- Developing cost effective metering and communication protocols for demand response.

**CAISO's Compliance Actions:**

February-March 2007, and ongoing	<p>1. The CAISO established a DR Lab in the first part of 2007 to study available technologies to advance DR. The CAISO laboratory has recently been mentioned in the <i>Wall Street Journal</i>. (Rebecca Smith, <i>Incentives Prove Powerful: Participation Rises In Efforts to Lower Electricity Usage</i>, Wall Street Journal at p. B6 (September 10, 2007.)</p> <p>Technologies currently on display in the DR Lab include: 1) a prototype Programmable Communicating Thermostat (provided by the University of California, Berkeley) and associated test and demonstration equipment; 2) an "Auto DR" unit and associated demonstration equipment (provided by the Demand Response Research Center at Lawrence Berkeley National Laboratory ("LBNL")) for automating the response of commercial building</p>
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	<p>Energy Management Control Systems to Critical Peak Pricing events; and 3) a “Z-Wave-based” home automation gateway and associated lighting and cooling controls. The CAISO is in the process of relocating the DR Lab to a larger room, to accommodate additional technologies and provide more space for group demonstrations.</p> <p>The DR Lab is also participating in a test instance of an LBNL demonstration project to provide dispatchable synchronized reserves from the cycling of residential air conditioner units. This will run test communications between the CAISO’s Automated Dispatch System and infrastructure in the SCE service territory which controls the residential units. It is hoped that this demonstration, managed by LBNL, will facilitate the WECC’s adoption of changes in its requirements for spinning reserves, to allow DR to participate in this market.</p>
<p>Projected for the Fall of 2007</p>	<p>2. The CAISO understands the Commission’s instruction regarding “shaping of product requirements to meet the CAISO’s operational needs” to mean efforts to develop requirements and specifications for demand resource products. This activity is the primary task of the Demand Resources Product Specification working group (working group four).</p> <p>The Demand Resources Product Specification working group (working group four) will develop requirements and specifications for demand response resource products that can meet the CAISO’s wholesale market requirements. This working group will be lead by the CEC. Workshops for this working group have been tentatively scheduled for the fall of 2007. However, in August 2007, the schedule in the CPUC DR Proceeding extended, by about a month, the date for finalization of the draft protocols for load impact and cost effectiveness being prepared in that proceeding. Because these protocols are in some sense a foundational step to the refinement of future IOU products, the schedule extension may have the effect of delaying startup of working group four until mid-fall.</p>
<p>Projected Fall of 2007 through April 2008</p>	<p>3. The Infrastructure for Demand Resources (working group five) will advance the development of integrated infrastructure to facilitate DR resources in the CAISO’s market design. This working group is expected to prepare written documentation outlining the changes to infrastructure of the CAISO, the IOUs, aggregators and end-users. Infrastructure needs include communication with end-use-customer meters and interfaces between the DR Provider and the CAISO. The CEC will lead</p>

	working group five.

**Commission Directives (Paragraph 220, 221):**

Create procedures that:

- Recognize existing DR in RUC by MRTU Release 1;
  - Must be able to communicate how much DR LSE’s are relying on when making a DA bid;
  - Must be able to verify the amount of demand response that is expected to actually occur.

**Commission Directive (Paragraph 222):**

- We direct the CAISO to include in its report how it will incorporate DR within the RUC process by MRTU Release 1 or explain why such work-arounds cannot be deployed in MRTU Release 1.

**CAISO’s Compliance Actions:**

June-Sept 2007	1. Through the MRTU Release 1 working group, the CAISO has established a work-around process that will incorporate existing price-responsive IOU DR programs in RUC. The process is detailed in the draft User Guide. Under the interim process, the LSE’s will communicate, through their Scheduling Coordinators, their scheduled DR forecast, by emailing a standardized spreadsheet to a dedicated CAISO email address and to various other CAISO address recipients. The CAISO will then conduct manual adjustments of the RUC forecast, for both the Day Ahead and Real Time markets. The draft User Guide which has been posted on the CAISO Demand Response Initiative Web page ( <a href="http://www.caiso.com/1893/1893e350393b0.html">http://www.caiso.com/1893/1893e350393b0.html</a> ).

