California ISO
Your Link to Power

California Independent
System Operator Corporation

April 28, 2009

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: California Independent System Operator Corporation
Docket Nos. RM07-19-___ and AD07-7-___
Compliance Filing

Dear Secretary Bose:

Pursuant to the Commission's directives in Order No. 719,[1] the California Independent System Operator Corporation ("ISO") respectfully submits for filing its Compliance Report and amendments to the ISO's tariff that are necessary for compliance. The explanations for the tariff amendments are set forth in the Compliance Report.

Two extra copies of this filing are also enclosed. Please stamp these copies with the date and time filed and return them to the messenger.

Effective Date

The ISO requests that the amendments included in this filing be made effective on April 28, 2009.

Enclosures

The following documents are included in this filing:

1. Compliance Report, with two attachments;
2. Blacklined tariff sheets containing the proposed amendments; and
3. Clean revised tariff sheets.

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[1] Wholesale Competition in Regions with Organized Electric Markets, 125 FERC ¶ 61,071 (October 17, 2008).

The CAISO has prepared the blacklines in an unconventional manner in order to make it easier to track the changes. Specifically, the revisions to Appendices P and O include both substantive changes and the movement of many sections. In order to distinguish substantive changes from movement of provisions, the blacklines in these Appendices only show substantive changes. Provisions that have merely been moved are indicated with bracketed references to their previous location. These bracketed references appear in the blacklines only. To the extent that these changes do not comport with the requirements of 18 C.F.R. §35.10 and any other applicable regulations or orders, the CAISO requests waiver of the requirements and orders.

Respectfully submitted,

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ENCLOSURE NO. 1

COMPLIANCE REPORT OF THE

CALIFORNIA INDEPENDENT SYSTEM OPERATOR

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Wholesale Competition in Regions with Organized Electric Markets	))	Docket Nos. RM07-19-000 AD07 -7 -000

ENCLOSURE NO. 1:

COMPLIANCE REPORT OF THE

CALIFORNIA INDEPENDENT SYSTEM OPERATOR

April 28, 2009

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I. Introduction

The California ISO or "CAISO" supports the Commission's efforts to improve wholesale competition in organized power markets. This report explains how CAISO complies with or plans to comply with the requirements identified in 18 C.F.R. § 35.28(g)(6)(i).

As detailed below, even before the Commission's June 7, 2007, Advance Notice of Proposed Rulemaking in this docket,[1] the CAISO offered stakeholders and the public direct access to its governing board, which is the core requirement of the Commission's responsiveness directive. The CAISO nevertheless continues to strive for improved responsiveness, particularly in the stakeholder processes that lead to the CAISO's open board meetings.

The CAISO has also made significant progress on fully incorporating demand response resources and scarcity pricing into its new market design. The requirements that are not already in place are scheduled to be implemented with the first group of enhancements to the CAISO's new market design, consistent with the Commission's orders in the Market Redesign and Technology Upgrade ("MRTU") docket.

The CAISO plans to support long-term contracting by link to a PJM-hosted bulletin board, which is scheduled for release later in 2009.

Finally, the CAISO proposes in this filing to revise its tariff to consolidate all market monitoring provisions, organized in the manner suggested by the

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[1] Wholesale Competition in Regions with Organized Electric Markets, Advance Notice of Proposed Rulemaking, FERC Stats. & Regs. ¶ 32,617 (2007)

Commission. This proposed new tariff sections adopt the Commission's new rules for market monitors.

II. Governance Responsiveness

The first area in which Order No. 719 amended the Commission's regulations concerns "the responsiveness of [RTOs] and [ISOs] to their customers and other stakeholders, and ultimately to the consumers who benefit from and pay for electricity services."[2] The core requirement is to "establish a means for customers and other stakeholders to have a form of direct access to the board of directors."[3] The purpose of this requirement is to increase boards' "willingness . . . to directly receive concerns and recommendations from customers and other stakeholders, and to fully consider and take actions in response to issues that are raised."[4] Though it goes unstated, the background for this requirement is that the board meetings of many ISOs and RTOs are not open to the public.

The existing governance practices and procedures of CAISO provide the most direct solution to the Commission's concerns: meetings of the CAISO Board of Governors are not only open to the public, but these meetings also allow stakeholders the opportunity to engage directly with the CAISO Board of Governors on individual decisional items. Before 2007, the Board generally took comments from the public at the beginning of each meeting. The Board of Governors subsequently revised its procedures to improve its responsiveness to stakeholder concerns. Stakeholders now may address the Board while the

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[2] Order No. 719, Summary.
[3] *Id.* at P 477.
[4] *Id.*

Board is considering a specific decisional item; anyone wishing to address the Board may speak after management has presented its view and before the Board takes action. Thus, those addressing the Board have a clear opportunity to rebut management and express their views before the Board acts. In addition, the written materials submitted to the Board summarize views expressed during any stakeholder process that took place during the development of the matter being presented to the Board. The written materials include a discussion of the views of stakeholders, and, for matters that are more complex, the materials generally include a matrix showing the various positions of individual stakeholders or sectors and the CAISO's response as to matters still in controversy. In addition, it is not uncommon for stakeholders to send letters directly to the Board with comments on decisional items.

A. Background Regarding CAISO Stakeholder Process and Client Survey

In addition to open board meetings, the CAISO provides an "avenue for customers and other stakeholders to present their views on . . . ISO decision-making, and to have those views considered,"[5] through the ISO's stakeholder process. The CAISO follows a consistent stakeholder process for all policy initiatives that are presented to the CAISO Board of Governors and filed with the Commission. As discussed below, the stakeholder process is public and transparent. Throughout the process, the CAISO communicates the status of initiatives to stakeholders and elicits stakeholder feedback, including at the end of the process.

[5] *Id.* at P 503.

Prior to a 2005 internal reorganization, the CAISO lacked a centralized stakeholder process. Individual departments conducted their own stakeholder processes for their own initiatives on an *ad hoc* basis. Through CAISO's corporate survey, stakeholders suggested that more consistency and uniformity would clarify expectations and thereby facilitate participation. In response, the CAISO created a stakeholder affairs group within the External Affairs division, under the direction of a Manager, Stakeholder and Industry Affairs. The stakeholder affairs group now manages a centralized stakeholder process, developed at the direction of and with the approval of the CAISO Board of Governors.

The steps in the stakeholder process are outlined on the CAISO's website[6] such that stakeholders know at all times where a particular stakeholder process stands. The CAISO's website contains the entire written record of the particular stakeholder process so stakeholders can view all CAISO issue papers, proposals, presentations, and all stakeholder comments. There are multiple opportunities for stakeholder input during the course of a stakeholder process. When the CAISO initiates a project, it publishes an issue identification paper or study plan for stakeholder comment. Following stakeholder comments, the CAISO provides a straw proposal or study results. The CAISO again reviews stakeholder comments and ultimately provides a final draft proposal or recommendation. For more significant and complex policy initiatives (*e.g.*, the Interim Capacity Procurement Mechanism and Standard Capacity Product), the CAISO generally goes through several iterations with stakeholders, circulating

6 http://www.caiso.com/docs/2005/06/09/2005060910374912494.html.

several revised proposals based on input from stakeholders. In any event, before a final proposal or recommendation is submitted to the CAISO Board of Governors, stakeholders again have an opportunity to comment on the document. At each step of the process, the CAISO conducts a stakeholder conference, either live or by telephone and internet, to explain the proposal or study and receive comments. The CAISO then provides the opportunity for written comments. For policy initiatives that will result in a tariff filing, the stakeholder process also includes an opportunity to comment on the tariff language to be filed with the Commission.

The Stakeholders and Industry Affairs group is responsible for ensuring that each stakeholder consultation provides an efficient mechanism for stakeholder participation. The group establishes a timeline for producing and distributing documents in advance of meetings. All meetings are announced by market notice and posted on the CAISO website on the page dedicated to the particular stakeholder process. The group ensures that presentations are prepared in advance of the meeting and are rehearsed beforehand. After each meeting, the Stakeholders and Industry Affairs representative calls a meeting of staff to share lessons learned. The CAISO measures compliance with these quality guidelines and staff members in Stakeholder and Industry Affairs are accountable for their scores.

The CAISO also conducts an annual corporate survey to evaluate stakeholder concerns. The annual survey covers seven different areas: (1) executive management, (2) stakeholder engagement issues (for policy representatives), (3) transmission planning, (4) grid operations, (5) market operations, (6) settlements, and (7) Grid Management Charge and budget. Stakeholders may choose to assign different representatives to be surveyed in each area. CAISO staff makes a concerted effort to identify those stakeholder representatives who can provide informed feedback that yields guidance for future actions. The CAISO also periodically conducts targeted surveys to test customer satisfaction with significant stakeholder processes.

B. Compliance

The Commission established four criteria for a demonstration of compliance with the responsiveness requirement of Order No. 719: (1) inclusiveness; (2) fairness in balancing diverse interests; (3) representation of minority positions; and (4) ongoing responsiveness.[7] The Commission also directed that compliance filings propose posting, or report the posting, of the RTO's or ISO's mission statement or organizational charter on its respective web site.[8] As discussed below, the CAISO believes it meets these criteria and requirements.

In Order No. 719, the Commission explained that, in light of the volume of comments from interested parties seeking improvement to their interactions with RTO and ISO boards, compliance filings should follow from consultation with customers and other stakeholders regarding satisfaction with existing processes and the appropriateness of improved processes.[9] The Commission ordered that, for each compliance criterion, an ISO or RTO provide an explanation of the

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[7] Order No. 719 at P 477.
[8] *Id.* at P 565.
[9] *Id.* at P 566.

process (*e.g.*, stakeholder meetings, technical conferences, board discussions) that the RTO and ISO used to develop its compliance filing demonstration and include dissenting views.[10]

Even before Order No. 719, as discussed above, the CAISO provided stakeholders with "direct access to the board of directors."[11] The CAISO therefore has focused its outreach efforts on improving the stakeholder process that leads to Board decisions. In November and December 2008, the CAISO used its annual client survey, noted above, to obtain this feedback. A third-party consultant conducts the survey on behalf of the CAISO over the telephone and the internet with stakeholder representatives from all segments of the industry (transmission owner, municipal utility, scheduling coordinator, generator, wind generator, importer, marketer, and trade association).

Relevant for the purposes of this filing, the 2008 survey polled 38 stakeholder representatives specifically on the issue of CAISO's stakeholder engagement and explored, among other things, whether the CAISO (1) uses a consistent stakeholder process for resolving policy; (2) takes the appropriate amount of time to resolve stakeholder issues related to policy initiatives; (3) resolves policy issues efficiently and effectively; (4) provides adequate opportunity for stakeholder input on policy initiatives; (5) adequately incorporates stakeholder input into its policy decisions; (6) accurately presents stakeholder positions to the Board of Governors; and (7) provides an adequate opportunity for stakeholders to communicate views to the Board. In addition to those 38

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[10] *Id.* at P 567.
[11] *Id.* at P 477.

representatives, the survey polled 36 stakeholder executives regarding whether the CAISO (1) provides an effective forum to discuss policies, procedures, and market issues; (2) informs stakeholders how their feedback was used in its decision-making process; (3) adequately shares stakeholder perspectives with the Board; and (4) considers stakeholders' needs when making operating decisions.

Besides numeric scores, the survey yielded dozens of written comments relating to the Board of Governors and the stakeholder process. A number of comments observed that the stakeholder process had improved by becoming more consistent and expanding the use of web-based meetings. In terms of themes for improvement – and leaving aside comments stemming from the implementation of MRTU (which had not yet gone live at the time of the survey) – the persistent theme for improvement was concern about the CAISO’s responsiveness to stakeholder input. Specifically, stakeholders asked the CAISO to improve its openness to changing policy proposals based on stakeholder comments, better inform stakeholders of the disposition of their comments, and more accurately reflect stakeholder positions in Board documents.

Based on this input the CAISO’s Stakeholders and Industry Affairs group established as a goal for 2009 to improve management of the comments received in stakeholder processes, so that stakeholders better understand how the CAISO incorporated their input into policy decisions. This will involve stakeholder focus groups to identify improvements to the comments process itself, and discussions with the functional departments in the CAISO, which collect and process stakeholder input on market initiatives, about the best means for responding to stakeholders. Using these inputs, Stakeholder and Industry Affairs will implement a new process that is designed to meet stakeholder needs and practicable for CAISO staff.

One element of the initiative will be to improve the method for communicating stakeholder comments to the Board, and ultimately adopting a formal mechanism to do so. Among the possibilities being considered are working across the organization to establish a single uniform comments template for use in Board meeting materials and enabling stakeholders to submit their own summary views for a consolidated presentation to the Board. It is expected that additional or alternative mechanisms might be developed through the stakeholder focus groups mentioned above. The Manager of Stakeholders and Industry Affairs has specific performance goals tied to implementing a solution and his compensation will depend in part on his achievements.

Another theme for improvement in stakeholder comments was a request for improved access to the Board members. While stakeholders expressed appreciation for the new structure of Board meetings, which allows them to address specific decisional items, they requested additional opportunities to interact with Board members. The CAISO is responding to the view expressed in these comments by announcing its first “Stakeholder Symposium,” to be held October 7, 2009. The Stakeholder Symposium will provide an opportunity for stakeholders and the Board to interact in a relaxed setting on a wide range of issues that affect the planning and operation of the western transmission grid and markets.

The responses to the stakeholder survey were presented to the Board in March 27, 2009. Both the stakeholder comments and this compliance filing were discussed in public session.

1. Inclusiveness

The Commission's first criterion for responsiveness in Order No. 719 was inclusiveness. The Commission stated that this criterion is intended to ensure that practices and procedures adequately bring the views of all customers or other stakeholders before the board. To meet this criterion, the CAISO must "ensure that any customer or other stakeholder affected by [its] operation . . . is permitted to communicate its views to the . . . board of directors."[12]

As explained in detail above, the CAISO Board makes its decisions at publicly noticed open meetings in which any stakeholder or other interested party can address the Board directly.[13] This practice alone ensures inclusiveness as defined in Order No. 719.

In addition to providing this direct access, the CAISO also employs a transparent and well-organized stakeholder process to ensure consideration of stakeholder views prior to consideration by the Board of Governors. These views are routinely provided to the Board with Board decisional items. Letters from stakeholders to Board members are included in the meeting materials. Moreover, the CAISO plans efforts to improve this process. As noted above, the

[12] *Id.* at P 482; *see also* P 506.

[13] The open meetings are required by California Law. *See* Cal. Pub. Util. Code § 345.5(c)(3).

Stakeholders and Industry Affairs group will be working toward formalizing the method for communicating stakeholder feedback to the Board. Before adopting any particular rule, the Stakeholders and Industry Affairs group plans to seek stakeholder feedback regarding the appropriate mechanism.

2. Fairness in Balancing Diverse Interests

In Order No. 719, the Commission stated that the second criterion, fairness in balancing diverse interests, requires “practices and procedures [to] ensure that the interests of customers and other stakeholders are equitably considered and that deliberation and consideration of . . . issues are not dominated by any single stakeholder category.[14] The Commission wished to ensure that each RTO or ISO makes well informed decisions that reflect the full range of competing interests that may be affected.

Such fairness is ensured by the fact that the CAISO’s Board meetings are open to all stakeholders and members of the public. It is also ensured by the independence of the CAISO Board. By law, Board members are appointed by the Governor and confirmed by the California Senate.[15] Stakeholders do, however, have input into the Board of Governors selection process. A thirty-six member Board Nominee Review Committee, with stakeholders from six diverse sectors, reviews and ranks a list of qualified potential board members provided by a professional search team. The search team presents at least four candidates to the Governor for his or her consideration for each vacant seat.

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[14] Order No. 719 at P 482

[15] Cal. Pub. Util. Code § 337. *See also See also Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395 (D.C. Cir. 2004); .*Cal. Indep. Sys. Operator Corp.* 112 FERC ¶61.010 (2005). The Commission has found that the selection process will help ensure that market participants will not be able to unduly influence the Board. *Id.* at P 24.

This assures diverse stakeholder involvement in vetting qualified candidates for the Board while preserving the Board's independence and quality through the selection of candidates vetted through the Governor's appointments office and reviewed by the Senate in public hearings for their confirmation.[16] The public confirmation hearings provide yet another avenue for all interested stakeholders to get engaged in the process for appointing CAISO Board members.

Further assurance of fairness in balancing diverse interests is provided by the CAISO stakeholder process, which is open to all stakeholders, regardless of the stakeholder classification. Comments from all stakeholders are processed in the same manner. The CAISO assigns a staff member to facilitate stakeholder meetings who is not affiliated with the project being discussed. His or her objective is to make the meeting balanced – to ensure that all views are heard and that no one is cut off, including stakeholders who participate by phone.

The stakeholder process can leave the CAISO with diverse input to balance when developing recommendations for the Board of Governors. On some issues, stakeholders stick to polar positions, and consensus is not possible. But by assuring that all views are expressed, considered, and communicated to the Board, the stakeholder process gets as close as possible to accommodating all interests without sacrificing effectiveness.

[16] That independence is required by California law. Cal. Pub. Util. Code § 337. In Order No. 719, the Commission discussed, but did not require, the adoption by RTOs and ISOs of a specific form of board structure – whether board advisory committee, hybrid board, or other – as a mechanism for ensuring that existing or proposed structures and procedures are appropriately responsive to customers and other stakeholders. Order No. 719 at P 534. Instead the Commission established a responsiveness objective that each RTO or ISO could meet in its own way. *Id.* at P 536. Thus, the CAISO's process achieves the Commission's objectives without compromising independence.

The Board operates as a backstop to ensure that no group or groups will have undue influence over the decisions that stem from the stakeholder process. The Board reviews and approves all tariff revisions and other significant actions. Although the Board, which must consider a number of discrete issues in its meetings every six weeks, is not involved in technical debates over the details of proposals, it serves as a check to confirm that CAISO management has made appropriate efforts to balance the competing stakeholder demands and that the proposals are consistent with overall direction of the company.

Indeed, at one time or another, the Board has taken action over the strong objection of major market sectors. In light of the practices described above, and the attention that both management and Board give to developing policies, markets, and improvements to transmission planning and operation while considering the diverse interests, the CAISO satisfies this criterion.

3. Representation of Minority Interests to the Board

The third criterion established by the Commission was representation of minority interests to the RTO and ISO boards. The Commission considered this critical to ensure that customers and other stakeholders have confidence in the decisions that come out of RTO and ISO processes. The Commission believed it necessary to "ensure that, in instances where stakeholders are not in total agreement on a particular issue, minority positions are communicated to the . . . board of directors at the same time as majority positions."[17]

The same Board practices and procedures that provide inclusiveness and fairness in balancing diverse interest, as described above, also ensure that the

[17] Order No. 719 at P 482.

Board is fully informed of minority views. The CAISO is not aware of any circumstances in recent years in which minority stakeholder views that were expressed during the stakeholder process have not been presented to the Board. Indeed, just as the Board has achieved balance by balancing diverse interests in its decisions, the Board has altered its decisions to specifically accommodate minority interests. For example, in July 2008 the Board altered its motion language regarding its decision on uneconomic adjustment to specifically ensure that legal and appropriate protections for existing transmission contracts, based on concerns raised by the California Department of Water Resources. Finally, stakeholders who wish to elaborate on their own positions typically submit letters or make presentations to the Board of Governors.

4. Ongoing Responsiveness

In Order No. 719, the Commission stated that the fourth criterion, ongoing responsiveness, requires that RTOs and ISOs continue over time to consider customer and other stakeholder needs as the architecture or market environment of the RTO or ISO changes. According to the Commission, RTOs and ISOs should "provide for stakeholder input into the RTO's or ISO's decisions, as well as mechanisms to provide feedback to stakeholders to ensure that information exchange and communication continue over time."[18]

The CAISO has mechanisms in place, discussed above, to ensure such a continuous evaluation. The annual customer survey includes feedback on the stakeholder process, Board, and customer service. Periodic targeted surveys

[18] *Id.* at P 482; *see also* P 509.

also examine the effectiveness of the stakeholder process regarding particular initiatives.

In addition, the Stakeholders and Industry Affairs group within the External Affairs division is dedicated to the continuous improvement of the stakeholder process. It establishes specific goals for every year. As discussed above, among this year's goals, is improving the management of the comments received in stakeholder processes, so that stakeholders better understand how the CAISO used their input. This goal will also include improving the method for communicating those comments to the Board.

In addition, customer service staff is accountable through their individual performance plans for improving the management of the stakeholder process. Because CAISO's strategic plan and annual goals include the goal of superior customer service and related metrics, compensation of every employee in the company (including every officer) depends in part upon customer service metrics.

The Commission encouraged, but did not require, each RTO and ISO to give appropriate weight to responsiveness to customers and other stakeholders in its management programs, including executive compensation.[19] The CAISO compensation system considers such matters. Superior customer service is an element of CAISO's five-year strategic plan and a part of the 2009 corporate metrics. The company's performance against these metrics is an element of every employee's compensation. Consequently, the compensation of every employee – not just management – depends to some degree on responsiveness to customers and other stakeholders.

[19] Order No. 719 at P 561.

5. Mission Statement

In directing RTOs and ISOs, in Order No. 719, to provide a mission statement on their websites, the Commission encouraged each RTO or ISO to include in its mission statement, among other things, the organization's purpose, guiding principles, and commitment to responsiveness to customers and other stakeholders, and ultimately to the consumers who benefit from and pay for electricity services.[20] Even before the Advance Notice of Proposed Rulemaking that preceded Order No. 719, the CAISO had posted on its website a wide range of information about corporate objectives and plans, including a mission statement. The mission statement is available at http://www.caiso.com/docs/2005/09/28/200509281333048821.html. It is easily accessible through the link "About the ISO."[21] A copy of the mission statement is included as Attachment 1 to this report. The "About the ISO" link also includes a video describing the purpose and history of the CAISO. It is available at http://www.caiso.com/1822/182287ca5670.html.

III. Demand Response

A. Background

Culminating many years of work on its MRTU, the CAISO implemented its new market design and new tariff on March 31, 2009. The MRTU tariff was initially filed in February 2006, and developed further at the direction of the Commission in Docket No. ER06-615. In its September 21, 2006 order

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20 *Id.* at P 556.

21 The mission statement is located in "The Public and Media Center" half of the website, as opposed to "The Operational Center." On this side of the website, the first of five buttons is "About the ISO." The first of seven choices under "About the ISO" is "California ISO Overview." The first choice there is "Mission & Vision."

conditionally approving the MRTU tariff, the Commission ordered the CAISO to work with market participants to present additional opportunities for demand response resources to participate in the CAISO markets.[22] Since that time, the CAISO has worked extensively with stakeholders to achieve that goal. The CAISO's stakeholder process has been conducted through various working group and stakeholder meetings. There were originally five working groups. One of the working groups initially formed, "Demand Response Participation in MRTU Release 1," completed its work with the implementation of MRTU on April 1 and is now implementing the process developed to account for certain retail demand response programs in the Residual Unit Commitment ("RUC") process.

The other working groups have been refocused to correspond with the remaining objectives: further integration of demand response resources into the CAISO markets and expansion of the direct participation capability of retail loads in those markets.[23] The CAISO's efforts are primarily focused on development of market and software enhancements, to be proposed as part of the CAISO's Market and Performance ("MAP") initiative (formerly called MRTU Release 1A).

A fundamental aspect of the CAISO's demand response initiatives is the refinement and development of demand response products, including refinements to the existing Participating Load Program ("PLP") and the development of a Proxy Demand Resource ("PDR") product.

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[22] *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274, at Ordering Paragraph (R) (2006).

[23] The currently active working groups are Demand Response Integration and Direct Participation (which is headed by the CAISO) and Vision for Demand Resources (which has largely completed its work, and is headed by the California Public Utility Commission).

1. Participating Load Refinements Under MAP

The PLP treats a demand response resource analogously to a supply-side resource. It is scheduled and settled at a node or custom aggregation of nodes, often referred to as a Custom Load Aggregation Point. The proposed changes to the PLP under MAP refine functionality for Participating Load by modeling extensive operational characteristics, such as maximum duration of dispatches, maximum number of dispatches per day, and maximum amount of electric energy reduction. The changes will also provide functionality for the non-generation resource to provide all ancillary services and energy products that the CAISO procures through its market, including non-spinning reserve, spinning reserve, regulation, RUC capacity, day-ahead energy, and real-time imbalance energy. In addition, the Participating Load resources will have the option to submit three-part bids into the CAISO markets, which will enable their energy and ancillary service bids to be co-optimized in the CAISO's Day-Ahead and Real-Time markets in the same manner as generators' bids. Both scheduling and settlement will take place at a Custom Load Aggregation Point that the CAISO establishes for the specific Participating Load resource, as has been the included in the MRTU tariff since 2006. The PLP refinements will also meet the needs of aggregated pumps that participate in the CAISO markets today, as well as of demand response resources located at a single node or at a collection of nodes that can be aggregated, forecast, scheduled and bid at a Custom Load Aggregation Point. The CAISO believes the proposed PLP model will work well for non-generation resources that operate over many hours of the year, including such resources as dynamic thermal energy storage and industrial process control. In addition, the CAISO intends to provide the functionality that would allow Participating Load resources to supply regulation as an ancillary service. Regulation requires the CAISO's Energy Management System to monitor the participating customers' demand more closely than is likely to be the case under the PDR model.

The Draft Final Proposal on the PLP refinements may be found at http://www.caiso.com/239e/239e704828350.pdf. The Presentation on Post-Release 1 MRTU Functionality for Demand Response is located at http://www.caiso.com/2074/2074e67d2a600.pdf.

There have been very few dissenting views regarding PLP. The only major dissenting views have come from certain parties representing large retail loads. In formal comments of the PDR product, parties representing large retail loads[24] stated that they did not oppose PLP enhancements to eliminate manual workarounds and integrate it with the MRTU platform. They did, however, oppose revisions intended to increase participation before a thorough review of the design and of potential gaming is complete and mitigation for potential gaming is developed. They also expressed concern that the expected benefits of an expanded PLP must be weighed against the expected amount of structural cost shifting.[25] Based on informal discussions, the CAISO understands that some such parties are concerned that settling Participating Load at the Custom Load Aggregation Point undermines the agreement reached early in the development of the new market design that required load be settled at Default

[24] The California Manufacturers & Technology Association, the California Hospital Association, the California Society for Healthcare Engineering, and the Energy Users Forum.

[25] The full comments are available at http://www.caiso.com/237d/237dbf9918c00.pdf.

Load Aggregation Points, thus socializing the costs of energy across low and high cost areas. These parties believe that PLP provides an opt-out of the Default Load Aggregation Point mechanism for customers in predictably low priced LMP areas (leaving fewer costs to "socialize"). In other words, the concern is that large customers could set up small, purported PLP resources and effectively pull their total load out of the Default Load Aggregation Point settlement.

The CAISO believes this concern is misplaced, in light of the fact that 90% of load is served through bundled, retail rates, and customers therefore do not see the Locational Marginal Price. For large load-serving entities, the PLP model actually provides the right incentive to sell demand response in the high cost areas because such actions will drive down the overall Default Load Aggregation Price.[26]

Moreover, the decision to settle Participating Load at the Custom Load Aggregation Point was debated and settled as part of the MRTU design and is already a part of the CAISO Tariff. It is not part of the MAP enhancements.[27]

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[26] The only market participants that could potentially game the PLP would be direct access customers that face the Locational Marginal Price through their energy supply contract, but the ISO cannot confirm this because it has no access to the contracts. Nonetheless, the ISO believes that the availability of Congestion Revenue Rights should, over time, eliminate this price discrepancy and eliminate any motivation to play such a game.

[27] This settlement of Participating Load at the Custom Load Aggregation Point developed from a broad review of the MRTU design following Leg's 2005 report, "Comments on the California ISO MRTU LMP Market Design." LECG determined that having Participating Loads buy day-ahead schedules at the Default Load Aggregation Price and then sell demand reductions at nodal prices would be a major source of gaming, which could be avoided by requiring demand response to both buy and sell at the nodal price. This recommendation was discussed extensively with stakeholders and also at the Board meetings throughout 2005. The provisions for scheduling and settling Participating Load were part of the MRTU Tariff filed in February 2006 and approved by the Commission. *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61,274 at P 697.

2. Proxy Demand Resource

The PDR product is a simplified mechanism for demand response resources to participate in the CAISO's markets, providing most of the same functionality available as in the PLP model, but without requiring use of a custom load aggregation to schedule the customer's underlying load as is the case under the PLP model. PDR was developed based on feedback from market participants that the current Participating Load functionality did not provide the flexibility needed for, and imposed certain barriers to, incorporation of price responsive demand response programs into the CAISO markets.

Specifically, the PDR Product addresses the following challenges:

- Price-responsive retail demand response programs that are embedded within the load-serving entity's load (*i.e.,* non-Participating Load) may not be able easily to forecast and schedule on a day-to-day basis the MW quantity of unique Participating Load resources for inclusion in the CAISO's day-ahead market.
- Retail demand response programs that may have frequent customer enrollment changes from month to month cannot easily develop demand forecasts for scheduling purposes at the detail level of the Custom Load Aggregation Point.

PDR-based demand response is the combination of load that is scheduled by the load-serving entity at the Default Load Aggregation Point and a portion of that same load that is bid to be curtailed by the Curtailment Service Provider at the Custom Load Aggregation Point, the latter being represented as a proxy generator resource. Thus, PDR, unlike the PLP, does not require the underlying load associated with the demand response resource (or program) to be uniquely and independently forecast and scheduled at the Custom Load Aggregation Point level. Instead, the load associated with the PDR resource is embedded within the underlying load that is scheduled by a load serving entity at the Default Load Aggregation Point, while the unique demand response bids represent price-responsive demand within specific Sub-Load Aggregation Points or at a Custom Load Aggregation Point.

The CAISO recognizes that it may be difficult for resources that comprise numerous aggregated small end-use customers, which may frequently migrate from one program to another (*i.e.*, enrollments and de-enrollments in a demand response program), to manage the data required for scheduling Custom Load Aggregation Points. The CAISO therefore will allow demand response market participants to designate their demand response resources as located in an CAISO defined Sub-Load Aggregation Point, and the CAISO will use standard distribution factors as an alternative to maintaining Custom Load Aggregation Points for the purpose of dispatching demand response resources.

The proposal for PDR is being developed jointly by the CAISO and a working group of stakeholders, consisting of a cross-section of representatives from the utilities, demand response aggregators, end-use customer organizations, consumer advocates, electric service providers, and the California Public Utilities Commission. The straw proposal for the PDR product is found at http://www.caiso.com/2367/2367e80754e60.pdf.

There has been only one major dissenting view regarding the proposed PDR product. The California Department of Water Resources-State Water Project ("SWP") believes that gaming opportunities are presented by the current design. SWP states that, of the three proposed methods to reduce gaming (determination of a customer baseline, bid price threshold, and limiting demand response program hours), the development of reliable baselines that include all participants is still a moving target and a matter for ongoing pilot studies. SWP also states that using baselines, instead of allowing customers to react in real time to market prices, will be substandard and allow for gaming opportunity.

SWP recommends that the level of settlement for demand and demand response should be identical, whether that level is at the Default Load Aggregation Point, Sub- Load Aggregation Point, Custom Load Aggregation Point, or PNode. It notes that demand is bid and settled at the Default Load Aggregation Point, while demand response is bid and settled at the Custom Load Aggregation Point, and that PDR has no requirement for underlying load associated with demand response resource or program to be uniquely forecast and scheduled at Custom Load Aggregation Point. SWP believes that the assumed price difference between these settlement locations provides a weakness in the design that can be exploited. SWP's complete comments can be found at http://www.caiso.com/237d/237dc2c7451d0.pdf.

B. Explanation of Compliance

As discussed below, the CAISO Tariff currently complies with some, but not all, of the requirements of Order No. 719. The Commission, however, did not require that all Order No. 719 requirements be implemented by the time of this compliance filing. Rather, as noted above, the Commission required a description of the action that the CAISO has taken, or plans to take, to comply with the requirements of the order.[28] The Commission also explicitly stated in Order 719 that it did not intend to displace current RTO and ISO timelines for the development of market and software enhancements,[29] which would include MAP. Although the new demand response products discussed above and other MAP enhancements are not currently a part of the CAISO Tariff and adopted market design, they will achieve the Commission's objectives that are identified in Order No. 719 when implemented in accordance with the existing timelines.

The Commission's rulings on the MRTU Tariff indicate the Commission's recognition that further enhancements of the CAISO's demand response capabilities would not happen until the MAP initiative. In ruling on the CAISO's November 20, 2006 and December 20, 2006, MRTU compliance filings, the Commission addressed numerous comments regarding demand response. The Commission generally endorsed the CAISO's ongoing efforts to incorporate demand response into the MRTU markets.[30] The Commission only directed one revision to the demand response provisions of the CAISO Tariff prior to implementation of MRTU, and the revision was unrelated to expansion of market participation.[31]

Furthermore, the Commission's orders issued subsequent to Order No. 719 and in anticipation of the CAISO's implementation of MRTU have been consistent with its policy on timelines announced in Order No. 719. In those

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28 Order No. 719 at P 580.

29 *Id.* at P 579.

30 *Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,313, at P 218 (2007).

31 *Id.* at P 220. The Commission directed the CAISO, as it works to integrate existing demand response programs and new products into its market design, to create procedures that recognize existing demand response programs in RUC.

orders, the Commission declined to direct that immediate modifications be made to the CAISO Tariff to provide for expanded participation by demand response resources. In doing so, the Commission explicitly acknowledged the planned enhancements and the planned timeline for their implementation:

> We note that the Commission has directed the CAISO to work with interested stakeholders to develop proposals for integrating demand response resources into the MRTU markets and that the CAISO is complying with this directive and its schedule provides for the enhancements to demand response participation in the MRTU Tariff to be filed in 2009.[32]

The CAISO anticipates implementing the full range of Order No. 719 requirements in the MAP enhancements. The demand response initiatives that the CAISO has undertaken to achieve that goal and which are discussed herein are described in greater detail on the CAISO website at http://www.caiso.com/1893/1893e350393b0.html.[33] The CAISO believes that these plans for fully achieving the demand response requirements of Order No. 719 comply with the Commission's directives in that order.

1. Ancillary Services Provided by Demand Response Resources

a. Ancillary Services Markets

(1) Order No. 719 Requirements

The final rule directs RTOs and ISOs to allow demand response resources to participate in Ancillary Service Markets. Specifically, the Commission required each RTO or ISO to accept bids from demand response resources, on a basis

[32] *Cal. Indep. Sys. Operator Corp.,* 126 FERC ¶ 61,148, at P 29 (2009) (footnotes omitted). *See also Cal. Indep. Sys. Operator Corp*., 126 FERC ¶ 61,150, at P 240 (2009); *Cal. Indep. Sys. Operator Corp.,* 126 FERC ¶ 61,147, at P 101 (2009).

[33] The CAISO notes that Order No. 719 directed the CAISO to describe major dissenting views regarding its compliance plans. *Id.* at P 567. The only major dissenting reviews that the CAISO has received are discussed above in connection with the PDR and PLP enhancements.

comparable to any other resources, for ancillary services that are acquired in a competitive bidding process if the demand response resources (1) are technically capable of providing the ancillary service and meet the necessary technical requirements; and (2) submit a bid under the generally applicable bidding rules at or below the market clearing price.[34] According to the Commission, demand response resources that are technically capable of providing the ancillary service within the response time requirements, and that meet reasonable requirements adopted by the RTO or ISO as to size, telemetry, metering and bidding, must be eligible to bid to supply energy imbalance, spinning reserves, supplemental reserves, reactive and voltage control, and regulation and frequency response.[35]

The Commission declined to adopt a standardized set of technical requirements for demand response resources participating in ancillary services markets. Rather, the Commission is allowing each RTO and ISO, in conjunction with its stakeholders, to develop its own minimum requirements.[36] The Commission directed the RTOs and ISOs, in their compliance filings, to set forth a proposal to adopt reasonable standards necessary for system operators to call on demand response resources for ancillary services, and mechanisms to measure, verify, and ensure compliance with any standards for the provision of ancillary services.[37]

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[34] *Id.* at P 47. The Commission exempted circumstances where the laws or regulations of the relevant electric retail regulatory authority do not permit a retail customer to participate.

[35] *Id.* at P 49.

[36] *Id.* at P 59. The Commission further required RTOs and ISOs to coordinate with each other in the development of such technical requirements, and provide the Commission with a technical and factual basis for any necessary regional variations. The Commission concluded that such coordination should ensure that any developed requirement is not so full of technical detail or so burdensome that it discourages demand response resource participation. *Id.*

[37] *Id.* at P 61.

The Commission specifically acknowledged that the CAISO's MRTU, recently implemented, would have the effect of opening ancillary services markets to demand response resources. The Commission, did not, however, grant or deny the CAISO's request that the Commission specifically provide in Order No. 719 that the timeframe for directives stated in the order would not displace the timeline for implementing MRTU enhancements.[38] Instead, the Commission directed the CAISO to include, in its compliance filing, a description of how its current activities comply with the requirements of Order No. 719.[39]

(2) Compliance

As described below, and consistent with the requirements of Order No. 719, the CAISO Tariff currently allows demand response resources to participate in competitive ancillary service markets to the extent they are able to comply with technical requirements. Indeed, the CAISO has since 1999 allowed Participating Loads to bid load curtailment into the CAISO's ancillary services market as non-spinning reserves, and pump loads have consistently received CAISO awards to provide a portion of the CAISO's need for non-spinning reserves. The CAISO now reports the quantity of demand response to the Commission in an annual demand response report.[40]

The CAISO recognizes, however, that the current technical requirements contained in the CAISO Tariff limit the participation of demand response resources to a greater extent than Order No. 719 contemplates. The CAISO is therefore working with stakeholders to determine avenues for redefining the

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[38] *Id.* at PP 62-63.
[39] *Id.*
[40] *See Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,313, at P 226 (2007).

definitions of CAISO ancillary services in order to enhance participation by demand response resources.

(a) Current Participation of Demand Response Resources in CAISO Markets

The ancillary services procured according to the Commission-approved CAISO Tariff do not precisely correspond to those identified in the *pro forma* OATT, but can be correlated with those services. The CAISO competitively procures the equivalent of regulation and frequency response service, spinning reserve service, supplemental reserve service, and energy imbalance service. The first three are ancillary services under the CAISO Tariff: regulation; spinning reserve; and non-spinning reserve. The CAISO Tariff does not, however, define imbalance energy as an ancillary service. Nonetheless, the CAISO does address energy imbalances through its competitive markets.[41]

Demand response resources that enter a Participating Load Agreement with the CAISO can provide those ancillary services for which they are technically qualified under the terms of the CAISO Tariff.[42] Under the current tariff, demand resources are qualified to provide two of the four ancillary services contemplated by the *pro forma* OATT: they can provide non-spinning reserves and they can bid into the markets through which the CAISO addresses energy imbalance.[43]

Demand responses resources cannot, however, provide regulation and spinning reserves as those products are currently defined in the CAISO Tariff.

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41 *See, e.g.,* CAISO Tariff § 34.

42 The requirement of a Participating Load Agreement is set forth in CAISO Tariff § 4.7.

43 *See* CAISO Tariff §§ 7.7.11.2, 8.3.1, 30.5.2.6, 34.

Because the CAISO Tariff requires the CAISO to maintain "sufficient ancillary services . . . consistent with NERC and WECC reliability standards,"[44] the CAISO definitions of regulation[45] and spinning reserve[46] and the limitations on the resources that can provide them[47] necessarily reflect the WECC requirements. The WECC describes the regulating reserve that each Balancing Area is required to maintain as "Spinning Reserve, immediately responsive to Automatic Generation Control."[48] WECC defines spinning reserve as "unloaded *generation* which is synchronized and ready to serve additional demand."[49]

By definition, demand response resources cannot currently meet the standards for Regulation and Spinning Reserve. Demand response resources are not generation (as required by the WECC definition). Further, it may also be technically difficult for such resources to respond immediately to system frequency. The Commission has itself recognized the importance of demand response compliance with WECC reliability requirements. In directing the CAISO

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44 *See* CAISO Tariff § 8.1.

45 "Regulation" is defined as "The service provided either by Generating Units certified by the CAISO as equipped and capable of responding to the CAISO's direct digital control (AGC) signals, or by System Resources that have been certified by the CAISO as capable of delivering such service to the CAISO Balancing Authority Area, in an upward and downward direction to match, on a Real-Time basis, Demand and resources, consistent with established NERC and WECC reliability standards, including any requirements of the NRC. Regulation is used to control the Power output of electric generators within a prescribed area in response to a change in system frequency, tie line loading, or the relation of these to each other so as to maintain the target system frequency and/or the established Interchange with other Balancing Authority Areas within the predetermined Regulation Limits. Regulation includes both the increase of output by a Generating Unit or System Resource (Regulation Up) and the decrease in output by a Generating Unit or System Resource (Regulation Down). Regulation Up and Regulation Down are distinct capacity products, with separately stated requirements and ASMPs in each Settlement Period." *See* CAISO Tariff App. A.

46 "Spinning Reserve" is defined as "The portion of unloaded synchronized generating capacity that is immediately responsive to system frequency and that is capable of being loaded in ten minutes, and that is capable of running for at least two hours." *See* CAISO Tariff App. A.

47 *See, e.g.*, CAISO Tariff § 30.5.2.6.

48 WECC Standard BAL-STD-002-0.

49 *Id.* (Emphasis added.)

to incorporate demand response within the RUC process in the initial MRTU release, the Commission noted that "any demand reductions reflected in RUC must meet any applicable technical feasibility standards and be held to the same performance standards as generation (*e.g.*, requirements for demand response in mandatory reliability standards BAL-002 and WECC-BAL-STD-002-0 Operating Reserves)."[50] The inability of demand response resources to provide Regulation and Spinning Reserve is thus the result of their inability to meet the technical requirements of the CAISO Tariff and is not inconsistent (under current circumstances) with the requirements of Order No. 719.[51]

(b) Expansion of Demand Response Participation in CAISO Markets

The CAISO recognizes that it is the Commission's intent that demand response resources have the opportunity to participate in all competitive ancillary service markets. As discussed above, it is the CAISO's plan to provide that functionality through enhancements to its current market design. Accordingly, the CAISO is undertaking a stakeholder process to explore mechanisms by which demand response resources may be capable of providing Regulation and Spinning Reserve. This process may lead to redefinition of these products in the CAISO Tariff. The CAISO plans to a file a SAR (standard authorization request)

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[50] *Cal. Indep. Sys. Operator Corp.*, 119 FERC ¶ 61,313, at P 222 (2008) (footnotes omitted).

[51] The Commission has, in other circumstances, recognized that the CAISO's refusal to accept an ancillary service from a resource whose proffered service cannot meet the definition of the ancillary service does not constitute discrimination. *See MMC Energy, Inc. v. Cal. Indep. Sys. Operator Corp.*, 123 FERC ¶ 61,251, at PP 85, 89 (2008) ("[S]imply because a small number of facilities are affected by the application of the definition of spinning reserve does not, on its own, justify a claim of undue discrimination. . . . [R]eliability may be damaged if non-spinning reserve units are permitted to participate in the spinning reserve market. In addition, we will not ignore the clear terms of the Tariff based upon MMC's claim of enhanced reliability.").

with the WECC, asking it to create a standards drafting team to rewrite WECC standards for regulation and spinning reserves in order to allow non-generation resources to provide these services.[52] The CAISO also plans to develop, independently, a set of standards that WECC may or may not adopt, but which the ISO will ultimately file with FERC as proposed revisions to its tariff. The initial workshop to discuss these revisions will be held on June 16. This will be followed by a series of technical workshops and stakeholder calls with the ultimate goal of finalizing proposals in the fall of 2009 for presentation to the CAISO Board of Governors before year-end.

The CAISO's development of the revised ancillary services products will be facilitated by the MAP initiative. MAP enhancements will allow the CAISO to avoid the need for manual verification of compliance. Under the current market design, Participating Load is scheduled as two separate resources: Load and a Pseudo Generator. The two resources are not linked or co-optimized in the CAISO systems. In order to verify performance of the Pseudo Generator, CAISO compliance staff must check meter data for each resource for each dispatch. Under the MAP refinements, Participating Load is a unique demand resource in the CAISO markets. The CAISO will be able to verify performance automatically, through the meter and telemetry data from the resource, without any need to link data from two separate resources.

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[52] Although the CAISO expects to resolve these issues through regular WECC processes, it also recognizes that, as the Commission pointed out, the CAISO or other parties can, if necessary, file a complaint under section 206 of the FPA, 16 U.S.C. § 824e, or a notice under section 215 of the FPA, 16. U.S.C. § 824o.

The CAISO is also working with other RTOs and ISOs to implement appropriate "mechanisms to measure, verify, and ensure compliance" as required by Order No. 719.[53] During 2007 and 2008, members of the ISO/RTO Council led the development of National American Energy Standards Board business practices for the measurement and verification of wholesale electricity demand response. The business practices were developed and submitted through the NAESB subcommittee process, approved by the NAESB Wholesale Electric Quadrant Executive Committee on February 10, 2009 and ratified by the NAESB members on March 16, 2009. The CAISO understands that NAESB will be filing the new business practices in its FERC status report.

In addition to participating in the development of the business practices, the CAISO has also been working with other ISO/RTO Council members on a mapping of current demand response program characteristics to these standards. This analysis will be made available on the ISO/RTO Council website and has been used to highlight regional variations in technical requirements.

As discussed above, the Commission in Order No. 719 declined to displace the timelines of the market improvements that the CAISO is currently undertaking. Rather, it simply required the CAISO to include in its compliance filing an update on the status of any relevant market design changes that are in the process of being implemented and to address any remaining issues not addressed by the ongoing changes. The CAISO submits that its specific plans to expand the participation of demand response resources in ancillary service markets suffice for compliance with Order No. 719.

[53] Order No. 719 at P 61.

b. New Bidding Parameters

(1) Order No. 719 Requirements

In Order No. 719, the Commission directed RTOs and ISOs to allow demand response resources to specify limits on the duration, frequency, and amount of their service in their bids to provide ancillary services or their bids into joint energy-ancillary services markets in the co-optimized markets. In order to accomplish this, RTOs and ISOs must incorporate parameters into their ancillary services bidding rules that allow demand response resources to specify a maximum duration in hours that the demand response resource may be dispatched, a maximum number of times that the demand response resource may be dispatched during a day, and a maximum amount of electric energy reduction that the demand response resource may be required to provide either daily or weekly.[54]

The Commission noted that the CAISO, in its comments, had stated that it would be compliant with the requirement upon Release 1A in its MRTU process (currently described as the MAP enhancements). The Commission declined to rule in Order No. 719 whether the plan for enhancements in Release 1A satisfied the requirement to incorporate new bidding parameters. Rather, the Commission indicated that it would make that determination after review of the compliance filings.[55]

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[54] Order No. 719 at P 81.
[55] *Id.* at P 87.

(2) Compliance

The CAISO believes that current PLP allows demand response resources to specify the parameters set forth by the Commission. Because Participating Loads are scheduled as Pseudo Generators, a Participating Load may specify the same parameters as can a generator: maximum duration (in hours) that it may be dispatched, a maximum number of times that it may be started up during a day, and a maximum amount of electric energy (or in this case energy reduction) that the resource may be required to provide either daily or weekly. This capability will remain in the enhanced PLP. As described above, Participating Load can currently provide only Non-Spinning Reserve and (through the energy markets) Imbalance Energy. When the CAISO is able to implement tariff changes allowing demand response resources to provide Regulation and Spinning Reserves, the demand response resources will have the same ability to establish parameters for those products as they have in the current markets in which they participate.

The CAISO recognizes that Order No. 719 stated that demand response resources should be able to specify the maximum number of times that the demand response resource may be "dispatched" during a day. In Order No. 719, however, the Commission noted that it intended to allow demand response resources to specify limits comparable to the limits that generators may specify on price, quantity, startup and no-load costs, and minimum downtime between starts.[56] Under the current CAISO Tariff, generators can only limit the number of start-ups during the day. A generator cannot limit the number of instances in

[56] *Id.* at P 81, n. 115.

which it is dispatched from one level of output to another. Because the Commission's intention is to provide demand response resources with treatment comparable to that of generators, the CAISO interprets the Commission's requirement as applying to start-ups. As described above, Participating Loads have and will continue to have the same ability to limit "start-ups" in a day, *i.e.,* the number of times that the resource is dispatch from 0 MW, as do generators.

c. Smaller Demand Response Resource Assessment

(1) Order No. 719 Requirements

In Order No. 719, the Commission directed RTOs and ISOs, in cooperation with their customers and other stakeholders, to assess the technical feasibility and value to the market of smaller demand response resources providing ancillary services, including whether (and how) smaller demand response resources can reliably and economically provide operating reserves. The Commission left to the RTO or ISO (and its customers and other stakeholders) the choice whether to conduct the assessment through a pilot program or through other mechanisms. The assessment would include such issues as the need for measurement and verification standards and a definition of what constitutes a "small demand response resource." RTOs and ISOs must file a report with the results of the assessment within one year from the effective date of Order No. 719.[57] Although no report is due at this time, the CAISO takes this opportunity to provide the Commission with an update on its activities in this regard.

[57] *Id.* at P 97.

(2) CAISO Smaller Demand Response Resource Assessment

(a) Single Store Pilot

The CAISO's first small demand response pilot was not focused on participation in ancillary services markets, but nonetheless provided valuable insights that can be used for developing the mechanisms for ancillary services market participation. The pilot project was designed to assess the technical feasibility of a demand response resource, such as a "big box" store, providing demand response. The CAISO's tentative conclusion, which will require further testing and configuration in a production environment, is that demand response resources are feasible from the standpoint of dispatch, telemetry, and metering:

- Dispatch – The CAISO's Automated Dispatch System sends a "go to" instruction – *i.e.*, go to a specific MW level – to a demand response resource. A building Energy Management System is not equipped to understand that sort of command. The CAISO learned that an interface/interpreter between the building Energy Management System and the CAISO's Automated Dispatch System was necessary to translate the signal. The pilot allowed the CAISO to formulate a solution that worked for the store.

- Telemetry – Before the pilot, the CAISO had no information regarding the nature of the telemetry data it could get back from a small demand response resource. Through the pilot, the CAISO determined that it was feasible to get the telemetry data at a one-minute resolution. Although this does not match the CAISO's current standard of four seconds, it is a promising starting point.

- Metering – Before the pilot, the CAISO did not know whether it could receive the five-minute revenue quality meter data necessary to verify performance from a small demand response resource. The CAISO was able to obtain this data.

(b) Planned Smaller Demand Response Resource Pilot Projects

The CAISO expects, in the very near future, to file agreements with the Commission regarding three new pilot projects that will assess the ability of smaller demand response resources to participate in ancillary service markets through aggregation. Each of the three investor owned utilities within the CAISO control area will conduct a project. San Diego Gas & Electric Company will assess aggregation of commercial loads greater than 20 kW. Southern California Edison Company will test a project involving cycling of aggregated residential air conditioning. Pacific Gas and Electric Company will evaluate large commercial and industrial demand response.