The Commission’s order directs the CAISO to develop the capability to verify the amount of DR that is expected to actually occur. At this point, the present design of the work-around provides only that the DR forecast is estimated by the DR Provider (i.e. the IOU or entity acting on its behalf), based upon limited historical performance of the

particular DR program (for example, by evaluating the 3 highest days out of the prior 10), and requires the DR Provider to break down the information by individual program on the standardized spreadsheet. Accordingly, at this time, the CAISO will not have the ability, *ex ante*, to independently verify the amount of DR that is expected to actually occur (i.e., the performance of the Forecasted DR submitted on the spreadsheet).

However, the specified process does provide for actual DR response to be reported and evaluated, after the fact. (User Guide, Section 2.5.) The CAISO expects that the reporting information received from DR Providers, along with the experience that the CAISO will gain through the roll-out of the procedure, should enable the CAISO to better evaluate, *ex ante*, the expected performance of the forecasted MWs. As working group five, the Infrastructure for Demand Response Resources working group, develops recommended infrastructure changes, the CAISO may acquire enhanced capability/functionality to verify expected performance of the DR Provider's forecast of MWs.

### **III. CAISO FUTURE ACTION PLAN: A ROADMAP FOR DEMAND RESPONSE**

#### ***Phase I: Foundation (2007 – 2008)***

The CAISO is actively engaged in the CPUC's DR proceeding and is working to ensure that policies are developed to support the greater integration and participation of demand response resources into the wholesale electricity markets and grid operations. Toward this end, the following foundational elements are being addressed, largely through the five working group process:

- Creating a shared vision for demand resources that addresses the needs of end-users, DR providers, electricity markets, utility operations and grid operations, and that meets California's energy policy objectives (working group three).

- Defining demand response resource requirements and specifications, so that DR products can be developed and deployed into the wholesale electricity market and can be used by, and be useful to, both utility and CAISO operators (working group four).<sup>20</sup>
- Determining how to model and integrate demand response resources into the wholesale electricity markets and grid operations, in a manner analogous to how generation resources are modeled (working group two).<sup>21</sup>
- Identifying the infrastructure necessary to satisfy the state's energy policy objectives and to help coordinate and facilitate the participation of demand response resources in the CAISO's market design and utility and CAISO operations (working group five). For instance, infrastructure needs may require the group to have to develop new formal communication and business interfaces between the DR Provider and the CAISO, similar to NE-ISO's Internet Based Communication System, or the DRBizNet technology that enables open standard communications and automated business management.
- Developing operational load impact protocols that are specifically designed to: 1) ensure unbiased, precise, and transparent estimates of hour-by-hour load reductions from DR resources; and 2) meet the operational and reliability needs of the CAISO. (As mentioned above, the CAISO is discussing the development of load impact and cost-effectiveness protocols for the CAISO markets in the CPUC DR Proceeding.)
- Determining appropriate methods and processes to measure and verify the after-the-fact load reductions from DR resources for settlement purposes. (The tasks for working groups four and five will touch upon these subjects.)

### ***Phase II: Implementation (2008 – 2009)***

The CPUC's next DR program cycle for the IOUs is for the years 2009 to 2011. (The CPUC program cycles are 3-year cycles.) The outcome of the five working groups will help inform the CPUC's DR proceeding, where appropriate, and affect the next DR

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<sup>20</sup> The DR programs submitted by the IOUs into the CAISO DAM and RTM will operate under the specified process (as set forth in the User Guide) to reduce the CAISO load forecast in RUC. Logically, these DR programs should also be incorporated into the IOUs' processes and lower the expected load whenever these DR programs are called. Accordingly, the IOUs forecasted demand submitted to the CAISO the DAM and/or RTM should reflect a one-for-one reduction for the MWs of DR resources that the IOUs submit to the CAISO under the work-around.

<sup>21</sup> For further information on the comparison of DRR to generation, see table at p. 11 of Issue Paper *Post release 1 MRTU Functionality for Demand Response*, posted on the CAISO's Demand Response Initiative Web page (<http://www.caiso.com/1893/1893e350393b0.html>) as the last item from the Release 1 Working Group June 26, 2007 workshop (<http://www.caiso.com/1c08/1c0810a2e527b0.pdf>).

program cycle, where possible. To this end, implementing the findings and/or proposals of the working groups in this phase will require coordination, planning and budgeting, including, for example:

- Developing the tools and implementing the market and business rules necessary to incorporate DR into the operations of the CAISO market and grid, similar to generation resources. For example, the tools to be developed may include new customer interface portals and templates for scheduling. Also, new business rules may need to be developed for application within the CAISO's Scheduling Infrastructure Business Rules (SIBR) system. In addition, it might be necessary to modify the CAISO Settlement and Market Clearing (SaMC) system.
- Specifying and budgeting for the appropriate infrastructure, both within the CAISO and at the state level, for example, for infrastructure analyzed and recommended by working group five.
- Developing new DR products and services for the 2009 - 2011 DR program cycle that meet the product requirements and specifications and can be deployed into the CAISO markets and which can be used by both utility and CAISO operations.

### ***Phase III: Production & Refinement (2009 – 2011)***

Important foundational issues and policies should be decided in this phase, in order to provide greater clarity regarding the application and delivery of demand response as a resource used by and useful to utilities and to the CAISO. Tasks in this phase will include:

- Refining requirements and specifications, to address changes in market design and/or rules.
- Utilizing the platform of newly built DR infrastructure, to refine products, enable greater customer participation, and expand utility and CAISO use of demand response resources.
- Developing and deploying new DR Products, according to refined DR product requirements and specifications.
- Performing measurement and evaluation assessments, to validate the contribution and performance of demand response resources in the wholesale electricity markets.

- Developing and implementing a “way forward” and road map, to identify strategies to take DR resources to the next level.

#### IV. CONCLUSION

For the foregoing reasons, the CAISO respectfully requests that the Commission accept this report in compliance with Paragraphs 219, 220, 221 and 222 of the June 25, 2007 Order on Compliance, detailing the progress of the CAISO toward demand response efforts, including the CAISO’s efforts to incorporate demand response within the RUC process by MRTU Release 1.

Respectfully submitted,

***//Baldassaro Di Capo//***

Dated: September 17, 2007

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**Attachment A**

**Timeline of  
California Independent System Operator Corporation  
Efforts to Promote Demand Response since November 2006**

**Timeline of  
California Independent System Operator Corporation  
Efforts to Promote Demand Response since November 2006**

January 25, 2007	<i>CPUC OIR establishes rulemaking proceeding R.07-01-041. Goal four of the four stated goals is to align IOU DR programs with CAISO MRTU. The California CEC participates as collaborative staff in the CPUC DR Proceeding.*</i>
January 25, 2007	CAISO sponsors Market Issues Forum on DR.
February, March, April 2007	Efforts to initiate CADRI mechanism/process; Meetings with CEC and CPUC representatives.
	The CAISO establishes a DR Lab at the CAISO's facilities.
May 3-4, 2007	<i>CAISO participates in the initial CPUC DR Proceeding workshop designed to develop parameters for IOUs to develop straw proposals for Load Impact and Cost Effectiveness analysis of IOU DR programs (Goals one and two of the proceeding)</i>
May 15, 2007	"Advancing DR and MRTU and Beyond" Meeting held in San Francisco.
June 13, 2007	CAISO representatives meet with representatives from Aggregator EnerNOC to learn more about DR information and data flows and how to make demand response resources "visible to" and "operable by" the grid operators.
June 26, 2007	MRTU Release 1 Working Group Workshop at CAISO.
July 17, 2007	MRTU Release 1 Working Group Workshop at CAISO.