The CAISO will be conducting end-to-end testing, from bid-to-bill, on the demand response resources in the pilots, in order to, among other things, better understand their potential value to the market. The pilot projects will also explore telemetry alternatives for aggregated resources and test dispatch solutions. These pilot projects should allow the CAISO to better to understand the performance and reliability of small demand response resources.

d. Eliminating Deviation Charges During System Emergencies

(1) Order No. 719 Requirements

(a) Real-Time Purchasers

In Order No. 719, the Commission required all RTOs and ISOs to modify their tariffs regarding deviation charges to buyers in the energy market for taking less energy in the real-time market than was scheduled in the day-ahead market. The Commission directed the elimination of such charges during a real-time market period for which the RTO or ISO declares an operating reserve shortage or makes a generic request to reduce load in order to avoid an operating reserve shortage. This requirement would not apply to RTO or ISO wholesale demand response participants, but rather to market buyers who voluntarily provide additional demand response either during or prior to an RTO- or ISO- directed operating reserve shortage in an effort to improve system reliability.[58]

(b) Virtual Purchasers

The Commission also directed RTOs and ISOs to modify their tariffs to eliminate deviation charges for virtual purchasers (a virtual purchase in the RTO or ISO day-ahead market that does not go to physical delivery), during the same period as they are eliminated for physical purchasers as set out above, unless the RTO or ISO makes a showing that it would be appropriate to assess such deviation charges for virtual purchasers during this period.[59]

(2) Compliance

(a) Real-Time Purchasers

The current CAISO Tariff complies with the Commission's directives regarding the imposition of deviation charges on real-time purchasers: the current CAISO markets have no deviation penalties for overscheduling of demand. Because of the CAISO's imbalance market, a Scheduling Coordinator

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[58] *Id.* at P 111. The Commission noted that it was not revising current practices under which demand response program participants currently are not levied a deviation charge if they reduce demand as directed by the RTO or ISO and was not requiring that RTOs and ISOs remove penalties for day-ahead bidders of demand response that fail to follow dispatch instructions to reduce demand in real time. The Commission's intent is not only to ensure that market buyers who voluntarily reduce their energy consumption during system emergencies at the request of the RTO or ISO are not penalized for their deviation, but also that demand-side and supply-side resources are treated comparably. *Id.* at P 113.

[59] *Id.* at P 127.

for load that uses more energy than scheduled is paid at the Locational Marginal Price (*i.e.*, if a demand response resource takes less energy in real-time than was scheduled day-ahead, then the demand response resource is paid for the difference as uninstructed energy, with no deviation charges).

The CAISO Tariff does have deviation charges in section 11.23 (which is not currently effective) and section 11.24. Section 11.23, however, has an exception for load, and section 11.24 only applies to underscheduling, *i.e.,* circumstances in which the metered load is greater than the amount scheduled day-ahead. Thus, loads that *reduce* demand in response to a system emergency or a CAISO request would face no penalty charges.

(b) Virtual Purchasers

Under the CAISO Tariff, there are no virtual purchasers. At the ties, however, there are purchasers that are the equivalent of a virtual purchaser, *i.e.*, system resources without attached physical resources. The discussion above is equally applicable to such purchasers.

e. Aggregation of Retail Customers

(1) Order No. 719 Requirements

In Order No. 719, the Commission directed RTOs and ISOs to amend their market rules as necessary to permit an Aggregator of Retail Customers (“ARC”) to bid demand response on behalf of retail customers directly into the RTO's or ISO's organized markets.[60] Because of the differences in regional market designs, the Commission did not develop *pro forma* language or require

[60] *Id.* at P 154. The Commission provided an exemption if the laws or regulations of the relevant electric retail regulatory authority do not permit a retail customer to participate.

RTOs and ISOs to make detailed generic market rule amendments; rather, it permitted each RTO or ISO to design ARC provisions that account for these differences. The Commission established certain criteria and flexibilities that must be part of the market design. Among those criteria and flexibilities are the following:

- The ARC's demand response bid must meet the same requirements as a demand response bid from any other entity, such as a load serving entity.
- An ARC can bid demand response either on behalf of only one retail customer or multiple retail customers.
- Except for circumstances where the laws and regulations of the relevant retail regulatory authority do not permit a retail customer to participate, there is no prohibition on who may be an ARC.
- An individual customer may serve as an ARC on behalf of itself and others.
- Single aggregated bids consisting of individual demand response from a single area, reasonably defined, may be required by RTOs and ISOs.
- An RTO or ISO may place appropriate restrictions on any customer's participation in an ARC-aggregated demand response bid to avoid counting the same demand response resource more than once.

(2) Compliance

The CAISO Tariff, market design, and software cannot currently accommodate the provision of demand response through an ARC. The implementation of such functionality requires resolution of complex scheduling, metering, and settlement issues. The CAISO expects to resolve these issues through the MAP initiative. Specifically, the PDR product, described in detail above, is designed to accommodate participation by ARCs.

The CAISO is actively moving forward with efforts to enable direct participation by ARCs. On December 22, 2008, the CAISO released a direct participation issue paper ("Issue Paper, Direct Participation of Demand Response Resources in CAISO Electricity Markets," found at http://www.caiso.com/20a5/20a5e36d2a40.pdf), which was circulated for public comment. On January 5, 2009, the CAISO conducted a stakeholder conference call to discuss the Direct Participation Issue Paper.

The CAISO is currently working on the resolution of certain business issues. A stakeholder meeting scheduled for April 30 will consider efforts needed in the following seven key areas:

- Qualification – Program definition, participant and resource qualification;
- Registration – Resource characteristics, enrollment, transfers, testing & auditing;
- Scheduling – System and resource forecasting, resource scheduling & bidding;
- Notifications – Market schedules & awards, real-time dispatch, outages;
- Metering & Telemetry – Data availability, data sharing, data type, accuracy & granularity;
- Settlement – Calculation of load changes, calculation of credits & charges; and
- Performance & Compliance Evaluation – Resource, participant, program, and system performance.

As is the case with other demand response enhancements included in the MAP initiative, the CAISO believes that the effort discussed above is consistent with the Commission's directive that the CAISO file a description of the actions that it has taken or plans to take to comply with the Order, without displacing timelines for the development of other major enhancements.

f. Price Formation During Periods of Operating Reserve Shortage

(1) Order No. 719 Requirements

In Order No. 719, the Commission directed each RTO or ISO to reform or demonstrate the adequacy of its existing market rules to ensure that the market price for energy reflects the value of energy during an operating reserve shortage. It required the RTO or ISO to provide, in its compliance filing, a factual record that includes historical evidence for its region regarding the interaction of supply and demand during periods of scarcity and the resulting effects on market prices, an explanation of the degree to which demand resources are integrated into the various markets, the ability of demand resources to mitigate market power, and how market power will be monitored and mitigated, among other factors. The Commission stated that these actions were necessary to remove such barriers to demand response by requiring that price formation during periods of operating shortage more accurately reflect the value of energy during such shortage periods.[61]

The Commission directed the ISO or RTO to address market power issues in its compliance filings and demonstrate that provisions exist for mitigating market power and deterring gaming behavior as part of pricing reform during periods of operating reserve shortage, including the use of demand resources to

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[61] Order no. 719 at PP 194, 246.

discipline bidding behavior.[62] The Commission noted, however, that Order No. 719 does not eliminate or otherwise revise the market power mitigation measures that remain in place during times when operating reserves are insufficient.[63]

The Commission did not mandate any specific approach to this reform, concluding that because each market design is different, the changes to market rules should reflect each region's market design.[64] Instead, it established certain criteria for the reform. Under the Commission's criteria, the RTO or ISO must describe how its proposal would –

- Improve reliability by reducing demand and increasing generation during periods of operating reserve shortage;
- Make it more worthwhile for customers to invest in demand response technologies;
- Encourage existing generation and demand resources to continue to be relied upon during an operating reserve shortage;
- Encourage entry of new generation and demand resources;
- Ensure that the principle of comparability in treatment of and compensation to all resources is not discarded during periods of operating reserve shortage; and
- Ensure market power is mitigated and gaming behavior is deterred during periods of operating reserve shortages including, but not limited to, showing how demand resources discipline bidding behavior to competitive levels.[65]

(2) Compliance

Under the current CAISO Tariff, as approved by the Commission, the CAISO has a limited scarcity pricing mechanism that raises energy bids to the bid cap when there are insufficient energy bids in real-time and no contingency

62 *Id.* at P 196.
63 *Id.* at P 198.
64 *Id.* at P 234.
65 *Id.* at P 247.

events have occurred. In its September 2006 MRTU Order, the Commission ordered the CAISO to implement a more comprehensive scarcity pricing mechanism during periods of operating reserve shortages in its post-MRTU enhancements (currently, the MAP enhancements). The Commission directed that prices should rise when energy and reserves are short in both the day-ahead and real-time markets regardless of whether there is a transmission or generation outage.[66] According to the Commission's order, the mechanism should apply administratively determined graduated prices to various levels of reserve shortage so that prices would reflect the economic value of the reserves necessary to resolve the shortage; the prices for both reserves and energy in California should increase automatically as the severity of the shortage increases.[67]

As discussed above, the Commission in Order No. 719 did not revise timelines for enhancements to RTO and ISO markets. In this compliance filing, therefore, the CAISO's obligation is to update the Commission on the status of its development of a scarcity pricing mechanism that complies with the Commission's orders.

In developing its scarcity pricing mechanism, the CAISO has followed its standard stakeholder process, which has involved multiple rounds of proposals with written comments and discussion after each round, extending for over a year. The CAISO has issued a straw proposal, a revised straw proposal, a draft proposal, a revised draft proposal, and a final proposal. The initial issue paper

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[66] *Cal. Indep. Sys. Operator Corp.,* 116 FERC ¶ 61,274, at P 1077 (2006).
[67] *Id.* at P 1079. *See also Cal. Indep. Sys. Operator Corp.* 119 FERC ¶ 61,076 (2007).

was published on May 31, 2007, with a final proposal published July 15, 2008. All of the documents issued by the CAISO, as well as stakeholder comments, are available on the CAISO's Web site at http://www.caiso.com/1bef/1bef12b9b420b0.html.

The CAISO staff initially planned to present a system-wide scarcity pricing design to the CAISO Governing Board prior to the implementation of MRTU, after which the CAISO would work on the development of subregional scarcity pricing. Because of the need to focus on the MRTU implementation and on products with more immediate deadlines, the stakeholder process was temporarily placed on hold. During this period, the CAISO concluded that it would be beneficial to combine the consideration of system-wide and subregional scarcity pricing and to bring a combined proposal to stakeholders after both the CAISO and stakeholders have the advantage of experience under the MRTU markets.

Under the revised schedule, the CAISO will reopen the stakeholder process 6 months after the start-up of MRTU (*i.e.,* in October 2009) and present a combined system-wide and subregional scarcity pricing design. A final design would be presented to the CAISO Governing Board upon completion of the stakeholder process.

Because the CAISO is not attempting to demonstrate the adequacy of its current systems and is not as yet able propose its specific reforms, it would be premature to attempt to file the factual record in support of the CAISO's position. The CAISO plans to file the full factual record required by Order No. 719 when it files its proposal.

g. Reporting on Remaining Barriers to Comparable Treatment of Demand Response Resources

(1) Order No. 719 Requirements

In Order No. 719, the Commission directed each RTO or ISO to assess and report on remaining barriers to comparable treatment of demand response resources that are within the Commission's jurisdiction. The RTO or ISO must submit its findings and any proposed solutions with this compliance filing.[68]

The Commission ordered that the report identify all known barriers, include an in-depth analysis of those that are practical to analyze by the compliance date, and provide a time frame for analyzing the remainder. The analysis should include technical requirements as well as performance verification limitations, but need not contain a formal cost-benefit analysis of each barrier and a proposal to overcome it.[69]

The Commission required that the report identify any significant minority views. In addition, the Commission ordered that each RTO's or ISO's independent market monitor submit a report describing its views to the Commission.

(2) Compliance

The CAISO retained the FSC Group and Energy and Environmental Economics Inc. (E3) to draft a report for the CAISO's review and adoption. The CAISO hosted a Web and telephone-based stakeholder conference on April 8, 2009, to review the preliminary results of the study with stakeholders and to solicit additional feedback. The stakeholder presentation used in the conference

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[68] Order No. 719 at P 274.
[69] *Id.* at P 275.

is available at http://www.caiso.com/2388/238811d7558f00.pdf. The CAISO thereafter provided stakeholders with the opportunity to submit written comments, which were considered in the preparation of the final report. The CAISO has accepted the final report as accurately reflecting the concerns expressed by stakeholders. The barriers thus identified will be taken into consideration by the CAISO as it decides how best to encourage additional demand response participation in our markets. Stakeholders will, of course, have the opportunity for additional input when the CAISO proposes actions to accomplish that expanded participation. The final report is provided as Attachment 2 to this report.

The CAISO Market Surveillance Committee, the CAISO's external market monitor, will prepare a report containing its views on the contents of the CAISO final report. Because the final CAISO report was not available until the date of this filing, the Market Surveillance Committee has not yet initiated its report. The CAISO will file the report with the Commission as soon as it is available and requests a waiver of the deadline for filing the MSC's report.

IV. Long-Term Power Contracting in Organized Markets

A. Order No. 719 Requirements

Order No. 719 requires each RTO or ISO to "play a supporting role in encouraging voluntary contracting"[70] by dedicating a portion of its website for market participants to post offers to buy or sell power on a long-term basis.[71] Beyond this core requirement, the Commission has not mandated any specific

[70] Order No. 719 at P 282.
[71] *Id.* at P 301.

form for the website.[72] Instead, it has left the implementation to each RTO or ISO and its stakeholders. The compliance filing must explain the actions that the entity has taken or plans to take to comply with the requirement, and provide information on the bulletin board it has chosen to implement.[73]

B. Compliance

The CAISO plans to provide a link on its website to a multi-ISO/RTO "bulletin board" page to be hosted by PJM which will allow willing sellers and buyers to voluntarily post and read offers for long-term power.

The CAISO initially explored possibilities for developing and hosting a bulletin board itself on the CAISO website. The CAISO presented these options to stakeholders in a conference call on April 9, 2009, in which the CAISO explained both the CAISO-hosted options, including information about expected cost and timing, and the option of linking to the PJM-hosted website. A PJM representative participated in the call, providing further details about PJM's plans and answering questions. The CAISO also solicited written comments.

All of the CAISO stakeholders who expressed views supported the proposal to link to the bulletin board that PJM is developing. Both on the call and in writing, stakeholders sought to confirm that use of the bulletin board will be voluntary, as noted in Order No. 719. Other comments sought to confirm that CAISO participants would not be assessed a fee for use of the site. In addition, the California Public Utilities Commission expressed a desire to "work with CAISO in order to augment the effectiveness of this bulletin board application in

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72 *Id.* at P 303.

73 *Id.* at P 309.

light of the CAISO's Standard Capacity Product development and in light of the CPUC's own Resource Adequacy Program."

The multi-ISO/RTO bulletin board is expected to launch in September 2009. The CAISO understands that additional information concerning the bulletin board will be set forth in PJM's Order No. 719 compliance filing.

The CAISO understands that it will have certain administrative duties by way of identifying market participants who are eligible to post on the bulletin board. It does not expect these duties, or any other aspect of the bulletin board, to result in significant costs. It therefore is not proposing any specific new cost recovery provisions in this area. The CAISO understands that PJM will recover the costs of the bulletin board through the same Scheduling Control and Dispatch Service charges that it currently uses to recover other website costs.

Otherwise, neither the CAISO nor any of the other ISOs or RTOs will play any role beyond facilitating the posting of this information and will not review postings for accuracy. Consistent with Order No. 719, the CAISO'S link to the bulletin board will make it clear that neither the CAISO nor the other participating IRC members will have any liability for the content of user postings.[74]

V. Market Monitoring

A. Order No. 719

The market monitoring directives in the Order encompass four general areas:

1. Reorganizing and consolidating the market monitoring provisions of ISOs' tariffs.

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[74] *Id.* at P 304.

2. Ensuring market monitoring units' independence from ISOs' management.

3. Establishing market monitoring units' core responsibilities, including what functions market monitoring units must perform, may perform, and shall not perform. To some degree, this category overlaps with the second category, as some of the functions are forbidden based on independence concerns.

4. Sharing information between market monitoring units and third parties.

B. Explanation of Compliance

Nearly all of the directives in these four areas call for tariff revisions. For this reason, the CAISO's compliance consists primarily of proposed tariff revisions and an explanation of the process it used to develop the proposed tariff revisions. A few directives in Order No. 719 required something other than tariff revisions. Where this is the case, the CAISO's compliance efforts will be discussed in the relevant section.

As the initial step, CAISO personnel prepared new draft tariff language that would both comply with the Order and provide as much continuity as possible to foster the continued effectiveness of CAISO's market monitors. For the provisions relating to tailored requests for information from state utility commissions,[75] the CAISO and the staff of the California Public Utilities Commission worked together to formulate the confidentiality protocols reflected in sections 8.1.1 and 8.1.2.2 of Appendix P of the CAISO Tariff.

Because the core market monitoring functions, as defined in the Order, will be carried out by the CAISO's internal monitor, the Department of Market Monitoring, or "DMM," the compliance process focused, and this compliance

[75] Order No. 719 at PP 446-459.

filing focuses, on DMM. There is no change to the role of CAISO's external monitor, the Market Surveillance Committee, or "MSC," which conducts peer review of DMM's activities and serves as a blue ribbon panel to advise the CAISO Governing Board and CAISO management.[76]

On April 9, 2009, the CAISO released a market notice with the initial draft of the revised tariff language and a posting statement that provided context for the draft tariff revisions. The market notice gave market participants until April 16, 2009 to file comments. Two parties, the CPUC and Southern California Edison Company, submitted written comments. On April 20, 2009, CAISO legal staff and DMM personnel held a conference call with market participants to discuss the revisions. Approximately eight parties participated in the conference call. Based on the feedback provided in the written comments and on the conference call, the CAISO made a few revisions to the initially proposed tariff language, including section 20.4(a) and Appendix P, Section 8.1 of the CAISO Tariff.

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[76] The MSC is an independent advisory group of industry experts. To ensure independence, none of its members is affiliated with or has any financial interest in any market participant. Its charter allows it to suggest changes in rules and protocols or recommend sanctions or penalties directly to the ISO Governing Board. The MSC provides public notice in advance of all meetings, although, because of the confidential nature of the information discussed, portions of the meetings may occasionally be closed to the public. The Committee periodically produces written reports containing their recommendations and submits them to the ISO CEO and Governing Board. Such reports are made available to the public subject to restrictions on confidential information.

1. Reorganizing and Consolidating Market Monitoring Tariff Provisions

a. Order No. 719 Requirements

Order No. 719 directed ISOs to include all market monitoring provisions in the tariff itself and to consolidate all of the provisions in one part of the tariff.[77] For the sake of continuity, the Order permitted tariff provisions that relate to market monitoring to remain outside the consolidated market monitoring section if the provisions are also duplicated in the new consolidated section and the tariff is clear that, in the case of a conflict, the provisions in the consolidated section shall control.[78] Order No. 719 also mandated that the newly-centralized market monitoring section include a market monitoring unit mission statement[79] and suggested that the section follow a proposed 12-part organizational structure.[80]

b. Compliance

At present, nearly all of the market monitoring provisions in the tariff are located in section 38, Appendix P, Appendix P1, and Appendix P2 of the CAISO Tariff. Section 38 applies to both DMM and the MSC, Appendices P and P1 apply to DMM, and Appendix P2 applies to the MSC. In centralizing the market monitoring provisions in one section, the CAISO faced two questions: (1) where to centralize the market monitoring provisions – in § 38, Appendix P, or some other part of the tariff; and (2) whether to include the DMM and MSC provisions in one section or create separate sections for DMM and the MSC. Because of the CAISO's hybrid market monitoring structure, which includes both an internal

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77 *Id.* at P 392.
78 *Id.* at P 393.
79 *Id.* at P 392.
80 *Id.* at P 475.

market monitor, *i.e.*, DMM, and an external market monitor, *i.e.*, the MSC, the Order did not provide a complete answer on the latter matter.

Because the bulk of DMM's responsibilities presently are located in Appendix P, the CAISO elected to make Appendix P the centralized section for DMM provisions. At the same time, the CAISO determined that placing the MSC provisions in a separate section from DMM would more accurately represent the distinct nature of DMM and the MSC. Thus, the CAISO chose to centralize the MSC provisions in Appendix O, which previously was vacant. Section 38 now contains a short explanation of this reorganization and a statement that in the event that there is conflict between either Appendix O or Appendix P and a cross-referenced provision in another part of the Tariff, the language in the appendices will control.

The CAISO is following the Commission's suggested organization. By doing so, the CAISO will better allow the Commission and market participants to compare market monitoring provisions among different ISOs. Some of the new sections are blank (*e.g.*, sections 2 & 10 of Appendices O and P), because the CAISO decided that for reasons of continuity, provisions that conceivably could have gone in those sections were best placed elsewhere.

2. Ensuring Independence of Market Monitors from ISO Management

a. Order 719 Requirements

Under Order No. 719, the first decision ISOs must make regarding market monitoring unit independence is whether the market monitoring function will be carried out by an internal market monitoring unit, an external market monitoring unit, or a combination of an external and internal market monitoring unit (*i.e.*, a hybrid arrangement).[81] The Commission was clear that each "ISO should decide for itself the structural relationship it desires for its [market monitoring unit]"[82] and that none of the three options is inherently better for creating an effective and independent market monitoring apparatus.[83]

Irrespective of which structure an ISO chooses, the Order required each ISO's tariff to ensure that the market monitoring unit has access to the market data, resources, and personnel necessary to carry out its monitoring responsibilities.[84] This includes full access to the ISO's databases and exclusive control over any data the market monitoring unit creates.[85] In response to a comment from the CAISO, the Commission clarified that a market monitoring unit's exclusive control over its data did not preclude it from sharing the data, provided confidentiality concerns were addressed.[86] Additionally, the Order required that a market monitoring unit report to its ISO's board of directors, except "for administrative purposes, such as pension management, payroll and the like."[87] Finally, the Order permits ISOs to require market monitoring units to submit draft reports to the ISO for review and comment, but the market monitoring unit is free to disregard such comment and the ISO is forbidden from altering the reports or dictating their conclusions.[88]

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81 *Id.* at P 326.
82 *Id.*
83 *Id.* at P 327.
84 *Id.* at P 328.
85 *Id.*
86 *Id.* at P 329.
87 *Id.* at P 339.
88 *Id.* at P 360.

b. Compliance

To a large degree, current CAISO practice follows the requirements spelled out in the Order. The CAISO has made a conscious decision to maintain its hybrid market monitoring structure comprised of a Department of Market Monitoring and the Market Surveillance Committee. This decision is reflected in Appendices O and P of the proposed tariff revisions, which clearly indicate that there are two separate market monitoring bodies and spell out their respective responsibilities. In the course of the CAISO's existence, CAISO management has never denied DMM the resources it needs to carry out its responsibilities. Similarly, CAISO management has always respected the independent judgments of DMM staff and has never attempted to dictate conclusions or alter recommendations. The proposed tariff language in sections 3.2, 4.1, and 4.3 of Appendix P ensures that such operating practices will continue. Thus, compliance is primarily a matter of memorializing current practice in the proposed tariff language.

In section 3.1, the CAISO is adding a tariff requirement that DMM report functionally to the Governing Board on all matters pertaining to its core market monitoring responsibilities. Currently, DMM regularly reports to the Governing Board on its observations regarding market design, performance and structure as well as participant behavior; section 3.1 cements that reporting relationship and function. In addition, section 3.1 provides that DMM report to CAISO management for administrative matters, consistent with Order No. 719.

It is neither practical nor desirable to have DMM report to the Board for administrative purposes. DMM (and every other unit in the CAISO) necessarily depends on senior management for a range of administrative support to be effective in carrying out its responsibilities. DMM relies on the support of CAISO's IT department to assist with finding the systems that allow DMM to effectively monitor market activity on a real-time basis, getting those systems installed and providing technical support. DMM also relies on CAISO's procurement department for contracting support, the finance department for budget support, HR for support in managing the employees effectively and ensuring it has resources needed to hire, train, and retain effective staff, and the legal department for advice and counsel. All of these functions work well to support DMM as an internal unit at the CAISO. At the same time, DMM staff are held to the high expectations set for all CAISO staff, including the requirements that staff adhere to core values and follow all policies and procedures designed to ensure compliance with the laws, rules, and regulations applicable to the CAISO, as well as the corporate goals and metrics which drive successful performance.

Combined with the new provisions that protect the independence of DMM in carrying out its core functions – section 3.2 prohibiting the alteration of reports by the CAISO, section 3.3 providing that the DMM director may not be terminated without approval by the Governing Board, and section 4 relating to adequate funds, tools and staffing to do the job, this administrative support will ensure DMM is effective while preserving DMM's independence.

Similarly, DMM staff will be asked to provide timely and effective monitoring of CAISO's markets and advise CAISO on their observations. Section

3.1 provides that DMM shall report its findings to CAISO management, enabling the CAISO to take immediate action, if appropriate, to remedy issues identified by DMM. It is very important to stakeholders that the CAISO be positioned to respond to any concerns regarding its markets in an immediate and effective manner. DMM can facilitate the CAISO's responsiveness and ability to protect the integrity of its markets by providing real time feedback on its observations.

DMM performs a critical function for the CAISO, its Governing Board and for the stakeholders and customers who rely on healthy, functioning markets. Consistent leadership and accountability will ensure that the high level of performance demonstrated by CAISO's Department of Market Monitoring will continue. Because the CAISO has a governing board that meets approximately seven times a year, the Board members are not positioned to provide the daily administrative support required of a fully functioning unit like DMM. The Board is, however, readily available to protect DMM's independence if the need arises. Section 3.1 allows DMM to report any concerns about independence directly to the CAISO Governing Board. The Board can conduct special meetings, and even take action by telephone in an emergency, if it learns that management is overstepping its bounds.

Finally, as of April 21, 2009, DMM now occupies its own suite of office space at the CAISO's headquarters. The physical separation between DMM and other components of the CAISO will foster an even greater level of autonomy and independence for DMM.

3. Establishing Core Market Monitoring Responsibilities

a. Order No. 719 Requirements

(1) What the Market Monitoring Unit Must Do

Order No. 719 established in detail a market monitoring unit's three core responsibilities: (1) evaluate existing and proposed market rules and report on them to the Commission, the ISO, and other interested parties; (2) review the performance of wholesale markets and report the findings to the Commission, the ISO, and other interested parties; and (3) refer in confidence suspected violations of the Commission's market conduct rules or of the ISO's own tariff to the Commission.[89]

For the first and third responsibilities, the regulations adopted pursuant to Order No. 719 provide a detailed protocol for market monitoring units making such reports.[90] For evaluating existing and proposed market rules, the Commission added a few provisions beyond the protocol. In response to a CAISO comment, the Order made clear that this requirement should not be construed to impose upon market monitoring units the obligation to review every existing rule.[91] Order No. 719 acknowledged that the market monitoring unit's evaluation is advisory only, but also indicated that the Commission expects to be informed of circumstances where the market monitoring unit and ISO management disagree.[92]

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[89] *Id.* at P 354.

[90] 18 CFR §§ 35.28 (g)(3)(v) (protocol for referrals of market design flaws); 18 CFR §§ 35.28 (g)(3)(iv)(protocol for referrals of suspected market violations).

[91] Order No. 719 at P 356.

[92] *Id.* at P 357.

Regarding the second responsibility, Order No. 719 directed that market monitoring units prepare annual and quarterly state of the markets reports that report on general market trends and the performance of the wholesale markets.[93] The market monitoring unit must make staff available for periodic conference calls with market participants and other interested parties such as state utility commission staff.[94] The Commission declined to require ISOs to state specifically what information would be included in the reports.[95] The Commission noted its confidence that market monitoring units would respond to reasonable requests from interested parties in determining what information to include.[96]

(2) What the Market Monitoring Unit Cannot Do

The Order provided three categories of conduct in which market monitoring unit personnel may not engage. The first area of prohibited conduct is prospective market mitigation.[97] The second category involves tariff administration or purely administrative matters that are remote from the market monitoring unit's core duties, as they are defined in Order No. 719.[98] The third category covers ethical standards applicable to all market monitoring unit employees. This includes seven specific actions that such employees are prohibited from taking.[99] The Order also stated that the ethics provisions apply to

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93 *Id.* at P 424.
94 *Id.*
95 *Id.* at P 414.
96 *Id.*
97 *Id.* at P 375.
98 *Id.* at P 377.
99 18 CFR § 35.28 (g)(3)(vi).

the market monitoring unit itself, in addition to the market monitoring unit's employees.[100]

(3) What the Market Monitoring Unit May Do

The Order highlighted two mitigation-related functions that an ISO may allow its market monitoring unit to perform. The first is retrospective mitigation,[101] and the second is providing inputs that the ISO uses to conduct prospective mitigation.[102]

(4) Other Directives Relating to Market Monitoring Unit Functions

The Order contains several directives related to what tasks a market monitoring unit must, may, and cannot carry out. The first is that the Order requires ISOs to state clearly in their tariffs which functions are performed by the market monitoring unit and which functions are performed by the ISO.[103] The Order also requires each ISO to review its tariff to make sure that mitigation provisions, no matter which part of the organization conducts them, are as non-discretionary as possible.[104]

b. Compliance

(1) What the Market Monitoring Unit Must Do

DMM's newly identified core responsibilities are outlined in proposed sections 5.1, 5.2, 5.3, 11, and 12 of Appendix P of the CAISO Tariff.

DMM's obligation to review market rules is addressed in section 5.1 and its subparts, as well as in section 12. Section 5.1 establishes DMM's obligations

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[100] Order No. 719 at P 387.
[101] *Id.* at P 375.
[102] *Id.*
[103] *Id.* at P 378.
[104] *Id.* at P 379.

in this regard. Section 5.1.1 provides that the review shall include consideration of how the market rule may create market power. Sections 5.1.2 and 5.1.6 state that DMM's conclusions amount to recommendations only, and that it is up to the CAISO to implement solutions to the problems DMM identifies. According to section 5.1.4, DMM need not independently review every market rule and design element; this is consistent with the clarification that the Commission made at the CAISO's request. Finally, section 12 adopts virtually verbatim from the Order the regulations governing a market monitoring unit's obligation to refer perceived market rule flaws to the Commission. These referrals are also addressed in section 5.1.7, which provides that the CAISO's obligation to inform the Commission of disagreement between DMM and the CAISO about identification of market flaws[105] shall be carried out as part of a referral under section 12.

DMM's obligation to review market trends is set forth in section 5.2 of Appendix P. It obligates DMM to produce quarterly reports, as well as more comprehensive annual state of the market reports. Section 5.2.1 requires DMM to conduct conference calls in conjunction with its quarterly reports. Order No. 719 did not specify the frequency of such conference calls, but quarterly calls should suffice to address the Commission's concerns about increasing the flow of information from DMM to interested parties. The CAISO considered stating in its tariff what material must be covered in the reports and conference calls, but opted instead to allow DMM to develop the content over time, based on feedback from market participants. Such an approach will allow DMM the needed flexibility to respond to the changing dynamics of the CAISO markets.

[105] *See id.* at P 357.

DMM's obligation to refer suspected market violations is set forth in sections 5.3 and 11 of Appendix P. Section 5.3 establishes the general obligation and makes clear that DMM must refer the CAISO itself if appropriate. Section 11 adopts the protocols from the regulations for making referrals. As part of revising DMM's obligation to make referrals to the Commission, the CAISO added a definition of the term "market violation" to Appendix A of the Tariff.[106] This definition tracks the definition provided in the Commission's market monitoring policy statement.[107] It covers violations of any of the Commission's market conduct rules or any CAISO Tariff provisions that do not carry a specifically defined penalty. CAISO Tariff provisions that carry defined penalties are found in section 37 of the Tariff and are referred to the Commission only under the circumstances described in that section.

(2) What the Market Monitoring Unit Cannot Do

Under section 37 of the current Tariff, DMM holds some responsibility for administering the CAISO's enforcement protocol. As part of the CAISO's compliance with Order No. 719, most references in section 37 to the "Market Monitoring Unit" will be struck and the word "CAISO" will be inserted in its place. This revision reflects that enforcement responsibility largely will shift from DMM to other parts of the CAISO. Under the new approach, DMM will retain responsibility for investigating potential violations of section 37.7 (market manipulation) and referring such matters to the Commission. For all other rules of conduct violations, the CAISO will investigate. If circumstances preclude the

[106] Appendix A is titled "Master Definitions Supplement."

[107] *Market Monitoring Units in Regional Transmission Organizations, Independent System Operators*, 111 FERC ¶ 61,267 (2005).

objective determination of a violation, the CAISO may refer the matter to DMM for further investigation. Based on its investigation, DMM may in turn refer the matter to the Commission for further consideration. The CAISO is proposing revisions to its *Business Practice Manual for Rules of Conduct Administration* to identify the business unit that primarily will be responsible for administering section 37. These revisions will go through a stakeholder review pursuant to section 2.11.1 of the CAISO Tariff.

In addition to the changes in section 37 and its associated *Business Practice Manual*, section 5.5 of Appendix P states explicitly that DMM shall not engage in tariff administration or prospective mitigation. Order 719 permits, but does not require, the internal market monitoring unit of an ISO with a hybrid market monitoring structure to engage in prospective market mitigation if the external market monitoring unit reviews the quality and appropriateness of the internal market monitoring unit's mitigation.[108] The CAISO chose not to give DMM this responsibility because the CAISO's prospective mitigation is largely an automated process not administered by DMM. In addition, the MSC's current structure is not conducive to conducting ongoing review of the quality of DMM's mitigation activities. Accordingly, the CAISO chose to retain current practices under which DMM does not conduct prospective mitigation.

Compliance with the ethics requirement is largely a matter of incorporating the seven ethics provisions directly into Appendix O and Appendix P. The CAISO also added two provisions. In section 9.7.1 of both appendices, the CAISO defined the term "seeking employment" with reference to the provision in

[108] Order No. 719 at P 374.

the Code of Federal Regulations applicable to all employees of the Federal government. This provided an objective standard for enforcing the restriction in section 9.7. Additionally, section 9.8 of Appendix provides that DMM employees will still be subject to the CAISO's generally applicable employee code of conduct. The ethics provisions of the CAISO's proposed tariff appendices apply only to individual employees and members of the DMM and the MSC. Although Order No. 719 states that the "ethics standards apply to the MMU itself as well as to its employees,"[109] this would not make sense in the case of the CAISO. The DMM is merely a division of the CAISO, and has no ability to enter into the kinds of commercial relationships that are relevant under the ethics restrictions. The same holds true for the MSC, which acts solely as an advisory committee to the CAISO Governing Board. Accordingly, to the extent the Order requires that the ethics provisions apply to DMM and the MSC themselves, as opposed to individual members, the CAISO requests a waiver of this requirement.

(3) What the Market Monitoring Unit May Do

The proposed revisions allow DMM to conduct retrospective mitigation and to provide inputs to prospective mitigation, the two functions that Order No. 719 specifically permits a market monitoring unit to perform.

(4) Other Directives Relating to Market Monitoring Unit Functions

Proposed sections 6.1 of Appendix O and Appendix P explicitly set forth which functions will be performed by either DMM or the MSC and which functions

[109] *Id.* at P 387.

will be conducted by the CAISO. Any function not specifically conferred upon DMM or the MSC is reserved for the CAISO.

The CAISO's market mitigation processes largely are automated and the CAISO's computer systems automatically mitigate offers and bids before a market solution is run. This approach to implementing market mitigation leaves little room for discretion.

4. Sharing Information Between Market Monitors and Third Parties

The fourth topic covered in the market monitoring portion of Order No. 719 relates to release of information by market monitoring units to third parties, including market participants and state utility commissions.

a. Order No. 719 Requirements

(1) Release of Offer and Bid Data

One aspect of the information sharing requirement dealt with release of offer and bid data. The Order directed ISOs to release masked offer and bid data within three months unless the ISO can demonstrate a collusion concern over releasing the data in that timeframe.[110] The Order noted that released data should also include virtual offers and bids, but offered ISOs the opportunity to justify withholding such data.[111] Finally, the Order invited ISOs to propose a timeline for the eventual unmasking of the identities of the parties associated with the released offer and bid data.[112] The Order also mandated that ISOs provide a justification for their policies regarding the aggregation of offer and cost data,

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[110] *Id.* at P 421.
[111] *Id.* at P 422.
[112] *Id.* at P 423.

explaining how the policy fosters transparency while avoiding market participant harm and collusion.[113]

(2) Tailored Requests for Information from State Utility Commission

The second aspect of information sharing required market monitoring units to consider tailored requests from state utility commissions for information or data on general market trends and the performance of the wholesale markets.[114] The Order also provides limitations on a market monitoring unit's obligation to respond: market monitoring units need not respond where it would be unduly burdensome[115] and may not respond to requests for information "designed to aid state enforcement actions"[116] or where the response would violate the Commission's confidentiality rules related to market monitoring unit referrals to the Commission.[117] Additionally, information that raises confidentiality concerns may only be shared if an appropriate non-disclosure agreement is reached.[118] Data raising such confidentiality concerns may only be shared if it is redacted.[119] Further, before the market monitoring unit provides the Commission with any data specific to a market participant, that market participant must be given the chance to contest the accuracy of the data and to provide context to the data.[120]

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113 *Id.* at P 424.
114 *Id.* at P 446.
115 *Id.* at P 447.
116 *Id.* at P 449 & 459.
117 *Id.* at P 449.
118 *Id.* at P 448.
119 *Id.* at P 450.
120 *Id.* at P 455.

Finally, the Order clarifies that these restrictions do not apply to subpoenas or court orders.[121]

(3) Developing a New Confidentiality Policy

The third aspect of information sharing required ISOs to develop, in conjunction with stakeholders, confidentiality provisions in their tariffs that protect commercially sensitive material but are not any more restrictive than necessary.[122]

b. Compliance

(1) Release of Offer and Bid Data

As this provision is fundamentally about confidentiality and does not impose any obligations upon DMM or the MSC, the CAISO decided to keep this provision in section 20 of the Tariff. To comply with the Order, the CAISO proposes to revise section 20.4(a) to indicate that masked offer and bid data shall be released in three months. The initial draft of this provision stated that the data would be released "within three (3) months" and used the upper-case "Bid" to signify that the definition used in Appendix A would apply. During the stakeholder feedback process, Southern California Edison Company expressed concern both that the phrase "within three (3) months" was too imprecise and that the Appendix A definition of "Bid" did not cover all of the relevant information under the CAISO's new market structure. The CAISO considered this feedback and changed the time lag to the more precise "90 days" and made the word "bid" lower case to allow for the CAISO to release more information than is covered

[121] *Id.* at P 456.
[122] *Id.* at PP 448.

under the definition of "Bid" in Appendix A. Such information may include items such as the bids that market participants submit, the bids that are sent to the CAISO's market optimization software following application of prospective market mitigation procedures, and RUC Availability Bids. Because the CAISO's MRTU markets are still new, the CAISO at this point cannot state with precision exactly what bid information it will be able to release.

The CAISO market design does not currently provide for convergence bidding, so there is no way to identify virtual bids and offers separately from physical bids and offers. The Commission has directed the CAISO tentatively to allow virtual bidding in its post-MRTU market enhancements.[123] At that point, the CAISO will consider amending section 20.4(a) to cover virtual bids. The CAISO does not wish to unmask the identity of the bidders, so it proposes no timeframe for such unmasking.

Order No. 719 also requires a statement regarding aggregation of offer and cost data.[124] The CAISO understands this requirement to refer to a practice at other ISOs of providing certain services, *e.g.*, ancillary services, through an offer and price for individual transactions. The CAISO, however, has a different service model. The CAISO procures such services through the market, and thus believes that this requirement does not apply to it. The CAISO accordingly requests waiver, if necessary, from this requirement in the Order. Further, the CAISO notes that FERC recently has found that the CAISO's proposed post-

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[123] *Cal. Indep. Sys. Operator Corp.*, 116 FERC ¶ 61274 at P 452 (2006)

[124] Order No. 719 at P 424.

MRTU OASIS will provide sufficient data in many categories to meet the concerns of providing market transparency.[125]

(2) Tailored Requests for Information from State Utility Commissions

Section 8.1 of Appendix P, and its related sub-parts, reflects CAISO's implementation of the balance the Commission struck between providing state commissions with more useful information and recognizing the need to protect market monitors from being overrun by requests for information from state commissions. The first sentence of section 8.1 establishes the general rule that DMM must consider tailored requests from the CPUC for information or data on general market trends and the performance of the wholesale markets. The second sentence of section 8.1, as well as the sub-parts of section 8.1, reflects the limits on the CPUC's right to obtain the information or data.

The second sentence of section 8.1 allows DMM to deny a request where complying with it would be unreasonably burdensome or otherwise would interfere with DMM's ability to carry out its core market monitoring responsibilities. The initial draft of this sentence simply allowed DMM to deny a request where it determined that it was unduly burdensome. Based on feedback from the CPUC, the CAISO revised the provision to make it less vague.

Section 8.1.1 reflects the non-disclosure approach that the CAISO and the CPUC have reached. For nearly five years, the CAISO and the CPUC have operated successfully under a confidentiality agreement in which the CPUC promises to treat all information provided by the CAISO pursuant to a subpoena

[125] *Cal. Indep. Sys. Operator Corp.*, 126 F.E.R.C. ¶ 61,260 (2009).

as confidential. Currently, when the CAISO receives a subpoena, the CAISO provides its response upon written confirmation that the information or data provided will be covered under the existing confidentiality agreement. This process has worked well for the past five years. For this reason, the CAISO proposes to extend it to cover information or data provided under section 8.1.1.

Section 8.1.3 bars DMM from complying with a request that "is designed to aid an enforcement action by an instrumentality or political subdivision of the State of California against a specific company." In developing this part of the proposed tariff language, the CAISO was concerned that if the limitation referred only to requests designed to aid a CPUC enforcement action, the CPUC could seek information and pass it along to another state agency for its enforcement action. Because Order No. 719 refers generally to "state enforcement actions," rather than "state utility commission enforcement actions," the proposed scope of section 8.1.3 should better fulfill the Commission's intent.

Finally, during the stakeholder feedback process, the CPUC expressed concern that section 8.1.2 did not guarantee that DMM would provide basic information needed to understand the raw data, such as the definitions of terms and the sources of data. DMM intends to provide such support unless it is unreasonably burdensome or is otherwise restricted by section 8.1. Because DMM cannot guarantee that it will be able to provide the desired support in all circumstances, however, the CAISO did not incorporate a requirement to provide the support in section 8.1.2.

(3) Developing a New Confidentiality Policy

Since CAISO startup in 1998, section 20 of the Tariff has contained reasonable confidentiality provisions that were the product of stakeholder involvement. Indeed, at that point the CAISO had a stakeholder-led Governing Board. Nevertheless, now that MRTU has been implemented fully, the CAISO looks forward to initiating a full stakeholder process to revisit section 20 and ensure that the CAISO's overall confidentiality policy both takes account of current stakeholder view and benefits from stakeholder input on how to best balance the competing goals of fostering transparency and confidentiality.

Attachment 1

MISSION STATEMENT

PUBLIC & MEDIA

Mission and Vision

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California ISO Mission

For the benefit of our customers, we:

- Operate the grid reliably and efficiently
- Provide fair and open transmission access
- Promote environmental stewardship
- Facilitate effective markets and promote infrastructure development

All through the provision of timely and accurate information.

California ISO Vision

California ISO strives to be a world-class electric transmission organization built around a globally-recognized and inspired team providing cost-effective and reliable service, well-balanced and transparent energy market mechanisms, and high-quality information for the benefit of our customers.

California ISO Cornerstones

Attachment 2

DEMAND RESPONSE BARRIERS STUDY

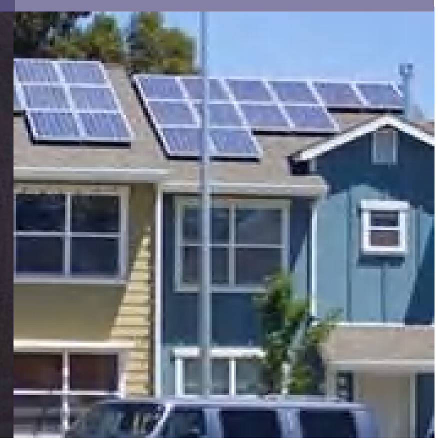
FSC FREEMAN, SULLIVAN & CO.
A MEMBER OF THE FSC GROUP

Energy and Environmental Economics, Inc.

California Independent System Operator Demand Response Barriers Study (per FERC Order 719)

April 28, 2009





Prepared by:
Freeman, Sullivan & Co.
Energy and Environmental Economics, Inc.

EXECUTIVE SUMMARY

This report summarizes the findings of California ISO's (CAISO's) study of demand response (DR) barriers conducted in response to Federal Energy Regulatory Commission (Commission) Order 719. The study was commissioned and directed by the CAISO and completed by the consulting team of Freeman, Sullivan & Co. (FSC) along with Energy and Environmental Economics, Inc. (E3).

The study was structured to respond directly to FERC Order 719 paragraphs 274-276. To comply with the Order, the consultant team defined the scope to:

- include all barriers to demand response from the perspectives of a broad range of DR stakeholders including those with minority perspectives;
- prioritize the barriers in consultation with the CAISO and the goals established by the Commission; and
- develop timelines for addressing each barrier.

In addition, the study was narrowed to focus explicitly on the California market. Although there may be common DR barriers across restructured markets, the study focuses on California alone and does not attempt to draw comparisons.

Stakeholder Process

In order to elicit opinions on the barriers to demand response (DR) in California from a broad range of stakeholders, the consultant team led a directed process of interviews and outreach, and conducted a public webinar as a forum to receive feedback from all interested parties. To initiate the process, the consultants developed an interview questionnaire based on discussions with the CAISO staff, their own experience and a literature review; the bibliography is included in Appendix A. Based on the information gathered through this research, the consultant team drafted an initial set of DR barriers which formed the basis for the CAISO hosted webinar.

Overall, participation in the process was robust. The consulting team held interviews with 13 entities involving 30 staff overall. Those interviewed included investor-owned utilities, regulatory entities, demand response/Curtailment Service Providers (CSPs), consumer advocates, customer representatives, and Energy Service Provider (ESP) representatives. Following the interviews, approximately 50 stakeholders participated in the webinar. Comments on the materials presented at the webinar were received from 9 organizations and were considered in the development of the final report.

Prioritized Barriers and Solutions

Following the feedback gained from the webinar, the consulting team prioritized the barriers identified through the research, interviews, and the stakeholder feedback. First, the complete list of barriers was divided between 'barriers' and 'critical issues.' DR 'barriers' continue to be viewed as more significant challenges, typically resulting from a policy conflict that must be resolved in order to eliminate the barrier. DR 'critical issues' were challenges judged as being significant but possibly resolvable over time through the existing processes underway in California. Webinar participants were asked for their categorization between barriers and issues, which the CAISO and consulting team considered in making a final determination on the distinction.

Secondly, the barriers were subjectively prioritized into high, medium and low categories by the consulting team and the CAISO using two criterion. The first criterion is the degree to which the barrier was viewed as inhibiting comparable treatment of generation and DR resources. The resource comparability criterion is taken directly from the Commission's ruling in Order 719. The second criterion was the degree to which the barrier was viewed as inhibiting the pursuit of increased participation of demand response in CAISO markets.

The following tables provide a summary description of each of the barriers and critical issues identified by category, its priority, and a summary of the proposed solution. The five categories used to organize the barriers include market, regulatory, customer, technology and infrastructure, as well as operations and settlement.

Table 1: Market Barriers and Critical Issues

Barrier		Priority CAISO Role	Solution
MB.1	**Resource Adequacy (RA) Capacity payments are elusive for DR resources directly participating in the CAISO markets outside of a retail DR program**	High Advocate	CAISO actively participate in current and future CPUC DR and RA proceedings to ensure greater alignment and comparability between retail and wholesale DR revenue streams.
MB.2	**Lack of a transparent, forward capacity market for direct participation DR resources**	High Advocate	Continue to engage stakeholders and the CPUC in the Long Term RA proceeding (R.05-12-013) to determine the appropriate mechanism for clearing RA capacity. Work with stakeholders and CPUC to address how DR resources can access RA capacity payments.
MB.3	**WECC standards preclude DR resources from participating in regulation and spinning reserve markets**	High Direct	CAISO will launch an initiative to evaluate the ability to revise definitions of existing AS products to ensure technology neutrality, seeking FERC approval and WECC alignment.
MB.4	**Customers accustomed to existing investor-owned utility programs**	Low Limited	Continue engagement with stakeholders to develop viable wholesale DR products with direct participation capability. Work with stakeholders and the CPUC on greater alignment between retail programs and wholesale products.

Table 1: Market Barriers and Critical Issues cont'd.

Critical Issue		Priority / CAISO Role	Solution
MI.1	Attributes of existing programs poorly aligned with CAISO markets	High Advocate/ Direct	Pursue greater alignment through CPUC DR OIR (CPUC R.07-01-041), and other relevant CPUC proceedings, CAISO stakeholder process and CAISO market and product design efforts.
MI.2	CSPs[1] precluded from direct participation without FERC approval of the PDR product	High Direct	Continue PDR stakeholder process targeting May 2010 implementation. Stakeholder support in the design and approval of wholesale DR products.
MI.3	IOUs will likely remain a key player in offering DR to retail customers, and will take direction from the CPUC and CEC, not CAISO	Medium Advocate	CAISO will continue to participate in CPUC DR and other relevant proceedings with goal of increasing alignment of utility programs and facilitating direct participation of DR resources.
MI.4	Various DR Market Vision perspectives among stakeholders	Medium Inform	Promote understanding of CAISO policy and positions through participation in relevant CPUC proceedings.

Table 2: Regulatory Barriers and Critical Issues

Barrier		Priority / CAISO Role	Solution
RB.1	**Fundamental policy differences between the wholesale (FERC/WECC/CAISO) and retail (State Legislature/CPUC/CEC) perspectives**	High Policy Reconciliation	Pursue greater alignment through CPUC DR OIR (CPUC R.07-01-041), and CAISO stakeholder process.
RB.2	**Regulatory driven retail programs limit growth opportunity for CSPs**	Medium Limited	Work with CPUC and stakeholders to ensure better alignment between retail and wholesale DR programs. Continue to develop and refine the direct participation capability of DR resources, including the ability to access RA and A/S capacity payments.

[1] For the sake of simplicity, the term Curtailment Service Provider or "CSP" will be used to refer to any non-utility DR provider, although utilities do sometimes refer to themselves as a CSP with respect to the direct participation of utility managed DR programs. It may also be possible for ESPs to act in the role of a CSP for DA customers.

Table 2: Regulatory Barriers and Critical Issues cont'd.