July 19-20	<i>CAISO participates in CPUC DR Proceeding workshops at which IOU straw proposals for Load Impact and Cost Effectiveness are presented and discussed.</i>
August 1-3	<i>CAISO participates in CPUC DR Proceeding workshops which identify areas of party agreement and disagreement with IOU straw proposals for Load Impact and Cost Effectiveness.</i>
August 30, 2007	Draft Demand Response Resource User Guide posted on CAISO Demand Response Initiative Web page for stakeholder review.
September 6, 2007	Vision Working Group Meeting at CPUC.
September 12, 2007	MRTU Release 1 Working Group Workshop at CAISO.
*Italicized items denote CAISO participation the CPUC DR Rulemaking Proceeding.	

**Attachment B**

**Copy of  
California Independent System Operator Corporation  
Demand Response Initiative Web Page**



Current Initiatives

- Advanced Transmission Technologies - LEAPS
- CAISO Grid Planning Standards
- CAISO Information Products and Services (IP&S) Project
- CAISO Integration of Renewable Resources
- Calculation of Bid-Based Reference Prices
- Capacity Markets
- Congestion Revenue Rights (CRR) Initiative
- Convergence Bidding
- Demand Response
- Relevant Market Notices
- FERC Order No. 890: Preventing Undue Discrimination and Preference in Transmission Service
- Gas-Electric Coordination Issues
- GMC/Budget Processes
- Interim Capacity Procurement
- ISO Credit Policy Stakeholder Process
- Long-Term Transmission Rights (LTTR)
- Market Initiatives
- Mitigation of Reliance on Old Thermal Generation
- NERC Reliability Standards



Demand Response Initiative

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Relevant Market Notices

**Demand Response- Release 1 Working Group – 12-Sep-2007**

Agenda - Demand Response - Release 1 Working Group  
pdf 69K | [Abstract](#) | 09/12/2007 09:47

Presentation - CAISO Electric Load Forecasting  
pdf 417K | [Abstract](#) | 09/12/2007 09:51

DRAFT Demand Response Resource User Guide – Guide to Participation in MRTU Release 1  
pdf 211K | [Abstract](#) | 08/30/2007 11:56

MRTU Post Release 1 – Participating Load  
pdf 143K | [Abstract](#) | 09/12/2007 09:35

**Demand Response - Release 1 Working Group – 17-Jul-2007**

Agenda - Demand Response Release 1 Working Group 17-Jul-2007  
pdf 70K | [Abstract](#) | 07/26/2007 08:04

Presentation - Baselines for Demand Response 17-Jul-2007  
pdf 33K | [Abstract](#) | 07/26/2007 08:13

Conceptual Proposal – How Demand Response Programs Will Participate in Release 1  
pdf 88K | [Abstract](#) | 07/26/2007 08:16

Presentation - MRTU Post Release 1 Participating Load 17-Jul-2007  
pdf 46K | [Abstract](#) | 07/26/2007 08:20

Presentation - How CAISO Will Adjust CFCD for RUC Procurement  
pdf 45K | [Abstract](#) | 07/26/2007 10:26

**Demand Response - Release 1 Working Group -- 26-June-2007**

Meeting Notes from May 15, 2007- Advancing DR in MRTU & Beyond  
pdf 92K | [Abstract](#) | 06/29/2007 16:14

Overview of Demand Response Working Groups  
pdf 41K | [Abstract](#) | 06/27/2007 11:12

How Demand Resources Will Participate in MRTU Release 1  
pdf 102K | [Abstract](#) | 06/27/2007 11:16