Critical Issue		Priority CAISO Role	Solution
RI.1	Program value may not be fully recovered in wholesale market, limiting incentives for direct participation	High Policy Reconciliation	Continued CAISO engagement in the CPUC DR OIR- Cost-effectiveness proceeding (CPUC R.07-01-041) as well as informing interested parties about the plethora of performance reporting processes conducted and published by the CAISO. Such reports, especially with MRTU market data incorporated, should help better inform this issue over time.
RI.2	Political resistance to reflecting dynamic or locational pricing in retail rates	Low Inform	CAISO products such as PDR (if approved) and Participating Load enable demand response providers to earn the locational marginal price for load curtailments. The CAISO's market produces and publishes locational marginal prices, reflecting the cost of consuming energy at specific times and places on the grid. The CAISO's market design establishes a solid foundation for the CPUC to consider incorporating dynamic or locational pricing into retail rates.
RI.3	Mixed signals from 5% DR goal, Integrated Energy Policy Report (IEPR) loading order and cost-effectiveness protocols	Low Policy Reconciliation	Remain engaged in CPUC DR OIR (CPUC R.08-06-001) and follow Long Term Procurement Proceeding (CPUC R.08-02-007); this is a longer-term barrier that is engrained in and integral to the state's long-term procurement policies.
RI.4	Multiple initiatives overwhelming capacity of stakeholders and market participants	Low Participant	Promote initiatives through and utilization of the "Market Initiatives Roadmap"

Table 3: Customer Barriers and Critical Issues

Barrier		Priority / CAISO Role	Solution
CB.1	**Complexity of the DR market offerings from a customer's perspective**	Low Direct	CAISO to develop and offer a structured bid-to-bill DR training program for market participants

Critical Issue		Priority / CAISO Role	Solution
CI.1	Utilities, Regulators and CAISO underestimate the challenge of changing customer behavior	High Direct/Policy Reconciliation	Continue targeted pilot projects to inform the overall DR development process and overcome technical and integration issues. Continue reliance on stakeholders involvement in the development of viable and attractive DR products
CI.2	Based upon historical DR involvement, CAISO market requirements are likely ill suited for many customers' pursuing direct participation	Medium Direct	CAISO Participating Load pilot projects will inform and provide lessons learned and seek better, easier to implement, more cost-effective alternatives to integrating DR resources in CAISO markets.

Table 4: Technology and Infrastructure Barriers and Critical Issues

Barrier		Priority / CAISO Role	Solution
TB.1	**Infrastructure and systems requirements and costs associated DR under MRTU**	Medium Inform	Develop and provide market participants with clear specifications about system and business requirements. Current activities and forums are helping to elicit these requirements include the Participating Load pilot projects, CAISO Business Issues and Processes working groups, and on-going/evolving CPUC policy on how "locational" it wants to make DR as a resource or as a dynamic rate.

Table 5: Technology and Infrastructure Barriers and Critical Issues cont'd.

Critical Issue		Priority / CAISO Role	Solution
TI.1	Scheduling Coordinator/Transmission level requirements for participating load	Low / Direct	Engage and walk CSPs through the CAISO's SC Application Process. CAISO provides single point of contact for any entity interested in becoming an SC. Documentation is published and available on how to become a SC with overview materials.[2]
TI.2	Limitations of AMI	Low / Participate	Address through CAISO Business Issues and Processes working groups; tighter coordination/ communication between CAISO and utility AMI and DR staff

Table 6: Operations and Settlement Barriers and Critical Issues

Critical Issues		Priority / CAISO Role	Solution
OI.1	Inherent compromises in balancing multiple objectives of baseline methodology	High / Direct	CAISO Business Issues and Processes working group plans to address this issue early and sees it as highest priority.
OI.2	Complexity of scheduling and settlement	Medium / Direct	CAISO to develop and offer a structured bid-to-bill DR training program for market participants.
OI.3	Potential for gaming due to differences between nodal and aggregated prices	Low / Direct	Gaming opportunities viewed as limited in nature; will be handled through market monitoring and specific market design elements targeted to address specific potential gaming concerns.

Initiatives and Timelines

To address the barriers that have been identified, the CAISO plans to continue its own efforts and stakeholder processes and engage in other DR processes at the CPUC, WECC / NERC, and the Commission. The Commission's Order 719 requests a timeline for addressing each barrier, and timelines have been developed for all processes. The initiatives managed by the CAISO have more certainty since the CAISO sets the respective schedule.

<u>Implementation of New and Refined DR Products (May 2010)</u>.
Participating Load Program Refinements: The CAISO transitioned its existing Participating Load Program into the MRTU environment on March 31, 2009; however, the full Participating Load functionality originally approved by FERC and intended for the

[2] http://www.caiso.com/docs/2005/10/05/2005100520241822328.html

initial release of MRTU was delayed and, as an interim measure, MRTU was supplemented with more limited functionality. The CAISO plans to implement the intended refinements to its Participating Load Program by May 2010. These refinements will make Participating Load a unique resource that can participate in the ancillary service markets and be co-optimized for energy and ancillary services.

Proxy Demand Resource: Through the stakeholder and working group process, the CAISO and its stakeholders developed the proposed Proxy Demand Resource (PDR) product. The proposed PDR product would resolve certain barriers to DR participation in the CAISO markets and enable load-serving entities (LSEs) and CSPs to directly participate by providing demand response resources via retail demand response programs in the CAISO markets. The proposed PDR product will help address concerns that were raised, such as;

- **MI.2** CSPs precluded from direct participation without FERC approval of the PDR product
- **RB.2** Regulatory driven programs limit growth opportunity for CSPs

<u>Comparability Request for DR at WECC (Fall 2009)</u>. The CAISO plans to a file a SAR (standard authorization request) with the WECC, asking it to create a standards drafting team to rewrite WECC standards for regulation and spinning reserves in order to allow non-generation resources to provide these services. The CAISO also plans to develop, independently, a set of standards that WECC may or may not adopt, but which the ISO will ultimately file with FERC as proposed revisions to its tariff. The initial workshop to discuss these revisions will be held on June 16. This will be followed by a series of technical workshops and stakeholder calls with the ultimate goal of finalizing proposals in the fall of 2009 for presentation to the CAISO Board of Governors before year-end. The results should address the following barriers:

- **MB.3** WECC standards preclude DR resources from participating in regulation and spinning reserve markets

<u>CAISO Participating Load pilot projects (Expected completion- Phase 1: December 2009)</u>. The CAISO is in the process of developing three participating load pilot projects that will be operational by the summer 2009 with the goal of providing non-spinning reserves from a cross-section of end-use load types. SDG&E will demonstrate a commercial aggregation project with end users whose load consumption is greater than 20 kW. SCE will demonstrate an aggregation of 3,200 residential AC cycling units and PG&E will conduct a test involving large commercial and industrial customers. The objectives are to understand the performance and reliability attributes of different participating load resource types, explore telemetry requirements and alternatives, identify and address operational issues, and build confidence around non-generation resources providing a high quality reliability service.

The pilot projects will help the CAISO with resolution of several barriers identified with integrating and increasing participation of DR resources, including:

- **TB.1** Infrastructure and systems requirements and costs associated DR under MRTU
- **CI.2** Based upon historical DR involvement, CAISO market requirements are likely ill suited for many customers' pursuing direct participation

Identification and Resolution of Direct Participation Business Issues (April-August 2009)
The CAISO is launching a structured working group process to discuss and resolve the issues around the direct participation of demand response participating under the proposed PDR product in the CAISO markets. The business issue resolution process will focus on the following seven categories:

- **Qualification**: program definition, participant and resource qualification)
- **Registration:** resource characteristics, enrollment, transfers, testing and auditing)
- **Scheduling:** system and resource forecasting, resource scheduling and bidding)
- **Notifications:** market schedules and awards, RT dispatch, outages)
- **Metering and telemetry:** data availability, exchange, type and granularity)
- **Settlement:** calculation of load changes, calculation of credits and charges)
- **Performance and compliance evaluation**:[3] resource, participant, program, and system performance evaluation, compliance monitoring

Additional details about this business issues resolution framework can be found in Appendix F.

CPUC DR OIR (CPUC R.07-01-041) (Ongoing- Initiated January 2007**).** These proceedings are working on refining the existing set of CPUC authorized DR programs at the California IOUs (PG&E, SCE, and SDG&E). Within the scope of the DR OIR is better integration of DR with the CAISO markets. The CAISO has been an active participant in these proceedings, and looks forward to working with the CPUC to achieve this goal. The DR OIR is the primary pathway to address the following barriers and critical issues over the next year or two:

MB.1 Resource Adequacy (RA) Capacity payments are elusive for DR resources directly participating in the CAISO markets outside of a retail DR program
RB.1 Fundamental policy differences between the wholesale (FERC/WECC/CAISO) and retail (State Legislature/CPUC/CEC) perspectives
MI.1 Attributes of existing programs poorly aligned with CAISO markets
CI.6 Program value may not be fully recovered in wholesale market, limiting incentives for direct participation

CPUC Resource Adequacy (RA) proceeding (CPUC R.05-12-013 & R.08-01-025) (Ongoing- Initiated December 2005, current proceeding initiated January 2008). CAISO will continue to engage in the CPUC's RA proceedings. For CPUC jurisdictional entities, satisfying the CPUC's Resource Adequacy requirements ensures sufficient capacity is installed and available to satisfy the system-level Planning Reserve Margin and the CAISO's local capacity area needs. Resource Adequacy capacity is either self-supplied through retained generation or procured through bilateral arrangements whereas dispatchable demand response resources, under the CPUC RA rules, is deemed as RA-

[3] CAISO Demand Response Strategic Initiative Program Overview Presentation. February 16, 2009.

qualifying capacity, granted minimum resource availability requirements are satisfied.[4] Qualifying capacity associated with retail DR programs is allocated by the CPUC to its jurisdictional entities with the allocated portion helping to satisfy the CPUC jurisdictional Load Serving Entity's RA requirement.

CAISO will continue to be an active participant in the CPUC's RA proceedings[5] and continues to support comparable treatment across resource types. Additionally, CAISO has been a proponent of a centralized capacity market and is hoping this topic is reinitiated at the CPUC.[6] CAISO participation in the CPUC RA proceeding has the potential to help address the following barriers:

MB.1 Resource Adequacy (RA) Capacity payments are elusive for DR resources directly participating in the CAISO markets outside of a retail DR program
MB.2 Lack of a transparent, forward capacity market for direct participation DR resources

<u>CPUC Smart Grid Proceeding (R. 08-12-009) (Ongoing- Initiated December 2008)</u>. In December 2008, the CPUC initiated its Smart Grid Rulemaking Proceeding. The proceeding will investigate how to enhance the ability of the electric grid to support policy goals including reducing greenhouse gas emissions, increasing energy efficiency and demand response, expanding the use of renewable energy, and improving reliability. Based on its findings, the CPUC will set policies, standards and protocols to guide the development of a smart grid system and facilitate integration of new technologies such as distributed generation, storage, demand-side technologies, and electric vehicles. The Pre-Hearing Conference initiating workshops and hearings was held March, 27 2009. A proposed schedule for the proceeding has not yet been announced.

This has the potential to address these barriers:

B.8 Infrastructure and systems requirements and costs associated DR under MRTU
CI.12 Limitations of AMI

4 See CPUC D.05-10-042 pp. 51-54

5 Including, but not limited to, R.05-10-042, R.08-01-025, R.05-12-013, et al.

6 The CAISO has supported the centralized capacity market concept proffered by the California Forward Capacity Market Advocates (CFCMA) and has stated that the CFCMA proposal "offers a solid basis for developing an effective central capacity market design. It will provide transparent prices and needed price signals for investment decisions and economic trade-offs among investments in new generation, demand response and transmission." See page 2 in the CAISO's Reply Comments of The California Independent System Operator to Comments on Staff's Modified Centralized Market Proposal, R.05-12-013, December 15, 2005 found at: http://www.caiso.com/205b/205b87ea72510.pdf

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1. INTRODUCTION

The California Independent System Operator (CAISO) commissioned this study and report on California-centric barriers to demand response (DR) in response to the Federal Energy Regulatory Commission (Commission) Order 719. The study was directed by the CAISO and conducted by the consulting team of Freeman, Sullivan & Co. (FSC) along with Energy and Environmental Economics, Inc. (E3).

The study is designed to meet the requirements and directives of the Commission as ruled in Order 719 paragraphs 274-276. The core requirements of the Commission mandate are best provided through excerpts of the Order 719 Final Rule.

> *"274. The Commission adopts the requirement that each RTO or ISO assess and report on any remaining barriers to comparable treatment of demand response resources that are within the Commission's jurisdiction and to submit its findings and any proposed solutions, along with a timeline for implementation, to the Commission within six months of the Final Rule's publication in the Federal Register. .*
> *275. … The report should identify all known barriers, and provide an in-depth analysis of those that are practical to analyze in the compliance time frame given and a time frame for analyzing the remainder…."*

The Commission also had several more specific requirements in terms of filing the report:

First, each RTO or ISO is required to "*ensure that minority views are adequately represented"* (paragraph 274), short of reporting every opinion of every individual stakeholder. As will be described herein, the approach to this study was designed to solicit stakeholder input in identifying the barriers as well as providing an approach to collect minority perspectives. The findings from a broad range of stakeholders are included in both the characterization of the barriers, as well as in the assessment of priorities and timelines.

Secondly, in paragraph 276, the Commission clarifies that the study may, but is not required to, consider energy efficiency and distributed generation within the scope of the study. This report does not address the issues of energy efficiency or distributed generation.

Finally, the Commission requires *"that each RTOs or ISO's Independent Market Monitor must submit a report describing its views on these issues to the Commission."* (paragraph 274) This consultant report will be provided to the CAISO Market Surveillance Committee (MSC), as well as the Department of Market Monitoring (DMM); their views will be provided to the Commission as a separate, independent submittal. At its discretion, the DMM/MSC may choose to reference this study in its report on demand response barriers to the Commission.

2. SCOPE OF STUDY

The California DR Barriers Study is designed to conform to FERC Order 719. In direct compliance with the Order, the consultant team defined the scope to:

- include all barriers to demand response from the perspectives of a broad range of participants including minority stakeholders;
- prioritize the barriers in consultation with the CAISO and the goals established by the Commission; and
- develop timelines for addressing each barrier.

The consultant team, with input from CAISO, defined additional criteria that were not specified by the Commission to narrow the scope and focus of the study.

First, and in keeping with the discussion contained in Order 719, the study focuses solely on California. While California faces many barriers that other RTOs and ISOs experience, the consultant team did not explicitly attempt to draw comparisons between California and other markets. At the same time, there are differences between California and other restructured markets. Primarily, California has an extremely active demand response portfolio that has (largely) operated independently of the CAISO markets and is funded through the California Public Utilities Commission (CPUC) and supported through state legislation. A number of the barriers pertain to the 'somewhat unique' California market and the misalignment of the regulatory-driven retail demand response programs with the wholesale energy market design.

Second, the study attempts to focus on 'barriers' as opposed to 'critical issues.' As the reader will note, this goal was elusive in that the consultant team and CAISO (with significant input from the stakeholders) came away with both barriers and what were deemed 'critical issues.' At a high level, 'barriers' are those challenges that rise to the level the consultant team and CAISO felt warrant attention and focus by the Commission (and key California stakeholders) while 'critical issues' center on important questions and details that can likely be resolved by the CAISO and its stakeholders with proper focus and attention. Most barriers are policy-based and at their root involve a fundamental policy conflict that must be resolved before the barrier can be eliminated. Most issues are process-based and while they may currently obstruct greater demand response participation, they hopefully can be resolved within the current CAISO stakeholder and working group processes or through an ongoing CPUC proceeding. An example of a barrier is that several participants in the study felt that the lack of a centralized capacity market in California would inhibit DR directly participating in the CAISO market in that they would not be able to tap into a significant and important "capacity" revenue stream necessary to build and fund DR resources. An example of a critical issue is the need for a market participant to establish appropriate back-office settlement protocols for direct participation of DR in the CAISO markets. The distinction between 'barriers' and 'critical issues' is somewhat subjective; there are several DR challenges that fall somewhere in-between. There is also a difference in perspective among stakeholders on whether a particular challenge is a barrier or an issue. In these cases, the consultant team and CAISO endeavored to focus on 'conflict in policy-based' barriers, but have erred on the side of including more barriers as well as critical issues rather than less.

Finally, a five year time horizon has been used in the assessment of the barriers. There are a number of initiatives underway in California including installation of Advanced Metering Infrastructure (AMI) for all customers, and deployment of default (with opt out provisions) dynamic pricing for commercial and industrial customers, that are currently scheduled to be completed by the end of 2012. In addition, the CAISO has planned the release of revised and new demand response products in the wholesale market, with an aggressive schedule of having them in place by summer 2010. There are also several regulatory initiatives underway at the CPUC, including the Demand Response Order Instituting Rulemaking (R.07-01-041). Therefore, the study focuses on barriers and critical issues that will impede DR in California, if not addressed, as these infrastructure, market, and regulatory initiatives roll-out over the next five years. If resolved, California will be better positioned to have a fully operational and well-tuned wholesale DR market by 2012.

3. APPROACH

In the development and execution of the study, the consultant team and the CAISO have endeavored to meet the goals of the Commission, in particular by (a) identifying barriers from the perspective of a broad range of participants including minority views, (b) prioritizing the barriers, and (c) providing high-level timelines to the Commission for resolution of the barriers, in as efficient a manner as possible and within the statutory timeline as established by the Commission.

In addition to the Commission goals, the CAISO asked the consultant team to make this study as relevant as possible to the ongoing initiatives designed to encourage DR in California so that it may serve as an input to other DR related initiatives and proceedings going on in California. If the report is successful in this regard, it will inform these other initiatives regarding current stakeholder perspectives on DR barriers and thereby contribute to the goal of resolving them.

With these goals, the consultant team approached the study in five sequential steps; (1) literature review and information gathering, (2) initial characterization of DR barriers, (3) interviews with key stakeholders, (4) a widely publicized webinar to present refined barriers, and gather subsequent stakeholder feedback, (5) prioritization of barriers and development of timelines and initiatives to address the barriers. Each step is described below in more detail.

3.1. Literature Review and Information Gathering

The first step for the consulting team was to gather as much relevant information as possible to perform the study. With the goal of efficiency in mind, the consultant team recognized that a considerable amount of work has been done on demand response barriers from a national perspective, as well as focused specifically on California. Key studies include the Assessment of Demand Response & Advanced Metering (December 2008) prepared by FERC Staff which provides a recent national perspective, and The State of Demand Response in California (April 2007) prepared by the Brattle Group for the California Energy Commission which provides a California perspective.

In addition to prior studies on DR barriers, the consultant team compiled a history of demand response in California from literature and their own experience, reviewed the DR programs proposed by the California investor-owned utilities (PG&E, SCE, and SDG&E), and attended CAISO demand response working group meetings. The history of DR in California is long and rich and provides much of the context for the current barriers of demand response in the State. Ultimately, the foundations of many of the barriers can be traced through the 30 year history of DR in California, the aftermath of the California Energy Crisis, and the challenges faced with aligning retail DR programs funded and authorized in customer rates by state authorities (both regulatory and legislative) and the newly launched CAISO wholesale MRTU markets.

Appendix A provides a bibliography of the literature considered in this study. In addition, this study includes a section on California's long DR history to provide context for the identified barriers; see Section 4.

3.2. Characterization and Development of Initial Barriers

The second step for the consulting team was to develop an initial list of barriers based on the literature review and information gathering. The initial list was organized into topic areas, and used to develop an interview guide that spanned the range of barriers using the following approach;

- Each barrier was categorized into one or more topic areas; ‘market’, ‘regulatory’, ‘customer participation, ‘technology and infrastructure’, and ‘operations and settlement’.
- Each barrier was given a timeline within which it might be addressed; short-term (1 to 2 years), medium-term (within 4 to 5 years), and long-term (longer than 5 years), and
- Each barrier was categorized as something that FERC / CAISO could either address directly, influence the outcome as a ‘decision-shaper’, or had limited to no impact.

The final list of prioritized barriers presented in the study has evolved significantly from the initial list. Subsequent interviews with key stakeholders, as well as the discussion and feedback from the public webinar, has (a) refined and focused the list of barriers, (b) clarified some of the specific challenges for each, (c) redefined and expanded the number of topic areas used to categorize the barriers, and (d) contributed to the relative priority ranking of DR barriers that was absent in the initial list.

3.3. Interviews with Key Stakeholders

The third step for the consulting team was to conduct interviews with key stakeholders. The interview process was designed to get unfiltered and honest opinions from a cross-section of stakeholder organizations which would then provide the material for the webinar and open public feedback from any interested parties.

To facilitate the interviews, the consultant team prepared an ‘interview guide’ that was provided to each of the stakeholders prior to the interview itself based on the initial list of barriers. This guide is included as Appendix B. The guide includes specific questions for different types of stakeholder organizations, but all interviewees were allowed to provide their comments on any of the questions. In addition to the specific questions, each interviewee was asked a broader set of concluding questions and was encouraged to identify barriers not called out by the consulting team.

In order to help receive unfiltered and honest opinions, the identity of the specific interviewees is confidential. Overall, the consulting team conducted 13 interviews with over 30 individuals that span the range of involved stakeholder organizations. Each interview lasted approximately two hours. The organization types include California utilities, representatives of other load-serving entities, local regulatory authorities, ratepayer advocates, direct market participants, and customer representatives, and curtailment service providers (CSPs). To ensure accuracy, the content of the interviews was either recorded and transcribed, or captured through written notes by the consulting team. However, the specific discussion of all interviews has been kept confidential within the consulting team, and not provided to the CAISO or any other organization. These ground rules allowed each stakeholder to freely express their opinion on specific barriers without attribution. At the same time, public discussion and feedback of the characterization of the barriers by the consulting team in the webinar allowed for a check on the accuracy in capturing stakeholder comments.

3.4. Webinar to Discuss Results

The fourth step was to conduct a public webinar, hosted by the CAISO, designed to walk-through the refined list of barriers compiled from the interviews. The webinar was held on April 8, 2009 and was publicized through a CAISO market notice and listed on the CAISO website.[7]

Overall, there were 50 participants in the webinar. Approximately 50% of the two hour webinar was dedicated to background information and discussion of barriers identified by the consulting team during interviews, and the remaining 50% was dedicated to discussion and clarification by stakeholders. The presentation used in the webinar is included as Appendix C. In addition to the feedback provided directly in the webinar, stakeholders were asked to provide the CAISO and consulting team with written comments.[8] Comments were received from nine (9) parties and incorporated into the final characterization of the barriers in the study. In addition, many of the criticisms shared as a result of the webinar had to do with material presented on a specific slide within the webinar deck. Therefore, the webinar deck contained in Appendix C contains all the respondents' specific comments on a slide by slide basis. The respondents' more general comments are contained in Appendix D.

3.5. Prioritization of Barriers and Identification of Solutions

The fifth step, once the public process to involve stakeholders was complete, was to work in close consultation with the CAISO to prioritize the barriers and identify solutions and timelines to each.

Two primary criteria were used to assess and prioritize the barriers. The first criterion is the degree to which the barrier inhibited comparable treatment of generation and DR resources. The resource comparability criterion is taken directly from the ruling by the Commission in Order 719. The second criterion was the degree to which the barrier inhibited the pursuit of California's DR Vision and the call for increased participation of demand response in the CAISO markets. This criterion is based on the CAISO's position in support of the DR Vision and demand response in California. Using these criteria, the consulting team assessed and subjectively assigned a combined ranking of 'high', 'medium', or 'low' to each barrier.

With the prioritized list of barriers in hand, the consulting team worked in consultation with the CAISO to identify solutions and establish timelines for their resolution. In many cases, the identified barriers fall within the scope of ongoing California demand response initiatives and working group processes. In these cases, the timeline associated with the initiative has been used as the appropriate timeline to address the barrier. In these cases, the findings of this study can help provide greater definition and specificity on the barriers in these proceedings. This is also consistent with the CAISO goal of informing and contributing to the various DR initiatives in California. In other cases, new activities

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[7] http://www.caiso.com/1893/1893e350393b0.html
[8] Comments were requested to be provided by COB Friday, April 17, 2009.

by the CAISO are identified that can help resolve demand response barriers. The study has endeavored to define a path to resolve all of the barriers identified.

4. HISTORY OF DEMAND RESPONSE IN CALIFORNIA

California has a long history of demand response, a robust set of DR programs managed by the IOUs, and a broad set of engaged stakeholders. California's legacy in demand response provides context for many of the regulatory, market and customer barriers identified in this study.

California has a 30 year history of load management programs including interruptible rates and direct load control programs implemented by the utilities. By the 1990's, the utilities had successfully enrolled approximately 5% of peak demand in demand side management programs. In 1996, the California legislature passed AB 1890, *The Electric Utility Industry Restructuring Act*, which created a competitive electricity market. At that time, the programs had enrolled 2,800 MW of dispatchable peak demand.[9] The popularity of these programs was partially due to their history of limited use by the utilities. Before 2000, the programs were rarely used and considered an "insurance policy" in combination with integrated resource planning which insured California's comfortable reserve margins.[10] However, due to restructuring, the state's resource planning processes were limited and the capacity margins began to shrink.

Forecasting a need for significant additional curtailable load, the CAISO began development of new demand response programs in 2000. Two different programs were rolled out - the Participating Load Program and the Demand Relief Program. The Participating Load Program was designed as a market-based offering where loads would compete with generation in the ancillary services market. The Demand Relief Program provided fixed payments for load curtailment based on system conditions. Neither of the programs reached their enrollment goals in 2000.[11] Notably much of the load that did enroll in the Participating Load Program could not actually participate because the CPUC determined that customers should not be able to participate in both the CAISO and the utility programs simultaneously. During the energy crisis, the utility programs required high levels of participation in order to reduce the number of blackouts. In the last eight months of 2000, the enrolled entities were asked to curtail 23 times.[12] The participating customers were not prepared for this level of curtailment given the limited historical number of operations; many opted out of the program in 2001. This reduced the total program level to less than half the level of participation seen in 1998, 1999 and 2000.

[9] A Critical Examination of ISO-Sponsored Demand Response Programs: A White Paper. Grayson Heffner. Freeman Sullivan. August 2005. http://www.fscgroup.com/news/FSC_DRWhitePaperHeffner.pdf

[10] Charles A. Goldman, Joseph H. Eto, and Galen L. Barbose, "California customer load reductions during the electricity crisis: Did they help to keep the lights on?" (May 1, 2002). *Lawrence Berkeley National Laboratory.* Paper LBNL-49733. http://repositories.cdlib.org/lbnl/LBNL-49733

[11] Overview of California ISO Summer 2000 Demand Response Programs. John H. Doudna, P.E, Senior Member, IEEE California 1S0 Operations Engineering Dept. IEEE. 2001.

[12] (2001b). "Energy Division's Report on Interruptible Programs and Rotating Outages." Filed with the California Public Utilities Commission under Proceedings for R. 00-10-002, February 8.

Thus, the electricity crisis in 2000 and 2001 tested the legacy demand response resources and forced the CAISO and the CPUC to rethink their demand response products. The DR programs created for the summer of 2001 offered a wide range of new program design concepts. These programs were outlined in an LBNL overview report of the crisis written by Goldman, Eto and Barbose in May of 2002; a program summary table from their report is shown below. [13]

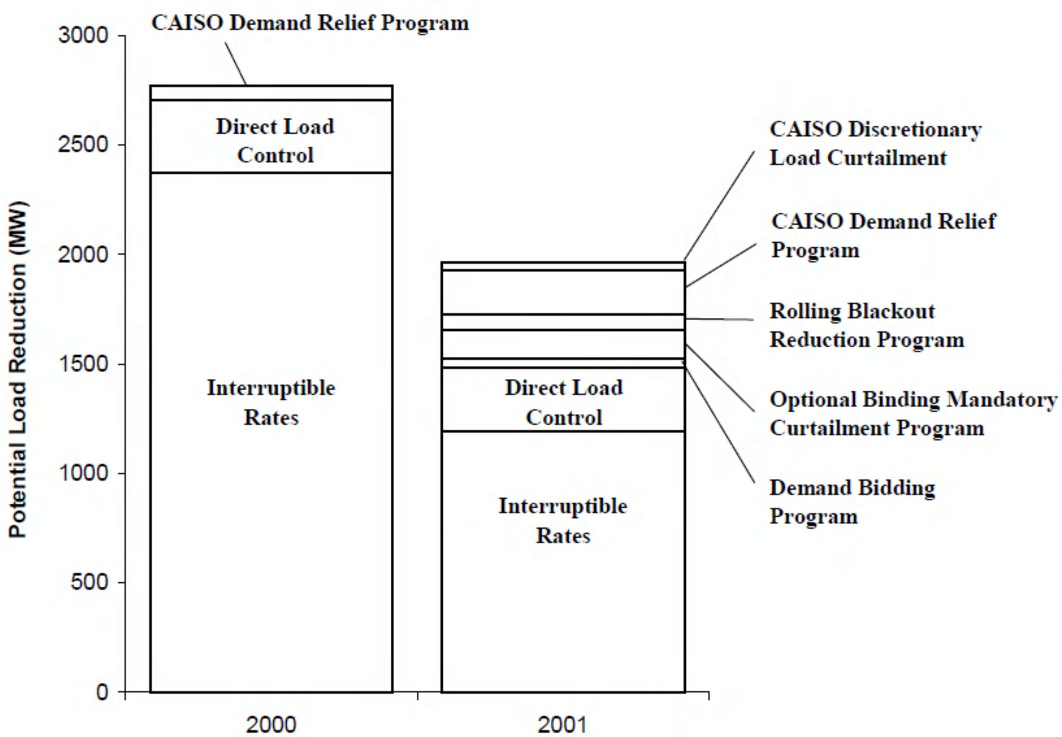
Table 7: 2001 DR Programs

Program Name	Program Administrator[a]	Description	Operational Trigger	Incentive Amount
Interruptible Rates and Base Interruptible Program	IOU	Participants commit to reduce to Firm Service Level (FSL) upon notification.	Contingency	~$7000/MW-month
Direct Load Control (A/C Cycling and Agricultural Pumping)	SCE	Customer agrees to allow utility to interrupt air conditioning or agricultural and pumping loads.	Contingency	$0.014 - 0.40/ton-day
Optional Binding Mandatory Curtailment (OBMC)	IOU	Participants commit to curtail at least 15% of the circuit load during every rotating outage.	Contingency	-
Demand Bidding (DBP)	IOU	Participants bid load reductions day-ahead, through DBP Web-site.	Market	$100 - $750/MWh
Scheduled Load Reduction (SLRP)	IOU	Participants provide weekly load reductions in four-hour blocks on specific days.	Pre-scheduled	$100/kWh
Rotating Blackout Reduction Program (RBRP)	SDG&E	Participants run Back-Up Generators during all rolling outages	Contingency	$200/MWh
Demand Relief Program (DRP)	CAISO	Participants provide a pre-specified load reduction upon notification by CAISO.	Contingency	$20,000/MW-month and $500/MWh
Discretionary Load Curtailment Program (DCLP)	CAISO	Participants offer voluntary load reductions in response to requests by CAISO.	Contingency	$350/MWh

Most of the new programs were based on reliability, but some were market incentive based such as the new demand bidding program. While the CPUC and CAISO hoped these programs would provide more flexibility and increase enrollment, the number of choices and constant changes appeared to confuse customers. In addition, according to the LBNL report, while the CAISO was initially successful at signing up load aggregators, it was unable to guarantee prompt payment which resulted in significant attrition from its programs. Combined, the CAISO and CPUC (through the utilities) enrolled 1,900 MW in their 2001 programs. However, the programs were only called on once to provide 800MW. The load curtailment required in 2001 was largely met with other voluntary customer load reductions. Figure 1 below from the 2002 LBNL report shows the drop in enrollment and the distribution of participation in the new programs.

[13] Charles A. Goldman, Joseph H. Eto, and Galen L. Barbose, "California customer load reductions during the electricity crisis: Did they help to keep the lights on?" (May 1, 2002). *Lawrence Berkeley National Laboratory.* Paper LBNL-49733. http://repositories.cdlib.org/lbnl/LBNL-49733

Figure 1: Comparative and Participation in DR Programs [14]



After the electricity crisis, management of the demand response resources shifted to the CPUC and the investor-owned utility programs. The CAISO deemed it "prudent to scale back its efforts and defer to the CPUC, the CPA (California Power Authority), and the IOUs to develop programs and provide program funding." [15] The CAISO reported in their annual 2001 report that the result of the 2000-2001 energy crisis was a significant decline in customer interest in demand response programs, which was due to "payment concerns, extensive curtailment of loads on the interruptible rate tariff, regulatory uncertainty, a large number of different, competing programs, and ongoing revisions to those programs". The CAISO also stated that demand response programs would not succeed without coordination between state agencies.[16]

Control of the majority of demand response programs shifted to the CPUC under Assembly Bill 57, which Governor Davis signed in September 2002. The bill provided the regulatory framework for utilities to again procure electricity supplies and demand reductions, as well as to develop long-term procurement plans[17]. In October 2002, the CPUC determined that the IOUs should take responsibility for procuring sufficient resource to maintain the reliability of California's electric grid. This decision also

[14] Ibid. p. 9

[15] A Critical Examination of ISO-Sponsored Demand Response Programs: A White Paper. Grayson Heffner. Freeman Sullivan. August 2005. http://www.fscgroup.com/news/FSC_DRWhitePaperHeffner.pdf

[16] CAISO Annual Report, 2001

[17] "Measurement and evaluation of energy efficiency programs: California and South Korea". E. Vine, C.H. Rhee, and K.D. Lee. Energy 31 (2006) 1100–1113

indicated that ‘resource adequacy should first be met through all cost-effective energy efficiency and demand-response programs.’[18]

In April 2003, the CPUC, CEC, and the California Power Authority prepared the Energy Action Plan (EAP), which presented a unified energy policy outlook and emphasized energy efficiency to meet California’s energy needs. The demand response goal developed in the EAP in 2003 was set as achieving price-sensitive price demand response capacity of 5% of annually peak loads by 2007.[19] The EAP also adopted a “loading order” to meet electricity needs. The California state policy is to meet increased load first with energy efficiency and demand response; second, with renewable energy and distributed generation; and third, with clean fossil-fueled sources.

Then in early 2004, the CPUC adopted a framework for integrated resource planning and resource adequacy for the three investor-owned utilities.[20] In a subsequent decision, the CPUC identified the need to develop M&E protocols and cost-effectiveness methodologies for retail demand response programs and tariffs in 2005.[21] In 2006, the CPUC created several new retail demand response programs to increase participation.[22] From 2006-2008, the CPUC approved the installation of Advanced Metering Infrastructure (AMI) for the investor-owned utilities, including interval meters for all customers and supported the development of critical peak pricing (CPP) as the default tariff (with opt out options) for commercial and industrial customers. These recent changes are seen as a way to move towards real-time pricing and achieve greater levels of demand response.

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[18] California Public Utilities Commission. Decision 02-10-062. Interim opinion, Oct 24, 2002. San Francisco, CA: CPUC; 2002. http://docs.cpuc.ca.gov/published/Final_decision/20249.htmWeb site: www.cpuc.org.

[19] The document "California Demand Response: A Vision for the Future (2002-2007)" is included in D.03-06-032 as Attachment A. http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/26965.ht

[20] California Public Utilities Commission http://www.cpuc.ca.gov/PUBLISHED/NEWS_RELEASE/33555.htm

[21] CPUC Decision: D.05-11-009

[22] California Public Utilities Commission http://www.cpuc.ca.gov/PUBLISHED/NEWS_RELEASE/62260.htm

5. CURRENT DEMAND RESPONSE LANDSCAPE

Given the history of DR in California, the state is well positioned to take advantage of retail demand response resources. The CPUC, IOUs and CAISO have years of experience operating demand response programs and the state legislature and regulatory authorities are motivated to promote having demand response products for customers. For instance, the utilities include long-range forecasts of demand response in their Long-Term Procurement Plans (LTPP) and the CPUC allows the megawatts associated with retail demand response programs to count towards meeting CPUC jurisdictional load serving entities' resource adequacy requirements. In addition, by funding the installation of an advanced metering infrastructure in much of California, a critical foundation will have been laid that will hopefully enable greater participation of demand response resources in the wholesale electricity markets. The state also has seasoned DR aggregators and a high level of demand response awareness among its commercial and industrial customers, especially when it comes to reliability-based demand response. Since the challenges faced during the energy crisis, demand response has grown substantially over the past five years and more products are now "price-responsive."[23] The growth in participating demand response load from 2003 through the proposed 2009 IOU DR programs is shown in Table 8 below.

Table 8: MWs in Utility Demand Response Programs

	July 2003 (MW)[24]	July 2005 (MW)[24]	April 2008 (MW)[24]	Proposed 2009 (MW)[25]	5% DR Goal (MW)
Price Responsive Programs	0	850	1,136	1,287	2,500[26]
Reliability Programs	1,485	1,600	1,850	1,498	N/A

However, multiple authorities are involved in demand side management in California, complicating the DR market. The CPUC, CAISO, CEC, IOUs, and the State Legislature have all staked out active roles in the development of demand response in California. There is a dual market structure for DR in the state; part regulatory driven with programs funded by the CPUC and implemented by the IOUs, and part market driven with the participation of DR in wholesale energy markets managed by the CAISO. This dual market is somewhat unique to California and has developed partly in response to the historical load management programs and to the electricity crisis of 2000-2001.

[23] The demand response goals were clarified in D.05-01-056. Price-responsive tariffs and programs were categorized as day-ahead. Reliability programs (interruptible; load control) were categorized as day-of.

[24] Enrollment is defined by "Upper-bound" estimates – represents highest potential load drop. Actual results may vary. **Source:** CPUC: Bruce Kaneshiro presentation June 23, 2008

[25] 2009-2011 Demand Response Program Filings. CPUC Application 08-06-001, 08-06-002, 08-06-003. Filed June 2, 2008. Not including pilot programs or educational initiatives.

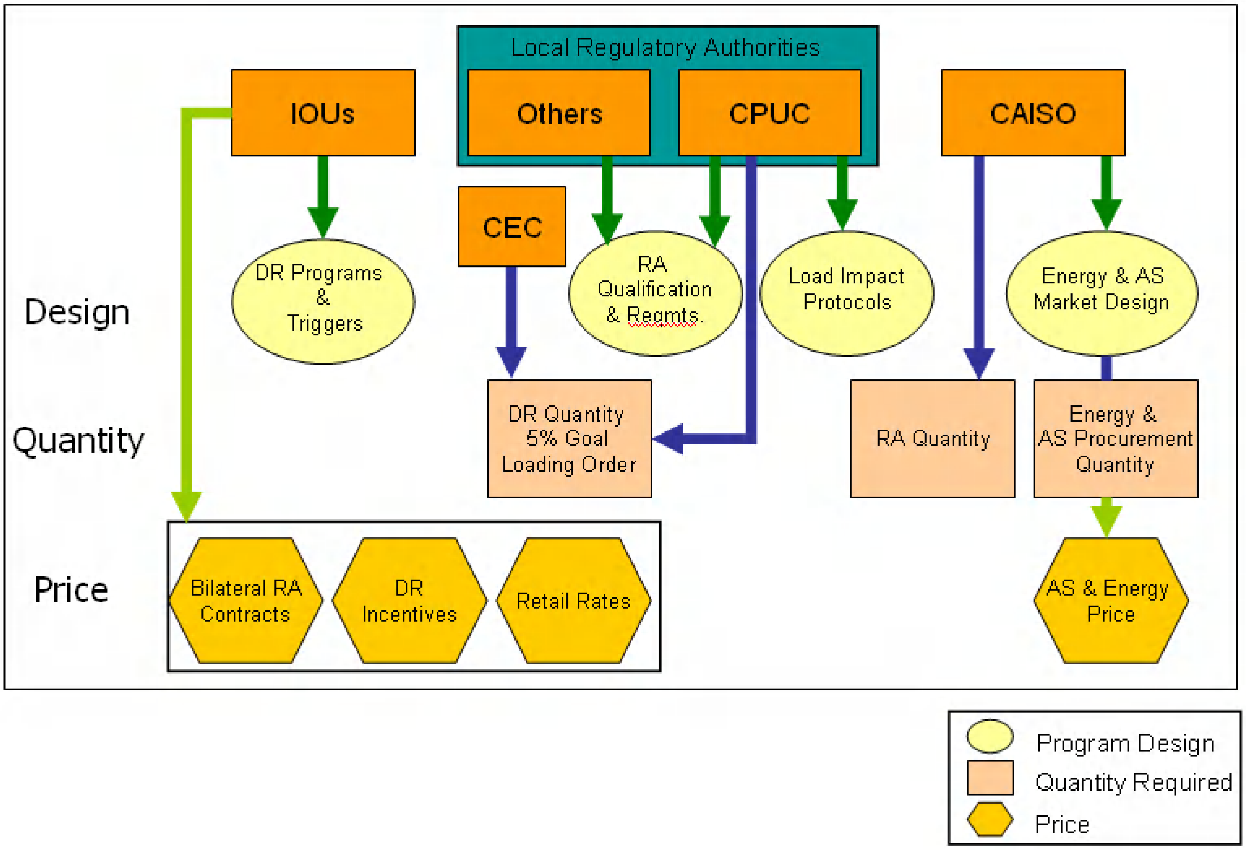
[26] 5% of an assumed 50,000 MWs of system peak demand – illustration purposes only.

These entities guide the program design; determine quantity requirements to meet resource adequacy, energy needs and policy goals; and create the incentives and market rules that provide a price signal to the retail end consumer. An overview of the multiple entities that direct program designs, set enrollment goals and determine rate and incentive levels is shown in Figure 2. The CPUC has established Resource Adequacy guidelines. The CPUC as well as other Local Regulatory Authorities, determine RA qualifications and requirements of the utilities throughout the state. The amount of RA capacity required in each Local Area is determined by studies performed by the CAISO. The utilities are then responsible for procuring the RA capacity through individually negotiated bilateral contracts or RFPs.

The CPUC and the CEC jointly developed the 2005 Energy Action Plan that put energy efficiency and DR at the top of the preferred loading order and set a goal of enrolling 5% of load in DR programs. The CPUC on its own has also implemented DR load impact protocols and cost-effectiveness criteria to be used by the utilities in evaluating their programs. The utilities design and implement multiple DR programs, submitting proposed programs every three years for review and approval by the CPUC. The utilities propose the level and type of incentives for DR programs, as well as the rates for retail customers, with CPUC oversight and approval.

The CAISO is responsible for the specifications and requirements of the energy and ancillary services products needed to operate a reliable transmission system. The CASIO designs and implements the wholesale markets for those products with oversight from FERC.

Figure 2: California 'Hybrid' DR Market: Program Design, Quantity, and Value



Aside from determining capacity requirements and operating wholesale markets, the CAISO has a relatively limited role in the current DR portfolio. This is due to the influence of the electricity crisis and the return to CPUC-regulated utility demand response programs. In addition, the CEC and CPUC have expanded their efforts under the direction of the Energy Action Plan in order to meet the five percent peak load demand response goal.

The CAISO currently operates two demand response programs - the Voluntary Load Reduction Program (VLRP) and the Participating Load Program (Ancillary Services /Supplemental Energy). The VLRP is a purely voluntary program where participants reduce their energy consumption when the California ISO declares a power emergency. The CAISO cannot rely on a firm output from this voluntary program. The Participating Load Program allows loads to participate as price-responsive demand in the CAISO's energy and ancillary services markets. The California Department of Water Resources (CDWR) is the only participant in the PLP and actively manages 2,500 MW of load in PLP (3,000 MW including pumped storage).

While the PLP program is large in terms of enrolled MWs, the vast majority of the customers participating in demand response are enrolled in IOU demand response programs. In 2007, the CAISO programs represented 4% of the demand response enrollments (3% in the PLP reliability program and 1% in the VLRP). The IOUs programs covered the bulk (96%) of the enrollment with 58% enrolled in the interruptible reliability-based programs and 38%[27] in price-based programs.[28]

Given the duality of the DR market, the CAISO system needs and wholesale prices may not align well with the regulatory-driven retail program incentive levels and dispatch triggers. The dispatch of the regulatory DR programs is managed by each IOU, each with somewhat different trigger mechanisms. The rule based trigger types fall into three different categories; 1) emergency alerts issued by the IOUs or CAISO, 2) implied market or actual system heat rates, and 3) forecasted peak loads. In addition, many programs may be dispatched at the discretion of the utility, with a limit on the frequency and duration of calls per month or year.

The trigger mechanisms for the proposed 2009-2011 DR programs of PG&E, SCE and SDG&E are shown in Table 9,Table 10 and Table 11 respectively. In some cases, the program title represents an umbrella program for a number of smaller programs. In other cases, the IOU contracts with a CSP to implement one or more programs, with the CSPs having varying degrees of flexibility in defining program incentives. The tables also show whether the utilities categorize the program as a reliability (i.e., emergency) program or a price responsive program.[29]

Table 9: PG&E DR Programs 2009-2011

	MW Impact 2009	Price or Reliability Basis	Trigger Mechanism				
			Alert	Heat Rate	Temp Forecast	Peak Forecast	IOU/CAISO Decision
PeakChoice	36	Price	√	√	√	√	√
Critical Peak Pricing (CPP)	20	Price			√		
Capacity Bidding Program (CBP)	18	Price		√			
Demand Bidding Program (DBP)	8	Price	√			√	
Automated Business Energy Coalition Program (ABEC)	2	Price					
SmartRate	52	Price			√		
Permanent Load Shifting	2	Price					√
Aggregator Managed Portfolio (AMP)	125	Price & Reliability	√	√	√	√	√
Base Interruptible Program (BIP)	260	Reliability	√				
SmartAC	152	Reliability					√
CDWR Agreement	200	Reliability					√
DR Program Total	875						

[27] Per According to the 2009-2011 Demand Response Program Filings. (CPUC Applications 08-06-001, 08-06-002, 08-06-003. Filed June 2, 2008), 54% of the enrolled MWs for 2009 are expected to come from reliability Programs and 36% are expected from price responsive programs.

[28] FERC Assessment of Demand Response and Advanced Metering Report. Figure II-1 (2007)

[29] The tables do not include pilot programs or education or technology assistance based initiatives

Table 10: SDG&E DR Programs 2009-2011

	MW Impact (1 in 2) 2009	Price or Reliability Basis	Trigger Mechanism				
			Alert	Heat Rate	Temp Forecast	Peak Forecast	IOU/CAISO Decision
Default Critical Peak Pricing (CPP-D)	58	Price			√	√	√
Peak Time Rebate Program (PTR)		Price			√	√	√
Capacity Bidding Program (CBP)	18	Price		√			√
Summer Saver Program	20	Price		√		√	√
Permanent Load Shifting	1	Price					√
Emergency Critical Peak Pricing (CPP-E)	3	Reliability	√				√
Base Interruptible Program (BIP)	5	Reliability	√				
Total	105						

Table 11: SCE DR Programs 2009-2011

	MW Impact 2009	Price or Reliability Basis	Trigger Mechanism				
			Alert	Heat Rate	Temp Forecast	Peak Forecast	IOU/CAISO Decision
DR Contracts (approved)	100	Price	√	√	√	√	√
DR Contracts (proposed)	106	Price	√	√	√	√	√
Real Time Pricing > 200 kW	28	Price			√		
Energy Option Plan	65	Price					√
Critical Peak Pricing (CPP) >200kW	12	Price					√
Permanent Load Shifting	2.4	Price					√
Summer Discount Plan	613	Price & Reliability	√				√
Base Interruptible Program	687	Reliability	√				
Agriculture & Pumping - Interruptible	58	Reliability	√				
Optional Binding Mandatory Curtailment (Stage 3)	9	Reliability	√				
Total	1,680						

Looking at the IOU's actual calls for curtailment associated with the Capacity Bidding Program (CBP) illustrates the historic relationship observed between utility program triggers and CAISO wholesale markets. The Capacity Bidding Program is a price-based DR program with a heat rate based trigger (i.e., when the utility would use fossil-based generation with a heat rate greater than 15,000 Btu/kWh). The utility CBP calls (i.e., operations) for 2007 are plotted against CAISO system load in Figure 3 and the higher of the zonal NP15 or SP15 price in each hour in Figure 4. In each case, many of the calls do occur during the hours with the highest load or prices. However, many calls occurred during hours with more moderate loads and prices. Some of the mismatch is certainly due to having to call programs based on forecast conditions, and calling them for a block of 4-6 hours at a time. It is probably also the case, however, that the heat rate triggers used in each IOU's service territory are not always correlated with periods of high CAISO system loads and prices.

Figure 3: IOU CBP Calls Plotted Against CAISO System Load Duration Curve (2007)

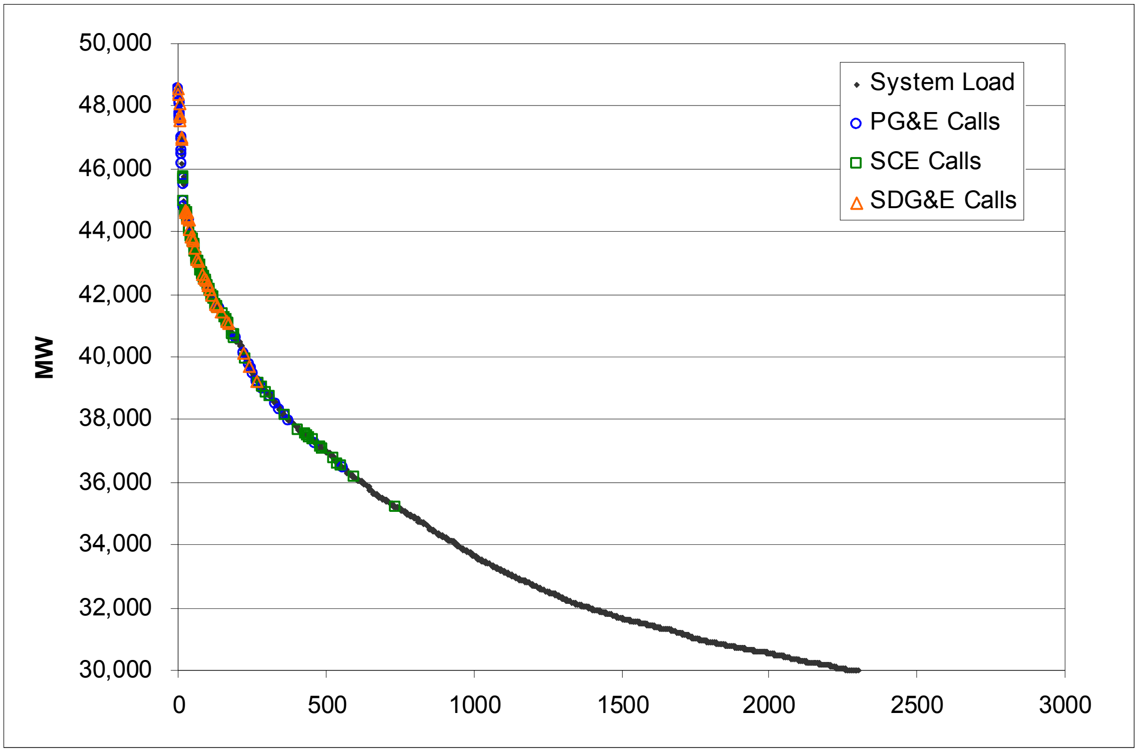
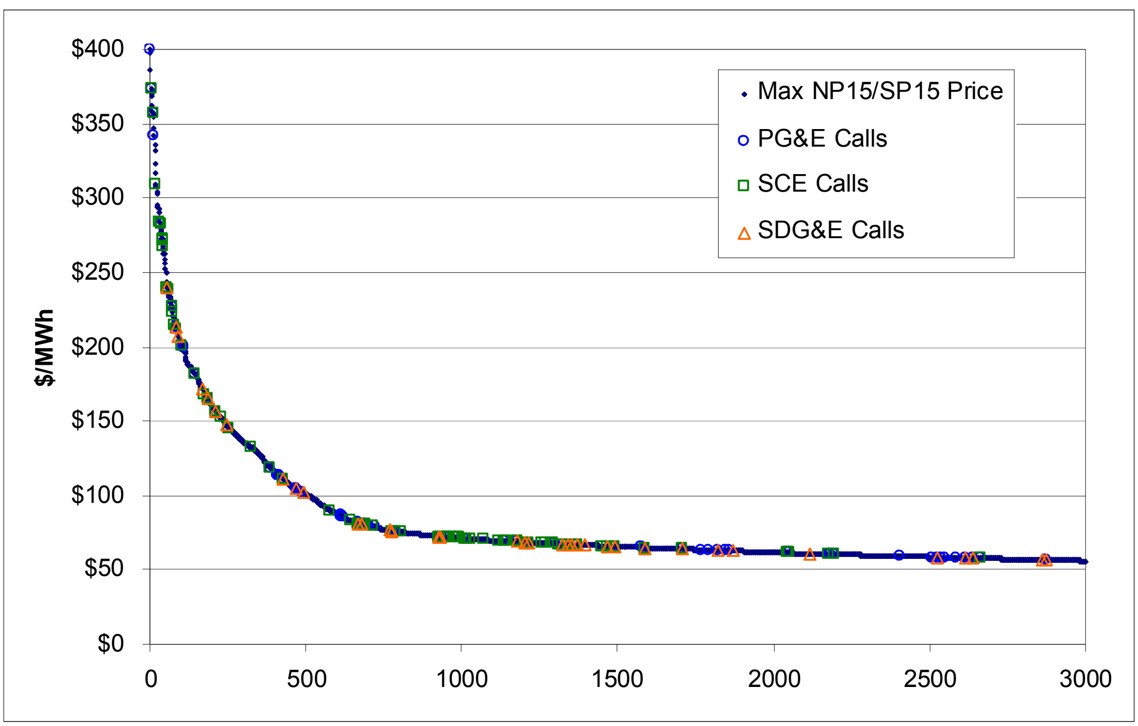
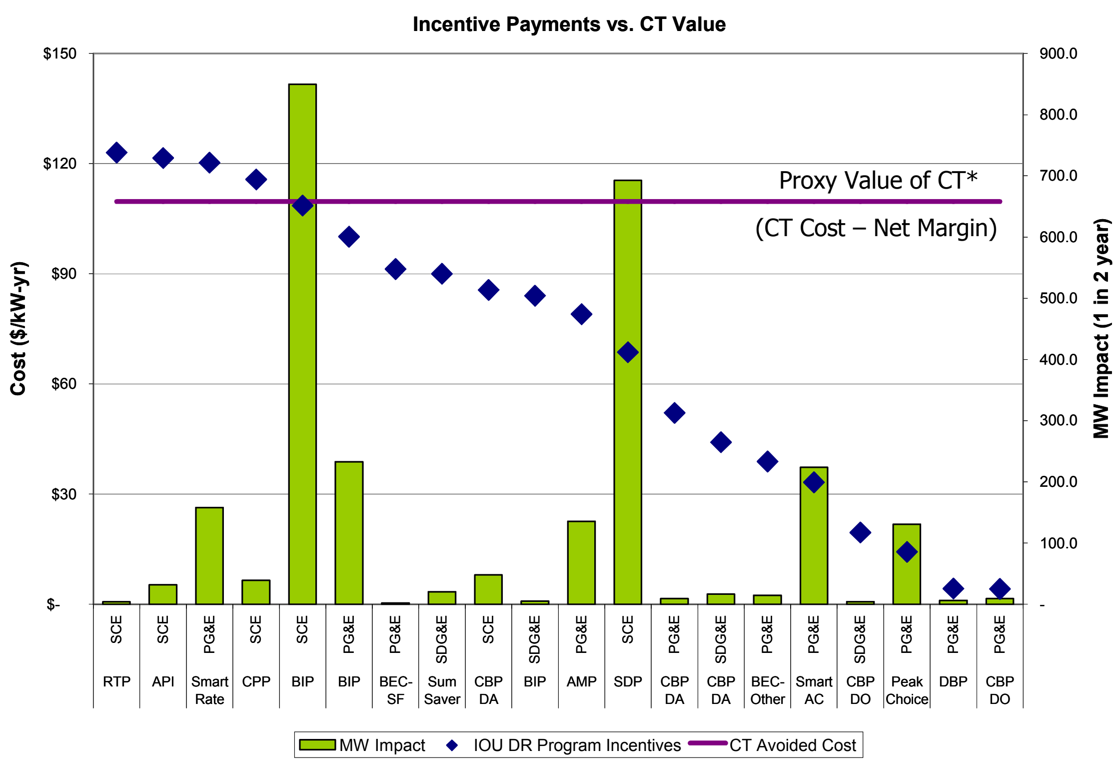


Figure 4: IOU CBP Calls Plotted Against Max NP15/SP15 Price Duration Curve (2007)



Like many of the dispatch triggers, the incentives for retail DR program participation are not linked to the CAISO markets, or the utility procurements of resource adequacy (RA). The existing IOU demand response programs have been influenced by the 30 years of CPUC-approved programs that were implemented by the IOUs. Some of the existing DR programs have very attractive incentives that DR participants have become accustomed to receiving. Figure 5 below shows a subset of the IOU 2009-2011 demand response programs with forecasted incentive costs ($/kW-yr) and estimated impacts (MW). For comparison, the incentive costs are compared to the net cost of new entry (CONE) for a combustion turbine unit after calculating gross margins ($/kW-yr).[30] The incentive costs are calculated as the total incentive payments (including capacity, energy and lump sum payments) divided by the expected kW impact. The achieved impact varies according to anticipated performance. Figure 5 shows that the program incentives costs vary dramatically per kW of impact, with some programs above the CAISO CONE estimate.

Figure 5: Sample of IOU DR Program Incentives



** CAISO 2008 Market Assessment Report*

In summary, the California market has a fairly robust and expanding portfolio of regulatory-driven DR programs that are a mix of price-based and reliability-based designs. These programs are funded through the retail rates authorized by the CPUC,

[30] 2009-2011 Demand Response Program Filings, including programs for which incentive level and impact estimates were available. Data was not available for other 2009-2011 demand response programs.

and therefore the payments and operational rules for the DR programs are not directly linked to either the CAISO DR products or LSE resource adequacy procurements. That said, the programs appear to operate during high load times, and during the periods of highest prices. While the incentives range widely, most programs are designed to reduce critical summer peak loads and have incentive payments in the range of the cost of a new CT or less. Furthermore, as described in the next section, the CPUC is actively addressing the comparability issues in the DR programs in its DR OIR (CPUC R.07-01-041) and the CAISO is actively participating as a stakeholder in this process.

6. DEMAND RESPONSE INITIATIVES IN CALIFORNIA

The current DR portfolio in California is in an active state of transition. The regulatory-driven DR portfolio approved by the CPUC and managed by the IOUs is being rebalanced to include more price-based DR. This shift is a direct result of the California policy goals, expressed in the Energy Action Plan and the Joint DR Vision, to encourage price-based demand response. There are a number of initiatives underway to encourage the transition, primarily;

1. The three IOUs (PG&E, SCE, and SDG&E) are installing Advanced Metering Infrastructure (AMI)
2. The three IOUs are phasing in default (with opt out provisions) dynamic pricing for commercial and industrial customers
3. The 2009-2011 program plans filed by the three IOUs are actively expanding price-based DR programs and are working towards greater integration with CAISO markets
4. Resolving DR related issues due to the enactment of California Assembly Bill 1X

At the same time, the CAISO launched MRTU on March 31, 2009 which provides locational marginal prices throughout the control area and also includes a Participating Load demand response product. To facilitate the participation of the aggregated IOU and CSP DR programs in the new market design, the CAISO and involved stakeholders developed a new proposed Proxy Demand Resource (PDR) product with a planned release in May of 2010. The CAISO is also doing research on a range of DR technologies and the ability to automatically coordinate demand and supply side resources in its DR365 lab. The goal is to move DR in California beyond the few critical peak and high priced hours.

If successful, the infrastructure investments and retail pricing changes authorized by the CPUC, and the launch of MRTU and direct participation DR products accessible to the IOUs, will succeed in increasing the amount of price responsive load. There are a number of stakeholder processes, including the CPUC DR OIR, the CPUC Resource Adequacy proceedings, and the CAISO stakeholder process and working groups that are designed to support their respective components of the overall process.

Each of these initiatives is described in more detail below.

<u>Resolving DR related issues due to the enactment of California Assembly Bill 1X</u>
During the energy crisis, in February 2001, the California Legislature enacted AB1X. AB1X authorized the California Department of Water Resources (DWR) to purchase power and sell it to retail customers on behalf of utilities in California. In its role managing the State Water Project (SWP), DWR is a large consumer and producer of power, and with the financial resources of the state, DWR could enter into power purchase agreements that the financially distressed utilities could not. To insulate residential customers from further rate increases resulting from the energy crisis, AB1X capped electric rates for the first two tiers (up to 130% of baseline usage) at February 1, 2001 rate levels. The rate cap is to remain in place until the costs of the DWR power contracts are fully recovered. The AB1X rate cap restricts the ability of the CPUC or utilities to implement anything but voluntary dynamic or CPP rates. As a result, default

dynamic rates have been limited to non-residential customers. This has caused some complaints from commercial and industrial customers, who hold that they have already shouldered a disproportionate share of increases in energy costs since AB1X was enacted. Ratepayer advocates argue, on the other hand, that non-residential customer classes enjoyed a disproportionate share of the benefits under deregulation.

The CPUC is currently exploring various ways to accelerate lifting the AB1X rate cap, including the novation and assignment of existing DWR contracts. However, there remains considerable uncertainty and controversy regarding the legal risks, costs and benefits as well as how to structure an achievable schedule for the various options.

AB1X also allows ESPs to continue to serve existing DA customers, but prohibits enrollment of new customers. The CPUC has not yet considered to what extent CSPs are similar to, or distinct from, ESPs as it relates to the prohibition against the expansion of DA. The issue of whether an ESP can also act as a CSP has also not yet been addressed by the CPUC. The CPUC is currently considering whether these issues constitute a state rule or regulation that in effect prohibits direct participation of DR in CAISO markets, per Order 719.

<u>Advanced Metering Infrastructure</u>
California has been pursuing smart metering since 2001 when the state legislature appropriated $35 million for customers with greater than 200 kilowatts of load to have their utility install interval meters. Since then, the CPUC required mandatory TOU rates for all customers with maximum demand greater than 200 kW who received new meters via the California Energy Commission's funding (see Dynamic Pricing below).[31] As a result of these past policies, the vast majority of large C&I customers have been on TOU for over five years, and some have been on TOU for as long as 30 years.

In recent years, California has expanded its metering efforts with the rollout of the Advanced Metering Infrastructure (AMI) initiatives at the three investor-owned utilities. Advanced meters are defined by the U.S. Department of Energy as “a metering system that records customer consumption (and possibly other parameters) hourly or more frequently and provides for daily or more frequent transmittal of measurements over a communication network to a central collection point.”[32] The metering infrastructure installation is underway and is planned to be complete by 2012. Table 12, below, summarizes the AMI spending authorized for each utility, the planned completion date, the number of meters to be installed and a summary of the selected technology for each of the three utilities.

[31] *See* D.01-05-064 as modified by D.01-08-021 and D.01-09-062.

[32] 2008 Assessment of Demand Response and Advanced Metering. Federal Energy Regulatory Commission.

Table 12: Advanced Metering Infrastructure Funding, Technology, and Timeline

	Spending Authorized	Date Complete	Technology overview
PG&E[33]	$2.16 B	2012	5.1 million electric meters. 4.2 million gas meters. Technology: GE SmartMeters and Landis+Gyr electric meters. Software: Silver Spring Networks for electric meters and Aclara for gas meters
SCE[34]	$1.63 B	2012	5.3 million meters. Technology: Itron's OpenWay CENTRON meter Software: Edison SmartConnect™
SDG&E[35]	$581M	2011	1.4 million electric meters 900,000 gas meters. Technology: Itron OpenWay Meters Software: Itron Enterprise Edition™ Meter Data Management

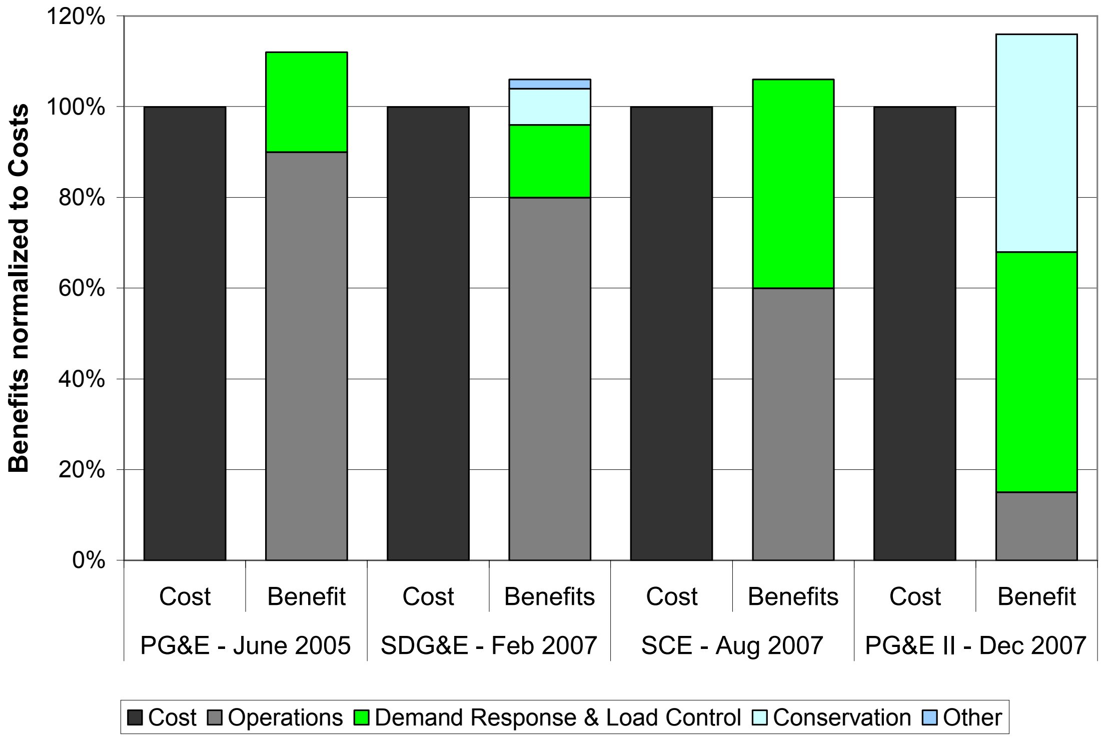
The funding for the AMI initiatives were partially justified based on the economic benefits derived from enabling demand response capability. The majority of the benefits were calculated as operational and meter reading cost reductions. However, all three utilities used demand response benefits in their applications of AMI cost-effectiveness to cover the gap between long-term benefits and costs. In its initial filing, PG&E projected that it could cover 90% of AMI costs with operations and meter reading. SDG&E met 80% and SCE met 65% through operational improvements. PG&E made a second funding request to purchase additional two-way communicating capabilities in its proposed system. In PG&E's second request for AMI funding, the cost upgrades were almost entirely covered by demand response and conservation benefits. Figure 6 shows the comparison of projected cost and benefits for the three utility AMI programs and shows the level of demand response necessary to cover the gap. Note that the graph normalizes benefits relative to 100% of the cost.

[33] *Many Utilities Starting to Develop AMI and Utility-of-the-Future Strategies - Part 2*, Energy Central (June 18, 2007). http://topics.energycentral.com/centers/datamanage/view/detail.cfm?aid=1495.

[34] Id

[35] Press release, Itron, Gas & Electric Chooses Itron OpenWay® for Smart Meter Deployment (July 30, 2008). http://www.itron.com/pages/news_press_individual.asp?id=itr_016717.xml.

Figure 6: Comparison of AMI Costs and Benefits[36]



Dynamic Pricing and Critical Peak Pricing (CPP)

Large commercial and industrial customers with maximum load greater than 500 kW have been on mandatory TOU rates since at least the early 1980's, depending on the size of the customer.[37] As noted earlier, in 2001, the California Legislature appropriated $35 million to be used by the CEC "to provide time-of-use or real time meters for customers whose usage is greater than 200 kilowatts."[38]

Currently, all the commercial and industrial (C&I) customers above 200kW are on TOU rates and also have the option to sign up for a voluntary CPP rate and a large number of demand response programs. Real time pricing rates are not currently available to large C&I customers.

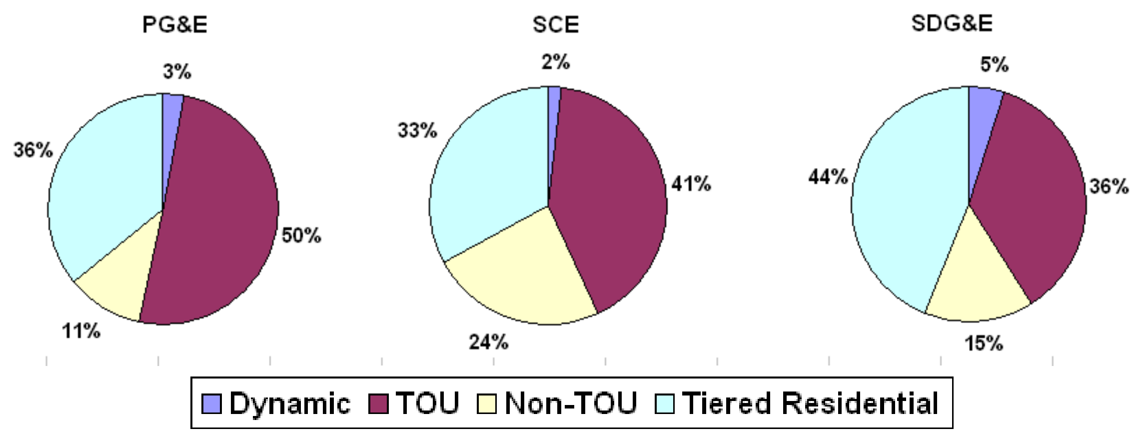
[36] Source: "Advanced Metering Infrastructure: The Regulatory Context." Demand Response/AMI Presentation to EDF by Tom Roberts, CPUC. June 23, 2008

[37] *See* D.85559, 1976 Cal. PUC LEXIS 1308 (Cal. PUC 1976) (ordered three major utilities to implement mandatory TOU for customers with demands greater than 500 kW); D.86632, 1976 Cal. PUC LEXIS 931 (Cal. PUC 1976) (approved mandatory TOU rates for PG&E customers with maximum load greater than 4,000 kW); D.90588, 1979 Cal. PUC LEXIS 772 (Cal. PUC 1979) (approved mandatory TOU rates for PG&E customers with maximum load between 1,000 kW and 4,000 kW); D.92553, 1980 Cal. PUC LEXIS 1279 (Cal. PUC 1980) (approved mandatory TOU rates for PG&E customers with maximum load between 500 kW and 1,000 kW).

[38] Assembly Bill 1X 29 from the 2001-2002 First Extraordinary Session, Section 14(d)(4)(B).

However, a large number of the small to medium C&I and residential customers are not on TOU or dynamic rates. As discussed above, AB1X effectively prohibits default dynamic rates for residential customers and prevents rate increases for the first two tiers in residential rates. This will continue to keep average retail prices relatively low for about 60% of residential customers that have usage below the Tier 3 threshold. For an overall breakdown of each utility's customers and the type of rate they are served under, see Figure 7 below.[39]

Figure 7: MWh Sales by Rate Type by IOU



One of the main goals for demand response under the Energy Action Plan is to increase the ability of customers to participate in dynamic pricing and the CPUC has made steady progress in moving towards this goal. SDG&E has already implemented default CPP for commercial and industrial customers above 200kW.[40] One stakeholder indicated that the opt-out rate was around 50%, which was less than feared by some. On the other hand, there were no calls on the default CPP rates by SDG&E in 2008, so opt-out rates may rise with increased calls. SDG&E will roll out their default CPP rates to non-residential bundled customers with loads greater than 20 kW as Smart Meters are installed across their service territory.[41]

Default CPP rates for SCE's larger customers will be considered before the CPUC during Summer 2009 and customers with peak demands less than 200 kW will be offered CPP as an optional tariff after installation of their SmartConnect™ meters.[42] On February 27, 2009, PG&E filed its 2009 Rate Design Window Application with the CPUC. The application was submitted to comply with CPUC Decision 08-07-045 which ordered that PG&E propose dynamic pricing rates. These rates would go into effect beginning May 1, 2010 starting with large commercial and industrial customers with electric load that is greater or equal to 200 kW. Agriculture customers and all other customers will default to dynamic pricing rates on February 1, 2011 or one year after the

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39 CPUC: Bruce Kaneshiro presentation June 23, 2008

40 D.06-05-016, Ordering Paragraph 2.

41 Pursuant to SDG&E's 2008 General Rate Case, A. 07-01-047, which was adoptd by the CPUC in D. 08-02-034.

42 2009-2011 Demand Response Program Filings. CPUC Application 08-06-001. Filed June 2, 2008.

installation of their SmartMeter™ device. The CPUC also directed PG&E to file default dynamic rates for residential customers within one year after the AB1X rate cap is lifted. Customers will have the option to opt-out of the default dynamic rates, and if the customer is participating in a demand response program, it is proposed that they not be forced onto the dynamic pricing tariff. The CPUC has asked stakeholders to comment on whether the proposed schedule for full implementation of default dynamic rates for PG&E is not also appropriate for the other utilities.

The table below shows the timeline for PG&E's dynamic pricing rate structure by customer class. Each year shows the default rate. Real time pricing (RTP) is an optional rate.[43]

Table 13: Commercial & Industrial (C&I) Default Rates - Proposed Timetable for PG&E

Customer Class	2008	2009	2010	2011	2012
Large C&I (>=200kW)	TOU	TOU	TOU/CPP	TOU/CPP (RTP)	TOU/CPP (RTP)
Medium C&I (<200kW and >=20kW)	Flat	Flat	TOU/CPP	TOU/CPP (RTP)	TOU/CPP (RTP)
Small Commercial (<20kW)	Flat	Flat	Flat	TOU/CPP (RTP)	TOU/CPP (RTP)
Residential	Tiered Flat (TOU, CPP)	Tiered Flat (TOU, CPP)	Tiered Flat/PTR (TOU, CPP)	Tiered Flat/PTR (TOU, CPP, RTP)	Tiered Flat/PTR (TOU, CPP, RTP)

<u>CAISO's Market Redesign and Technology Upgrade</u>

Under MRTU, the wholesale market will provide DR resources with comparable treatment and the enhanced operating flexibility afforded supply-side resources. CAISO is developing a new wholesale demand response product, called Proxy Demand Resource (PDR) and is refining its existing Participating Load program to be fully compatible with its new market design. The CAISO launched a limited Participating Load product with MRTU on March 31, 2009, and, with significant stakeholders involvement, is developing the PDR product that will facilitate bids of aggregated DR programs into the MRTU market by Curtailment Service Providers (CSPs). Refinements to it existing Participating Load program and, if approved, the proposed PDR product are targeted to be implemented around May 2010.[44]

<u>CAISO's DR365 Laboratory</u>

The DR365 Lab is a CAISO-sponsored demonstration project which opened in December 2007. The lab tests automation technology that helps consumers make set changes in their electricity use and reduce the strain on the grid while reducing costs for the consumer. The lab is named DR365 because the CAISO wants to expand the

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[43] TOU = Time of Use, CPP = Critical Peak Pricing, TOU/CPP = Critical peak pricing with time-of-use during non-CPP periods; RTP = Real Time Pricing, PTR = Peak Time Rebate

[44] CAISO Demand Response Strategic Initiative Program Overview Presentation. February 16, 2009.

traditional vision of demand response as a summer-peak resource to a year-round capable resource that can assist California with integrating greater amounts of intermittent renewable resources.

Among other things, the lab strives to demonstrate technologies that show how load curtailments could be aggregated together and automated to participate as a resource in the CAISO markets. The automation technology provides better certainty of the load curtailment and, CAISO believes, helps to enhance the reliability of demand response resources.[45]

2009 CAISO Participating Load Pilot Projects

The CAISO is in the process of developing three Participating Load pilot projects that will be operational by summer 2009 with the goal of providing non-spinning reserves from a cross-section of end-use load types. SDG&E will demonstrate a commercial aggregation project with end users whose load consumption is greater than 20 kW. SCE will demonstrate an aggregation of 3,200 residential AC cycling units and PG&E will conduct a pilot test focusing on large commercial or industrial customers. The objectives are to understand the performance and reliability of different participating load resource types, explore telemetry requirements and alternatives, identify and address operational issues, while building confidence around non-generation resources as being able to provide a high quality reliability service.

Identification and Resolution of Direct Participation Business Issues (Working Groups)

The CAISO is launching a structured working group process to discuss and resolve the issues around demand response functioning as a direct participation resource under the PDR product line in the CAISO markets. The business issue resolution process will focus on the following seven categories:

- **Qualification**: program definition, participant and resource qualification)
- **Registration:** resource characteristics, enrollment, transfers, testing and auditing)
- **Scheduling:** system and resource forecasting, resource scheduling and bidding)
- **Notifications:** market schedules and awards, RT dispatch, outages)
- **Metering and telemetry:** data availability, exchange, type and granularity)
- **Settlement:** calculation of load changes, calculation of credits and charges)
- **Performance and compliance evaluation**:[46] resource, participant, program, and system performance evaluation, compliance monitoring

Additional details about this business issues resolution framework can be found in Appendix F.

CPUC DR OIR (R. 07-01-041)

The CPUC initiated a rulemaking proceeding in January 2007 to investigate several issues related to demand response. Phase 1 of the proceeding began in spring of 2007

[45] http://www.caiso.com/1ca9/1ca98d4d13d10.pdf

[46] CAISO Demand Response Strategic Initiative Program Overview Presentation. February 16, 2009.

and focused on the development of protocols and methodologies related to cost-effectiveness evaluation and load impact estimation. Phase 2 focuses on establishing new DR goals. Phase 1 resulted in the filing of a joint framework proposal for cost-effectiveness calculations. This "consensus framework" represented agreement by the various parties on approaches to some of the major cost-effectiveness issues previously in dispute. The consensus framework broadly described the principles and goals of a cost-effectiveness methodology, but left several issues unresolved, which parties agreed would need to be deferred to a future proceeding. CPUC staff developed a more detailed framework proposal (the "Staff Framework"), based on the consensus framework, that addressed several of the unresolved issues. The development of a more detailed cost-effectiveness methodology is still on-going.

In April 2008, CPUC issued a decision adopting load impact protocols for IOU DR programs (D 08-04-050). The adopted protocols define minimum data outputs required to estimate DR impacts, and statistical measures to assist in determining the accuracy of these impact estimates. The protocols are intended to be flexible enough to allow load impact evaluators to choose methodologies that are both feasible for and suitable to the particular type of DR activity.

<u>CPUC Resource Adequacy (CPUC R. 05-12-013 and R.08-01-025)</u>
The CPUC adopted a Resource Adequacy (RA) policy framework in 2004 in order to ensure the reliability of electric service in California. The CPUC established RA obligations applicable to all Load Serving Entities (LSEs) within the CPUC's jurisdiction, including investor owned utilities, energy service providers (ESPs), and community choice aggregators (CCAs). The RA requirements promote infrastructure investment by requiring that LSEs procure resources so that capacity is available to the CAISO when and where needed. The RA program now contains two distinct requirements: System RA Filings (submitted monthly) and Local RA Filings (submitted annually).

Each LSE is required to demonstrate that they have procured sufficient capacity resources, including a 15% Planning Reserve Margin (PRM) that will be needed to serve its aggregate system load on a monthly basis. In addition, each LSE is required to file with the Commission documentation demonstrating procurement of sufficient Local RA resources to meet their RA obligations in transmission-constrained Local Capacity Areas. The CPUC is also considering Long-Term RA Program Development including capacity market design proposals (i.e. bilateral vs. centralized) in R. 05-12-013.

In April 2008, the CPUC opened Rulemaking R.08-04-012 initiating a study to recommend a level of reliability that seeks to ensure that sufficient resources are made available to meet specified probabilistic reliability levels. The PRM Study will be performed by the CAISO and General Electric (GE) using the Multi Area Reliability Simulation (MARS) model. A final decision regarding the PRM for 2010 and beyond is expected in the Fall 2009. The probabilistic methodology used by GE MARS model is meant to consider load and resource uncertainties, including the availability and performance of intermittent and energy-limited resources, transmission interface constraints, relationships between transmission and generation facilities, and analysis of various case scenarios that examine impacts of changes due to present and future generation, load growth and potential transmission development.

CPUC Smart Grid OIR (R. 08-12-009)

The CPUC Smart Grid Proceedings will provide an avenue for a further and comprehensive investigation of technology and infrastructure issues. The proceeding was kicked-off with a Pre-Hearing Conference in March 2009 and a widely attended Symposium on April 21st. A specific scope and schedule for the proceeding had not been defined at the time this report was written.

7. BARRIERS

Following the literature review and stakeholder interviews, the project team compiled and summarized the feedback on the myriad barriers (as well as issues) identified. Many stakeholders raised similar barriers and issues using different language and the project team collapsed these to their common root. In order to provide some structure to the results, the research team grouped barriers into categories. Finally, in describing the barriers, in part based on feedback from stakeholders, the consulting team differentiated challenges between 'barriers' and 'critical issues'. For each category below, the barriers are addressed first, followed by the critical issues associated with that category.

Finally, it is important to note that the goal of the project team was to report back on the stakeholders' positions regarding what they deemed to be barriers, not to determine whether a particular position had more merit than another. <u>Therefore, the barriers and issues identified are useful in understanding the current range of perspectives on DR in California, but not necessarily whether they are factual.</u>

The resulting categories are:

<u>Market barriers and critical issues</u> – The market barrier category includes those challenges that surround participation of demand response in the capacity, energy, and ancillary services markets in California. The current DR environment in California has been shaped in large part by the three decades of load management and DR experience which the state's utilities, customers and regulators have collectively developed and nurtured. That experience can be viewed as a blessing (in terms of customer awareness, system operator confidence in the reliability-based programs ability to deliver MWs, regulatory and legislative familiarity with the issues when addressing demand constraints, etc.). It can also be viewed as a curse in that the historical experience has also brought with it a sense of program ownership, incentive level entitlement, program design familiarity, and other factors among the various key stakeholders that impinge on moving rapidly in ways that are unfamiliar.

<u>Regulatory barriers and critical issues</u> – This category of barriers includes the challenges from meshing the regulatory perspectives of various state agencies, as well as alignment with federal DR policy. The California regulatory environment is a well-established and somewhat unique model stretching back to the legislative creation of the California Energy Commission in the 1970s, and their mandate to oversee load management standards. In California, there are three state agencies interested and involved in demand response with their own authorities and functions in addition to the CAISO (i.e., CPUC, CEC, and the California Air Resources Board). In addition, the California Legislature has been active in passing statutes with significant DR implications, such as AB1X (see the dynamic pricing discussion in Section 6).[47]

<u>Customer Participation barriers and critical issues</u> – The customer participation barriers and critical issues category includes challenges that push customers away from participating in DR in California, be it via a retail program, or the CAISO wholesale energy market. Some of these are pragmatic (i.e., too little potential financial reward to justify the level of effort involved in taking DR actions), some are based on the

[47] California State Assembly Bill 1X enacted in 2001.

customer's business model (i.e., energy costs make up a small percent of their operating costs, and in some cases are pass-through costs, and so warrant relatively little attention), and some are a perceived lack of comfort with the demand response concept. While customers in California understand ('get') energy efficiency, the same generalization cannot be made when talking about demand response.

Infrastructure and Technology barriers and critical issues – this category focuses on those barriers identified by the stakeholders that are more related to the infrastructure required to implement DR. The utilities and CSPs under contract to them have had some success with encouraging larger customers to install automatic DR communicating and switching devices, and more recent programs have penetrated residential and small commercial AC markets. The three IOU's are also implementing AMI with full installation anticipated by 2012.

Operations and Settlement barriers and critical issues – this set of barriers and issues relate to the operations and the back-office processes necessary to support DR. Many of the challenges are developmental in nature as the operational and settlement protocols and systems continue to evolve and DR increasingly participates in the CAISO markets. The evolution involves moving from a model built upon proven and well understood generation technologies, to one where customers' behavior and decision-making patterns play a key role in determining the quantity and quality of the resource to be provided.

The key barriers and critical issues affecting the California DR market as identified through the literature review and the stakeholder interviews are described below. However, while the barriers and issues have been segmented in order to structure the discussion, it will become apparent, in some cases, how interwoven they can be. Also note that the barriers are set in bold print, while the critical issues are differentiated by being underlined.

7.1. Market Barriers and Critical Issues

7.1.1. Barriers

MB.1 Resource Adequacy (RA) capacity payments are elusive for DR Resources that would participate in the CAISO markets outside of a retail DR program

The CPUC has implemented RA requirements to ensure the procurement of sufficient capacity resources by LSEs under its jurisdiction (See Section 6.). The CPUC has also ruled that dispatchable DR programs should count towards meeting RA requirements. DR resources therefore have a value to the LSE to the extent they reduce the amount of capacity the LSE must purchase to meet RA requirements. At this time, however, there is no mechanism or market that provides capacity revenues directly to the DR customer or Curtailment Service Provider. The only capacity payments for DR resources currently available in California are those provided by the regulatory driven programs managed by the IOUs. If such capacity payments are not available for DR resources, many stakeholders feel there is little or no incentive for customers to participate directly in CAISO markets given the variety and level of capacity incentives provided by the IOU through the retail DR programs.

While the CPUC has set forth a policy of counting all DR resources towards RA requirements, the CAISO, as the system operator, has a different perspective. The CAISO has not agreed that DR that can be called only during system emergencies should count towards satisfying the planning reserve margin. Nor does the CAISO understand if the load impact protocols adopted by the CPUC, which is a planning standard, are the most appropriate for determining DR resource capacity availability in its operational timelines. Given the wide variety of DR program design parameters associated with the length of the notification period, maximum duration and maximum call frequency, the CAISO believes more careful analysis is needed to determine what types of DR programs should and should not count as RA capacity from an operational perspective, and what, if any, adjustments should be made to translate enrolled MW in various DR programs to reliable impact estimates.

The CAISO did offer one clarification regarding the issue of DR qualifying as RA capacity. It is the local regulatory authority (i.e., the CPUC, city council, utility board, etc.) that sets the rules for how capacity qualifies as RA. A resource that qualifies as RA capacity does have a must offer obligation under the CAISO tariff. However, demand response resources are exempted from the must offer obligation since they are considered use-limited resources.

Under current CAISO market rules, load-serving entities must schedule 95% of their load in the Day-ahead market, and the Resource Adequacy resources have a must offer obligation which ensures RA capacity resources are available when and where needed. However, stakeholders saw these two market rules as potentially limiting the amount of DR that will show up in the wholesale market by reducing any price volatility in energy prices that would entice demand response. The expressed concern was that CSPs not already locked into a retail bilateral demand response contract with a utility might shy away from directly participating demand response resources in the CAISO markets as the market may not provide sufficient revenue to make DR a viable business.

In addition, since California does not operate a centralized capacity market, RA capacity that a LSE does not self-provide, must be procured through bilateral arrangements. As a result, the wholesale value of RA capacity is not transparent. Therefore, it can be challenging for a CSP to know if there is a viable wholesale DR business in California given RA capacity is likely the most significant component of the overall DR revenue stream.

MB.2 Lack of a transparent, forward capacity market for direct participation DR resources

It is also important to note the disconnect between the CAISO market structure built around short term procurement and customers expressed interest and need for greater confidence in revenue and/or cost saving over a longer term (i.e., three to five years) in order to justify the capital investment necessary to establish a viable business built on demand response resources. The historic approach in California has been to provide retail programs either through the utilities or CSPs, many of which generally have capacity payment-oriented program designs linked to the 3 year funding cycles approved by the CPUC. In addition, incentive monies, including Technical Assistance/Technical Incentive (TA/TI)[48] funding has been made available by the CPUC to help offset the customer's upfront capital costs. When considering direct participation of DR in the CAISO markets, given there is not a centralized capacity market, there is no clear way to assure regular capacity payments, or a mechanism to provide incentive monies, to promote more automated demand response capability.

Early on in the CPUC RA proceeding there was discussion regarding the pros and cons of creating a capacity market in California, and the various forms such a market might take (see CPUC Staff Capacity Market White Paper, September 23, 2005). The CAISO has, as a participant in the RA proceedings, advocated for the development of a centralized capacity market. Although the CPUC is in the process of establishing a definition for a tradable capacity product, the CPUC has not yet determined whether or not it supports the development of a Capacity Market. While many stakeholders feel that developing a forward capacity market is critical to the increased participation of DR resources in the CAISO markets, the prospects for such a market in the near term are uncertain at best.

MB.3 Regulation and spinning reserve markets are precluded by WECC rules

One area that the CSPs and IOUs agreed would be of interest to them relative to matching the DR resource capabilities to a CAISO product line involves the Ancillary Services (AS) market. Here, stakeholders see potential value and a wholesale revenue stream, but are thwarted by the current WECC requirement that AS can only be provided by generation-based technologies. While there was a high level of interest in seeing the AS requirements modified, stakeholders were split on the extent to which they expect load to participate. Some felt participation would be limited to a few large customers, while others saw the potential for aggregated programs (e.g. automatic AC cycling) to participate in AS markets as well.

In terms of regulation resources, and more specifically the AS market compliance requirements as currently held by WECC, the stakeholders felt that the wholesale capacity market rules need to be revised so as not to be biased for or against any

[48] These CPUC approved incentive monies are designed to help customers be more receptive to DR opportunities by first providing partial funding for engineering technical assistance charged with identifying DR opportunities, and second by partially funding through the technical incentive portion of the program the capital costs associated with making the enabling upgrade for the customer.

particular resource type, but rather be based solely on the resource's capability and performance.

In addition, some stakeholder customer advocates noted that while there are customers who may not be able to commit to curtailing load in compliance with program operational rules based on a one year or six month contractual term, they may be able to participate in the AS markets, which do not require a long-term contractual commitment.

MB.4 Customers accustomed to existing investor-owned utility programs

As noted above, California has a long history of offering reliability-based DR programs to electricity customers. These include the legacy AC direct load control programs in the mass market sectors, as well the interruptible and curtailable rate tariffs that have basically been in place since post-PURPA in the late 1970s. The state's track record in offering DR programs is highlighted in the tables presented in an earlier section.

There is a significant quantity of reliability-based DR funded through the CPUC approved retail DR programs and tariffs. These programs have key advantages from a customer acceptance standpoint:

- customers understand the rationale associated with the emergency-based triggers in terms of helping to avoid rotating outages or black-outs;
- customers have grown accustomed to the capacity payment revenue stream aspect of the programs' designs, both in terms of the regularity of receiving payment, as well the amount of the capacity payments; and
- there is the perception among customers that the likelihood of being called to curtail their load is relatively small within a season or from year to year. Some believe that this is in part based on the perception that the utilities historically viewed the large interruptible/curtailable rate options as more of an economic development or customer retention tool rather than as a regular load relief resource.

This is a barrier in that customers who are accustomed to such longstanding programs based on regular capacity payments and limited DR curtailments are not generally inclined to voluntarily switch over to an economic-triggered energy only product with potentially greater numbers of calls. Furthermore, as discussed under MB.1 and MB.2, most stakeholders saw a limited incentive for customers to favor direct participation over IOU-managed programs, absent a readily accessible capacity payment.

7.1.2. Critical Issues

MI.1 Attributes of existing retail programs are poorly aligned with CAISO markets

In addition to the market barriers identified by stakeholders, a number of stakeholders also raised several 'critical issues' on the non-financial aspects of the existing programs that retail customers prefer but that do not mesh well with a straight wholesale economic transaction. As was noted above, the economic triggers envisioned by CAISO in their model of DR resources being available year round, where possible, may result in more frequent operations based on price fluctuations. According to the stakeholders, this will likely result in more requests for DR load curtailments. This creates problems for the DR customer base in terms of the following attributes:

Customers like to see limited operations due to the impact that complying with curtailment requests can have on their businesses. While Auto DR technologies and sophisticated (and well-calibrated) energy management systems can help automate the customers' programmed curtailment to price signals, they are currently not the norm. Therefore, when considering economically-triggered DR, customers weigh the hassle and risk factors against the potential, though far from assured, financial benefit.

One of the non-financial attributes of reliability-based or emergency-triggered DR programs where customers see added value is the perceived clear link between curtailing load in order to fulfill the role of "good corporate citizen." With such programs, the customers can polish their corporate image by helping to avoid rotating outages, thereby benefiting themselves as well as their societal neighbors. The "recognition" benefit can also be seen within a corporate organization where the DR implementer (i.e., Director of Facilities) is rewarded by corporate management for pursuing DR's "good corporate citizen" moniker. Switching to price responsive DR product designs does not carry the same cache, both in the minds of many of the stakeholders, as well as articulated by business customers here in California.

According to the stakeholders, customers (and the utility LSEs that currently implement the DR programs) favor triggers that are predictable and transparent, thereby better enabling the parties to assess the DR business model being marketed to them. Complicated mechanisms that are based on electric wholesale market transactions are viewed as clouding the offer, and likely pushing customers away from easily assessing the risk/reward equation. A counter to this point made by some is that the actual customers, in most cases, will not have to come to grips with the wholesale mechanisms as their CSPs will provide them with the information they need in order to meet their DR expectations. While there is likely truth in that, it is interesting to note that the CSPs shared a frustration that they have with currently trying to explain to customers how all the retail and wholesale pieces and transactions fit together.

The current plate of retail DR programs almost exclusively limit curtailments to between May 1st to October 31st, and often limit curtailment to set blocks of time in the afternoon – early evening hours. Again, participants have become accustomed to this longstanding program design feature, although many do recall the 2001 energy crisis when the state's Energy Emergency Plan (EEP) triggering mechanisms were utilized in the winter months, for repeat consecutive days, and for stretches of consecutive hours that broached the interruptible tariff's contract terms. Promoting economically triggered DR that will be in play across the annual 8,760 hours will, according to many of the stakeholders, push customers away from participating in DR.

This position is somewhat further complicated in the California market in that the CPUC is moving the utilities towards offering to their customers with demand over 200 kW a default dynamic pricing tariff (with an opt out if the customer chooses a DR program), beginning in 2010. While the retail default pricing tariff will look akin to critical peak pricing, it will not necessarily be linked to the price level, frequency of high prices, or other attributes of wholesale prices in the CAISO market.

MI.2 CSPs precluded from direct participation without the proposed PDR product.

Stakeholders worked hard to collectively create an alternative approach to providing access for direct participation of DR in the CAISO markets. The stakeholder working group used as a starting point, the CAISO's initial straw proposal for the Proxy Demand Resource (PDR) product, which was initially viewed by most stakeholders as having critical flaws. Working together, the group developed an alternative approach and proposal which not only met the needs that CAISO had described, but also would allow the CSPs to directly participate in the CAISO wholesale market without adversely affecting the LSEs. It also allows the utilities to better manage their LSE responsibilities, as well as provide DR resources.

The significant concern expressed by more than one utility is that if PDR were to be rejected by FERC, there would be no means for retail DR programs to participate in CAISO markets. However, stakeholders were quick to state that this report should emphasize the role that PDR plays in facilitating direct participation, but not be quick to count barriers or issues as resolved just because FERC approves the PDR product.

Many stakeholders thought the PDR stakeholder process was working well, with a small but productive group of dedicated participants, and believe the May 2010 target date is challenging but achievable. Still, some stakeholders expressed frustration that the process is rushing to meet FERC deadlines when a somewhat longer but more coordinated effort would produce better and more realistic results for California. Others pointed out that the current PDR proposal was developed by the stakeholders in response to a CAISO proposal, and that the stakeholders had to push strongly to get what they viewed as essential changes made to the original CAISO design.

MI.3 IOUs will likely remain a key player in offering DR to the customer base, and take direction from the CPUC and CEC, not CAISO

In terms of Demand Response in California, stakeholders felt the California Public Utilities Commission is in the "driver's seat" of DR in California since they authorize the funding and the program designs which the utilities (and CSPs) implement by recruiting participants and operating the DR resources. This aspect of the DR money trail is not likely to change soon, especially when considering that there are capacity payments associated with the retail programs offered. This holds true for both the DR offerings put in the field by the IOUs directly, as well as for the offerings being marketed by the CSPs through their CPUC-approved bilateral contracts with the utilities. These contracts are currently set to run (in some cases) through 2012, and then be eligible for extensions. It is unlikely that California will have a forward capacity market in place anytime soon, so it is reasonable to assume that the retail DR resources will remain in much the same structure as has been the case to date.

The impact on direct participation of default dynamic pricing is unknown at this point. One variable that may impact this is how the introduction of the CPUC-mandated PG&E default dynamic pricing (with opt out provisions for those customers going onto DR programs) for customers over 200 kW will impact DR program enrollment.

The question of dual-participation and double payment has been raised in CPUC proceedings and is considered a critical issue by some stakeholders. Will customers on default dynamic or CPP tariffs be permitted to also participate directly in CAISO markets and if so, how will ratepayers be protected from over paying for DR? If not, will implementation of such default tariff options reduce the pool of potential direct participants?

All of this points to the likely continuation of the status quo concerning how retail DR is approved, offered and implemented in California. The status quo is likely to continue until such time as there is a better linkage between retail DR programs and the wholesale market design and until the CPUC determines how much and through what vehicles DR is to be harvested. In terms of increased DR direct participation, there is a concern that it will likely be somewhat hampered until the DR bilateral contracts held by the CSPs expire and a forward capacity market develops.

MI.4 Various DR market vision perspectives among stakeholders

In talking with the various stakeholders and across the stakeholder segments, it was interesting to note the somewhat anticipated schism between the subsets of stakeholders when it came to their respective DR visions. In thinking about what the future of DR should look like in California, there were those that felt strongly that the retail utility and CSP bilateral contract model works well and should be retained, albeit with some adjustments. Another subset supported the movement espoused in some regulatory circles to move to a wholesale centralized forward capacity market structure, while others believe the capacity market should be eliminated and transition to energy only markets. This lack of consensus and vision, when matched up with the push and pull of whether the CPUC's or FERC's marching orders should be viewed as paramount, allows all parties to continue to lobby for their perspective, rather than getting in line behind a common (and somewhat fleshed out) vision of where DR is headed in California. Not having this clear consensus around a DR vision and roadmap is a critical issue.

A good example of how divergent the perspectives can be is drawn from the discussions across the interviews in relation to bilateral markets:

- Some object to the lack of transparency and alleged high transaction costs associated with bilateral RA contracts between utilities and CSPs;
- Others feel bilateral contracts provide greater flexibility to accommodate different types of load and participants while providing the CSP the flexibility to link customers who individually have constraints, but as a whole, provide a more robust resource;
- Others claim that if a centralized capacity market is integrated into the wholesale market design, allegedly the experience in eastern markets show that costs to users may increase.

Clearly, California stakeholders are far from having a consensus market vision as to DR's role as an energy resource in the future.

7.2. Regulatory Barriers and Critical Issues

7.2.1. Barriers

RB.1 Fundamental policy differences between the wholesale (FERC/WECC/CAISO) and retail (State Legislature/CEC/CPUC) perspectives

FERC and the CPUC are viewed by stakeholders as having fundamentally different policy goals, which presents a barrier to direct participation in wholesale markets managed by CAISO and regulated by FERC. Tension between federal and state regulatory approaches is not unique to California. California, however, has a long history of independence and leadership on environmental and energy issues. On myriad issues, California has established goals and regulations that are more stringent or aggressive than under Federal legislation.

With respect to DR, there is a basic difference in the approach to promoting and valuing DR. FERC's focus is seen as promoting competitive and transparent wholesale markets with the aim of reducing energy prices through healthy competition. FERC seeks to include as many of the procurement and operational decisions as is practical in those markets, minimizing the transactions that occur outside the view of market participants. FERC's directive in Order 719 to allow DR to participate in wholesale markets on a comparable basis with generation appears to reflect this policy.

The CPUC is seen as not being as strong a proponent as FERC in terms of competitive energy markets. California policy-makers at the state agencies and government see the need for long-term planning in addressing multiple policy goals that are not achieved through short-term markets operated by CAISO. With this view, the California Legislature and the CPUC have embraced a stronger role for regulation to shape and direct energy policies within the state. Evidence of the regulatory-driven approach is reflected in the long history of ratepayer-funded energy efficiency programs in California, Title 24 building standards and the Energy Action Plan's (EAP) loading order that expresses a preference for energy efficiency and demand response over conventional resources to meet load growth.

Several stakeholders emphasized that the CPUC has primary authority for long-term planning and reliability. The CAISO has a central role in operating the transmission system and performing planning studies to identify when and where new resources are needed to maintain system reliability. Those resources, however, are developed and procured by the California utilities under the oversight of the CPUC. The CPUC also retains a central role in defining the RA standards that the utilities must meet in the procurement of capacity resources which are then used by the CAISO to maintain the reliability of the grid. The CPUC is seen as continuing to view long-term resource planning and procurement oversight as its responsibility. The political reality is that any customer dissatisfaction regarding reliability or rolling black outs will be directed largely at the utilities, the CPUC and the state legislature, not FERC or the CAISO. As a result, the belief is that the CPUC is unlikely to cede authority in this area, particularly given the state's experience with the energy crisis of 2000-2001.

The California Legislature is also an active player in the energy policy arena; state statutes such as AB 1X are in place that have implications on how and when dynamic pricing/DR will be more impactful. The CEC has opened regulatory proceedings to review their Load Management standards which remain in their purview, having been legislatively promulgated in the 1970s; these have no readily apparent linkage to the CAISO wholesale markets, other than CAISO staff participating in the hearings.