Participating Load - MRTU Post Release 1  
pdf 52K | [Abstract](#) | 06/27/2007 11:18

Demand Resource Product Matrix  
pdf 170K | [Abstract](#) | 06/27/2007 11:22

Agenda – Demand Response Release 1 Working Group  
pdf 71K | [Abstract](#) | 06/20/2007 15:02

Outage Reporting Requirements Stakeholder Process	Post Release 1 MRTU Functionality for Demand Response <a href="#">pdf 137K</a>   <a href="#">Abstract</a>   06/26/2007 09:58
Participating Intermittent Resource Program (PIRP) Initiative	<b>Market Issues Forum on Demand Response</b> Agenda - Market Issues Forum on Demand Response 25-Jan-2007 <a href="#">pdf 138K</a>   <a href="#">Abstract</a>   01/24/2007 14:58
Spinning Reserve Certification	Presentation by Dr. Barbara Barkovich - CLECA <a href="#">pdf 23K</a>   <a href="#">Abstract</a>   01/24/2007 08:44
Remote Resource Interconnection (RRI) Policy	Joint Presentation by CPUC & CEC <a href="#">pdf 69K</a>   <a href="#">Abstract</a>   01/24/2007 08:49
Reliability Capacity Services Tariff (RCST)	Presentation by Dr. David Kathan - FERC <a href="#">pdf 189K</a>   <a href="#">Abstract</a>   01/24/2007 08:55
Resource Adequacy Initiative	Presentation by Mr. Steve McCarty - PG&E <a href="#">pdf 56K</a>   <a href="#">Abstract</a>   01/25/2007 10:35
Scarcity Pricing	Presentation by Mr. Glen Perez - CAISO <a href="#">pdf 78K</a>   <a href="#">Abstract</a>   01/24/2007 12:53
Systems Interface User Group	Presentation by Mr. Greg Dixon - EnerNOC <a href="#">pdf 198K</a>   <a href="#">Abstract</a>   01/24/2007 14:39
Voltage Support and Black Start	Presentation on CAISO Demand Response Vision & Role <a href="#">pdf 56K</a>   <a href="#">Abstract</a>   01/24/2007 14:46  Speaker Biographies <a href="#">pdf 63K</a>   <a href="#">Abstract</a>   01/24/2007 08:57
	<b>MRTU Workshop on Demand Response</b> Agenda - MRTU Workshop-on Demand Response 02-Nov-2006 <a href="#">pdf 76K</a>   <a href="#">Abstract</a>   10/18/2006 16:12  Presentation - CAISO Operational Needs from Demand Response Resources <a href="#">pdf 222K</a>   <a href="#">Abstract</a>   11/01/2006 16:47  Presentation - MRTU Market Overview and Timeline <a href="#">pdf 1222K</a>   <a href="#">Abstract</a>   11/01/2006 16:50  Presentation - CEC/CPUC Update on Demand Response in California <a href="#">pdf 154K</a>   <a href="#">Abstract</a>   11/01/2006 16:53  Presentation - MRTU Release 1 & Release 2 Functionality Related to Demand Response <a href="#">pdf 133K</a>   <a href="#">Abstract</a>   11/01/2006 17:18  Discussion Paper - Dispatchable Demand Response Functionality in MRTU <a href="#">pdf 96K</a>   <a href="#">Abstract</a>   11/03/2006 11:41  September 21, 2006 Order Conditionally Accepting the California ISO's Electric Tariff Filing to Reflect Market Redesign and Technology Upgrade in Docket Nos. ER06-615-000 and ER02-1656-027, et al. (Tariff Amendment No. 44 and Proposed MRTU Tariff) <a href="#">pdf 7394K</a>   <a href="#">Abstract</a>   09/21/2006 17:44  Post-it Notes Feedback from Workshop <a href="#">pdf 46K</a>   <a href="#">Abstract</a>   11/07/2006 13:23