Stakeholders also expressed some frustration at FERC timelines and requirements with respect to DR that are imposed with apparent little regard to California's ongoing DR proceedings or political landscape. Many felt they were being required to 'jump through hoops' to meet FERC deadlines that are premature given the status of CPUC proceedings, and that better alignment was necessary. In the words of one stakeholder, FERC directives for a 'timely' response does not necessarily mean 'quick' when some coordination with state efforts would produce a better designed and more effective policy. DR is heavily intertwined with other issues such as long-term resource planning, Resource Adequacy, GHG policy, the return of Direct Access and default dynamic/ CPP rates. Some stakeholders felt these issues will only be resolved over time and that rushing to implement direct participation in California is counter productive. Other stakeholders express a desire for CAISO to be more proactive at identifying inconsistencies between FERC and California mandates and engaging California agencies in resolving them.

RB.2 Regulatory driven programs limit growth opportunity for CSPs

Under the direction of the CPUC, IOU's have contracted with CSPs to market and implement some of their DR programs. It may be possible for ESPs to enroll their direct access customers in DR programs. For the sake of simplicity, the term CSP will be used to refer to all non-utility DR providers.

When compared to the utilities, many parties perceive CSPs to be in a better position to design and market innovative DR programs. As private companies in a competitive market, CSPs may have a stronger incentive to attract and retain new customers. CSPs are viewed as more nimble, likely to take risks and able to develop innovative marketing strategies. CSPs are also seen as better suited to tailoring programs to meet the needs of niche markets.

Beyond the potential for CSPs to expand and increase their market share, and therefore DR participation, the perceived advantages of CSPs may be somewhat limited in the current market structure since they are operating under utility-sponsored bilateral contracts. Many stakeholders viewed these constraints as posing a barrier to the growth of DR in general and to direct participation of DR in CAISO markets in particular. While the CPUC has directed the utilities to integrate their programs with wholesale markets, the mechanisms or financial incentives for doing so have not yet been established. CSPs on the other hand, would have a strong financial incentive to earn increased revenues by bidding their programs into the wholesale markets when a) customer preferences allow them to do so, and b) wholesale markets exist that provide sufficient revenue.

Many stakeholders believe that a primary problem in the California market is that the CSPs are both a customer of and a competitor to the utilities. As long as they are reliant on utilities for a significant portion of their revenues in the state, it is unlikely that they will feel free to compete aggressively for DR customers. Furthermore, the utilities are able to offer multi-year capacity payments in their contracts with CSPs, which the current market structure in California does not offer.

Utilities also are seen by some stakeholders as having significant competitive advantages relative to CSPs. As a monopoly, they are seen as having a great deal of sway in the market. Although the utilities are regulated, they are also seen as having a good deal of access to and influence with CPUC commissioners and staff. Some stakeholders cited instances where they saw a utility as being able to hide the devil in the details and operate beneath the radar of regulators and intervenors. Stakeholders also shared their perspective that utilities have larger staffs with a greater capacity to participate in the myriad ongoing regulatory proceedings, comply with regulatory reporting requirements, and to absorb the overhead costs associated with DR programs.

Finally, stakeholders, and not just CSPs, raised the issue of compliance and transaction costs related to many of the barriers in the report. Cumulatively, transaction costs pose a barrier to CSPs (as well as other stakeholders) and place them at a competitive disadvantage with larger utilities. Costs raised as critical issues or potential barriers include installing telemetry, metering and software systems, negotiating multiple bilateral contracts, retaining consultants, scheduling coordinators and back-office solution providers performing multiple impact and baseline calculations according to different methodologies, and complying with CAISO, CPUC and utility documentation and reporting requirements.

7.2.2. Critical Issues

<u>RI.1 Program value may not be fully recovered in wholesale market, limiting incentives for direct participation</u>

As has been emphasized above, customers in California have become accustomed to the incentive payments available under existing DR programs. There is no guarantee that the wholesale market would provide comparable revenue. In fact, many stakeholders express an expectation that the revenues available through wholesale energy markets would be significantly lower. Stakeholders were particularly concerned that currently available incentives for the regulatory-driven DR programs include forward capacity-based payments, which are not currently available through the CAISO. A related issue is that California's DR goals reflect multiple policy objectives, many of which are not readily monetized in a competitive market. Furthermore, the cost-effectiveness criteria used by the CPUC and utilities in evaluating their DR programs will not necessarily produce a valuation that is consistent with the wholesale market. For example, cost-effectiveness criteria often benchmark retail DR programs against the cost of a new combustion turbine (CT). However, in a market with sufficient generating resources, a market clearing price for capacity or resource adequacy might be significantly less than the cost of a new CT.

Some stakeholders also expressed a fear that there remain significant upfront costs in developing and deploying enabling technology, which is unlikely to be recoverable through wholesale markets alone. Revenues need to be sufficient and stable enough to provide sufficient return on investment in equipment costs for customers. Retail customers frequently demand a payback period of two years or less, an implied discount rate of roughly 20%, to make investments in energy efficiency or DR.

On the other hand, other stakeholders preferred that all funding for DR should come via the wholesale market; if costs can't be recovered from the market, either there is a problem with the market structure or DR isn't as valuable as current payments suggest, regardless of the Energy Action Plan's preferred loading order. Another advantage of relying on market funding is that it negates the need for contentious litigation and challenges surrounding cost-effectiveness evaluation methodology and inputs.

The stakeholders also noted that the CPUC and CAISO also have differing opinions regarding counting DR towards RA requirements. The CPUC has proffered that all approved DR programs qualify in meeting RA requirements. However, the CAISO has disagreed with qualifying emergency-triggered DR programs for resource adequacy that are available for dispatch only when minimum operating reserve margins are not met.

RI.2 Political resistance to reflecting dynamic or locational pricing in retail rates

Efforts to implement area specific electricity rates in California are seen by stakeholders as likely to meet stiff political resistance. Some of the areas that would be expected to have higher nodal prices, such as San Francisco, are precisely those cities with greater political influence. According to stakeholders, the number of Default Load Aggregation Points in the initial release of MRTU was limited to three areas, reflecting the IOU service territories, in part due to political resistance to locational pricing.

Because nodal prices are not reflected in retail rates, it is impossible to align nodal prices paid for load curtailments and Default LAP prices charged for load procurement. Several stakeholders pointed out that this mismatch in prices can lead to gaming opportunities, cost shifting and perverse incentives.

Dynamic pricing does not face obstacles of the same magnitude in California. As described in Section 6, the state is in the process of making critical peak pricing the default rate for commercial and industrial customers. However, due to AB1X, default dynamic pricing for residential customers is effectively prohibited until the California Department of Water Resources supply contracts expire (see dynamic pricing discussion in Section 6)

RI.3 Critical Issue - Mixed signals from 5% DR goal, EAP's loading order and cost-effectiveness protocols

The stakeholders see several differences between how the CPUC views successful DR programs versus how CAISO views DR in the wholesale market. For example, the CPUC has established the Total Resource Cost (TRC) test as the hurdle DR programs must pass to be considered cost effective, while CAISO's hurdle is whether or not the DR resource's competitive bid cleared the respective market. This difference is only further exacerbated by the Energy Action Plan II's stated loading order that requires energy efficiency and DR be considered before other resource types, including clean thermal resources. This particular disconnect exemplifies the interwoven nature of the many barriers identified.

Some stakeholders expressed concern and frustration that FERC's emphasis on promoting direct participation focuses on DR in isolation and out of context with respect to other California initiatives. The utilities in California that are currently the primary providers of DR programs face multiple policy goals that are not entirely consistent. The 2005 EAP set forth a goal of acquiring price-based DR equal to 5% of peak load. The goal was established on the principle that a small reduction in load during peak hours could significantly reduce energy prices and that DR would therefore prove cost-effective. This goal, many argued, focused the utilities on maximizing the quantity of DR enrolled, without placing sufficient emphasis on cost-effectiveness or on MW reductions that are dependable.

Subsequently, in 2007, the CPUC initiated a proceeding to establish load impact protocols and a cost-effectiveness methodology for DR programs. However, the requirement to achieve a significant amount of demand response with the 5% goal (which has been eased to some degree) and the requirement that DR be cost-effective have not been fully reconciled. Furthermore, establishing consistent cost-effectiveness criteria for DR has proven more difficult than for energy efficiency. In any case, the quantity target in the 5% DR goal and the cost-effectiveness methodology have no relation to the wholesale market capacity needs or prices.

RI.4 Multiple initiatives overwhelming capacity of stakeholders and market participants

Many stakeholders indicated that it was difficult or impossible to adequately participate or follow the multiple proceedings that impact DR. Stakeholder comments were mixed with some believing this is a barrier to timely implementation of workable direct participation products. Others felt that a full plate of regulatory proceedings is business as usual and a challenge all parties have had to live with for some time. Following multiple proceedings is particularly problematic for small organizations with limited staff and for organizations that are not paid by their clients or customers to participate in stakeholder workshops or regulatory proceedings. A few stakeholders pointed out that intervenor compensation is available for participating in CPUC proceedings but is not available for CAISO stakeholder processes, limiting their ability to participate. A partial list of ongoing proceedings that impact DR includes:

- Multiple CAISO market design stakeholder processes
- CAISO Energy Storage Stakeholder Process and Pilot Program
- CEC Integrated Energy Policy Report
- CEC Title 24 Building Standards
- CPUC Long term RA proceeding
- CPUC DR load impact and Cost-effectiveness protocols
- CPUC Resource Adequacy Proceedings
- CPUC Smart Grid Proceedings
- IOU Default Dynamic and CPP rate applications
- IOU 2009-2011 DR Program Applications

Stakeholders also explained that it was difficult for them to take the time to fly to Washington D.C. to fully participate in FERC proceedings or respond to CAISO filings before FERC.

Other stakeholders felt that too much work on DR was being done in topical ‘silos’ with little respect to the impacts on other issues or proceedings. DR clearly involves both the generation and load side of the business yet the involved staff and stakeholders in each area are not usually well-versed in the other. With different working groups working on specific products or issues, solutions proposed in one area often create problems in another.

7.3. Customer Participation Barriers and Critical Issues

The barriers and critical issues identified in this section of the report were raised by a combination of the utilities interviewed, as well as the CSPs and stakeholder customer representatives. As noted above, these barriers and issues are discussed from the viewpoint of a customer who is considering participating in or providing DR resources into the California market, be it retail or via direct participation in the CAISO wholesale market.

7.3.1. Barriers

CB.1 Complexity of the DR market offerings from a customer's perspective

In talking with the stakeholder customer representatives, as well as through customer interviews and focus groups over the past several years, it has become apparent that not only is price-based DR not as well understood as energy efficiency or reliability-based DR programs, but that it is a much tougher sell. This is based in part on a series of perceived realities that have been shared during the interviews and via related focus groups.

Frequently, the customers express a lack of appetite for the perceived risk of DR involvement and exposure to the complex, unpredictable and foreign wholesale electricity market. Their core business involves knowing how to make the best widget, not becoming energy traders or grid operators. In contrast, convincing a customer to change out their lights to CFLs is a straight forward, close to one time transaction, with the benefits driven by comparatively stable and transparent retail rates Behavioral-based response to DR involves much more commitment, both by the customer and their DR "sponsor" be it the LSE, CSP, or CAISO. The DR sales cycle can be much longer, with intermittent "hand holding" required in order to maintain a level of awareness, preparedness, and commitment among the customer base. Without that, the DR resource has a much higher probability of slipping away during those events when the system operators count on it being relatively robust. For more on the concerns regarding the uphill learning curve associated with valuing price-based DR among grid system operators, see the section on operations and settlements barriers below.

Multiple stakeholders were concerned with the level of time and effort required to educate even sophisticated customers about MRTU and the proposed PDR product to feel comfortable that they knew enough to make an informed decision. DR market rules are only slightly less complicated than those for generation. Customers, again focused on making widgets, have to become comfortable with the implications of Congestion Revenue Rights (CRR), loss factors, Default LAPs, Custom LAPs, baseline and impact calculations and performance penalties. From the customer's perspective, each element poses potential hidden risks and consequences. One stakeholder described receiving from a customer, following three years of preparation, three face to face meetings and numerous phone calls, an e-mail that stated, "too much to grasp at the moment, assume you will advise if need to take action."

In order to elicit interest among the customer base, DR offerings need to be simple, with consistent rules and expectations over time, so as to better tie into the customers' multi-year capital decision-making process, and provide a tangible benefit to the customer, be it being seen as a good corporate citizen, helping to comply with corporate climate change goals, cutting operating costs, or a combination of all of the above.

7.3.2. Critical Issues

CI.1 Utilities, Regulators and CAISO underestimate the challenge of changing customer behavior

Many agree that the silver bullet for moving DR forward in terms of increased participation is to get customers enabled to respond via auto DR technologies or well-tuned and sophisticated energy management systems, and that those technologies remain within the management control of the customers.

While the legacy DR programs have had under-frequency relay triggers, which are clearly not within the control of the customers, the stakeholder interviews pointed out that all too frequently, utilities and regulators underestimate the resistance among customers to allowing direct utility or government control of devices that impact their business or home environments. A recent example in California involved the CEC's public retraction of a programmable communicating thermostat (PCT) standard. That standard would have required that the customer's over-ride of the control signal could itself be over-ridden to maintain grid reliability if the alternative were rotating black outs, thereby trumping the customer's ultimate control function.

As was mentioned earlier in the report, and based on 30 years of it being emblazoned across all forms of media and communications, customers understand energy efficiency, and immediately visualize it via the compact fluorescent light bulb. Similarly, more customers get emergency-triggered or reliability-based DR in that they have been around for some time, and more of the customer base can grasp the idea of cutting back in order to avoid rotating outages. One has to only look at the statewide Flex Your Power results to see evidence that the customers get it. However, when it comes to price-based economic DR, the person on the street/common customer has a much more difficult time understanding the concept as well as what tangible benefit (be it financial or otherwise) he/she will derive. This is especially true if there is a disconnect between what the actual retail price is based on and what the wholesale price drivers are. Again, look back to the 2001 energy crisis in California when wholesale prices were driving utilities towards (and into) bankruptcy in that there was no correlation to what they could charge customers. Nor was there much demand response from the customers who were not on the interruptible/curtailable tariffs in that their rates stayed unaffected.

As the long-time purveyors of the legacy DR programs, some stakeholders indicated that the utilities service and sales organizations often excel in the customer service and customer relations aspects of their job descriptions, but do not always shine when it comes to innovative marketing and sales strategies, thereby impacting the customer uptake on DR programs. This can be seen when talking with commercial/industrial customers in focus groups who routinely identify their utility account representative as their "go to" person when it comes to energy issues. In talking with customers, you will also hear that the CSP representatives are much more aggressive than their utility counterparts in closing the sale. While these perspectives can be legitimately viewed as an issue, they are significant in that in dealing with customers and their willingness to change (i.e., sign up for an altered form of utility service), perception is reality.

CI.2 Based upon historical DR involvement, CAISO market requirements are likely ill suited for many customers' pursuing direct participation

One of the goals espoused in Order 719 is that customers be able to directly participate in the CAISO wholesale markets. Stakeholders indicated that there are several reasons why this may be difficult in the near term, some of which have been interwoven in the discussion of other aspects of this study. These reasons include:

- The CPUC has not pursued the development of a forward capacity market in California, nor are DR resources able to directly contract for RA capacity payments. Absent an alternative source for capacity payments, it is unlikely that customers or CSPs will soon jump to a direct participation wholesale model given the payments available through IOU-managed programs.
- CAISO requires all participants to be, or be represented by, a certified Scheduling Coordinator (SC). In the future, if one assumes that the CSPs come to a point where they move away from the current bilateral capacity payment contract that they operate under with the utilities, they too could function as a scheduling coordinator for the aggregated load within their portfolio. Indeed, some CSPs have become SCs. In addition, some CSPs active in other markets have yet to enter the California DR market. However, the stakeholder interviews indicated that it was highly likely that the significant investment in time, resources, and costs associated with internally taking on the role of a CAISO-certified scheduling coordinator will keep almost all customers who opt to consider DR, doing so through their LSE or a CSP.
- These potential high cost/high risk options become even less attractive from a retail customer's perspective when one bears in mind that under the current retail DR program portfolio and accompanying bilateral contract mechanisms, they do not have to take on these exposures and costs in that they are in some respects "protected" from the wholesale risks by the CPUC, their load serving entity, and/or the CSP with whom they have contracted.

7.4. Technology and Infrastructure Barriers

7.4.1. Barriers

TB.1 Infrastructure and systems costs associated with DR

Many stakeholders emphasized that the infrastructure costs associated with the CAISO market design and mapping millions of customers to thousands of nodes are not to be underestimated. Some are worried that the systems and processes necessary to map retail customers to nodes for purposes of participating in DR will prove costly. While the CAISO envisions that nodes will remain relatively stable, the utility distribution circuits that connect to those nodes are reconfigured and expanded over time. When dealing with millions of retail customers, it is not unreasonable to expect that changes in the linkage between customers and nodes might occur frequently. Others felt that the costs to implement the communication of scheduled loads and bills between the CAISO, utilities, CSPs, ESPs and retail customers will be significant. Utility software systems used in generation, distribution and retail business units often have difficulty communicating data within the company, much less to external parties. Unlike generation, DR requires a high level of coordination and communication with functional areas such as customer services and retail billing that have not historically required a great deal of interaction with wholesale procurement.

As stated previously, the CPUC has directed the IOU's to pursue alignment of DR resources with MRTU and CAISO markets. The utilities have raised some potential cost issues in addition to telemetry. Forecasting participating load will require modifying existing software, and DR programs are not integrated with the wholesale side of the utilities. Ultimately, the CPUC will need to review the costs associated with integrating utility DR programs into CAISO markets and enabling direct participation and determine if the benefit to ratepayers warrants the investment. As discussed above, there is some question as to whether wholesale markets will provide sufficient revenues to justify such an investment.

7.4.2. Critical Issues

TI.1 Scheduling Coordinator/Transmission level requirements for participating load

The CAISO currently requires any entity wishing to participate in its wholesale markets to become a Scheduling Coordinator. The CAISO uses the analogy of a brokerage firm holding a seat on a stock exchange. Companies seeking to participate directly on the exchange floor must buy a seat. Individual investors, on the other hand, open an account with a brokerage firm set up to handle large numbers of smaller customers.

Even so, some stakeholders are concerned that the metering and communications infrastructure will prove too costly for CSPs wishing to engage in direct participation with their DR customers. Some fear that the expected cost of telemetry needed to provide 4-second telemetry data will be exorbitant for all but the largest firms and thereby eliminate participation in ancillary services markets. Others question whether such requirements, designed for transmission level customers, are realistic or appropriate for DR programs that aggregate the loads of distribution level residential and commercial customers. As one stakeholder put it, generators expect to pay for telemetry in order to get their product to market; for demand, telemetry is an added expense that is unrelated to their business. These stakeholders are eager to see less onerous and costly requirements developed for aggregated DR programs, perhaps using sampling techniques.

TI.2 Limitations of AMI

The three IOUs in California are in various stages of rolling out AMI in their respective service territories. AMI has been promoted by the utilities as an enabling technology for dynamic pricing and DR programs. Many stakeholders emphasized, however, that the AMI systems currently being installed do not meet CAISO or WECC requirements for direct participation of load in AS markets. AMI meters for the mass markets will measure load on an hourly basis only, and do not communicate load data in real time, but record the data for periodic collection by the utility. As for the larger commercial/industrial customers, their meters have the capability to measure more discrete loads, down to by the minute. Clearly, AMI alone will not meet the AS market requirements for real-time communication and sub hourly interval data.

While interval meters will not facilitate participation in AS or 5-minute imbalance energy markets, they do enable participation in Day Ahead and hourly Real Time energy markets. For those markets, meter data that can be provided within the required settlement timeline is sufficient.

Other stakeholders emphasized AMI will facilitate DR participation for smaller commercial and residential customers only when end use appliances are able to communicate with the AMI systems. Such customers are not likely to actively watch energy prices but rather will expect load reductions to occur automatically in response to price signals. The design, production and adoption of such appliances will occur gradually over several years, and likely have little impact over the five year time horizon of this study.

7.5. Operations and Settlement Barriers

7.5.1. Critical Issues

<u>OI.1 Inherent compromises in balancing multiple objectives of baseline methodology</u>

Stakeholder comments on baseline issues varied widely. All stakeholders recognized that baseline calculations would be inherently inaccurate and challenging. Some accepted these limitations and felt that reasonable solutions to baseline calculations could be developed despite the inevitable imperfections. Others saw baseline calculations as a more fundamental problem with the potential to frustrate timely or expanded implementation of direct participation.

Many argued that customer acceptance was the paramount concern. They saw a need for a single, uniform and transparent methodology that could be easily understood by customers. Multiple or complex methodologies, they feared, would only further discourage customers from participating in an already unintuitive DR landscape.

Others argued that accuracy is essential; otherwise DR would never be viewed as reliable or comparable to generation by system operators. Furthermore, only relatively accurate (and presumably more complex) methods could minimize opportunities for gaming.

Still others see the need to rely on baseline calculations in and of itself a fundamental flaw of DR. They feel baseline calculations will inevitably be inaccurate, potentially confusing and complex and provide gaming opportunities that cannot be effectively mitigated. They argue it makes more sense to charge customers for what they use, rather than to try to pay them for what they do not.

Stakeholders identified at least three different applications for baseline calculations, each of which might require a potentially unique methodology. Those applications are 1) impact estimates for forecasting and scheduling, 2) impact estimates for determining cost-effectiveness, and 3) baseline calculations for payment and settlement. It might be, for example, that the methodology for forecasting might err on the side of being more complex and accurate, whereas the methodology for payment is more transparent and simple to facilitate customer participation.

One example of the potential for confusion and controversy has already arisen. A staff report in the CPUC RA proceeding proposes that all DR aggregators must comply with the CPUC adopted DR load impact protocols. CPUC staff argues that use of the protocols is needed to quantify the DR impacts that will count towards RA. Several stakeholders, on the other hand, argued that those protocols were developed with a primary focus on long term planning and cost-effectiveness. Furthermore, they argue, the protocols contain many requirements related to determining cost-effectiveness that are not at all relevant for those CSP/ESP programs that are not ratepayer-funded. This is also an example of multiple processes proceeding in relative isolation and generating solutions and proposals that directly impact other areas.

OI.2 Complexity of scheduling and settlement

Many stakeholders explained that it is difficult to clearly delineate the boundaries between parties scheduling the load and load reductions of DR customers. This is particularly problematic with direct access; utility or CSP DR customer portfolios may include both bundled and direct access customers whose load is embedded in the schedule submitted by the utility on the one hand and the ESP on the other. In the exchange of schedules and information between all the parties, it will be difficult to determine which enrolled DR MWs are or are not already included in the respective schedules submitted by utilities, CSPs and ESPs. For some this is an issue that can be resolved. Others feel the inevitable complexity, expense and labor required for the settlement process will pose a barrier to participation.

The complexity in scheduling and settlement is closely related to the technology and infrastructure barriers described above. One stakeholder described that the potential for things to fall between the cracks can pose risks significant enough to inhibit participation, or at least increase transaction costs. For example it is not always clear either within the utility or CAISO or between the different entities, what their different roles, responsibilities or capabilities are at different stages of the process. Different entities or departments often interpret a rule or tariff in dissimilar ways.

Multiple stakeholders raised the issue of the added complexity with CSPs bidding in DR resources from multiple LSEs and with DA customers participating in IOU and CSP offerings. To facilitate participation and avoid discrimination, DA customers are permitted to enroll in DR programs marketed by the IOUs and CSPs, and CSPs are permitted to enroll customers from multiple LSEs. The IOUs, however, may not act as a SC for the DA customers. In many cases the CSP is not an SC, so the CSP or customer must hire a third party to schedule for them. In such cases, the party responsible at each step of the scheduling and settlement process is not at all clear. In the words of a given stakeholder “this is one of 30 or more examples” illustrating that no one has a good comprehensive understanding of the process from start to finish.

Some stakeholders identified one aspect of the current PDR proposal as a potential barrier. DR bids in both the Day-Ahead and Real Time markets will be reflected in the LSEs day-ahead schedule. The load reductions realized due to DR bid in by a CSP will result in a cost savings to the LSE but no corresponding payment from the LSE to the CAISO or the CSP. Under the current proposal, there will be a need for payments from the LSE to the CSP to settle outside of the CAISO process. This will require individual bilateral negotiations between each CSP and LSE. Some stakeholders feel that the risk and transaction costs associated with such settlements occurring outside the markets could more than offset potential gains and therefore limit direct participation.

OI.3 Potential for gaming due to differences between nodal and aggregated prices.

As with the issue of baseline calculations, opinions on the issue of nodal versus. aggregated pricing points and the resulting potential for gaming varied widely. Several stakeholders felt this was an issue that they expected to be satisfactorily addressed through stakeholder processes used in developing the PDR and Participating Load products. Others thought that different prices for load and DR payments would result in gaming which would discourage DR participants and result in an unacceptable level of cost shifting and discrimination.

Some see nodal pricing for load, DR and generation as the best or only way to achieve comparable treatment of resources and prevent gaming opportunities. Others believe the political reality is such that nodal pricing for load will not be seen in California for some time, if ever. For those stakeholders, it is therefore incumbent on the CAISO to develop a ‘second best’ product that acknowledges this reality, despite the potential for gaming.

Customers enrolled in Participating Load pay a nodal price as opposed to the Default LAP price for their load and are paid the nodal price for load curtailments. There is general agreement that only a limited number of large and sophisticated customers will use the Participating Load product, which is not designed for smaller customers or aggregated DR portfolios. However, this effectively limits the customers that may avail themselves of nodal pricing for load to a small number, and for some stakeholders, they see this as a discriminatory and untenable situation. Some argue that as long as the choice is voluntary, only those customers at low cost nodes consistently below the Default LAP would choose to participate. The customer would realize savings by paying a nodal price for load that is below the Default LAP. Payments for DR participation would be lower, but even with DR available year round, DR calls would be limited as compared to the savings for load achieved throughout the year. Others claim that this will not be a problem as only the LSE’s would see the nodal vs. LAP prices for load and that the customer would continue to pay retail rates and therefore would not perceive a cost savings for load. Other stakeholders argue that allowing only some customers to voluntarily shift from LAP to nodal pricing for load would essentially shift costs to the remaining customers who cannot.

PDR as proposed is designed for CSPs and aggregated portfolios of DR customers. Unlike Participating Load, it does not change the price charged for load. However, PDR does pay for DR at a Custom LAP (CLAP) that reflects the nodes at which customers in the DR portfolio are located. The load is priced at the Default LAP (DLAP) for the LSE whereas the DR is priced at the CLAP. This again creates gaming opportunities. If there are capacity payments for DR, customers would be encouraged to enroll premises at low cost nodes that are less likely to be dispatched for DR. On the other hand, customers in a high cost CLAP would have an incentive to over schedule load and offer DR, receiving DR payments for phantom load.

A few stakeholders commented that the differences between nodal and Default LAP prices could be reduced, though not eliminated, by increasing the number of LAPs from the current three in the initial implementation of MRTU. They suggested that this might be one potential measure to reduce gaming opportunities.

8. STAKEHOLDER FEEDBACK

8.1. Approach

The stakeholder mechanisms used in compiling this report consisted of two information and perspective gathering efforts; first preparing for and conducting a series of interviews with a cross-section of stakeholders to gain input and perspective, and second, a review of the study's preliminary findings through an April 8th CAISO-hosted webinar, duly noticed and advertised among not only the interviewed stakeholders but other stakeholders as well. Conducting the webinar was viewed as an effective and not overly time-consuming approach to allow all interested parties an opportunity to review and question the project team in terms of the preliminary barriers identified, as well as provide information for their use in developing any minority opinions to be shared with the project team.

8.2. Stakeholder Interview Process

Having completed the literature search described above, and collected very valuable insights from the prior DR barriers research already conducted at the national and state of California levels, the team prepared a draft questionnaire to be used in conducting interviews with key stakeholders in the California wholesale/retail market. This questionnaire was reviewed and improved by the CAISO Project Team, who also worked with the consulting team to identifying the key stakeholders and individual contacts. A copy of the questionnaire is included as Appendix B. Eleven interviews were conducted, involving approximately 30 individuals, all of whom demonstrated a working knowledge of some if not all of the aspects and nuances of demand response in California. The key stakeholders included individuals who represented the following perspectives;

- Investor-owned utilities (i.e., Pacific Gas and Electric, Southern California Edison, Sempra Utilities)
- Other LSEs (the California Department of Water Resources)
- Regulatory entities (including the CPUC's Energy Division)
- Curtailment Service Providers (EnerNOC)
- Consumer advocates (a representative from The Utility Reform Network)
- Customer representatives (California League of Large Electricity Consumers Association – CLECA; California Manufacturers and Technology Association - CMTA)
- Electric service provider representatives (Alliance for Retail Energy Markets (AReM); also a renewable resources representative)

In order to promote collection of frank input, the interviewees were guaranteed anonymity in terms of their specific comments, though they were informed that the study may identify positions that were taken amongst members of a given category. In some cases, the interviewees were comfortable being recorded to help ensure that the study's project team was capturing their thoughts; in some of these cases, the interviewees requested transcripts along with an opportunity to comment upon them. These were provided, with few corrections being noted. In other cases, the interviewees were not comfortable being recorded, so the interviews were conducted accompanied by copious notetaking.

In developing the preliminary findings associated with the barriers identified by the interviewees, the study team chose to limit the discussion to those barriers that were identified by more than one interview entity. This decision was made in order to focus the discussion on those barriers that seemed of significant concern to multiple stakeholders, rather than possibly representing the perception of single entity.

The preliminary findings were then used to develop the materials shared with the larger DR stakeholder community via the CAISO-sponsored webinar which was held on April 8, 2009. The webinar announcement was published on March 13, 2009, and noticed to all appropriate CAISO mailing lists. The webinar's presentation deck was posted on the CAISO website for potential attendees to review on April 6th, giving them a short window to review the material before the actual webinar was conducted. A copy of the presentation deck is included as Appendix C, which includes slide-specific comments provided by those nine participants who sent along written responses.

Approximately 50 stakeholders participated in the webinar, with some entities having more than one person on the call. While some participants could stay on the line for the full two hour session, others had to sign off earlier. A list of the participants is attached as Appendix D. A copy of the webinar transcript has been posted to the CAISO website's DR page and can be obtained there.

While a few questions were posed as the study team walked through the presentation deck (some of them inquiring as to who specifically was interviewed), most of the discussion followed the conclusion of the presentation. During the open discussion (which was moderated by the conference call coordinator), the discussion centered on:

- revisiting some of the identified barriers;
- talking about whether or not all points raised by the interviewees should be catalogued in the report to ensure a thorough vetting of the positions taken;
- whether and how the stakeholders would have an opportunity to review the draft study prior to its submission to FERC on April 28th;
- next steps that CAISO intends to pursue in terms of establishing action items associated with the identified barriers;
- the ability or lack thereof of Curtailment Service Providers (CSPs) participating in the wholesale market;
- impact on the level of DR resources available in the event that the proposed Proxy Demand Response (PDR) design is not approved and the view that without it, all DR would continue to have to come through a load serving entity. As such, FERC's goal of direct participation wouldn't be realized;
- potential shift of the California DR stakeholders' regulatory interaction from the state level to FERC, and the logistical problems as well as limitations that would create;
- additional discussion regarding the implications of WECC's current stance on DR not being eligible to play in all of the Ancillary Services market; and
- the relatively short window of time to provide written comments on the webinar content back to CAISO.

As the webinar was concluding, the participants were reminded that written comments would be due by the close of business on Friday April 17th. During that comment period, submissions were received from the following entities;

- Alliance for Retail Energy Markets
- BluePoint Energy LLC
- California Department of Water Resources – State Water Project
- California Public Utilities Commission (CPUC) staff
- CPower
- EnerNOC
- Grid Services, Inc.
- Pacific Gas & Electric
- Southern California Edison

A complete collection of the feedback received during the comment period is contained in both Appendix C, in those cases where the stakeholders had specific comments to make and Appendix D, where their overall general comments are collected.

9. PROPOSED SOLUTIONS

FERC Order 719 requests that ISOs describe any proposed solutions to the barriers identified, including a timeline for resolution. A number of the identified barriers will be addressed through current or planned initiatives. For each of the five categories of barriers, a table listing the barrier and proposed solution is provided below.

The barriers were subjectively prioritized into high, medium and low categories by the consulting team and the CAISO using two criterion. The first criterion is the degree to which the barrier inhibited comparable treatment of generation and DR resources. The resource comparability criterion is taken directly from the ruling by the Commission in Order 719. The second criterion was the degree to which the barrier inhibited the pursuit of increased participation of demand response in retail or CAISO markets.

Barriers were further characterized by the role that the CAISO can play influencing or developing proposed solutions. In some cases, barriers will be addressed directly by the CAISO through internal initiatives or stakeholder processes. In other cases, the CAISO has little direct authority and will play a more limited role as an advocate, participant or provider of information.

9.1. Market Solutions

The primary means for addressing market barriers will be the CAISO, in conjunction with its stakeholders, through developing viable and desirable wholesale demand response products. This includes the current development effort of the proposed Proxy Demand Resource product, and the refinements being made to the existing Participating Load Program. The CAISO will also continue to engage stakeholders in discussions regarding possible changes to facilitate increased alignment of retail DR programs with CAISO markets. For instance, as a result of such efforts, the IOUs, with CPUC approval, agreed to alter the trigger for a large portion of their reliability-based demand response from a ‘Stage 2 Emergency’ to a ‘Warning, Stage 1 imminent’, allowing the ISO to use DR resources prior to having to declare a Stage 2 emergency.

Some stakeholders would like to see the CAISO dedicate more staff resources to the development of PDR and demand response efforts, in general. Others asked for support in becoming a Scheduling Coordinator. The CAISO continues to consider resource issues, especially now that MRTU has been implemented. The CAISO plans to assist all entities interested in exploring or becoming a Scheduling Coordinator. The CAISO has an assigned individual in its External Affairs Department that is dedicated to helping market participants become Scheduling Coordinators.

In addition, the CAISO has supported the centralized capacity market concept proffered by the California Forward Capacity Market Advocates (CFCMA) and has stated that the CFCMA proposal “offers a solid basis for developing an effective central capacity market design. It will provide transparent prices and needed price signals for investment decisions and economic trade-offs among investments in new generation, demand response and transmission."[49]

Barrier		Priority / CAISO Role	Solution
MB.1	**Resource Adequacy (RA) Capacity payments are elusive for DR resources directly participating in the CAISO markets outside of a retail DR program**	High Advocate	CAISO actively participate in current and future CPUC DR and RA proceedings to ensure greater alignment and comparability between retail and wholesale DR revenue streams.
MB.2	**Lack of a transparent, forward capacity market for direct participation DR resources**	High Advocate	Continue to engage stakeholders and the CPUC in the Long Term RA proceeding (R.05-12-013) to determine the appropriate mechanism for clearing RA capacity. Work with stakeholders and CPUC to address how DR resources can access RA capacity payments.
MB.3	**WECC standards preclude DR resources from participating in regulation and spinning reserve markets**	High Direct	CAISO will launch an initiative to evaluate the ability to revise definitions of existing AS products to ensure technology neutrality, seeking FERC approval and WECC alignment.
MB.4	**Customers accustomed to existing investor-owned utility programs**	Low Limited	Continue engagement with stakeholders to develop viable wholesale DR products with direct participation capability. Work with stakeholders and the CPUC on greater alignment between retail programs and wholesale products.

[49] See page 2 in the CAISO's Reply Comments of The California Independent System Operator to Comments on Staff's Modified Centralized Market Proposal, R.05-12-013, December 15, 2005 found at: http://www.caiso.com/205b/205b87ea72510.pdf

Critical Issue		Priority / CAISO Role	Solution
MI.1	Attributes of existing programs poorly aligned with CAISO markets	High Advocate/ Direct	Pursue greater alignment through CPUC DR OIR (CPUC R.07-01-041), and other relevant CPUC proceedings, CAISO stakeholder process and CAISO market and product design efforts.
MI.2	CSPs[50] precluded from direct participation without FERC approval of the PDR product	High Direct	Continue PDR stakeholder process targeting May 2010 implementation. Stakeholder support in the design and approval of wholesale DR products.
MI.3	IOUs will likely remain a key player in offering DR to retail customers, and will take direction from the CPUC and CEC, not CAISO	Medium Advocate	CAISO will continue to participate in CPUC DR and other relevant proceedings with goal of increasing alignment of utility programs and facilitating direct participation of DR resources.
MI.4	Various DR Market Vision perspectives among stakeholders	Medium Inform	Promote understanding of CAISO policy and positions through participation in relevant CPUC proceedings.

9.2. Regulatory Solutions

WECC rules prohibiting participation of DR resources in all ancillary services markets, including spinning reserves and regulation, was the barrier most commonly cited by the interviewed stakeholders. The CAISO will pursue definitional and technical changes, as appropriate, to ensure these ancillary services can be provided in a technology neutral way while maintaining reliability and performance standards. Some stakeholders also advocated developing a 30-minute reserve product that would be more conducive to a wider range of participating load types. Initiating further pilot programs, such as the current Participating Load Pilot projects may help demonstrate the potential for certain types of load to reliably participate in these markets.

[50] For the sake of simplicity, the term Curtailment Service Provider or "CSP" will be used to refer to any non-utility DR provider, although utilities do sometimes refer to themselves as a CSP with respect to the direct participation of utility managed DR programs. It may also be possible for ESPs to act in the role of a CSP for DA customers.

Barrier		Priority CAISO Role	Solution
RB.1	**Fundamental policy differences between the wholesale (FERC/WECC/CAISO) and retail (State Legislature/CPUC/CEC) perspectives**	High Policy Reconciliation	Pursue greater alignment through CPUC DR OIR (CPUC R.07-01-041), and CAISO stakeholder process.
RB.2	**Regulatory driven retail programs limit growth opportunity for CSPs**	Medium Limited	Work with CPUC and stakeholders to ensure better alignment between retail and wholesale DR programs. Continue to develop and refine the direct participation capability of DR resources, including the ability to access RA and A/S capacity payments.

Critical Issue		Priority / CAISO Role	Solution
RI.1	Program value may not be fully recovered in wholesale market, limiting incentives for direct participation	High Policy Reconciliation	Continued CAISO engagement in the CPUC DR OIR- Cost-effectiveness proceeding (CPUC R.07-01-041) as well as informing interested parties about the plethora of performance reporting processes conducted and published by the CAISO. Such reports, especially with MRTU market data incorporated, should help better inform this issue over time.
RI.2	Political resistance to reflecting dynamic or locational pricing in retail rates	Low Inform	CAISO products such as PDR (if approved) and Participating Load enable demand response providers to earn the locational marginal price for load curtailments. The CAISO's market produces and publishes locational marginal prices, reflecting the cost of consuming energy at specific times and places on the grid. The CAISO's market design establishes a solid foundation for the CPUC to consider incorporating dynamic or locational pricing into retail rates.
RI.3	Mixed signals from 5% DR goal, Integrated Energy Policy Report (IEPR) loading order and cost-effectiveness protocols	Low Policy Reconciliation	Remain engaged in CPUC DR OIR (CPUC R.08-06-001) and follow Long Term Procurement Proceeding (CPUC R.08-02-007); this is a longer-term barrier that is engrained in and integral to the state's long-term procurement policies.
RI.4	Multiple initiatives overwhelming capacity of stakeholders and market participants	Low Participant	Promote initiatives through and utilization of the "Market Initiatives Roadmap"

9.3. Customer Participation Solutions

It is possible that the CAISO will need to add additional staff resources, on par with ISOs in the eastern states, to facilitate direct participation by non-utility DR aggregators. Given the great deal of uncertainty and differing opinions regarding DR, the FERC or ISO/RTO Council may wish to fund a market study to identify load types and market segments most and least likely to participate in wholesale markets. This would help focus DR product development efforts and minimize time and effort spent developing rules and regulations for products with limited actual participation.

Barrier		Priority / CAISO Role	Solution
CB.1	**Complexity of the DR market offerings from a customer's perspective**	Low Direct	CAISO to develop and offer a structured bid-to-bill DR training program for market participants

Critical Issue		Priority / CAISO Role	Solution
CI.1	Utilities, Regulators and CAISO underestimate the challenge of changing customer behavior	High Direct/Policy Reconciliation	Continue targeted pilot projects to inform the overall DR development process and overcome technical and integration issues. Continue reliance on stakeholders involvement in the development of viable and attractive DR products
CI.2	Based upon historical DR involvement, CAISO market requirements are likely ill suited for many customers' pursuing direct participation	Medium Direct	CAISO Participating Load pilot projects will inform and provide lessons learned and seek better, easier to implement, more cost-effective alternatives to integrating DR resources in CAISO markets.

9.4. Technology and Infrastructure Solutions

The CAISO, in coordination with PG&E, SCE and SDG&E, is conducting Participating Load Pilot projects to better understand, among other things, the technology and infrastructure needs around integrating residential, commercial and industrial aggregated demand response resources into the CAISO markets. One of the key objectives of the pilot projects is to find IT solutions around metering, notification, and telemetry that are cost-effective, easy to implement, and meet the CAISO's performance and reliability standards. The CAISO expects results and lessons learned from the first phase of these pilot projects to be available for review by the end of the year.

Barrier		Priority / CAISO Role	Solution
TB.1	**Infrastructure and systems requirements and costs associated DR under MRTU**	Medium Inform	Develop and provide market participants with clear specifications about system and business requirements. Current activities and forums are helping to elicit these requirements include the Participating Load pilot projects, CAISO Business Issues and Processes working groups, and on-going/evolving CPUC policy on how "locational" it wants to make DR as a resource or as a dynamic rate.

Critical Issue		Priority CAISO Role	Solution
TI.1	Scheduling Coordinator/Transmission level requirements for participating load	Low Direct	Engage and walk CSPs through the CAISO's SC Application Process. CAISO provides single point of contact for any entity interested in becoming an SC. Documentation is published and available on how to become a SC with overview materials.[51]
TI.2	Limitations of AMI	Low Participate	Address through CAISO Business Issues and Processes working groups; tighter coordination/ communication between CAISO and utility AMI and DR staff

9.5. Operations and Settlement Solutions

On April 30, 2009, the CAISO is hosting a stakeholder meeting where it will be initiating a structured working group process to discuss and resolve the issues around the direct participation of demand response participating under the proposed PDR product in the CAISO markets. For example, the CAISO has already identified as a priority in the PDR stakeholder process the development of systems that link the CSP and LSE into the CAISO's settlement process. The CAISO will also continue to participate in the CPUC DR Proceedings and, with stakeholder input, determine if and how the CPUC Load Impact Protocols might apply in the CAISO markets, initially in terms of how applicable relative to the proposed PDR product.

Critical Issues		Priority CAISO Role	Solution
OI.1	Inherent compromises in balancing multiple objectives of baseline methodology	High Direct	CAISO Business Issues and Processes working group plans to address this issue early and sees it as highest priority.
OI.2	Complexity of scheduling and settlement	Medium Direct	CAISO to develop and offer a structured bid-to-bill DR training program for market participants.
OI.3	Potential for gaming due to differences between nodal and aggregated prices	Low Direct	Gaming opportunities viewed as limited in nature; will be handled through market monitoring and specific market design elements targeted to address specific potential gaming concerns.

[51] http://www.caiso.com/docs/2005/10/05/2005100520241822328.html

ATTACHMENTS

Appendix A – Literature Review

Appendix B – Interview Guide

Appendix C – Webinar Presentation (with stakeholder notes)

Appendix D – Webinar Participant List

Appendix E – Stakeholder General Comments

Appendix F – Direct Participation Business Issues Working Groups

APPENDIX A: LITERATURE REVIEW

National Demand Response Documents

- Assessment of Demand Response & Advanced Metering, FERC Staff Report (December 2008)
- Demand Response and Smart Metering Policy Actions Since the Energy Policy Act of 2005: A Summary for State Officials, The National Council on Electricity Policy (Fall 2008), U.S. Demand Response Coordinating Committee
- National Perspective on Demand Response, The Brattle Group presentation at the California Energy Commission, March 5, 2008
- Benefits of Demand Response in Electricity Markets and Recommendations for Achieving Them, A Report to the United States Congress Pursuant to Section 1252 of the Energy Policy Act of 2005 (February 2005)
- "The Summer of 2006: A Milestone in the Ongoing Maturation of Demand Response". With Nicole Hopper, Charles Goldman, Ranjit Bharvirkar (LBNL-62754). The Electricity Journal, Vol. 20, Issue 5, June 2007, pgs. 62-75.
- "Demand Response Program Design Preferences of Large Customers: Focus Group Results from Four States". Electricity Markets and Policy Group, Lawrence Berkeley National Laboratory. With Terry Fry and Robert Hinkle, Nexant, Inc. (LBNL Report 60610). June 2006.

California-specific Demand Response Documents

- Demand Response 2009-2011 Program DR filings, party comments, data request responses to the CPUC by PG&E, SCE, and SDG&E CPUC A.08-06-001 http://docs.cpuc.ca.gov/published/proceedings/A0806001_doc.htm
- The State of Demand Response in California, Draft Consultant Report, California Energy Commission, Brattle Group, April 2007
- CAISO Demand Response Tactical Plan Final Draft, December 31st, 2007 (is this public?)
- CAISO Demand Response Vision and Strategy, Draft Report, Freeman, Sullivan, & Co.; Summary provided to CAISO's Market Issues Forum on January 25, 2007
- DR Vision Statement – Prepared by the CPUC, For Discussion by the Vision for Demand Resources Working Group (2007)
- DR focus group results culled from multiple sessions held with PG&E and SCE commercial/industrial customers (2006 – 2008)
- California Customer Load Reductions during the Electricity Crisis: Did they Help to Keep the Lights On? *Charles A. Goldman, Joseph H. Eto, and Galen L. Barbose.* Energy Analysis Department. Ernest Orlando Lawrence Berkeley National Laboratory. University of California Berkeley. May 2002
- Overview of California ISO Summer 2000 Demand Response Programs. John H. Doudna, P.E, Senior Member, IEEE California 1S0 Operations Engineering Dept. IEEE. 2001.
- "Energy Division's Report on Interruptible Programs and Rotating Outages." Filed with the California Public Utilities Commission under Proceedings for R. 00-10-002, February 8, 2001
- CAISO Annual Report. 2001
- "Measurement and evaluation of energy efficiency programs: California and South Korea". E. Vine, C.H. Rhee, and K.D. Lee. Energy 31 (2006) 1100–1113

- California Public Utilities Commission. Decision 02-10-062. Interim opinion, Oct 24, 2002. San Francisco, CA: CPUC; 2002.
- "California Demand Response: A Vision for the Future (2002-2007)" included in D.03-06-032 as Attachment A. http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/26965.ht
- 2009-2011 Demand Response Program Filings. CPUC Application 08-06-001, 08-06-002, 08-06-003. Filed June 2, 2008.
- “Many Utilities Starting to Develop AMI and Utility-of-the-Future Strategies - Part 2”. Energy Central (June 18, 2007).
- Press release, Itron, Gas & Electric Chooses Itron OpenWay® for Smart Meter Deployment (July 30, 2008). http://www.itron.com/pages/news_press_individual.asp?id=itr_016717.xml
- “Advanced Metering Infrastructure: The Regulatory Context.” Presentation to EDF by Tom Roberts, CPUC. June 23, 2008
- “California’s Demand Response Policy: The Policy Context for AMI.” Presentation to EDF by Bruce Kaneshiro. June 23, 2008
- SDG&E’s 2008 General Rate Case, A. 07-01-047
- Assembly Bill 1X 29 from the 2001-2002 First Extraordinary Session, Section 14(d)(4)(B).

CAISO Documents

- CAISO DR Participation Guide - version 3 dated November 29, 2007
- CAISO MRTU Release 1 Provisions to Support DR –DRAFT ONLY
- MRTU Release 1 Participating Load Users Guide (technical standard in revision mode)
- Original Straw Proposal for Post Release 1 MRTU Functionality for DR (before direct participation functionality was being considered) dated 11/9/07
- Direct Participation Issue Paper dated 12/22/08
- DR Business Process Issue Framework
- Stakeholder Comments on Direct Participation Issues
- Alternative Proxy DR Proposal as submitted by SCE dated December 2008
- CAISO Demand Response Strategic Initiative Program Overview Presentation. February 16, 2009.

APPENDIX B: INTERVIEW GUIDE

CAISO DR BARRIERS STUDY
STAKEHOLDER QUESTIONNAIRE

MARCH 19, 2009

Introduction

You may recall that the Federal Energy Regulatory Commission (FERC) issued Order 719 on October 17, 2008. Among other things, this order required each RTO and ISO to assess and report on the barriers to comparable treatment of demand response resources that are within the Commission's jurisdiction (Paragraphs 724 through 726). We have been commissioned by the California ISO to assist in preparing the required DR Barriers Study and submitting it to FERC as part of the compliance filing due on April 27, 2009.

By sharing your perspective on the various topics noted below, as well as others that you deem to be important, you will be providing valuable insights that will be considered for inclusion in the study. Your help is much appreciated.

The questions shown below provide a framework around which to gather your input, and also help ensure that the basic questions we pose to the various stakeholders interviewed are at least somewhat consistent. That being said, the structure is more than flexible enough to accommodate delving into other areas where you see significant barriers in place. We intend for this interview to be more of a dialogue rather than an interview in which you simply answer our questions.

Based on the wide range of entities being interviewed, we have categorized the questions based on those we feel may be most relevant to the various types of interviewees. Again, this is not cast in concrete, but will hopefully allow us to spend the time focusing on those areas of most interest to you.

Following completion of our numerous interviews, we will compile an initial review of our summary findings, which will inform the development of the CAISO's DR Barriers Study, and will also provide additional content for a stakeholder webinar that CAISO will host on April 8th.

Assumptions driving the DR Barriers Study

- California focus
- Barriers not issues

Bear in mind that the focus of this interview is on barriers that may inhibit or significantly delay DR participation in the CAISO markets. The questions below *make a distinction between "direct participation", which refers generally to DR participation in CAISO markets, and "utility programs", which are managed by the California utilities and may or may not participate in CAISO markets.*

General Questions

1. In which of the following markets do you expect direct DR participation to provide the most value, both in terms of maintaining system reliability and enhancing market efficiency, and in terms of economic incentives for participation?

    - Resource Adequacy Capacity
    - Day Ahead Energy
    - Real Time Imbalance Energy
    - Ancillary Services

2. How are differing performance requirements and standards for reliability and ancillary service products set by NERC, WECC and/or other agencies a barrier to direct DR participation?

3. What, if any, are the barriers to the active participation in these markets by utility DR programs, CSP's, or individual customers?

4. What barriers must be addressed in the design and implementation of the CAISO's markets to promote direct participation?

5. In the world of direct participation in the CAISO markets, how do you see the utility DR programs playing and in which markets?

6. What resolution do you foresee regarding the RA treatment of some of the legacy DR resources that do not conform to a standard RA product definition (e.g. emergency-only programs)?

LSE Perspective Questions

7. Does the form of the Resource Adequacy Capacity Market (i.e. bilateral versus a centralized capacity market), pose a significant barrier to direct participation?

8. The CAISO currently plans to implement Participating Load with the initial release of MRTU in April of 2009. Which barriers, if any, are the most likely to impact the implementation or utilization of Participating Load.

9. The CAISO currently plans to implement its Dispatchable Demand Resource (DDR) with in April of 2010. Which barriers, if any, are the most likely to impact the implementation or utilization of DDR?

10. The CAISO currently plans to develop and implement its Proxy Demand Resource (PDR) by May 2010. Which barriers, if any, are the most likely to impact the implementation of PDR by May 2010?

11. DR in California is dominated by utility programs funded by ratepayers and reviewed by the CPUC.

    - How well aligned are the legacy programs with the current and proposed CAISO markets?
    - What are the critical barriers to the participation of such programs in the CAISO markets by 2012?
    - Do you foresee a world where the CAISO market revenue streams replace CPUC and utility DR funding mechanisms?

12. Would it be possible to link the program payments for utility DR programs to the market value they would receive in the CAISO markets? What are the challenges in this type of transition?

13. CSP-delivered DR programs are currently funded via bilateral contracts with the utilities, and rely predominately on capacity payments. How should revenues earned via direct participation affect the bilateral contracts or utility incentives paid to CSP's?

14. Do you consider the challenges associated with marketing, customer awareness, and customer uptake to be issues or barriers?

15. Are there systems and infrastructure that will be needed that may pose a barrier to direct participation if not funded or developed (repeat from LSE section)

<u>Regulatory Perspective Questions</u>

16. DR in California is dominated by utility programs funded by ratepayers and reviewed by the CPUC. (repeated from LSE Section)

    - How well-aligned are the legacy programs with the current and proposed CAISO products and markets?
    - What are the critical barriers to the participation of such programs in the CAISO markets by 2012?
    - Do you foresee a world where the CAISO market revenue streams replace CPUC and utility DR funding mechanisms?

17. Would it be possible to link the program payments for utility DR programs to the market value they would receive in the CAISO markets? What are the challenges in this type of transition? (repeated from LSE section)

Alignment of CPUC and CAISO

In the Rulemaking 07-01-041 (DR OIR) scoping document, the fourth purpose of the proceeding was to "Consider modifications to DR programs needed to support the California Independent System Operator's (CAISO) efforts to incorporate DR into market design protocols." (See http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64245.htm)

18. How would you rate the progress the OIR has made in this in general? How about specifically:

    a) in the load impact protocols?
    b) in the cost effectiveness protocols?
    c) in specifying / coordinating the times when programs are called?
    d) in the payment of DR resources to CSP's?
    e) in the calculation of DR program benefits for utilities?
    f) in payments to customers?
    g) in locational dispatch ('right place, right certainty')
    h) in the ability to call DR 365 days vs. limited frequency
    i) in addressing value of DR in renewables integration with 33% RPS

19. The CPUC evaluates utility DR programs based on cost-effectiveness protocols using an avoided cost methodology (for capacity, energy, T&D etc.). FERC seeks to have DR participate in capacity, energy and ancillary service markets on a 'comparable' basis to generation, and be paid market-based prices. In what ways do the 'program' vs. 'market' based approaches pose a barrier to direct DR participation? Which approach is the best way to establish and capture the value of DR?

20. What do you see as the most significant barriers in aligning the utility DR programs with the CAISO efforts?

21. How well is the CAISO's DR stakeholder/working group process mentioned in the DR OIR scoping document working in aligning utility programs with CAISO markets?

CPP Related Questions

22. What do you think is a reasonable timeline for having price-responsive DR that is coordinated with the CAISO?

23. California utilities are in various stages of implementing default CPP tariffs. What do you see as the major obstacles to default CPP?

24. In the development of the proposed default CPP tariffs, is there an explicit (or implicit?) link to the value of RA, real time energy, or other CAISO markets in setting the CPP rate? Are current approaches (such as a 3x or 5x multiplier for the peak TOU period) without a link to CAISO markets appropriate for default CPP programs?

25. In the development of the proposed default CPP tariffs, how should the times when the CPP is dispatched be determined (e.g. SDG&E: when forecast temperature is >84º and prior day's load reaches 3,837 by 2:30 pm)?

26. It is possible that default CPP for C&I customers could exceed the 5% peak DR goal for price responsive programs. Do you think this is possible or likely?

27. Is the goal of enrolling 5% of peak load in DR programs appropriate? If not, what alternative approaches or methodology should be used to set appropriate MW goals for DR programs of different types (i.e. emergency, incentive based, dynamic pricing)?

Stakeholder Perspective Questions

28. The CAISO currently plans to implement Participating Load with the initial release of MRTU in April of 2009. Which barriers, if any, are the most likely to impact the implementation or utilization of Participating Load? (repeat from LSE section)

29. The CAISO currently plans to implement its Dispatchable Demand Resource (DDR) with in April of 2010. Which barriers, if any, are the most likely to impact the implementation or utilization of DDR. (repeat from LSE section)

30. The CAISO currently plans to develop and implement its Proxy Demand Resource (PDR) by May 2010. Which barriers, if any, most likely to impact PDR's implementation by May 2010? (repeat from LSE section)

31. With the current bilateral CSP contracts appearing to have relatively substantial capacity payments, and the possibility that these same payment streams may not be achievable in the CAISO markets, what is the advantage for you in pursuing direct participation instead?

32. CSP programs are currently funded via bilateral contracts with the utilities, and rely predominately on capacity payments.   How should revenues earned via direct participation affect the bilateral contracts or utility incentives paid to CSP's? (repeated from LSE section)

33. Is a bilateral versus centralized market for Resource Adequacy a significant barrier for direct participation? (repeat from LSE section)

34. How will the CSP contracts need to be revised when direct participation becomes a reality?

35. Do you consider the challenges associated with marketing, customer awareness, and customer uptake to be issues or barriers?

36. Are there systems and infrastructure that will be needed that may pose a barrier to direct participation if not funded or developed (repeat from LSE section)

37. Would having different baseline methodologies adopted by the CAISO and CPUC pose a barrier? How about different baseline methodologies used for impact estimation vs. settlements?

<u>Wrap-Up Questions</u>

38. What issues regarding the implementation of markets for direct participation, if any, do you feel rise to the level of a barrier that has the potential to inhibit or significantly delay direct participation at the CAISO? Potential examples include:

    - Settlement prices for load versus DR
    - Potential for gaming
    - Missing money
    - Settlement and scheduling processes
    - Maintaining linkage between LSE, CSP and retail customer
    - Level of certainty and transparency for payments and settlements
    - Baseline methodology
    - Technology costs

39. What barriers, if any, exist in terms of:

    - Plethora of DR initiatives both locally and on the national level vis a vis resources available
    - Regulatory/jurisdictional linkages
    - Value streams and the CAISO market products

40. Which barriers, if any, deserve more attention or resources than they are currently receiving?

What other programs/initiatives compete with DR implementation for attention and resources? Are there political, regulatory, financial or other considerations that might prevent direct participation from receiving the attention and resources from your organization necessary for timely implementation?

APPENDIX C: WEBINAR PRESENTATION WITH STAKEHOLDER NOTES

Demand Response Barriers Study

Introduction & Project Objectives

April 8, 2009

DECK WITH STAKEHOLDER COMMENTS

John Goodin
Lead, Demand Response
Regulatory & Policy Development

FERC Order 719

1. Accept bids from demand response resources in their markets for ancillary services comparable to any other A/S capable resources
2. Allow demand response units to specify limits on frequency, duration, and the amounts of their service in bids to provide ancillary services
3. Eliminate, during a system emergency, a charge to a buyer in the energy market for taking less electric energy in the real-time market than purchased in the day-ahead market
4. Requires ISOs to assess, through pilot projects, the technical feasibility and value to the market of using ancillary services from small demand response units
5. Permit a DR aggregator to bid demand response on behalf of retail customers directly into the organized energy market
6. **Study and report on whether further reforms are necessary to eliminate barriers to demand response in organized markets**

FERC Order 719 - Study Objectives

- Report on remaining barriers to comparable treatment of demand response resources
  - *ISOs have a duty to remove unreasonable barriers to treating demand response resources comparably with other resources*
- Propose solutions and a timeline for implementation
  - *Those issues that are practical to analyze by April 28th and communicate a time frame for analyzing the remainder*
- Identify any significant minority views
- The Market Monitor must submit a report describing its views on these issues to the Commission

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CAISO Deliverables

1. Identify, analyze and prioritize barriers, incorporating possible solutions or needed reforms, where possible
2. Ensure minority views are represented and clearly identified
3. Coordinate a response from Market Monitoring/Market Surveillance Committee

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10 Year Anniversary 1998–2008

Demand Response Barriers Study

California Background and DR Barriers

April 8, 2009

Dan Engel, FSC
Snuller Price and Eric Cutter, E3

Project Components Roadmap

1. DR Barriers Literature Review
2. Identify Stakeholders to interview
3. Develop interview guide with input from CAISO
4. Conduct interviews
5. Provide preliminary barrier assessment and gather stakeholder input via well announced Webinar
6. Stakeholder comment period
7. File Study in conjunction with April 28th FERC Filing

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Project Schedule

- Feb 24 ⇨ Literature Search and Review
- Mar 24 – Apr 6: Interviews Conducted
- Apr 8: Stakeholder Webinar Conference Today
- Apr 17: Stakeholder Feedback Due to CAISO
- Apr 21: Final Draft Submitted to CAISO for Review and Comment
- Apr 23: CAISO Comments fed back for Incorporation into Final
- Apr 24: Final Report Due
- Apr 28: File DR Barriers Study with FERC
- May: Review by DMM and MSC
- June: File DMM/MSC Report/Opinion

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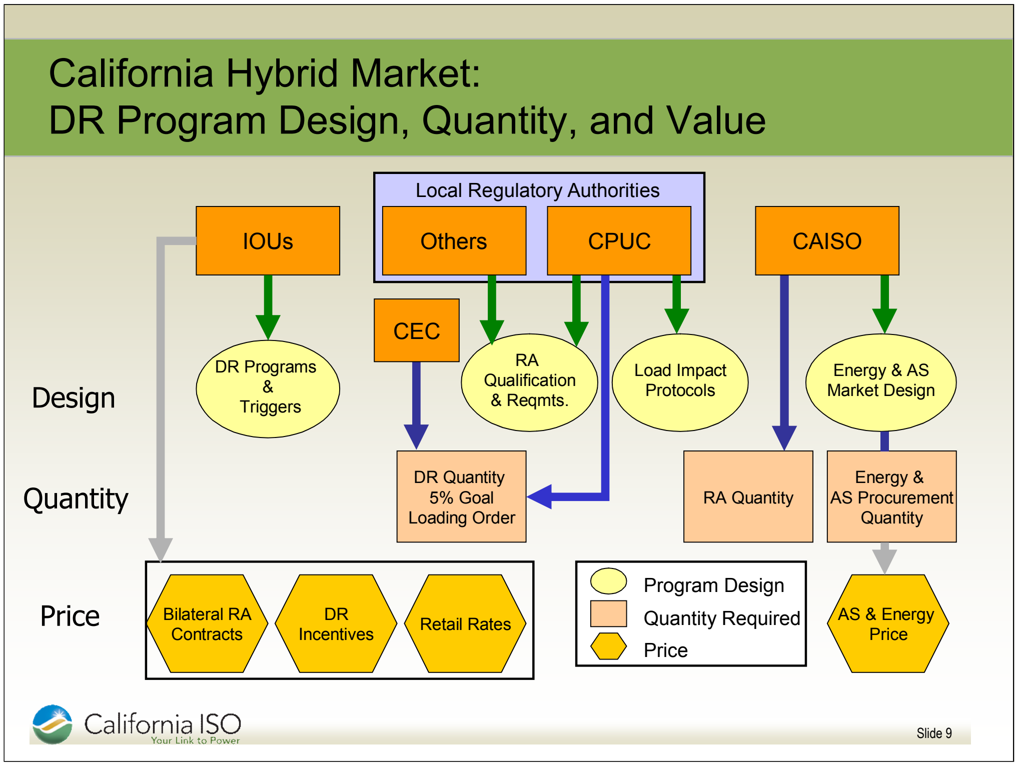
30-Year History of DR Programs in CA

- Long history in California of DR
  - Emergency-triggered DR Programs since PURPA
- Current status
  - Water agency pumps participate directly in the CA ISO markets as Participating Load
  - All other DR programs, price and reliability-based, are managed by utilities
    - <u>Expected</u> reduction of ~2,250 MW (CAISO 2008 Annual DR Report)
  - DR programs a mix of utility and 3rd party demand response aggregators


California Hybrid Market:
DR Program Design, Quantity, and Value
Local Regulatory Authorities
IOUs
Others
CPUC
CAISO
CEC
DR Programs & Triggers
RA Qualification & Reqmts.
Load Impact Protocols
Energy & AS Market Design
Design
Quantity
Price
DR Quantity 5% Goal Loading Order
RA Quantity
Energy & AS Procurement Quantity
Bilateral RA Contracts
DR Incentives
Retail Rates
Program Design
Quantity Required
Price
AS & Energy Price
California ISO
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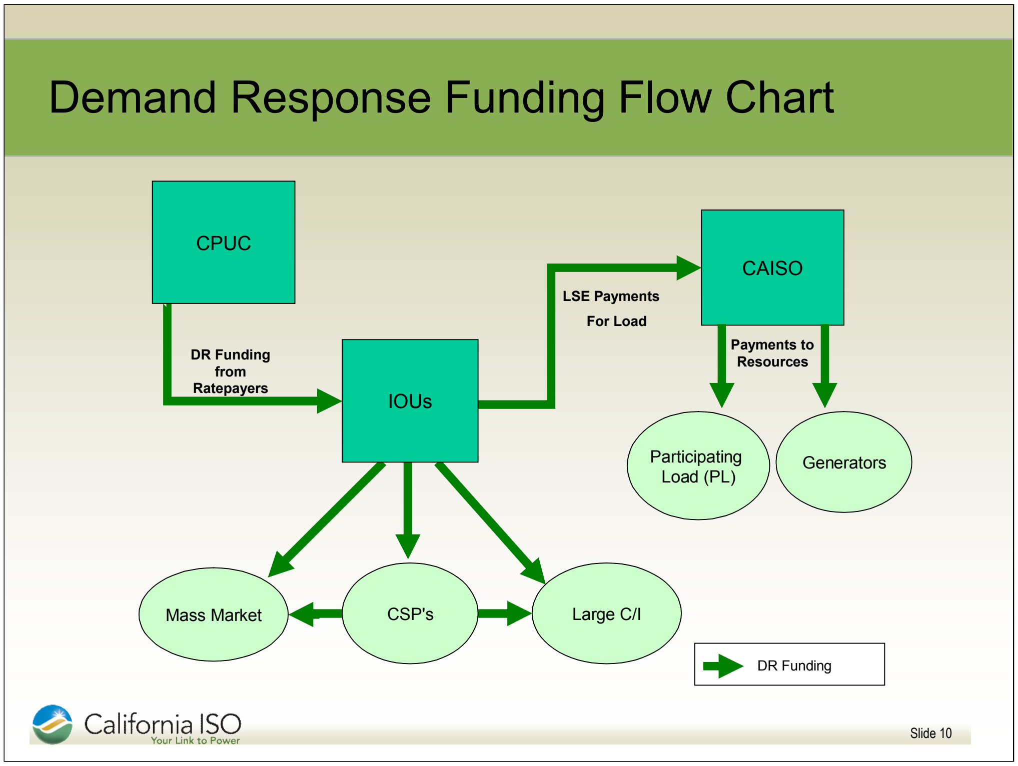
Slide 9



SCE Comment:

Slide 10: This graphic of the "funding" for demand response misses the "avoided cost" nature of demand response programs. While the IOU participation payments are "funded" from ratepayers, what is missing from this graphic is the reduction in resource adequacy costs incurred by IOUs as a result of procuring demand response. Also, the arrow labeled "LSE payments for load" should actually be "LSE reduced payments for energy" with the direction reversed.

Enrolled[1] MWs in Utility Demand Response Programs

	July 2003	July 2005	April 2008	5% DR Goal
Dynamic Pricing (CPP)	**0 MWs**	**50 MWs**	**112 MWs**	**2,500[2] MWs**
Incentive-Based DR Programs	**0 MWs**	**800 MWs**	**1,024 MWs**	
Emergency-triggered Programs	**1,485 MWs**	**1,600 MWs**	**1,850 MWs**	**N/A**

[1] "Upper-bound" estimates – represents highest potential load drop. Actual results may vary.
[2] 5% of an assumed 50,000 MWs of system peak demand – **illustration purposes only**

Information from CPUC – Bruce Kaneshiro presentation June 23, 2008

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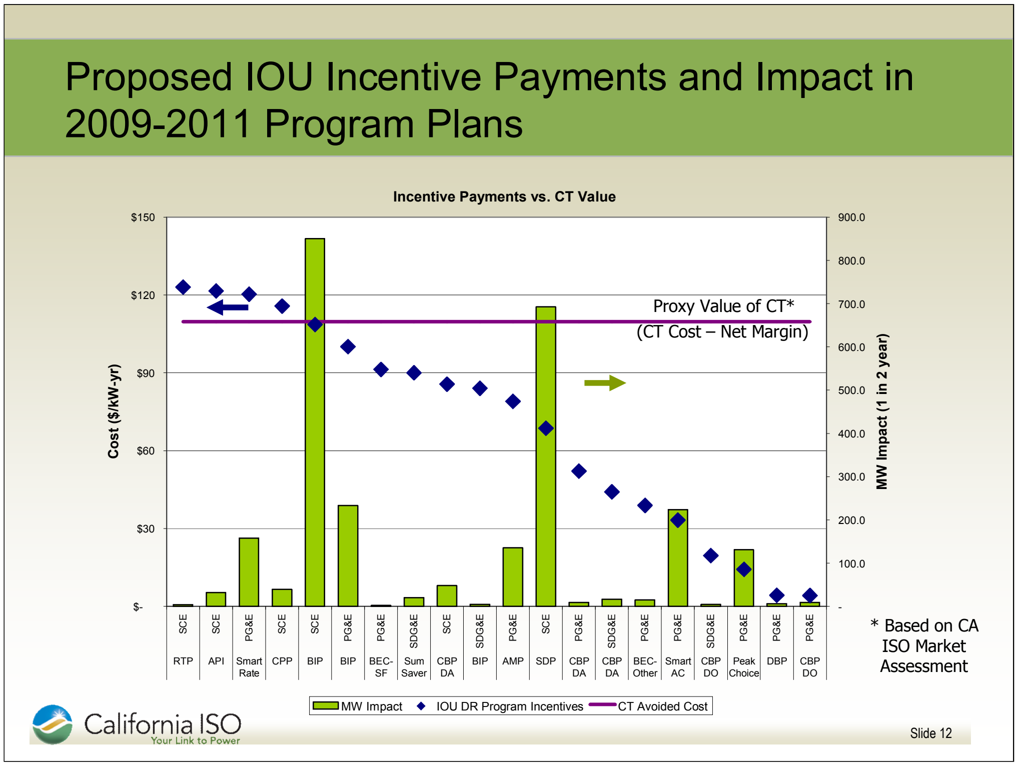
Slide 11

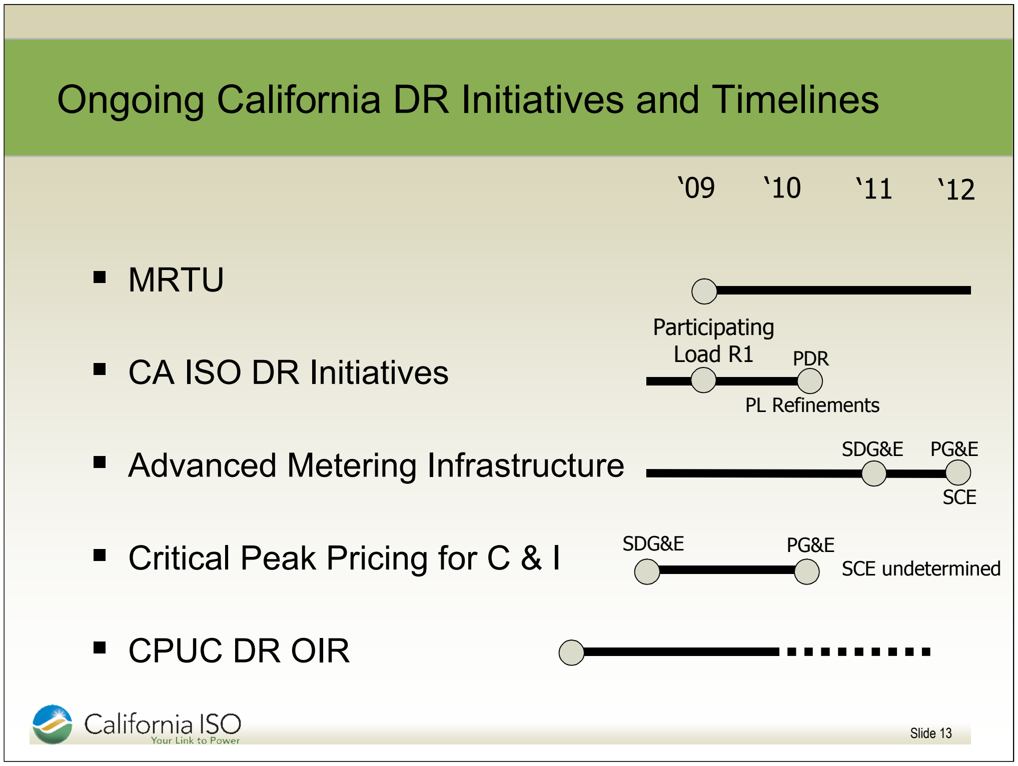
SCE Comment:

Slide 11: This chart is no longer accurate and should be updated, revised or eliminated. Regarding the quantification of 1,850 MW of "emergency-triggered programs", SCE believes that it has resolved the CAISO's concern with reliance on emergency-triggered programs by changing the trigger point of the BIP program to prior to when an emergency is declared. (A similar change to the SCE's other reliability programs (i.e. Agricultural Pumping and Air Conditioning Cycling, a.k.a. Summer Discount Plan, are pending approval.) There is a similar statement on Slide 19 that also requires correction. Also, the reference to a 5% goal as a price-responsive goal has been withdrawn by the CPUC pending reconsideration. In the proceeding considering Applications A.05-06-006, et al, Commissioner Chong issued a proposed decision explaining that revisions to the 5% price responsive goal were necessary. Subsequently, the Commission initiated rulemaking R.07-01-041 to address DR goals, cost effectiveness and other issues. DR goals are to be addressed in a pending decision under Phase II.



SCE Comment:

Slide 12: The graphic on the slide is misleading and provides no value. It also does not include SCE's entire proposed portfolio (e.g. DBP, CBP Day-of, and DR Contracts). Moreover, the incentives listed do not show any correlation to the MW impacts. In fact, RTP does not have incentives but rather increased prices due to weather conditions. Lastly, the slide does not prove whether or not a program is beneficial and should be adopted by the Commission.



PG&E Comment:

Slide 13: We recommend that the CAISO add the IOU's 2009-2011 DR program applications as an item. The recently opened Smart Grid OIR is another item to consider for this chart.

SCE Comment:

Slide 13: This slide states that CPP for C&I is "undetermined" for SCE. However, SCE in Phase 2 of its 2009 GRC, has proposed for its medium commercial customers (20 to 200 kW) an optional CPP overlay for its GS-2 and GS-2-TOU customers and for its large commercial customers (>200kW), mandatory TOU rates with default TOU/CPP on TOU-GS-3 (Option B) and on TOU-8. In addition, SCE recently filed comments pursuant to an Assigned Commissioner Ruling in A.08-03-002 stating that in Phase 2 of its 2012 GRC, it would propose for medium commercial customers, default TOU/CPP and mandatory TOU for customers with advanced meters, with optional RTP based on post-MRTU experience.

Broad Cross-section of Stakeholders

- Investor Owned Utilities
- Publicly Owned Utilities
- California Public Utilities Commission
- Demand Response Providers
- Consumer Advocates
- Customer Representatives
- Electric Service Providers
- WECC / NERC
- FERC
- California Energy Commission
- California Air Resources Board
- Water Agencies
- California Legislature

Today's webinar, and follow-on feedback,
is designed to receive input from all participants

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Scope Used to Define Study of California DR Barriers

- Focus on California market only
- Approximately five year time horizon
- Focus on "barriers" not "issues"
- Multiple perspectives

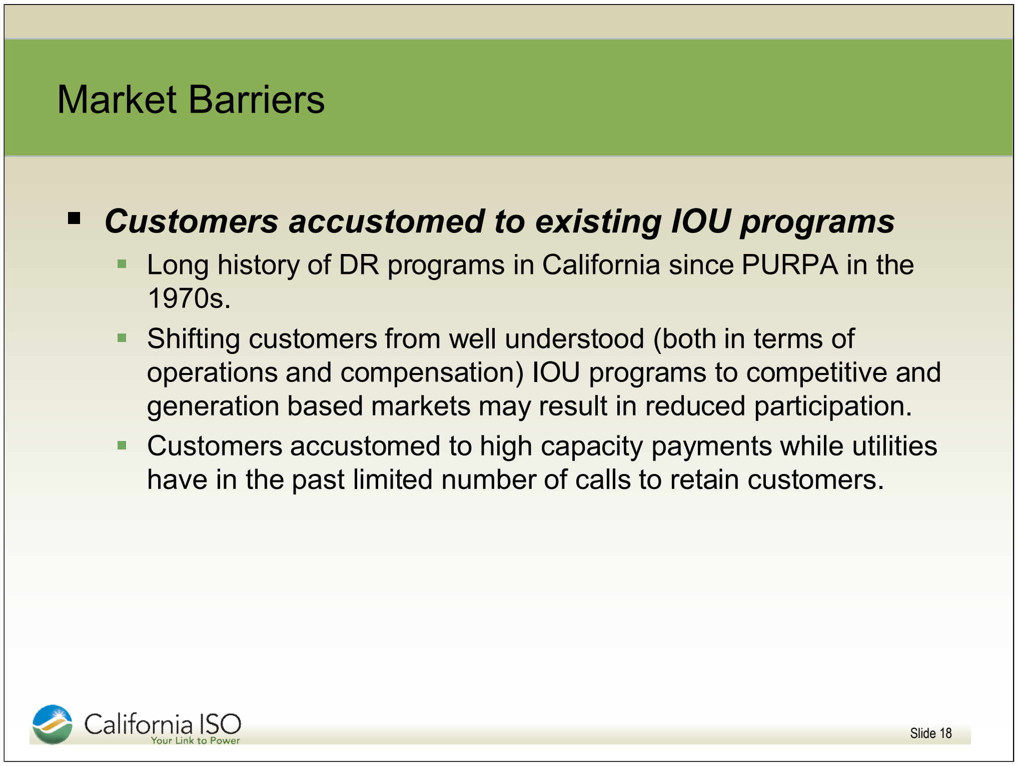
Structure of Barrier Feedback and Discussion

- Walk-through of the list of barriers by topic
  - Clarifying questions during walk-through
- Listen for the Following Areas
  - Accurate characterization?
  - Is something discussed an issue and not a barrier?
  - Is a barrier missing?
  - Can current initiatives address the barrier?
- Group Discussion with Remaining Time
- Comments Accepted until April 17 for Incorporation in the Study

Structure of Barrier Feedback and Discussion

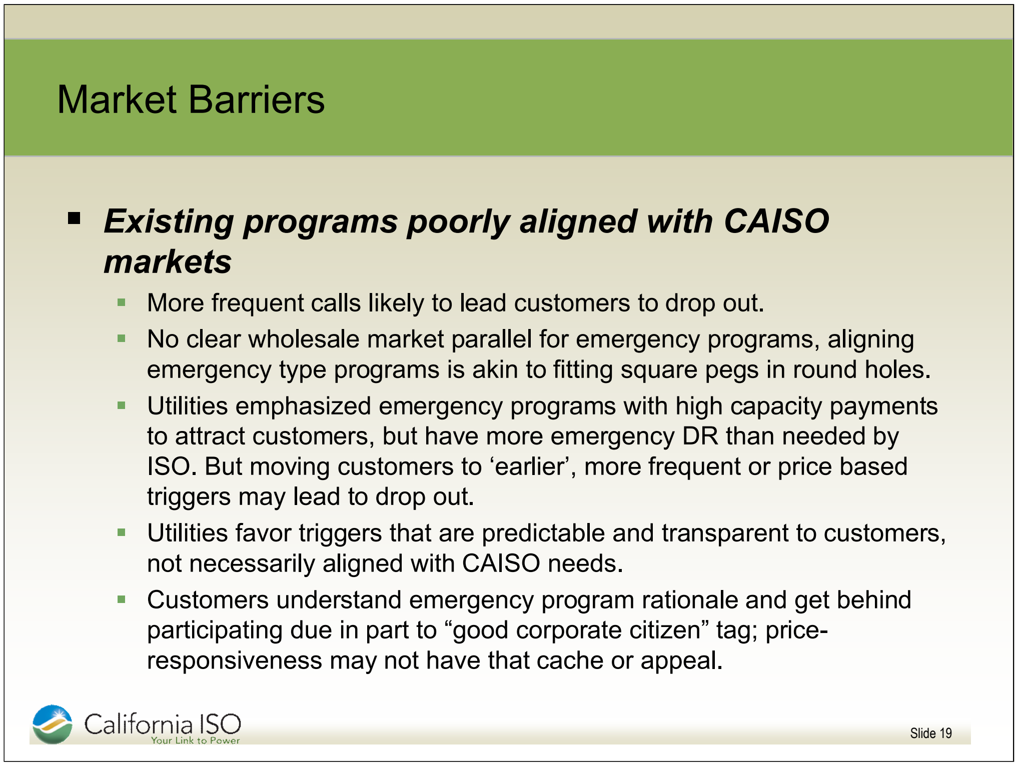
Categories of Barriers

- Market
- Regulatory
- Customer Participation
- Infrastructure and Technology
- Operations and Settlements



SCE Comment:

Slides 18 and 19: These are not barriers to DR. Many of SCE's demand response programs have targeted customers willing to be interrupted during scarcity conditions in response for a fixed payment tied to the value of an avoided capacity purchase. SCE believes that the majority of such customers place significant value on the certainty of the participation payment they receive and have a relatively high "strike price" that is above CAISO bid caps. An attempt to shoehorn such customers into CAISO markets would risk having these customers drop out of SCE's demand response programs and require SCE to procure capacity from more expensive supply resources, in violation of Order 719's direction for equal treatment. SCE also has demand programs that have energy strike prices and have been coordinated with market prices. The CAISO needs to recognize that customers fit into different market niches and accommodate this diversity with a range of different approaches to demand response program integration. Labeling the preference for some customers to participate in capacity markets as a "barrier" simply because the CAISO does not have an organized capacity market is plainly wrong.



CPUC Comment:

Slide 19: The CPUC staff believes that the only barrier on this slide that is properly categorized as "poorly aligned with CAISO markets" is the issue of Emergency-Triggered DR (ETDR). ETDR programs are being addressed in the CPUC's DR Order instituting Rulemaking (R.07-01-041). The CPUC staff is aware of these arguments and will consider all parties input when making decisions on these matters.

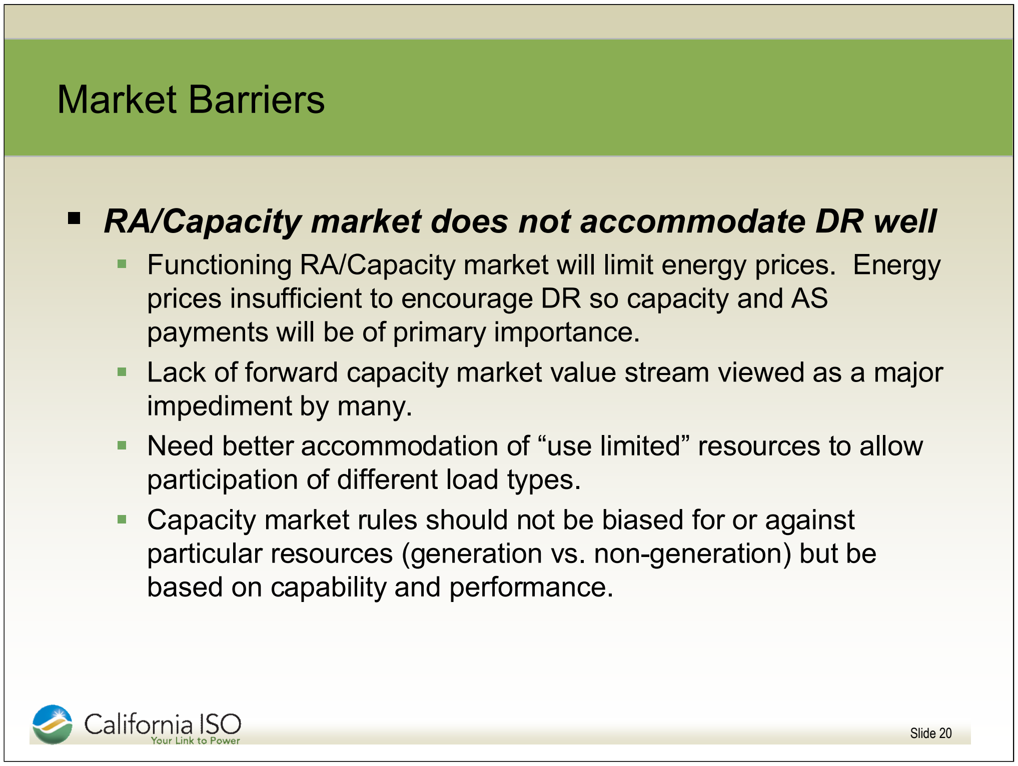
The CPUC staff is aware that other retail DR programs (economic, price-responsive programs that are not emergency-triggered) may not align well with CAISO markets at this time. The CPUC is, however, working with CAISO and other stakeholders to remedy such problems where appropriate.

More frequent calls may, in fact, lead customers to drop out of DR programs, but this problem is not an alignment problem. This is a "Customer Participation" issue.

If Curtailment Service Providers (CSPs) are permitted to bid DR directly into the CAISO market, then the IOU preferences for "triggers that are predictable and transparent to customers" should not present a barrier. A preference for these types of triggers might mean that IOUs would not operate as a CSP, but it should not prevent a third party from bidding directly into CAISO markets. Again, this is not an alignment barrier between the CPUC programs and CAISO markets, but simply a matter of what the IOUs like versus what could happen with CSPs.

SCE Comment:

See Slide 18:



CPUC Comment:

Slide 20: The first three arguments made on this slide are not specific to DR resources. These same statements can be made for traditional generating resources. For the fourth bullet point, the barrier is not clear. It seems to imply that capacity market rules that are based on capability and performance are somehow disadvantageous to DR. This issue should be better clarified.

PG&E Comment:

Slide 20**:** We disagree with the central point of this slide. In markets with functioning capacity markets, capacity revenues are the main form of wholesale market value for many types of DR.

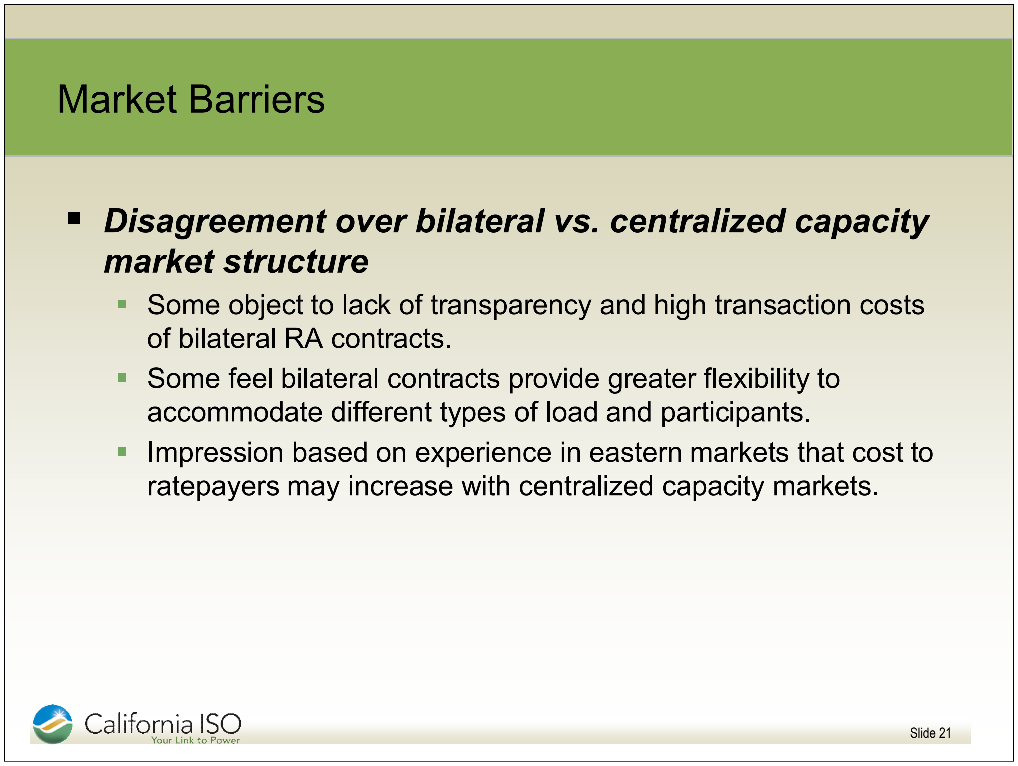
Is the point of this slide that the volatile energy prices associated with energy-only approaches to resource adequacy might elicit larger curtailments from price responsive demand?

Are the first two sub-bullets inconsistent? Any resource adequacy/capacity market blunts the necessary energy price signals but the absence of a clear capacity price signal is also limiting the development of DR.

Virtually all existing DR programs now count towards resource adequacy requirements. What better accommodation of use limited resources is necessary in the existing resource adequacy rules?

SCE Comment:

Slide 20: SCE agrees that lack of a forward capacity market is a barrier to accommodating some forms of demand response into CAISO markets. Currently, SCE uses a combustion turbine proxy resource as the basis for pricing capacity value when procuring demand response resources. The availability of a forward capacity price provides a market price signal, and may also encourage ESPs or CSPs to participate directly in CAISO markets.



CPUC Comment:

Slide 21: This slide does not clearly explain the nature of the perceived barrier. The arguments for the two options for a capacity market are well known, but the CPUC staff would like additional explanation regarding how either a bilateral capacity market or a centralized market may pose barriers to direct bid-in demand.

PG&E Comment:

Slide 21: It is unclear how this slide pertains to DR. Perhaps this can be removed as a barrier to DR.

SCE Comment:

Slide 21: This is not a barrier, but rather a difference of opinion that should not be included in the CAISO's DR Barriers report to FERC.

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Market Barriers

- ***Regulation and spinning reserve AS markets revenues are essential to DR but precluded by WECC rules***
  - AS markets particularly important source of revenue if energy prices are limited by RA market.
  - Many customers that cannot commit to one year or four month program could participate in AS markets on ad hoc basis.
  - DR infrastructure investments need certainty of a long-term revenue stream.
  - Requirements should be based on system needs and capability, not on resource type.

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Slide 22

CPUC Comment:

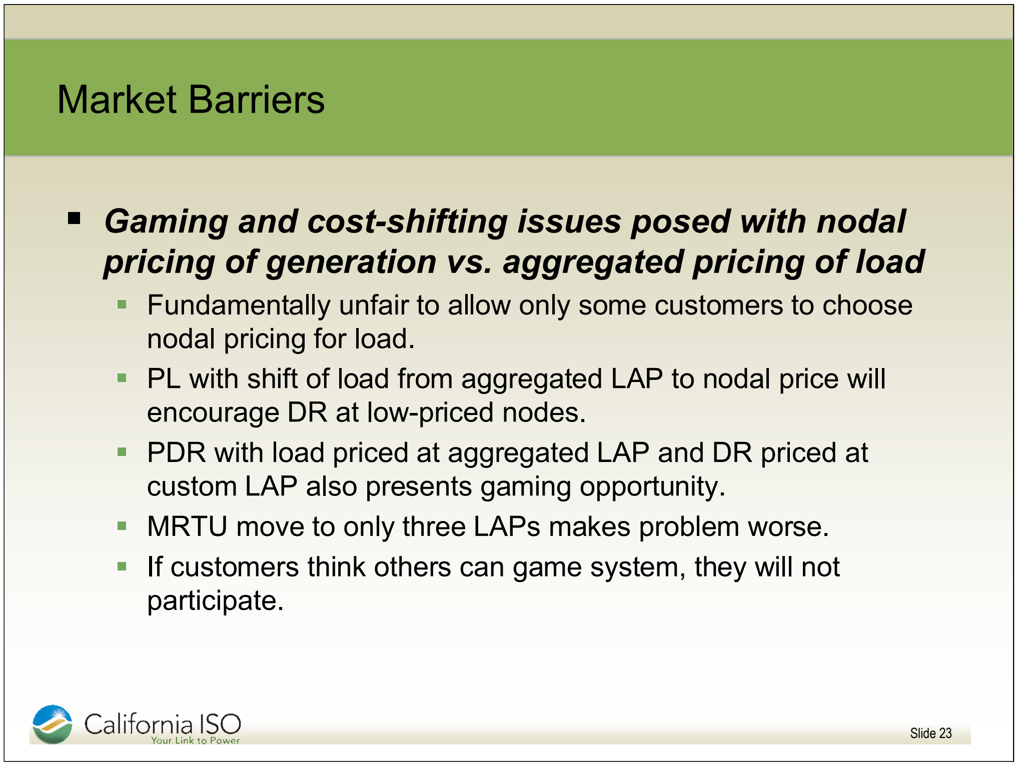
Slide 22: The CPUC staff agrees that AS markets may be an important revenue stream for DR resources. CPUC staff is concerned, however, that DR will face an additional barrier even if WECC allows DR to qualify for regulation and spinning reserves. Currently, because of WECC requirements, all CAISO AS products must respond within ten minutes. This short response time could prohibit DR resources from participating in CAISO's markets, as well as automatically disallowing residential customers who have hourly interval meters. This is a WECC imposed barrier and not necessarily a CAISO barrier. Therefore, CPUC staff believes that WECC should consider creating a thirty minute operating reserve product (similar to the product being used in Eastern Markets), which could increase the number of DR resources available to the CAISO. The CPUC staff understands the reliability concerns that WECC must balance when creating reliability standards, but CPUC staff believes that the existence of this product in Eastern Markets suggests that a thirty minute product may provide additional reliability resources.

CPower Comment:

Slide 22 – *Regulation and Spinning reserve Markets… precluded by WECC rules.* It is not clear to CPower why this is a barrier and not an issue. With the correct equipment and call ability, DR resources can meet the WECC requirements for reserves. This equipment may be expensive, but at the correct price signals this is not a barrier. ERCOT and other ISOs currently manage this.

SCE Comment:

Slide 22: SCE agrees that WECC and CAISO rules that preclude demand response providers from providing regulation and spinning and limit the opportunity to provide non-spinning reserve are a market barrier. However, SCE believes that provision of ancillary services by demand response providers is a "niche" market that is not likely to be significant in the near term. Few customers have energy management systems with the telemetry and control necessary to provide "shallow DR". SCE has programs in this area of customer response and believes that this could be a more important element of a demand response program as technology develops over time.



CPUC Comment:

Slide 23: The CPUC staff believes that gaming and cost shifting issues are two very different concerns, and that these issues should therefore be addressed separately. Both issues are matters that the CPUC takes very seriously, and CPUC staff works diligently to identify and remedy these problems. CPUC staff expects that the CAISO and the DMM is doing likewise.

The CPUC staff seeks additional clarity about the first bullet on this slide, which claims that some customers will not be able to choose nodal pricing. It is the CPUC staff's understanding that the CAISO envisions that CSP's would likely be permitted to enroll any customers that have or are willing to install any technology necessary to facilitate DR service. Therefore, all customers would have the opportunity to choose nodal, or at least CLAP, pricing for DR services. Additionally, the CPUC staff understands that DR services will be separated from load for settlement purposes.

The fourth bullet on this slide is unclear. It states "MRTU move to only three LAPs makes problem worse." It is unclear, however, which problem is being referenced.

The CPUC staff does not believe that some DR resources ability to game the system will necessarily prevent others from participating. Gaming will likely reduce participation only to the extent that one DR customer's gaming has negative impacts on another DR customer. Furthermore, it can argued that if one party is involved in gaming that leads to cost shifting, then other participants not only have to attempt to bid in their DR, but must also learn from the gaming of others to shift costs back off of themselves.

CPower Comment:

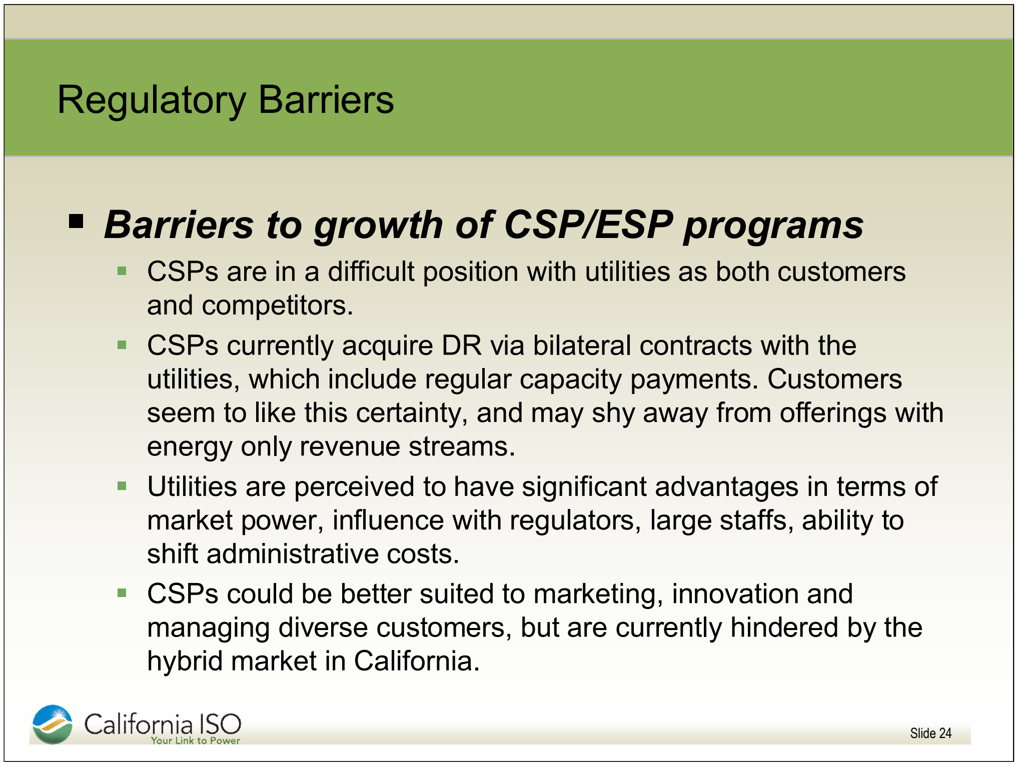
Slide 23 - *Gaming and cost-shifting issues posed with nodal pricing of generation vs. aggregated pricing of load*. Again, CAISO in common with all ISOs, has extensive market surveillance capability, and techniques exist to eliminate these concerns on the generation side, for instance in load pockets. CPower believes this to be an implementation issue and is overstated as a barrier.

EnerNOC Comment:

Slide 23: *Gaming and cost-shifting issues posed with nodal pricing of generation vs. aggregated pricing of load*. This appears to be more appropriate in response to the Proxy Demand Response (PDR) proposal than to this study, and the wording itself identifies this as an issue, not a barrier.

SCE Comment:

Slides 23 and 26: The issue of whether the price of power delivered to load should be nodally and hourly disaggregated is a challenging one. SCE would support a conclusion that the complexity of the existing market structure is a barrier to the timely integration of DR in CAISO markets. The advanced metering on all customers will not be available for many years. Nodal assignment of loads (which will necessarily be dynamic rather than static) presents new challenges for the utilities that will require significant time and expense.



AReM Comment:

Slide 24: This slide title says it identifies barriers to growth of the Curtailment Service Provider (CSP) and Electric Service Provider (ESP) programs, but the text says nothing about ESPs. The issues listed in bullets 1 and 4 also apply to ESPs and the report should make that clear. In addition, the report should note that the current suspension of the direct access market stymies the development of DR programs by ESPs, which is a significant DR barrier.

CPUC Comment:

Slide 24: The CPUC staff is concerned that CSPs and ESPs are presumed to be the same type of entity in this slide. This presumption raises significant concerns for the CPUC. The California's suspension of Direct Access under AB1X prohibits the ability of ESPs to serve new customers. The CPUC will likely soon consider whether CSPs would be providing a service that is distinct from that of an ESP with respect to the current bar on the expansion of Direct Access. The issue of whether an ESP could also act as a CSP has also not yet been addressed by the state. The distinction between an ESP and a CSP is a point that needs greater clarity. This is particularly important because the CPUC has not yet made a determination, pursuant to Order 719, if there are any state rules or regulations that prohibit DR's direct participation in the ISO's markets.

The CPUC staff agrees that CSPs would be in a very interesting position in California. Not only would they try to balance their role as a customer/competitor, they are also in a position to see how the IOUs are using DR resources while managing a DR portfolio of their own. This benefit would arise from potentially managing the IOUs aggregator-run contracts that are bid into in the CAISO market, allowing the CSP to strategically schedule their other resources.

The CPUC staff believes that some consumers will likely shy away from energy-only revenues. Those resources that are well suited to provide DR will likely see benefits of doing so, and will still attempt to participate in retail DR programs and/or direct bid-in. For example, the energy payments could provide monthly revenues similar to a monthly capacity payment when the customer responds, but offers no payment and requires no penalty for non-response. Under this payment mechanism, customers will be better off staying in DR programs and simply responding when they are able and willing.

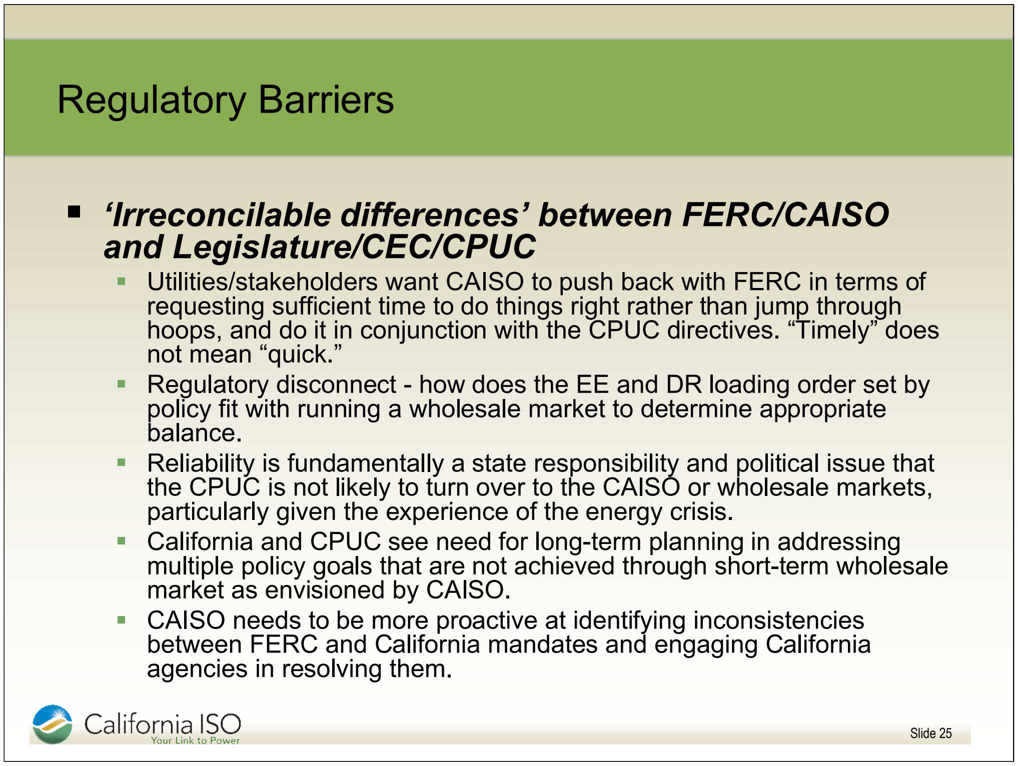
It is unclear to the CPUC staff how the hybrid market may hinder CSP growth and development. The California energy market is a hybrid in many ways. The specific "hybrid" attribute referred to is unclear. This bullet could be referring to either the difference between wholesale and retail pricing/rate making, or to a dual DR market comprised of CPUC funded IOU programs and non-CPUC funded CSPs. If the comment is addressing the difference between wholesale and retail pricing/rate making then the hybrid system can actually be used the advantage of the CSPs if CSP are selling DR into the CAISO market and being accepted primarily when prices are high (i.e., higher than the average cost pricing used for retail rates). If the concern is that CSPs cannot fairly compete with the IOUs ratepayer funded DR programs, then the concern could be better framed. This outcome is not inherent in the "hybrid market," but rather has come about through the historical development of CPUC DR programs over the years. As DR develops in both the wholesale and retail markets, the CPUC will continue to adjust its policy to attempt to maximize the benefits of DR resources. Stakeholders that feel this is a concern should provide greater detail about how the hybrid market is a barrier so that potential solutions may be analyzed.

PG&E Comment:

Slide 24**:** What is the concern in the second sub-bullet? What aspect of the current hybrid market structure prevents CSPs from offering customers a high fraction of remuneration through capacity payments?

SCE Comment:

Slide 24: SCE recognizes, but does not share, the CSP's viewpoint that they are both "customers and competitors" of the utilities. SCE views CSPs as business partners who can provide different and innovative demand response approaches and whose efforts help SCE achieve the goals of the "loading order". It is not appropriate to call problems with the CSP business model a DR barrier, however, since CSPs are only one of a number of structural forms in which DR can be provided competitively. (IOU delivery, direct load participation, and LSE participation are other structural forms.) Instead, the CAISO DR Barriers report should identify the underlying difficulties that CSPs face in making their business work as the barriers. This may include the lack of forward capacity markets and an inability to offer ancillary services.



CPUC Comment:

Slide 25: The CPUC and the CAISO must work together on numerous matters to allow both agencies to fulfill their goals effectively. Any differences that exist between the CPUC and FERC/CAISO are not irreconcilable. Currently, staff from both agencies work collaboratively and continue to resolve barriers to broader DR use and acceptance.

The CPUC staff agrees that “timely” does not necessarily mean “quick.” California has determined, through its Loading Order,[1] that DR is a very important resource. The CPUC staff is concerned, however, that forcing wholesale DR towards implementation by a set deadline could have inadvertent negative consequences. The CPUC staff does not want to have to completely rework direct wholesale DR participation shortly after its introduction or damage the public or political image of wholesale DR generally by creating a hastily-constructed mechanism.

The second bullet seems to imply that DR resources will not be able to compete with other resources in the CAISO market. EE and DR provide CAISO with numerous benefits, including smoother load profiles and reduced long-term load growth rates. The CPUC staff is unclear as to how EE policies create barriers to direct bid-in DR resources. Therefore, the CPUC staff seeks further clarity on this point. Furthermore, this bullet seems to imply that the CPUC is funding DR resources that will still not be able to compete with traditional generating resources. Therefore, the CPUC staff seeks further explanation on this point. Furthermore, the CPUC and CAISO continue to work together to find the proper balance of resources to fulfill California’s short and long-term energy needs.

Through tools such as LTPP and RA, the CPUC staff expects that effective long term planning will prevent most short term problems. Additionally, for the rare instances in which the CPUC’s procurement programs do not address short term grid operational needs, the CPUC support various CAISO backstop procurement mechanisms such as RCST, ICPM, and Exceptional Dispatch.

EnerNoc Comment:

Slide 25: ‘*Irreconcilable differences’ between FERC/CAISO and Legislature / CEC / CPUC.* The jurisdictional issues included are definitely challenges, but they don’t appear to be true barriers.

PG&E Comment:

Slide 25: The first bullet is particularly relevant to the issue of “time” as a barrier. This slide raises many important points, however; we do not believe that the issues are “irreconcilable.”

SCE Comment:

Slide 25: This is not a DR barrier.

CPower Comment:

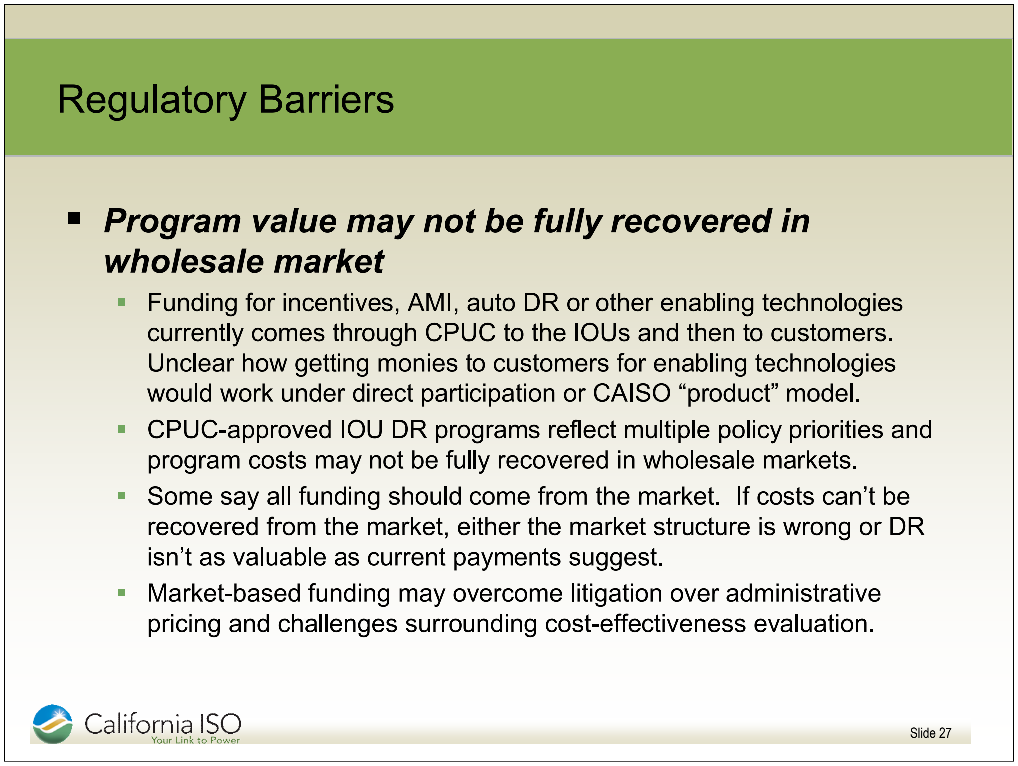
Slide 26: *Political resistance to reflecting dynamic or locational pricing in retail rates.* Since it is not a requirement to have dynamic pricing in retail rates for direct wholesale participation of demand response services (and DR may be viewed at the wholesale level simply as negative generation), this does not appear to be a barrier.

EnerNOC Comment:

Slide 26: *Political resistance to reflecting dynamic or locational pricing in retail rates.* Dynamic prices are not a requirement to have direct wholesale participation of demand response services, so this appears to be an issue rather than a barrier.

SCE Comment:

See Slide 23:

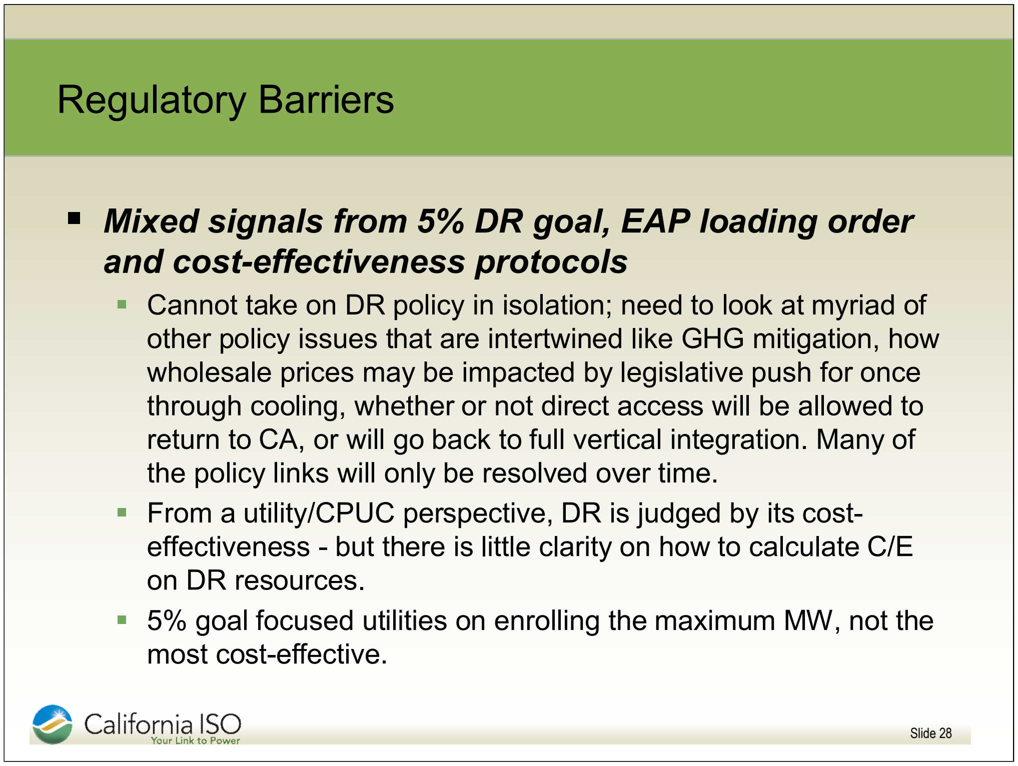


PG&E Comment:

Slide 27**:** PG&E agrees with the third sub-bullet. This point clearly reflects the spirit of our approach to cost-effectiveness.

SCE Comment:

Slide 27: The title of this slide doesn’t match the bullet points. Moreover, this is not a DR barrier. The CPUC has been very supportive of IOU efforts to promote enabling technologies; the apprehension that this support may disappear in the future is simply a concern.



CPUC Comment:

Slide 28: The CPUC is in the process of developing a DR Cost Effectiveness Protocol for CPUC authorized DR programs. Once this protocol is in place, the CPUC will be able to compare the cost effectiveness of various resources and authorize the best portfolio. The CPUC is attempting to achieve a delicate balance between creating a robust DR market and finding cost effective DR resources while the DR market is in its infancy. However, it should be noted that the California's Loading Order focuses on cost effective DR and price responsive."[

CPower Comment:

Slide 28: *Mixed signals from 5% DR goal, EAP loading order and cost-effectiveness protocols.* These are policy issues that can be resolved by the appropriate authorities, and so should not be a barrier to direct participation.

EnerNOC Comment:

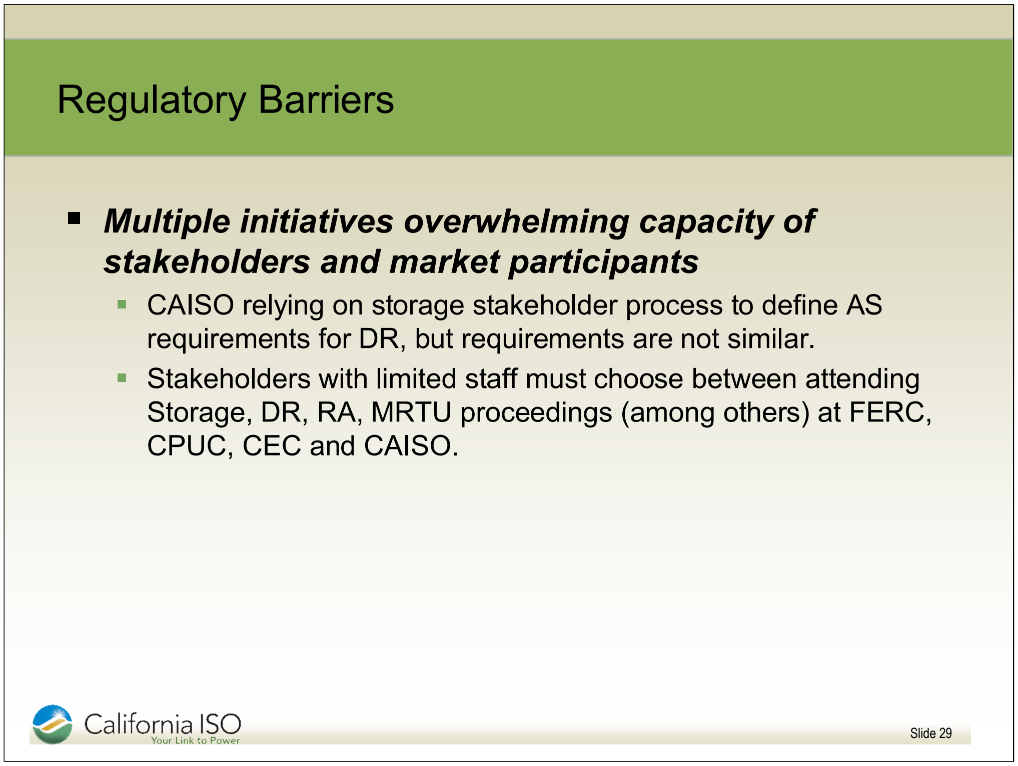
Slide 28: *Mixed signals from 5% DR goal, EAP loading order and cost-effectiveness protocols.* There are a number of policy issues that are unresolved, but this does not appear to be a barrier to direct participation.

PG&E Comment:

Slide 28: We disagree with the characterization in the last bullet that utilities ignore cost-effectiveness in the process of trying to meet their DR goals.

SCE Comment:

Slides 28, 29 and 36: These slides identify complaints, not barriers. The underlying barrier is the complexity of market structure and design, which makes it difficult to integrate DR into CAISO market operations. Ultimately, the implication of this complexity is that it takes substantial time to work through details.



CPower Comment:

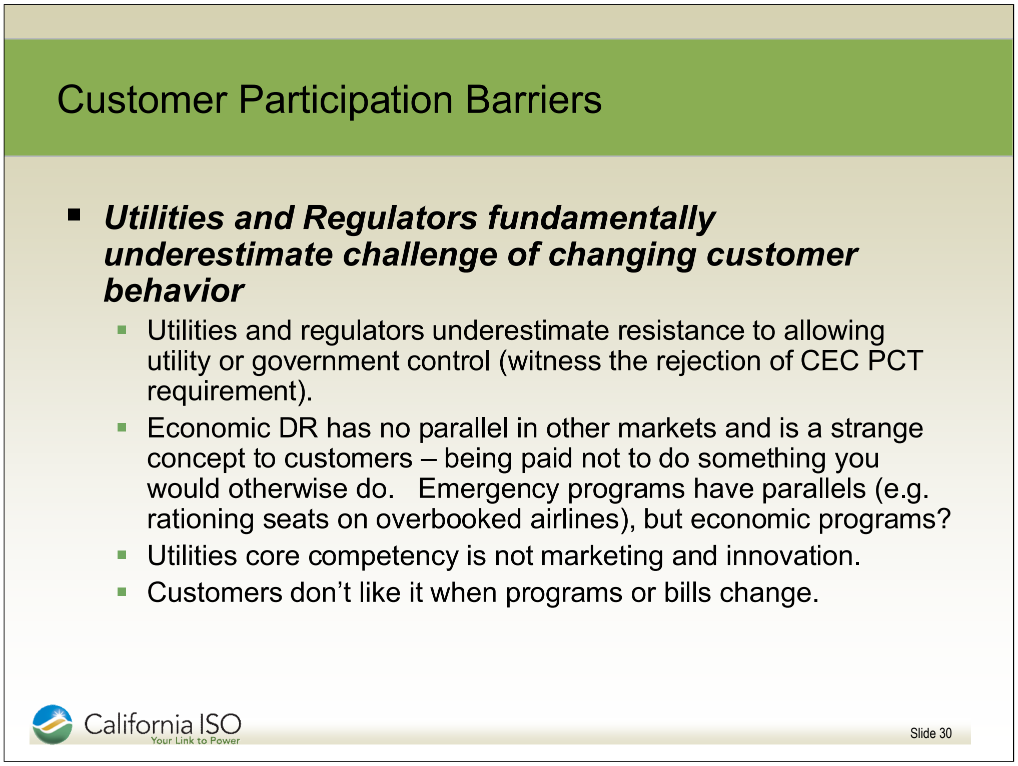
Slide 29: *Multiple initiatives overwhelming capacity of stakeholders and market participants.* It would seem that the stakeholders involved need to find a way to prevent this from becoming a barrier to direct participation at CAISO (and this is not something that would seem appropriate in a response to FERC).

EnerNOC Comment:

Slide 29: *Multiple initiatives overwhelming capacity of stakeholders and market participants.* It is true that stakeholders and market participants are pulled in multiple directions at any given time, and this is a challenge of participating in the California market but it should not be a barrier to direct participation at CAISO.

SCE Comment:

See Slide 28:



CPower Comment:

Slides 30 and 31: *Utilities and regulators fundamentally underestimate challenge of changing customer behavior. Complexity of market from customers' perspective.* It is the entire business model of CSPs to simplify and manage these challenges on behalf of the customers and other stakeholders, and so this is not a barrier.

EnerNOC Comment:

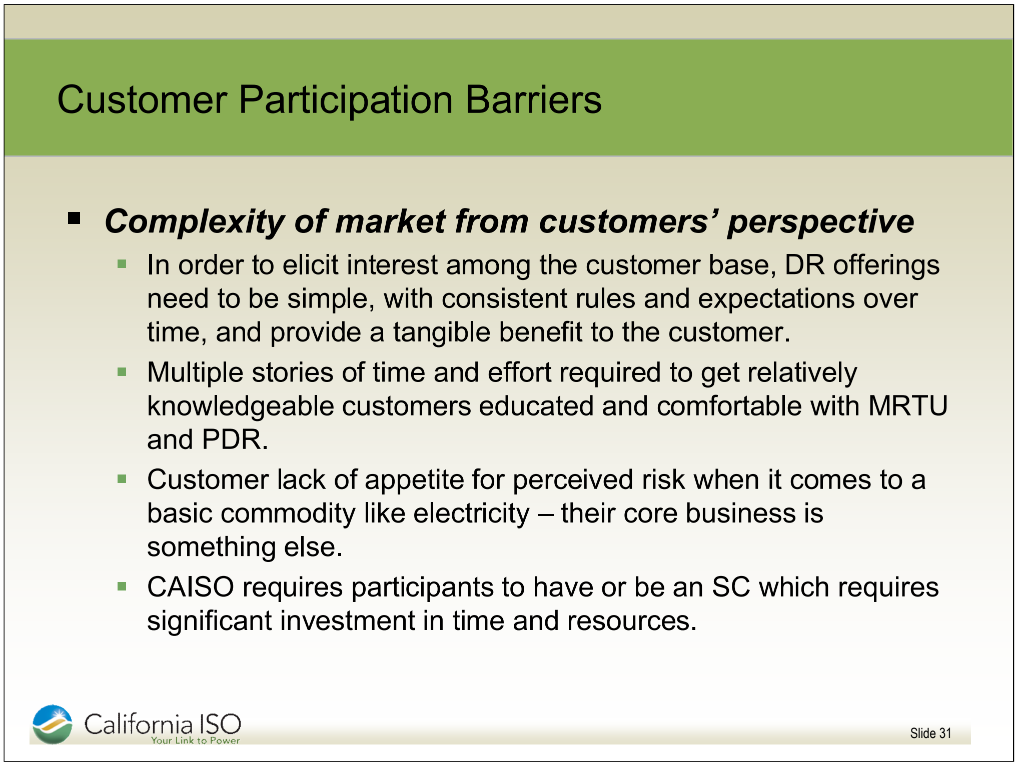
Slides 30 and 31: *Utilities and regulators fundamentally underestimate challenge of changing customer behavior. Complexity of market from customers' perspective.* Third-party DR providers make it their entire business to simplify the customers' participation in both retail DR programs and wholesale DR markets, so this is not a barrier.

PG&E Comment:

Slide 30: PG&E does not agree with the bullet: "Utilities core competency is not marketing and innovation." In addition, this slide states "Utilities and Regulators fundamentally underestimate challenge of changing customer behavior." Based on this phrasing we think that the CAISO should be included in this title as well.

SCE Comment:

Slides 30, 31 and 32: These are not barriers. If the CAISO uses any of this material in the DR Barriers report (which SCE doesn't support), then these slides need to be better focused to separate the issue of overcoming customer "inertia" (resistance to change) from the issue of customer reasons to not participate in demand response. The former is an issue that can be addressed through educational efforts, word of mouth, etc. SCE strongly disputes the suggestions on Slide 30 that we "underestimate these challenges" and are not competent in marketing DR programs. We very much appreciate the challenges of marketing DR and have one of the largest and most successful DR programs in the world.



CPUC Comment:

Slide 31: The CPUC recognizes the numerous concerns regarding customer education, and continues to fund programs aimed at overcoming these barriers.

CPower Comment:

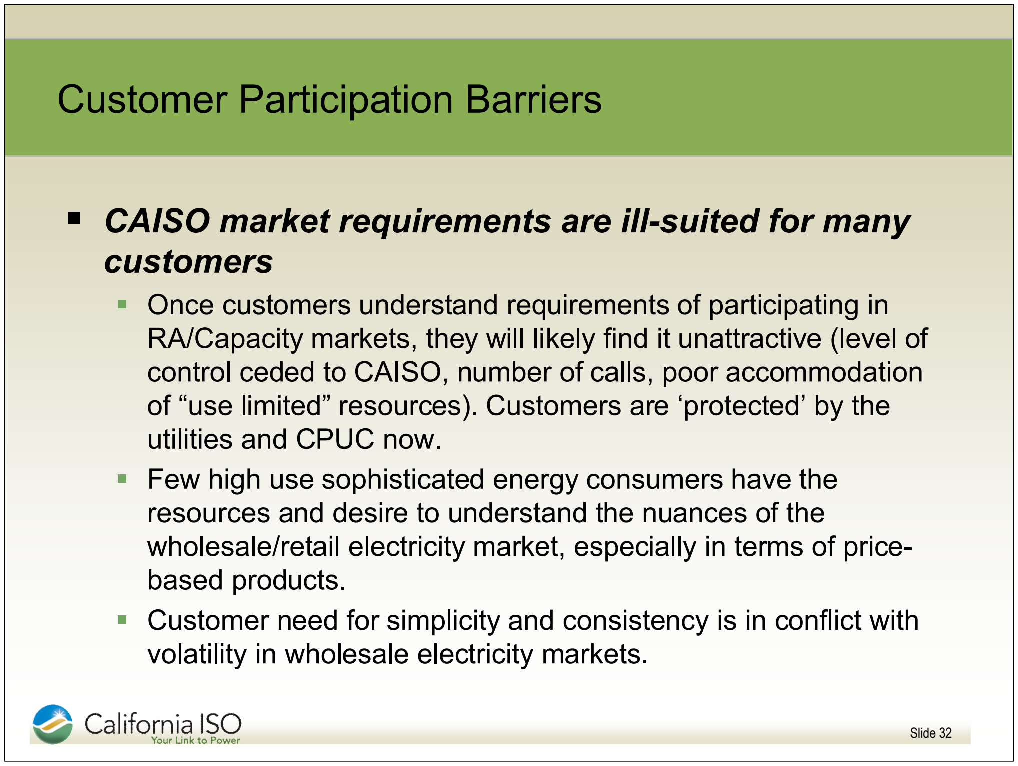
See Slide 30:

EnerNOC Comment:

See Slide 30:

SCE Comment:

See Slide 30:

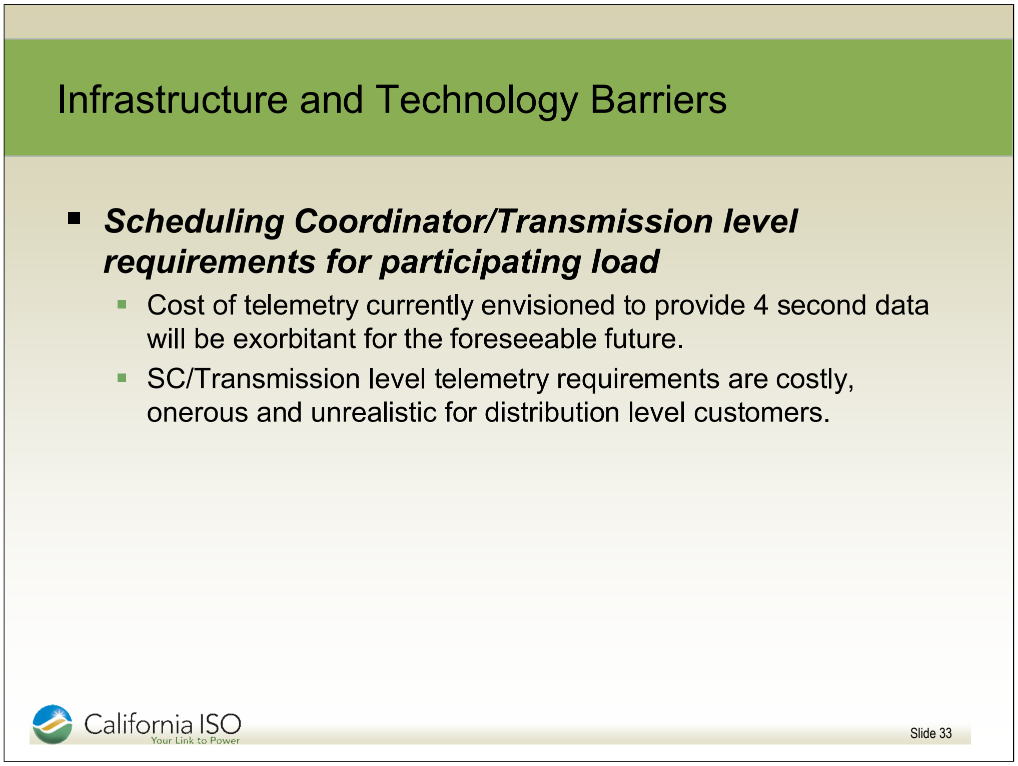


CPUC Comment:

Slide 32: The first bullet implies that complexities of participating in the RA/Capacity market will act as a deterrent to direct bid-in participation and that the CPUC and utilities ‘protect’ customers now. It is unclear what actions towards protection of consumers by the CPUC and utilities may create barriers to direct participation. The CPUC staff understands that protections such as use-limits and the number of times a unit can be called in a given period will still be honored by CAISO, and that the “protections” attributed to the CPUC and utilities in this bullet will continue to be honored by CAISO. Though few customers may have the sophistication to understand the nuances of the wholesale and retail electricity markets, the CPUC staff anticipates that they will not need to. CPUC staff believes that only end use customers that wish to be their own SC will have to understand the details of the wholesale and retail electricity markets. Most end use customers will simply have to understand the terms of payment and performance obligations detailed in the contract with a CSP. This appears to be an area of for great value to be added by aggregators. CPUC staff believes the items on this slide can be equally viewed as both a hurdle and an opportunity.

SCE Comment:

See Slide 30:

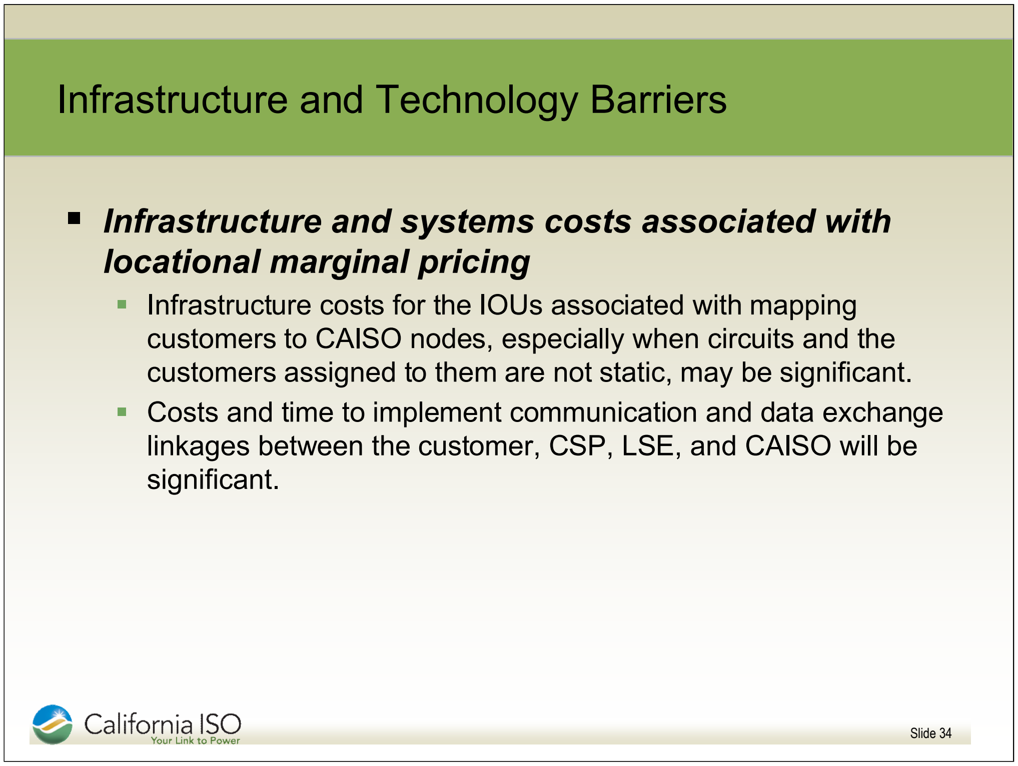


AReM Comment:

Slide 33: The current CAISO DR rules were developed for customers connected at transmission-level voltages. The report should state that these rules should be re-evaluated and revised to address customer participation primarily at distribution-level voltages.

SCE Comment:

Slides 33, 34 and 35: Cost and technological limits (such as telemetry requirements and the lack of smart appliances) are not barriers, but rather realities in which demand response programs must operate. If telemetry requirements are unnecessary, then imposing them on demand response participants could be seen as a barrier even if generation resources are treated comparably. However, reasonable but costly infrastructure and systems costs simply raise the issue of whether specific types of demand response are cost effective.



CPUC Comment:

Slide 34: Are the infrastructure costs associated with mapping customers restricted to IOUs? Will CSP's face similar challenges as they gain and lose customers? Though creating the necessary data and communication links will take time, the CPUC staff expects that the Participating Load Pilot, which is scheduled to commence in the summer of 2009, will help the CAISO and market participants to develop this infrastructure.

EnerNOC Comment:

Slide 34: *Infrastructure and systems costs associated with locational marginal pricing.* It is EnerNOC's understanding that the IOUs are required to map customers to CAISO nodes as part of LMP implementation under MRTU, so this appears to be an argument against LMP rather than a barrier to direct participation.

SCE Comment:

See Slide 33

Infrastructure and Technology Barriers

- ***Limitations of AMI***
  - Standard for WECC / CA ISO telemetry is not met by AMI systems which record data on an hourly interval for residential customers.
  - To make AMI more DR enabling, one needs smart appliances; those are slow to roll into the market through appliance replacements, so that will be a longer term consideration.

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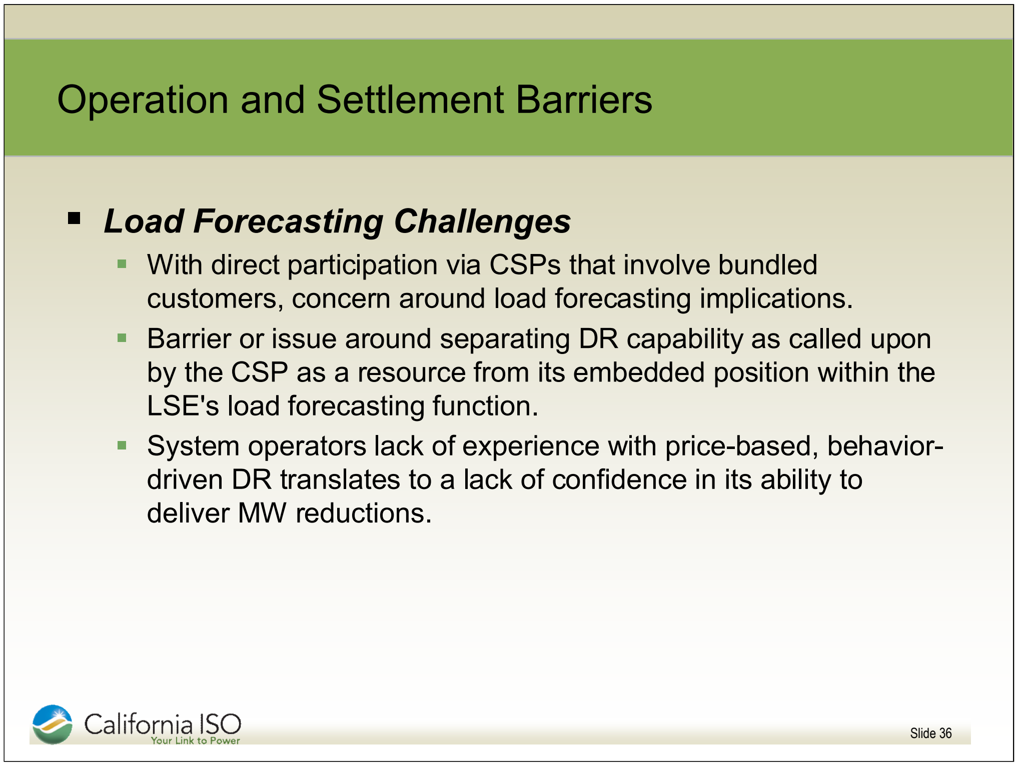
Slide 35

SCE Comment:

See Slide 33



EnerNOC Comment:

Slide 36: *Load Forecasting Challenges.* Separation of DR from load could be a challenge, but if the IOUs do the load forecast based on contracted MWs for CSPs, and CSPs do the demand reductions, this doesn't appear to be a barrier.

PG&E Comment:

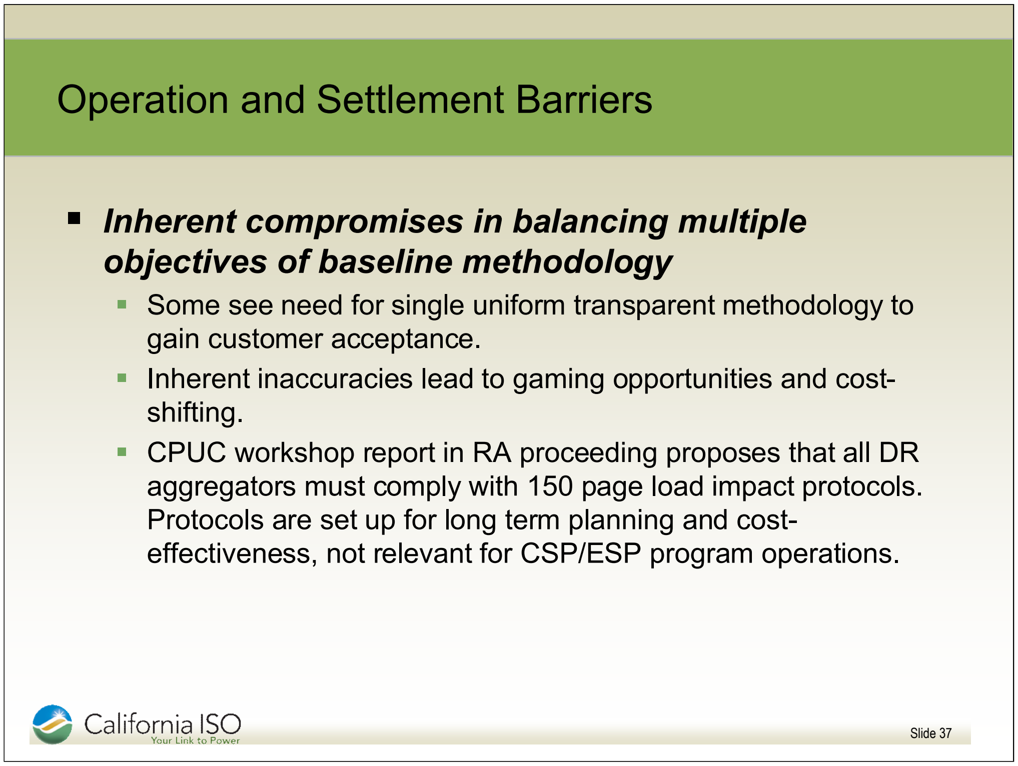
Slide 36: This slide says: "System operators lack experience with price-based, behavior-driven DR translates to a lack of confidence in its ability to deliver MW reductions." This is an important issue that will require time and effort to resolve.

SCE Comment:

See Slide 28:

SCE Comment:

Slide 36: SCE agrees that issues regarding how to separate demand response from the associated load has been a barrier, or at least an impediment, to the development of a direct participation demand response framework. If the demand response is required to accompany load then participation is limited to Load Serving Entities, and moreover the demand response is limited to the capability of serving one's own load. For example, if the DR and Load are inseparable parts then a LSE can offer a demand response program to customers whose native load is also served by the LSE. A LSE whose existing demand response programs that cross LSE boundaries, specifically retail participants that receive benefits from a CSP and receive their load service from a different entity that is their LSE, is not able to participate in the wholesale market directly. The LSE is able to participate in the wholesale market with retail participants who receive both their CSP and LSE services from them, the same entity. But, where the LSE is serving only the function of CSP, those retail participants can only be served if the participation can be separated. The separation of DR and Load as modeled CAISO's PDR solves FERC's interest in providing direct participation for demand response in wholesale markets. The PDR model proposed by the CAISO attempts to resolve the principal barrier of a LSE serving DR, as a CSP, that belongs to another LSE. In other words, the PDR allows the CSP to serve DR independently of the LSE and participate directly with CAISO wholesale markets. That barrier between a CSP and DR when the DR belongs to another LSE is significant and makes the separation of demand response capability from the load consumption necessary. The final bullet point on this slide is a concern, not a barrier.



AReM Comment:

Slide 37: The discussion about the proposed requirement that ESPs/CSPs meet IOU cost-effectiveness rules (in CPUC Proceeding R.08-01-025) should be deleted from this section ("Operation and Settlement Barriers") and moved to "Regulatory Barriers," which discusses the cost-effectiveness requirements (see Slide 28).

CPUC Comment:

Slide 37: The CPUC staff believes that any DR resource that wishes to receive a capacity payment must adhere to the Load Impact Protocols. The load impact protocols are the only way the CPUC is able to verify the load reduction capabilities of a DR resource. However, the CPUC staff is unclear how adherence to the Load Impact Protocols creates a barrier to direct bid-in demand.

CPower Comment:

Slide 37: *Inherent compromises in balancing multiple objectives of baseline methodology.* This is an issue inherent in all DR programs, both as managed by utilities and in IOU programs nationwide. There has been, and continues to be progress toward a common framework to form the foundation for any particular implementation. Again, CPower considers this overstated as a "barrier".

EnerNOC Comment:

Slide 37: *Inherent compromises in balancing multiple objectives of baseline methodology.* EnerNOC is an active participant in baseline discussions and proceedings in California and will attest that developing a standard baseline methodology is challenging, but we do not perceive this to be a barrier to direct participation. The aggressive timing CAISO is proposing for baseline development may be a barrier. However, EnerNOC is committed to work with CAISO and the stakeholders in developing a baseline methodology to meet a May 2010 implementation target.

SCE Comment:

Slide 37: These are concerns about how measurement is performed, not DR barriers.

Wrap Up and Next Steps

- Review overall presentation findings
- Solicit additional over-arching comments
- Review schedule for comments to be submitted by Apr 17
- We will work to incorporate comments into the final study that will be filed with FERC on Apr 28

Feedback and Comments:

Please submit feedback and comments to:

John Goodin

jgoodin@caiso.com

by

April 17, 2009

Thank You!

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Slide 39

APPENDIX D: WEBINAR PARTICIPANT LIST

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Conference ID #:	992119
Company Name:	CALIFORNIA ISO
Host's Name:	THOMAS CUCCIA
Name of Conference:	DEMAND RESPONSE
Date of Conference:	WEDNESDAY, APRIL 08, 2009 1:00PM PACIFIC

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7.	COOK, GREG	CALIFORNIA ISO
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12.	ELLIS, JACK	RESERO CONSULTING
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15.	GRAMMER, ELISA	GRAMMER KEISSEL
16.	GREENLEE, STEVEN	CALIFORNIA ISO
17.	GROTTA, GILBERT	CALIFORNIA ISO
18.	GUY, AMY	E3 415 391-6500
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20.	HIRTH, SCOTT	SOUTHERN CALIFORNIA EDISON
21.	HOBBS, BEN	CALIFORNIA ISO
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24.	KOTT, ROBERT	CALIFORNIA ISO
25.	KRUTH, MAURY	FERC 916 294-0275
26.	LEE, KENNY	CALIFORNIA ISO
27.	MARA, SUE	RTO ADVISORS
28.	MARONE, JOE	SOUTHERN CALIFORNIA EDISON
29.	MEEUSEN, CARL	CPUC 415 703-1567
30.	METTLING, RICH	BLUEPOINT ENERGY
31.	MILLER, MARGARET	CALIFORNIA ISO
32.	NELSON, MICHAEL	MCCARTHY & BERLIN
33.	NICHOLSON, RANDY	SAN DIEGO GAS & ELECTRIC

34. RAFAEL, CHRIS — CALIFORNIA ENERGY MARKETS
35. REED, DAVID — SOUTHERN CALIFORNIA EDISON
36. REXROADE, KAREN — CUSTOMIZE ENERGY SOLUTIONS
37. REXRODE, KAREN — CUSTOMIZE ENERGY SOLUTIONS
38. ROCHLIN, CLIFF — SOUTHERN CA GAS COMPANY
39. SARROKHPAY, SAEED — FERC 916 294-0322
40. SCHNEIDER, SUSAN — PHOENIX CONSULTING
41. STOWE, DERICK — PACIFIC GAS & ELECTRIC
42. TIERNEY-LLOYD, MONA — ENERNOC 805 995-1618
43. TOCA, CHARLES — UTILITY SAVING
44. TONG, JIE — CALIFORNIA ISO
45. VAWTER, VONDA — CORPORATE SYSTEMS ENGINEERING
46. VILLARREAL, CHRIS — CALIFORNIA PUC
47. WOLAK, FRANK — MARKET SURVEILLANCE
48. WOOD, KEVIN — SOUTHERN CALIFORNIA EDISON
49. WYNNE, JUSTIN — CALIFORNIA MUNICIPAL UTILITIES
50. WYNNE, MICHELE — GRID SERVICES
51. XIE, JUNE — CALIFORNIA ISO
52. ZHANG, XIAO — PACIFIC GAS & ELECTRIC

APPENDIX E: STAKEHOLDER GENERAL COMMENTS SUBMITTED POST WEBINAR

Alliance for Retail Energy Markets (AReM) Comments

1. Use of Term "Hybrid Market" — This term has been used commonly in California to describe the current generation market, in which utilities may build and own their own resources in competition with independent power producers. You use the term differently. To avoid confusion, we suggest that you use a different term to explain the demand response market in CA.

2. Administrative Rule Requiring One Scheduling Coordinator/Meter — This CAISO rule is a barrier to direct participation by DR providers and customers. This rule should be mentioned under "Operation and Settlement Barriers."

3. Need to Provide Information on Proposed Solutions and Timetable for Implementation — The April 8 presentation was basically a laundry list of issues/barriers affecting DR in California. We have no information on which of these issues/barriers the CAISO believes to be most critical, nor on the CAISO's proposed solutions and timetable, as required by FERC Order 719. AReM is concerned that the CAISO plans to move forward with its filing to FERC without effective stakeholder review or engagement on these issues.

Blue Point Energy LLC Comments

BluePoint Energy, LLC is a DR Aggregator in California. Its business is the control and maintenance of demand side resources. In light of our experience in California BPE is concerned with four barriers to larger DR participation.

1. Restricted CAISO market participation for Utility DR Program participants.
2. Appropriate DR A/S market products.
3. Registration and credit requirements.
4. Resource aggregations.

If these barriers were lowered more DR projects could be justified in California.

Description of Barriers

Restricted CAISO market participation for Utility DR Program participants.

Utility and CAISO programs are in conflict. Utility DR Programs are the best source of Capacity Revenue for DR resources, but once committed to a Utility DR program; participation in CAISO A/S and Energy markets requires CPUC approval. This situation limits DR market access for Non-Spin and energy and limits participation of dispatchable demand resources. It seems only reasonable that a resource be allowed free access to A/S and load markets when DR programs have not been triggered. The additional revenue would incent more resources and enable expansion of DR.

Appropriate DR A/S Market Products.

Current A/S products work well for generation but is not tailored to the demand side. .ERCOT currently purchases **Responsive Reserves** which may be actuated by under frequency relay or proportional response to frequency. These ancillary services are very compatible with DR and deserve consideration. Similar frequency response services haves been discussed in WECC for generation but have not been implemented. Implementation of a market for such a service, with DR resources in mind could provide additional and very beneficial reliability resources and additional revenue incentives for DR.

Registration and Credit Requirements.

More liberal credit requirements and registration procedures should be required of Curtailment Service Providers (CSPs). ISONE, NYISO and PJM all provide unique registration processes for CSPs.

Small Resource Aggregations.

Bidding and scheduling along with telemetry could be simplified if Curtailment Service Providers could **aggregate resources by load pocket.** With sub megawatt resources the cost of each installation is quite important and aggregations have the potential of lowering costs and encouraging market entry.

California Department of Water Comments

To comply with FERC Order 719, CAISO hired consultants to aid in developing a Demand Response Barriers Study (DRBS). As part of this study various CAISO Market Participants (MP), including CDWR-SWP, were solicited for comment regarding their organizations view on market or technical barriers to participation in Demand Response programs within California. As a follow-up to this solicitation, CAISO held a conference call on April 8, 2009 to review MP comments and a list of barriers to be included in the DRBS. Unfortunately, the list of barriers presented did not contain all of the concerns provided by CDWR-SWP during the process. The explanation for this exclusion by CAISO and their consultants was that unless a position or barrier to demand response is voiced by more than one MP or group, it would not be included in the DRBS due to be submitted to FERC on April 28, 2009.

CDWR-SWP feels the DRBS would be incomplete without the inclusion of specific concerns especially since, through CAISO's Participating Load program, CDWR-SWP is the largest individual Demand Response (DR) provider in California. Within the five categories of barriers listed during the April 8 conference call, CDWR-SWP reiterates the following concerns as barriers to demand response,

1. Market Barriers
    a. DR participation not being on a voluntary basis (per FERC Order 719).
    b. Lack of competitive Market products such as Voltage Support, RAS, Under Frequency Load Shedding (UFLS) that all MP can provide.

2. Regulatory Barriers

a. Lack of Time of Use (TOU) pricing.
b. Participating Load Agreement (PLA) is not insulated from constant changes in Tariff, BPM, and/or Operating procedures.
c. When BPM, Operating Procedures, and computer applications are not in line with approved tariff. (Repeated below in 5.)
d. Lack of appropriate treatment for DR as load or generator, with respective service, costs, or payment. When load has chosen not to provide DR it is not being treated as firm load. DR is being charged firm load costs when receiving lesser quality service, i.e. interruptible. When load is providing DR, pay is not comparable to generators.

3. Customer Participation Barriers (no additional comment)

4. Infrastructure and Technology Barriers (no additional comment)

5. Operations and Settlements Barriers
    a. BPM, Operating Procedures, and computer applications not being in line with approved tariff.
    b. Settlement mechanisms addressing concerns of high LMP customers hide price signals.
    c. Settlement rules/systems that cause unfair cost socialization and do not follow cost causation principles.

CPUC General Comments

The CPUC staff appreciates the opportunity to review the input stakeholders have provided to FSC and E3 regarding the potential barriers to direct bid-in of California retail customers into CAISO's markets as DR. The CPUC staff understands that the responses provided in the April 8th, 2009 presentation are those of market participants and do not necessarily reflect the views of CAISO. With that in mind, the CPUC staff will limit its comments to matters where 1) there appears be a lack of clarity in the response as presented by FSC and E3, 2) there appears to be a misunderstanding by the stakeholder, 3) the CPUC staff either views the barrier differently or as not a barrier at all, 4) the CPUC staff comments may be able to add clarity, or 5) a barrier is not addressed.

CPower General Comments

CPower, Inc. ("CPower") is pleased to provide comments on the **California Background and Demand Response Barriers** presentation, dated April 8, 2009 ("DR Barrier Study").

Before moving to direct comments, CPower would like to commend CAISO on their effort to comply with the FERC Order 719 directive and to capture in a succinct and easy-to-understand form the issues and barriers preventing greater demand response participation in the CAISO markets. CPower appreciates the collaborative approach taken by CAISO to incorporate stakeholders' perceived barriers to direct participation, and we intend to continue to work with CAISO as this initiative moves ahead.

<u>Overarching Comment</u>
CPower would like to note that the sheer quantity of issues and barriers identified on the slides might lead a reader to conclude that progress to a properly demand-responsive market in California is either impossible or will take many years to implement. While all of the information is valuable and requires consideration, CPower believes that many items identified as “barriers” are in fact issues that can be readily overcome, or are currently managed in other organized markets or by standard CSP business practices. CPower has identified some specific items later in this response.

<u>Barriers That Are Not Included</u>
CPower believes that there are two major barriers that have not been included or are not called out (and so can be dealt with) in a sufficiently isolated way.
The first is that in an energy market, where the only reward for load curtailment is the avoided cost of energy at that moment, significantly undervalues the service provided and will never create any meaningful participation except in situations of extreme energy costs. This issue is identified in various forms and in various places (bullet 3 on slide 18 and bullet 3 on slide 19, slide 20 etc.), but CPower believes it is of sufficient importance that it requires a separate section. An energy-only compensation approach would lose the significant benefit of generally reduced energy prices to all electricity consumers in the state if the true value of demand response is not included in the rewards for demand-side participation at the wholesale level. This value includes the avoided capacity costs of replacement generation. This is recognized by many of the current programs in the state operated by the utilities, but even here, as Slide 12 shows, DR value is generally far below replacement capacity cost. Underpayment for provided service will be the primary barrier to further DR participation, and CPower does not believe that the current wholesale market design must preclude full compensation.

The second major barrier that CPower believes is not adequately addressed is direct discussion of the barriers to meeting the requirement (shown in item 5 on Slide 2, FERC order 719) which states “Permit a DR aggregator to bid demand response on behalf of retail customers directly into the organized energy market”. The primary barrier here, and as shown on slides 9 and 10, is the difficulty of the scheduling, settlements and cash flows created by the overly complex hierarchy that exists in the management of electricity supply in the state. In other states, the ISOs manage, at little additional expense, to enable a more uniform treatment of LSEs and CSPs which flattens and simplifies this structure and eliminates many of the problems. In California, CSPs are essentially denied access to direct DR participation in the wholesale markets by the current market structure. Again, while several slides allude to this item, CPower believes that the barriers to meeting this FERC requirement should be addressed directly.

EnerNOC General Comments

EnerNOC supports CAISO's efforts to comply with the FERC Order 719 directive to "study and report on whether further reforms are necessary to eliminate barriers to demand response in organized markets." EnerNOC appreciates the collaborative approach taken by the CAISO to incorporate stakeholders' perceived barriers to direct participation in organized markets, and we intend to continue to work closely with CAISO staff and stakeholders to ensure that CAISO rules provide for Curtailment Service Providers (CSPs) to participate directly in CAISO's wholesale markets.

While EnerNOC understands the timing and resource constraints that require stakeholders to comment on the April 8 presentation rather than the study itself, it should be noted that this is more challenging and may not entirely capture the spirit and tone of the final study. For example, by trying to capture stakeholder feedback in bullet form, many of the perceived "barriers" sound overwhelming and insurmountable, and EnerNOC does not believe it is the intention of the CAISO or its consultants to portray the challenges to direct participation as insurmountable obstacles but rather as barriers that can be eliminated, in many cases, through existing CAISO initiatives.

Barriers That Are Not Included

EnerNOC has identified some barriers to direct participation that do not appear to be reflected in the presentation. Perhaps the most significant barrier is not included because it is obvious, but it should be included. CSPs cannot currently participate in CAISO markets. EnerNOC is actively participating in the stakeholder working group to identify issues associated with implementing Proxy Demand Response (PDR), which would allow CSPs to bid directly into CAISO energy markets, but CSPs are currently not allowed to participate in these markets. The DR Barrier Study should expressly call this out as a barrier.

Another barrier that is not directly included in Slide 36, *Operation and Settlement Barriers,* is a direct consequence of the current PDR proposal, and EnerNOC will be highlighting this concern in its comments on the recently-released Draft Final Proposal on PDR. However, since PDR is being proposed as the vehicle for DR to directly participate in CAISO markets, it is appropriate to highlight this barrier here as well. Under the PDR proposal, the LSE's day-ahead schedule will be adjusted to reflect DR bids in both the Day-Ahead and Real Time markets. There will not be uninstructed deviation charges that CAISO will owe to the LSE. However, it is understood that there will be a need for the LSE and the CSP to settle outside of the CAISO process for something equivalent to uninstructed deviations. EnerNOC has raised the concern about a lack of transparency into the secondary settlement since it will occur in the context of a bilateral arrangement between the CSP and the LSE and outside of organized markets. This secondary settlement could eliminate any economic opportunity for direct participation of CSPs, require separate and potentially very dissimilar bilateral negotiations with each LSE and, thus, has the potential to be a significant barrier.

One additional barrier should be included in either slide 33 or 35, “Infrastructure and Technology Barriers.” The WECC telemetry requirements are a real barrier, but the requirement to have only one Scheduling Coordinator (SC) per meter is also a significant barrier to direct participation as it prohibits service from an LSE and a different CSP to the same customer.

Issues Improperly Defined as Barriers
It would be helpful if there was more clarification around how the study defines “issues” and “barriers.” EnerNOC believes that a number of the barriers identified in the presentation are more appropriately classified as issues or challenges rather than barriers to direct participation.

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April 17, 2009

John Goodin
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Regulatory & Policy Department
California ISO
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Subject: Response to Demand Response Barriers Study Conference Call

Thank you for the opportunity to comment on the information provided during the subject conference call. Grid Services, Inc. (GSI) began our involvement in Demand Management (DM) program during the run up to opening the CAISO. We were active participants in the process of developing protocols to allow loads to participate in the CAISO market. We were also active in the design of and participation in the Demand Response Program launched by the CAISO to meet energy shortfalls projected for the summer of 2000.

We applaud the decision to involve general stakeholders in the process. We are pleased with the breadth of material covered and the number of barriers identified.

We are disappointed with the decision to include only barriers identified by two interviewees. This decision puts into question compliance with the stated objective to "Insure minority views are represented and clearly identified." GSI suggests providing a list of all responses in the appendix.

The balance of the document presents a summary of our belief that the centralized electricity market model presents a barrier to the deployment of demand programs. This is followed by a short comment on each of the barriers presented during the conference call.

Centralized Electricity Markets as Barrier to Demand Programs

GSI believes that the centralized market form, structure and operation are perhaps the single largest barrier to Demand participation in the wholesale market. First, the focus on price optimization in a 10 minute window constrains all but the most flexible thermal unit. Second, the burden of participation (fees, credit, infrastructure, payment timeline) limits access to grid information on a timely basis. Third, the lack of market transparency including timely pre-operating period congestion information means that customers lack the ability to avoid congestion pricing.

The first step is to make more ISO data available to non-participants. For example, today the new LMP OASIS does not produce any data when queried. The old OASIS site has no data past March 31. The old OASIS data provides demand data by IOU. No data is available by either takeout point or congestion node. This significantly hampers the development of DM programs that might warn customers of impending price increases.

To clarify, let me provide and example of a central grid operator with greater transparency. Transpower is the “ISO” for the New Zealand deregulated market. On their website, they post the demand in MW for each of their load zones every 5 minutes. There is only a few minute delay from the close of the operating period and the posting of the flows. (See http://www.systemoperator.co.nz/n1944,download=true.html.) If additional granularity is required, the Electricity Commission will send you a DVD each month with 30 minute load data for each of 200+ GXP or Take-out Points. This information is used by an none market participant to forecast possible congestion and trigger DM programs that avoid congestion pricing.

A second step is to create a new class of participant with less onerous participation requirements that can accommodate entities that do not need the full range of market opportunities, scheduling and settlement processes that a Scheduling Coordinators enjoy.

Market Barriers

Existing IOU Programs. We agree. Our experience has been that a well thought out program that recognizes and accommodates customer concerns and issues could be successfully marketed to IOU customers.

Poor Alignment with CAISO markets. We agree. The CAISO market has a very short term horizon (10 minutes) and assumes that all participants will be in the market and willing to be dispatched. DM in the wholesale market is a reserve product that frees generation to participate in the market and delays the introduction of additional generation that would have marginal utilization. Increased ISO transparency that would allow DM participants to forecast ISO calls can increase the predictability customers require.

RA/Capacity market not well suited. We agree. The lack of a multi-year power purchase agreement structure hinders both generation development and DM. One solution is for the CAISO to return responsibility for short and long term procurement to the LSE, following the protocols of non centralize market grid operators and focus on only procuring load following services and managing reliability.

Centralized vs bilateral capacity market. We prefer bilateral markets because they allow for customized products that meet the unique requirements of each party. And they allow the flexibility to incorporate new ideas and strategies as they develop. We believe the Eastern market favor the generator. PJM was originally developed by State regulators with the capacity requirement introduced to compensate IOUs for generation that have above market costs under the PJM Pool system. The LSE pays an implicit capacity payment for Firm generation and then a second for the mandated Capacity.

WECC regulation and spinning AS Markets. We agree. FERC should direct NERC to review their rules to clarify the requirements for each service but not dictate how those requirements are met.

Gaming and Cost-Shifting. We agree. We cannot change to a more equitable process without data transparency and the time to execute strategies that minimize congestion and their related costs. The CAISO should publish all the historic and real time flow data and customer pricing for each of the LMP node points. Let the stakeholders find ways of profitably avoiding LMP in high-risk areas. Set a date in the future when load will be exposed by node and allow the local regulatory authorities decide how to allocate the costs.

Regulatory Barriers

CSP/ESP Programs. We agree. A solution is to make DM subsidies and revenues separate from the utilities. This is a State issue. The CAISO should create a less expense, non-SC centric process for compensating CSP/ESP for DM programs. The process should be a supplier settlement system separate from the load settlement process.

Grid Services, Inc.

FERC/CAISO vs CEC/CPUC. We agree. The FERC/CAISO is mindset is supplyside focused, dispatchable thermal generator mindset. The CEC/CPUC mindset is demand focused, specifically in reducing the cost of supply to customers. A start is for the CAISO to become more transparent in the load flows, pricings and operating decisions. By transparent, we mean post load, real-time pricing and final settlement data on a public website. This will allow State bodies to develop better programs to avoid wholesale costs. For example, the State could support a program that monitored flows at congestion nodes and curtailed load when approaching flows that would trigger congestion pricing. This is a non-market solution. The State can spread the cost across the area customers because it reduces overall energy costs and postpones grid upgrades.

Dynamic or LMP in Retail. We agree. If the CAISO cannot tell me until tomorrow or next week what it cost me to consume today, then I agree with the State that dynamic pricing is not appropriate. If a gas station operator changed the price of gas while I pumped it into my car, we would have him arrested for fraud. The CAISO should provide sufficient transparency to forecast flows and possible congestion. When the CAISO produce an indicative electricity price far enough in advance of the operating period to allow customers to avoid price changes, then dynamic pricing might be appropriate.

Costs Not Recovered In Wholesale Market. We agree. All of the value associated with a DM program does not come from the wholesale market. DM can be used to delay generation development and grid expansion.

Mixed signals for 5% DR, etc. We agree. There should be no assumption at all DM value comes from the wholesale market. Many DM programs may not have any CAISO involvement. What is of concern is insuring that the CAISO does not unnecessarily constrain none market initiatives.

Multiple Initiatives. We agree. We propose that all FERC meetings and discussions related to Western DM projects be held either over the Internet on in the West.

Grid Services, Inc.

Customer Participation Barriers

Underestimated Challenges. We agree and disagree. *We agree* that Utilities and regulators do not have the mind set for developing out of the box solutions and that utilities are not great at marketing. *We disagree* that customers cannot understand the economics. Our experience as been that a properly constructed marketing effort results in very little trouble presenting the concept to customers.

Complexity of Market. We disagree. This is a marketing issue. It is a matter of identifying which product matches a customer's profile and making the program understandable from the customer's viewpoint. For example, customers are able to decide on a car or truck or suv from the copious options available.

CAISO Market Requirement Ill Suited. We agree. The CAISO market is designed for dispatchable thermal generation. They have had difficultly integrating wind into their market. The CAISO needs to create layers of markets that accommodate the increasing divergent suppliers and insure that their rules do not prohibit none market DM activities.

Infrastructure Barriers

SC/Transmission Level Requirements. We agree. The requirements for participation in the CAISO market are burdensome and a significant barrier to entry. A more simplified process should be adopted for entities not providing load following-regulation services.

Customer LMP mapping. We disagree. The process for identifying a customer's Load Takeout Point existed in 2000 when IOUs were required to identify the grid settlement point each the customers going to an ESP. The Takeout Point was assigned to the meter not the customer.

Limitation of AMI. This is somewhat irrelevant. AMI have the ability to be polled at intervals of less than 1 hour. We established in 2001 that a DM service that needs to be deployed in no less than 10 minutes does not require 4-second SCADA. The solution was the polling of load meters, aggregation and providing aggregated data to the EMS system every 4-seconds. As for other technology to manage appliances, they existed for at least a decade. They will be deployed when there is sufficient incentive.

Grid Services, Inc.

Operational Barriers

Load Forecasting Challenge. We agree. The is a lack of available public data on historic and real time flows at the nodes used to calculate nodal prices. Once that data becomes available there are several load forecasting companies capable of developing and offering products that can provide the CSP with the information they need.

Separating DR Capability. The CAISO can create a mini-SC that function to provide the interface between them and the DM providers. Specifically, the flow of money should not have to go to the SC providing customer load settlement data.

Lack of Operator DM Experience. We disagree. The CAISO has direct experience with the DSM program for several summers starting in 2000. The program worked because the aggregators revenue dependent on successful curtailments.

Balancing Multiple Objectives of Baseline Methodology. So long as the methodology basic and not We agree so long as the methodology basic and not proscriptive. One size does not fit all.

Again, thank you for the opportunity to provide comments.

Sincerely;

Michele Wynne, President

PG&E Comments:

- The CAISO's Draft Demand Response Barriers Study was well organized and provided a thorough reflection of the diverse comments from all the major stakeholders. It is PG&E's understanding that the CAISO will be adding a prioritization of the barriers to the report as well as a plan to address the barriers. We understand that the CAISO will include these additional thoughts in its filing to FERC on April 28, 2009, and that stakeholders will have the opportunity to comment on the CAISO's filing after it is submitted. PG&E would prefer to provide our comments before the CAISO files, but we understand the time constraints and may comment on the CAISO filing after we have reviewed it.

- PG&E sees the highest priority barriers that need to be addressed as the following:

    - Time
        - We understand that it will take time to work through many of the issues that need to be resolved in order to most effectively integrate DR into the CAISO markets. PG&E does not believe that this process needs to be slow. However, the process should be carefully designed and should be implemented deliberately and efficiently. DR bidding into a complex market needs to be done with care so that the benefits are realized.
        - Issues that will require time to develop include:
            - Full deployment of smart meters
            - Linking wholesale prices to retail rates
            - Telemetry/EMS/SCADA infrastructure
            - Ability to measure and accurately forecast loads at comparatively fine geographic granularity
            - Local regulatory authorities (e.g. CPUC) setting rules that allow their parties to offer DR products to the CAISO.
            - Getting the CAISO and WECC product requirements (particularly ancillary services) to be based on functional needs rather then the traditional characteristics of generation.
            - Details on processes for "bid to bill" for DR. This is a major reason why significant time is needed to implement DR directly bidding in to the CAISO markets. This implementation will require significant infrastructure upgrades. This work includes upgrading IT infrastructure as well as other business processes and systems.

    - It is essential that the CPUC and the CAISO closely coordinate to develop a plan for the implementation of DR. Many important policy issues will require a coordinated response from the CPUC and the CAISO, including the development of the criteria and rules that will allow third parties to bid in the customers of IOUs directly to the CAISO.

SCE Comments

Southern California Edison's Comments on DR Barriers Webinar Presentation

SCE appreciates the opportunity to provide comment to the CAISO on its April 8, 2009 Webinar Presentation entitled "Demand Response Barriers Study". SCE provides general and specific comments on the CAISO Webinar presentation deck below.

Order 719 imposes an obligation on the CAISO to identify and remove unreasonable barriers to treating demand response resources comparably with other resources, so any barriers identified in the CAISO's report to FERC need to carefully articulate the specific regulatory or institutional constraints that should be overcome to maximize the effective utilization of demand response resources in CAISO markets.

SCE is concerned that the CAISO Webinar Presentation appears to label any issue or concern as a "DR Barrier" implying that the role of the CAISO in compliance with FERC 719 is very extensive and overwhelming. Also, some of the asserted "barriers" include redundant descriptions of the same underlying issue, framed in a somewhat different manner. SCE agrees with CAISO that there are many issues and concerns that must be addressed and serious effort by CAISO and stakeholders is necessary to resolve them. However, SCE recommends that CAISO define its compliance challenges in accordance with FERC Order 719's term "unreasonable barriers" rather than issues. Accordingly, SCE recommends that the CAISO adopt a definition of a "DR Barrier" and separate out barriers from issues and concerns. The CAISO compliance filing should contain all of the content of the Webinar with the content separated under headings such as "DR Barriers", "Critical Issues" and "Other Issues and Concerns".

Accordingly, SCE proposes the following definition of a DR "Barrier":

> A regulatory or institutional constraint that prevents an efficient amount of demand response from participating in CAISO markets.

Based on the proposed definition above, SCE finds that the following items identified in the webinar presentation should be included as DR Barriers in the report to FERC:

- Lack of a forward capacity market that would provide participating DR loads with appropriate longer-term price signals to offer DR as a capacity resource.
- Existing WECC and CAISO rules that preclude participation by DR loads in regulation and spinning reserve markets and limit participation by DR loads in non-spinning reserve markets.
- Complexity of "open" regulatory initiatives (such as resource adequacy, direct access resumption, renewables integration, and retail rate design reform) that make it difficult for stakeholders to actively engage in finding solutions to the problems of integrating DR with CAISO markets.
- The necessity to treat load consumption and demand response as parts of an inseparable system has been a barrier to direct participation. Approval of proxy demand resource (PDR) will address this barrier.

APPENDIX F: DIRECT PARTICIPATION BUSINESS ISSUES WORKING GROUPS

1.0 Qualification

Process	Description	Affected Entity
Product/Program Definition	Defining the various DR markets, products/programs, objectives, participants, requirements, operating rules, and success criteria	ISO, Stakeholders, Participants,
Participant Qualification	Criteria and process for determining market participation	ISO, Stakeholders, Participants
Resource Qualification	Criteria and process for determining resource participation prior to enrollment in a product/program	ISO, CSP
Integration to Registration	Method for ensuring smooth process transition from qualifying steps to actual resource enrollment in product/program	ISO

2.0 Registration

Process	Description	Affected Entity
Resource Profiling	Defining the demand response characteristics of a resource to be registered	CSP
• Unique Identifiers	Method for identifying a given resource uniquely across multiple participants	CSP, UDC, LSE
• Reduction Capacity/ Profile	Sources and capacity of demand reduction resources	CSP
• Shutdown Costs/Time	Parameters for consideration in bidding and dispatching events	CSP
• Shutdown Response Time	Amount of notice necessary for shutdown operation	CSP, Participant
• LMP and/or Retail Rate	Determining the price(s) and formula to be used in settlement	CSP, LSE
• Retail Contract Type	Type of retail energy contract	CSP, LSE
• Baseline Approach	Method of calculating load baselines for deriving a reduction	CSP, LSE
• Telemetry	Method and granularity of data	CSP
• Aggregation	Approach to handling a resource that is an aggregate of other individual resources	CSP
Program Enrollment	Method of registering a given resource for a given program for a given length of time	CSP, LSE, UDC, ISO
Enrollment Duplicates	Method of identifying and resolving duplicate enrollment, or other prohibited combinations of enrollments	CSP, ISO
Enrollment Disputes	Method of submitting, tracking, and resolving enrollment disputes	CSP, LSE, UDC, ISO

Process	Description	Affected Entity
Enrollment Changes	Method and rules for requesting changes to a registration or resource profile	CSP, LSE, UDC, ISO
Resource Transfers	Method and rules for transferring resources from one participant (CSP or LSE) to another	CSP, LSE, UDC, ISO
Testing & Auditing	Method and rules for periodically testing and auditing the reported resource reduction capacity	CSP, ISO
Integration to Scheduling	Method for ensuring smooth process transition from registration to the actual scheduling of resources into the market	ISO

3.0 Scheduling

Process	Description	Affected Entity
System Forecasting	Incorporating demand resources into the long and short term forecasting processes	ISO
• Load	Forecast of load with and without inclusion of price sensitive or emergency interruptible load	ISO, LSE, CSP
• Reduction Capacity	Forecast of reduction capacity given seasonal or secular variations of load and interruptible load	ISO, CSP
• Transmission Constraints	Impact of transmission constraints on the need for or use of demand resources	ISO
• Planned Outages	Forecast of demand resource outages, or other outages that might require the use of reduction capacity	ISO, CSP, LSE
• Reliability	Any other reliability review process that might need to incorporate demand resources	ISO
Resource Forecasting	Participants providing long and short term estimates of load and reduction capacity	CSP, LSE, Participant
Resource Scheduling/ Bidding	Actual participation in the various markets	CSP, LSE
• Resource Identification	Method of identifying the resource to be scheduled, on both the load and demand sides	CSP, LSE
• Resource Location	Method and granularity of identifying the network model location of the resource	CSP, LSE
• Resource Aggregation	Method and approach for allowing the participant to aggregate resources together when scheduling	CSP, LSE
Resource/ Schedule Alignment	Method of correlating CSP and LSE resources schedules with each other	CSP, LSE
Integration to Operations	Method of informing grid operations of demand resource schedules, and/or allowing them to dispatch capacity	ISO
Integration to Settlements	Method of informing settlements of market awards	ISO

4.0 Notifications

Process	Description	Affected Entity
Forecasts	Method for collecting and/or distributing demand resource forecasts	ISO, CSP
Self-Schedules	Method and timing for collecting and/or distributing demand resource self-schedules	ISO, CSP
Day-ahead Schedules	Method and timing for distributing demand resource day-ahead market awards	ISO, CSP, LSE
Real-time Dispatch	Method and timing for distributing demand resource real-time market energy dispatches	ISO, CSP, LSE
Ancillary Services	Method and timing for distributing demand resource ancillary service instructions, especially for real-time synchronous reserve and regulation	ISO, CSP, LSE
Emergency Reserves	Method and timing for communicating emergency events and/or dispatching specific reserve capacity	ISO, CSP, LSE
Outages	Method and timing for collecting and/or distributing demand resource outage information	ISO, CSP, LSE
Event Tagging	Method for uniquely identifying demand response events	ISO
Integration to Settlement	Method for informing settlements of what events occurred during real-time operations	ISO

5.0 Metering & Telemetry

Process	Description	Affected Entity
Metering Provider	Identifying the meter data source for given registration	ISO, CSP, LSE, UDC, MDMA
Metering Validation	Verification of in-place meter	ISO, MDMA
Data Availability	Ability to provide timely meter & telemetry data for DR event	ISO, MDMA
Data Type & Granularity	Type and granularity of data being provided	ISO, MDMA
Data Accuracy	Accuracy of meter and telemetry data being provided	ISO, CSP, MDMA
Integration to Settlement	Method for communicating summarized, aggregated, and validated interval data to the settlements process	ISO

6.0 Settlement

Process	Description	Affected Entity
Event Prioritization	Determining which events to settle for what resources and in what order	ISO
Determinant Collection	Identifying and collecting all the required bill determinants to settle a specific event for a specific	ISO

Process	Description	Affected Entity
	resource	
Baseline Calculation	Method for calculating a baseline from which a load reduction will be determined	ISO
Reduction Calculation	Method for calculating the actual load reduction	ISO
Settlement Calculation	Method for calculating the actual settlement	ISO
• Day Ahead	Cash flow model for cleared DA demand bids	CSP, LSE
• Real-time	Cash flow model for RT dispatched demand	CSP, LSE
• Ancillary Services	Cash flow model for AS provided by demand resources	CSP, LSE
• Emergency	Cash flow model for called emergency resources	CSP, LSE
Settlement Approvals	Method of submitting demand response event settlements for approval prior to actually billing/crediting	ISO, CSP, LSE, UDC
Settlement Adjustments	Method of re-calculating and submitting settlement adjustments	ISO, CSP, LSE, UDC
Settlement Disputes	Method of submitting, tracking, and resolving settlement disputes	ISO, CSP, LSE, UDC
Integration to Performance Management	Method for communicating settlement information to the performance management process	ISO

7.0 Performance & Compliance Evaluation

Process	Description	Affected Entity
Resource Performance	Measuring and reporting the activity and performance of resources	ISO, Participants
Participant Performance	Measuring and reporting the activity and performance of participants	ISO, Participants, Stakeholders
Program Performance	Measuring and reporting the activity and performance of participants	ISO, Participants, Stakeholders, Regulators
System Performance	Measuring and reporting the net effect of all demand response programs on reliability, market prices, etc	ISO, Participants, Stakeholders, Regulators

ENCLOSURE NO. 2

BLACKLINED TARIFF SHEETS

Enclosure No. 2 – Blacklines

RM07-19-000 and AD07-07-000

Order 719 Compliance Filing

4th Replacement CAISO Tariff (MRTU)

April 28, 2009

* * *

20.2 Confidential Information.

The following information provided to the CAISO shall be treated by the CAISO as confidential:

(a) individual Bids;

(b) CRR bids and other CRR Allocation nomination information;

(c) transactions between Scheduling Coordinators, including Inter-SC Trades;

(d) individual Generator Outage programs unless a Generator makes a change to its Generator Outage program which causes Congestion in the short term (i.e. one month or less), in which case, the CAISO may publish the identity of that Generator; and

(e) The following information related to the resource adequacy program in accordance with Section 40:

(i) Annual and monthly Resource Adequacy Plans and Supply Plans;

(ii) Demand Forecasts; and

(iii) Information on existing import contracts.

(f) The following information related to the Transmission Planning Process in accordance with Section 24:

(1) Information received under Sections 24.2.3.2 and 24.2.3.3 to the extent such information has been designated as confidential in accordance with the Business Practice Manual;

(2) Information~~,~~ deemed confidential by DMM, per Section 8.6 of Appendix P~~the release of which may harm competitive markets, as determined by the CAISO's Department of Market Monitoring~~;

(3) Information received by the CAISO pursuant to agreements and contracts, executed prior to December 21, 2007, that preclude the release of the information;

(4) Information that involves proprietary analytical tools, computer codes, or any other material that is protected by intellectual property rights held by the CAISO, Project Sponsor, Market Participant or other third-party; and

(5) Critical Energy Infrastructure Information.

However, composite documents, data, and other information that may be developed based on confidential information under this Section shall not be deemed confidential if the composite documents, data, and other information do not disclose any confidential information of any individual Scheduling Coordinator, Market Participant, or other third-party or Critical Energy Infrastructure Information.

* * *

20.4 Disclosure.

Notwithstanding anything in this Section 20 to the contrary,

(a) The CAISO: (i) shall publish individual ~~B~~bids~~, provided that such data are published no sooner than six~~ninety (90) ~~(6)~~days ~~months~~ ninety (90) days after the Trading Day with respect to which the ~~B~~bid was submitted and in a manner that does not reveal the specific resource or the name of the Scheduling Coordinator submitting the ~~B~~bid, but that allows the bidding behavior of individual, unidentified resources and Scheduling Coordinators to be tracked over time; and (ii) may publish data sets analyzed in any public report issued by the CAISO or by the M~~arket~~ S~~urveillance~~ C~~ommittee~~, provided that such data sets shall be published no sooner than six (6) months after the latest Trading Day to which data in the data set apply, and in a manner that does not reveal any specific resource or the name of any Scheduling Coordinator submitting ~~B~~bids included in such data sets.

* * *

37.1.4 FERC Authority.

In addition to any authority afforded ~~Market Monitoring Unit~~ in this Section 37, FERC shall have the authority to assess the sanctions, and otherwise to enforce the rules as set forth and described in this Section 37. FERC shall have authority to remedy a violation under this Section 37 from the date of the violation. Nothing in this Section 37 shall be deemed to be a limitation or condition on the authority of FERC or other entities under current law or regulation.

37.1.5 Administration.

The ~~Marketing Monitoring Unit~~CAISO will administer the Rules of Conduct specified herein, except for Section 37.7, which shall be administered by FERC, and except as provided in Section 37.2.5 and Section 37.4.4. ~~Nothing in this CAISO Tariff limits or should be construed to limit the ability of components of the CAISO organization other than the Market Monitoring Unit to analyze data and refer matters to the Market Monitoring Unit for enforcement.~~

* * *

37.8.1 Purpose; Scope.

The provisions of this Section 37.8 set forth the procedures by which the ~~Market Monitoring Unit~~ CAISO will independently investigate potential violations of the Rules of Conduct and administer enforcement activities. Except as hereinafter provided, and except as provided in Section 37.2.5 and Section 37.4.4, the provisions of this section apply to the Rules of Conduct set forth in Sections 37.2 through 37.7.

37.8.2 Referrals to FERC.

Section 37.7 shall be enforced by FERC, in accordance with FERC's rules and procedures. Pursuant to Section 11 of Appendix P, DMM shall refer suspected violations of Section 37.7 to FERC~~The Market Monitoring Unit shall refer to FERC and its staff all matters in which it has formed a reasonable belief that a violation of Section 37.7 may have occurred~~. Although Sections 37.2 through 37.6 will generally be enforced by the ~~Market Monitoring Unit~~CAISO, the ~~Market Monitoring Unit~~CAISO shall refer to FERC any Sanction that it believes would be modified in accordance with Sections 37.2.5, 37.4.4, or 37.9.1. Pursuant to Section 11.1.3 of Appendix P, the CAISO shall refer to DMM any matter for which the particular circumstances preclude the objective determination that ~~of~~ a Rules of Conduct violation did or did not occur, and if DMM concurs with the CAISO's conclusion that the circumstances preclude such an objective determination, then DMM shall refer the matter to FERC under the protocol on referrals outlined in Section 11 of Appendix P~~, and shall refer to FERC any Sanction that it believes should be modified in accordance with Sections 37.2.5, 37.4.4, or 37.9.1~~. The time limitation contained in Section 37.10.1 to assess a Sanction under this Section 37 shall be determined as of the date that a Sanction is initially assessed by the CAISO, excluding the time required for FERC to investigate a potential Rules of Conduct violation and/or determine a Sanction in accordance with this section, Sections 37.2.5, 37.4.4, or 37.9.1.

37.8.3 Investigation.

The ~~Market Monitoring Unit~~CAISO shall conduct a reasonable investigation seeking available facts, data, and other information relevant to the potential Rules of Conduct violation.

37.8.4 Notice.

The ~~Market Monitoring Unit~~CAISO shall provide notice of the investigation in sufficient detail to allow for a meaningful response to the Scheduling Coordinator and, as limited below, to all Market Participants the Scheduling Coordinator represents that are the subject(s) of the investigation. The ~~Market Monitoring Unit~~CAISO shall contact the Market Participant(s) that may be involved, so long as the CAISO has sufficient objective information to identify and verify the role of the Market Participant(s) in the potential Rules of Conduct violation. Such Market Participant(s) will likely have an existing contractual relationship with the CAISO (e.g., UDC, MSS, CAISO Metered Entity, Participating Transmission Owner, Participating Generator, or Participating Load).

37.8.5 Opportunity to Present Evidence.

The ~~Market Monitoring Unit~~CAISO shall provide an opportunity to the Market Participant(s) that are the subject(s) of the investigation to present any issues of fact or other information relevant to the potential Rules of Conduct violation being investigated. The ~~Market Monitoring Unit~~CAISO shall consider all such information or data presented.

37.8.6 Results of Investigation.

The ~~Market Monitoring Unit~~CAISO shall notify the Market Participant(s) that are the subject(s) of the investigation of the results of the investigation. The Market Participant(s) shall have thirty (30) days to respond to the findings of the ~~Market Monitoring Unit~~CAISO before the ~~Market Monitoring Unit~~CAISO makes a determination of whether a Sanction is required by this CAISO Tariff.

37.8.7 Statement of Findings and Conclusions.

Where the investigation results in a Sanction, the ~~Market Monitoring Unit~~ CAISO shall state its findings and conclusions in writing, and will make such writing available to the Scheduling Coordinator and, as provided in Section 37.8.4, to the Market Participant(s) that are the subject(s) of the investigation.

37.8.8 Officer Representative.

Where an investigation results in a Sanction by the ~~Market Monitoring Unit~~CAISO, the ~~Market Monitoring Unit~~CAISO shall direct its notice of such result to a responsible representative of the Scheduling Coordinator and, as provided in Section 37.8.4, to the Market Participant(s) that are the subject(s) of the investigation at the officer level.

37.8.9 Record of Investigation.

Where an investigation results in a Sanction, the ~~Market Monitoring Unit~~CAISO will maintain a record of the investigation until its decision has been finally reviewed, if review is sought, or until the period for seeking review has expired.

37.8.10 Review of Determination.

A Market Participant that receives a Sanction may obtain immediate review of the ~~Market Monitoring Unit~~CAISO's determination by directly appealing to FERC, in accordance with FERC's rules and procedures. In such case, the applicable Scheduling Coordinator shall also dispute the Initial Settlement Statement T + 38 BD containing the financial penalty, in accordance with Section 11. The Initial Settlement Statement T + 38 BD dispute and appeal to FERC must be made in accordance with the timeline for raising disputes specified in Section 11.29.8.2. The penalty will be tolled until FERC renders its decision on the appeal. The disposition by FERC of such appeal shall be final, and no separate dispute of such Sanction may be initiated under Section 13, except as provided in Section 37.9.3.4. For the purpose of applying the time limitations set forth in Section 37.10.1, a sanction will be considered assessed when it is included on an Initial Settlement Statement T + 38 BD, whether or not the CAISO accepts a Scheduling Coordinator's dispute of such Initial Settlement Statement T + 38 BD pending resolution of an appeal to FERC in accordance with this section or Section 37.9.3.3.

* * *

37.9.1 Assessment; Waivers and Adjustments.

Penalty amounts for violation of these Rules of Conduct shall be calculated as specified in Section 37.2 through Section 37.7. A Sanction specified in this Section 37 may be modified by FERC when it determines that such adjustment is just and reasonable. With the concurrence of DMM, ~~T~~the CAISO may make a recommendation to FERC to modify a Sanction. An adjustment generally shall be deemed appropriate if the prescribed Sanction appears to be insufficient to deter the prohibited behavior, or if the circumstances suggest that the violation was inadvertent, unintentional, or some other mitigating circumstances exist.

* * *

37.9.3.3 Other Responsible Party.

Where a party or parties other than the Scheduling Coordinator is responsible for the conduct giving rise to a penalty reflected on a Settlement Statement, and where the Scheduling Coordinator bears no responsibility for the conduct, such other party or parties ultimately shall be liable for the penalty. Under such circumstances, the Scheduling Coordinator shall use reasonable efforts to obtain payment of the penalty from the responsible party(ies) and to remit such payment to the CAISO in the ordinary course of the Settlement process. In the event that the responsible party(ies) wish to dispute the penalty, or the Scheduling Coordinator otherwise is unable to obtain payment from the responsible parties, the Scheduling Coordinator shall notify the CAISO and dispute the Initial Settlement Statement T+ 38 BD. The CAISO promptly shall notify FERC. If the CAISO finds, and DMM concurs, that a Market Participant separate from the Scheduling Coordinator that is unable to obtain payment from the responsible party(ies) is solely responsible for a violation, the Scheduling Coordinator that is unable to obtain payment may net its payment of its Invoice amount by the amount of the penalty in question. The CAISO may refuse to offer further service to any responsible party that fails to pay a penalty, unless excused under the terms of the CAISO Tariff, by providing notice of such refusal to the Scheduling Coordinator. Following such notice, the Scheduling Coordinator shall be liable for any subsequent penalties assessed on account of such responsible party.

* * *

38 Market Monitoring.

To comply with Commission Order No. 719, P 392, Section 38 has been consolidated with, and moved to, Appendix O (for the MSC) and Appendix P (for DMM). Where a provision in Appendix O or Appendix P is cross-referenced in another section or appendix of this Tariff, the language in Appendix O or Appendix P shall govern in the event of any conflict.

~~38.1 Objectives and Scope.~~

~~This Section 38 sets forth the framework under which the CAISO Department of Market Monitoring and CAISO Market Surveillance Committee will monitor the CAISO Markets to identify abuses of market power, to ensure to the extent possible the efficient working of the CAISO Markets immediately upon commencement of their operation, and to provide for their protection from abuses of market power in both the short term and the long term, and from other abuses that have the potential to undermine their effective functioning or overall efficiency in accordance with Section 38.1.1. Such monitoring activities will be carried out by, among other CAISO departments, the CAISO Department of Market Monitoring and the CAISO Market Surveillance Committee to be established and to operate under the terms of this CAISO Tariff, as set forth below. This Section provides a general framework for the operation of the Department of Market Monitoring and the Market Surveillance Committee and are not intended to limit the activities or remedies available to these entities or to the CAISO as a whole elsewhere in the CAISO Tariff or otherwise under law.~~

~~38.1.1 Market Surveillance: Changes to Operating Rules and Procedures.~~

~~The CAISO shall keep the operation of the markets that it administers under review to determine whether changes in its operating rules, Business Practice Manuals, or CAISO Tariff would improve the efficiency of those markets or prevent the exercise of market power by any Market Participant; and it shall institute necessary changes in accordance with this Section 38.~~

~~38.1.2 Reporting Requirements.~~

~~This Section 38 sets forth the information dissemination, publication and reporting activities and other means of providing information that the CAISO generally undertakes to meet its reporting requirements to regulatory agencies, Market Participants and others. The goal of the reporting provisions is to adequately inform regulatory agencies, law enforcement agencies, policymakers, Market Participants and others of~~

~~the state of the CAISO Markets, especially their competitiveness and efficiency. This function is designed to facilitate efficient corrective actions to be taken by the appropriate body or bodies when required.~~

~~38.2 Practices Subject to Scrutiny – General.~~

~~The Department of Market Monitoring shall monitor the activities of Market Participants that affect the operation of the CAISO Markets and that provide indications of the phenomena set forth below in this Section 38.2 and will monitor for violations of the market behavior rules specified in Section 37 and any FERC orders establishing market behavior rules for Market Participants. Any corrective actions taken in response to potential violations of market behavior rules shall be made consistent with Section 37 and the applicable FERC orders. Where appropriate, it will take such further action as it considers necessary under Section 38.4.~~

~~38.2.1 Abuse of Reliability Must-Run Unit Status.~~

~~Where Generating Units are determined by the CAISO to be Reliability Must-Run Units, circumstances that indicate that such Generating Units are being operated in a manner that will adversely affect the competitive nature and efficient workings of the CAISO Markets.~~

~~38.2.2 CAISO and Other Market Design Flaws.~~

~~The Department of Market Monitoring shall monitor design flaws and inefficiencies in the CAISO Tariff, Business Practices Manuals, and Operating Procedures, including the potential for problems between the CAISO and other independent power markets or exchanges insofar as they affect the CAISO Markets.~~

~~38.2.3 Market Structure Flaws.~~

~~With respect to flaws in the overall structure of the California Energy markets that may reveal undue concentrations of market power in Generation or other structural flaws, the Department of Market Monitoring shall provide such information or evidence of such flaws and such analysis as it may conduct to the CAISO CEO and/or to the CAISO Governing Board, subject to due protections of confidential or commercially sensitive information. After due internal consultation, if instructed by any of such CAISO institutions or persons, the Department of Market Monitoring shall also provide such information or evidence to the Market Surveillance Committee, the appropriate regulatory and antitrust enforcement agency or agencies, subject to due protections of confidential or commercially sensitive information. The~~

~~Department of Market Monitoring shall, at the direction of the CAISO CEO and/or the CAISO Governing Board, or their designee, provide such other evidence, views, analyses or testimony as may be appropriate or required and as it is reasonably capable of providing to assist the investigations of such agencies.~~

~~38.3 Scrutiny of Market Participant Changes Potentially Affecting Market Structure.~~

~~The Department of Market Monitoring may undertake the following measures to monitor the special circumstances that may affect the operation of the CAISO Markets due to corporate reorganizations including bankruptcies or changes in Affiliate relationships and may recommend corrective actions as provided in Section 38.4.~~

~~38.3.1 Exercises of Horizontal Market Power.~~

~~The Department of Market Monitoring may analyze the impact of changes in market structure on the ability of Market Participants to exercise short-term horizontal market power.~~

~~38.4 Response Action by CAISO.~~

~~38.4.1 Corrective Actions.~~

~~Where the monitoring activities or any consequent investigations carried out by the Department of Market Monitoring pursuant to Section 38.2 and Appendix P.1 reveal a significant possibility of the presence of or potential for exercises of market power that would adversely affect the operation of the CAISO Markets, or other markets interconnected or interdependent on the CAISO Markets, the Department of Market Monitoring shall take the appropriate measures under this section and under Appendix P to institute the corrective action most effective and appropriate for the situation or, in the case of markets interconnected to or interdependent on the CAISO Markets, the Department of Market Monitoring may recommend corrective actions to the appropriate regulatory agencies.~~

~~38.4.2 Further Actions.~~

~~Where the monitoring activities of or any consequent investigations carried out by the Department of Market Monitoring pursuant to Sections 38.2 and 38.3 reveal that activities or behavior of Market Participants in the CAISO Markets have the effect of, or potential for, undermining the efficiency, workability or reliability of the CAISO Markets to give or to serve such Market Participants an unfair~~

~~competitive advantage over other Market Participants, the Department of Market Monitoring shall fully investigate and analyze the effect of such activities or behavior and make recommendations to the CAISO CEO and the CAISO Governing Board for further action by the CAISO or, where necessary, by other entities. The Department of Market Monitoring may, where appropriate, make specific recommendations to the CAISO CEO and to the CAISO Governing Board for amendment to rules and protocols under its control, or for changes to the structure of the CAISO Markets, and the Department of Market Monitoring may recommend actions, including fines or suspensions, against specific entities in order to deter such activities or behavior.~~

~~38.4.3 Adverse Effects of Transition Mechanisms.~~

~~Should the monitoring and analysis conducted reveal significant adverse effects of transition mechanisms on competition in or the efficient operation of the CAISO Markets, the Department of Market Monitoring shall examine and fully assess the efficacy of all possible measures that may be taken by the CAISO, in order to prevent or to mitigate such adverse effects. The Department of Market Monitoring shall make such recommendations to the CAISO CEO and to the CAISO Governing Board as it considers appropriate for action by the CAISO and/or for referral to regulatory or law enforcement agencies. Such proposed measures may include, but shall not be limited to the following:~~

~~(a) the use of direct Bid caps as a mechanism to prevent or mitigate artificially high Market Clearing Prices caused by abuses of market power;~~

~~(b) the use of contracts for differences for eliminating the incentive for Generators to bid CAISO prices to artificially high levels enabled by the presence of market power;~~

~~(c) calling upon Reliability Must-Run Units to operate; and to modify Reliability Must-Run Contracts;~~

~~(d) Bid floors to prevent or mitigate the possible exercise of below-cost bidding or predatory pricing.~~

~~In the event that the CAISO Governing Board adopts, and where necessary obtains regulatory approval for, any measure proposed pursuant to this Section 38.4.3, the Department of Market Monitoring shall~~

~~monitor the implementation and effect of such measure on the state of the CAISO Markets and shall periodically report on them to the CAISO CEO and the CAISO Governing Board.~~

* * *

CAISO Tariff Appendix A

Master Definitions Supplement

Department of Market Monitoring (DMM)	The department of the CAISO established under Section 1 of Appendix P~~.1~~.

* * *

DMM	Department of Market Monitoring

* * *

Market Violation	A violation of a market behavior rule promulgated by the Commission or a violation of a provision of this Tariff other than those provisions that carry a sanction specifically enumerated under Section 37 of this Tariff.

* * *

CAISO TARIFF APPENDIX O

CAISO Market Surveillance Committee

~~**[NOT USED]**~~

~~**[Ten Sheet Numbers Reserved for Future Filings.]**~~
*** * ***

CAISO TARIFF APPENDIX O

CAISO Market Surveillance Committee

1. Introduction and Purpose

~~**P2.2.1**~~ **1.1** ~~**Establishment**~~There shall be established a Market Surveillance Committee (MSC), whose role it shall be to provide independent external expertise on the CAISO market monitoring process and, in particular, to provide independent expert advice and recommendations to the CAISO CEO and Governing Board. ~~Members of the Committee shall not be, and shall not be understood to be, employees or agents of the CAISO.~~ **[Moved from P2.2.1 of Appendix P2]**

2. Definitions

2.1 This section intentionally left blank.

3. Independence and Oversight

3.1 This section intentionally left blank.

4. Structure

~~**P2.2.2.1**~~**4.1** ~~**Qualifications**~~The MSC shall comprise a body of three or more independent and recognized experts whose combined professional expertise and experience shall encompass the following: (a) economics, with emphasis on antitrust, competition, and market power issues in the electricity industry; (b) experience in operational aspects of Generation and transmission in electricity markets; (c) experience in antitrust or competition law in regulated industries; and (d) financial expertise relevant to energy or other commodity trading. **[Moved from P2.2.2.1 of Appendix P2]**

~~**P2.2.4**~~**4.2** ~~**Compensation and Reimbursements**~~Members of the MSC shall be compensated on such basis as the CAISO Governing Board shall from time to time determine. Members of the MSC shall receive prompt reimbursement for all expenses reasonably incurred in the execution of their responsibilities under this Appendix ~~P2, Section P2.2~~O. **[Moved from P2.2.4 of Appendix P2]**

4.3 Members of the ~~Committee~~ MSC shall not be, and shall not be understood to be, employees or agents of the CAISO. **[Moved from P2.2.1 pf Appendix P2]**

~~**P2.2.3**~~**4.4** ~~**Appointments to the MSC**~~For each position on the MSC, the CAISO CEO shall conduct a thorough search and requisite due diligence to develop a nomination to the CAISO Governing Board, which nomination shall be consistent with meeting the combined professional expertise and experience of the MSC set forth in ~~Appendix P2, Section P2.2.2.1~~ Section 4.1 of this Appendix O and with the criteria for independence set forth in ~~Appendix P2, Section P2.2.2.2~~ Section 9 of this Appendix O. The CAISO Governing Board shall expeditiously consider such nominations. If the nomination is approved, the CAISO CEO shall appoint the candidate so nominated to the MSC. If the nomination is rejected, the CAISO CEO shall expeditiously proceed to develop another nomination. **[Moved from P2.2.3 of Appendix P2]**

~~P2.2.5~~4.5 **~~Liability for Damages~~**~~As provided in Section 14 of the CAISO Tariff, the Department of Market Monitoring,~~ No member of the MSC~~, the CAISO CEO and other CAISO staff, and the CAISO Governing Board~~ shall ~~not~~ be liable to any Market Participant under any circumstances whatsoever for any matter ~~described in those sections~~, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by ~~such CAISO entities of their~~ the MSC of its functions under this CAISO Tariff. **[Moved from P2.2.5 of Appendix P2]**

5. Duties of Market Monitor

~~P2.2.6.2~~5.1 **~~Evaluation of Information~~**The MSC may, upon request of ~~the Department of Market Monitoring~~DMM, the CAISO management or the CAISO Governing Board, or on its own ~~volition~~initiative, evaluate such information or data, including as may be collected by ~~the Department of Market Monitoring~~ DMM on the basis of the evaluation criteria developed by ~~the Department of Market Monitoring~~DMM or on such further articulated evaluation criteria developed by the MSC. **[Moved from P2.2.6.2 of Appendix P2]**

~~P2.2.7.1~~5.2 **~~Plan and Rules of Conduct Changes~~**The MSC may, upon request of DMM~~Following a recommendation of the MSC~~, the CAISO management or the CAISO Governing Board, or on its own initiative, recommend ~~may make~~ such changes as it believes are appropriate to the CAISO Tariff, any CAISO Business Practice Manual ~~or Agreement~~, any CAISO agreement or any Rules of Conduct applicable in accordance with Section 22.11 of this CAISO Tariff. **~~P2.2.7.2~~** **~~Tariff Changes~~**~~Upon recommendation of the MSC, t~~The CAISO Governing Board shall consider and may adopt proposed CAISO Tariff changes in accordance with Section 22.11 of this CAISO Tariff. **[Moved from P2.2.7.2 and P2.2.7.1 of Appendix P2]**

~~P2.2.6.4~~5.3 **~~Publication of Reports and Recommendations~~**Upon request of the MSC, the CAISO shall publish reports and recommendations of the MSC or incorporate them, if consistent, into the CAISO's own reports or recommendations. **[Moved from P2.2.6.4 of Appendix P2]**

~~P2.2.7.3~~5.4 **~~Sanctions and Penalties~~**The MSC may on its own initiative recommend that the CAISO impose sanctions and penalties for violations of the CAISO Tariff and related protocols. Upon recommendation of the MSC, the CAISO may impose such sanctions or penalties as it believes necessary and as are permitted under the CAISO Tariff and related protocols approved by FERC~~; Section 37.9 or it may make any such referral to such regulatory or antitrust agency as it sees fit to recommend the imposition of sanctions and penalties~~. **[Moved from P2.2.7.3 of Appendix P2]**

~~P2.2.6.3.2~~ 5.5 **~~Additional Reports~~**The MSC may make such additional reports and recommendations as it sees fit relating to the monitoring program referred to in this CAISO Tariff, the analysis of information, the evaluation criteria or any corrective or enforcement actions proposed by ~~the Department of Market Monitoring~~DMM or proposed on~~of~~ its own ~~volition~~initiative. **[Moved from P2.2.6.3.2 of Appendix P2]**

5.6 The MSC may review in draft form, and provide pre-publication comment on, all quarterly and annual reports DMM produces pursuant to Section 5.2 of Appendix P.

5.7 The MSC may review in draft form, and provide pre-submission comment on, all referrals to FERC pursuant to section Sections 11 and 12 of Appendix P.

5.8 The MSC may not participate in the administration of CAISO's tariff or conduct prospective market mitigation.

6. Duties of the CAISO.

6.1 CAISO responsibilities not expressly assigned to the MSC, DMM, or any specific individual or entity in this Appendix O remain with the CAISO.

7. Data Access, Collection, and Retention

~~P2.2.6.1~~7.1 ~~Information Gathering and Evaluation Criteria~~The MSC shall review the initial catalogs of information and data and of evaluation criteria developed by ~~the Department of Market Monitoring~~DMM pursuant to ~~Appendix P1, Section P1.1~~ Sections 7.4 and 7.5 of Appendix P and shall propose such changes, additions or deletions to such catalogs or items therein as it sees fit. In so doing, the MSC shall have full discretion to specify database items or evaluation criteria for inclusion in the pertinent catalog. **[Moved from P2.2.6.1 of Appendix P2]**

8 Information Sharing

~~P2.2.6.3.1~~8.1 ~~Required Reports~~All evaluations carried out by the MSC pursuant to ~~Appendix P2, Section P2.2.6.2~~ Section 5.1 of this Appendix O, and any recommendations emanating from such evaluations, shall be embodied by the MSC in written reports to the CAISO CEO and CAISO Governing Board, and DMM, and shall be made publicly available subject to due restrictions on dissemination of confidential or commercially sensitive information. The MSC may submit any MSC report to FERC, subject to due restrictions on dissemination of confidential or commercially sensitive information. **[Moved from P2.2.6.3.1 of Appendix P2]**

9. Ethics

9.1 Members of the MSC shall have no material affiliation with any market participant or affiliate.

9.2 Members of the MSC shall not serve as officers, employees, or partners of a market participant.

9.3 Members of the MSC shall have no material financial interest in any market participant or affiliate, with the exception of mutual funds and non-directed investments.

9.4 Members of the MSC shall not engage in any market transactions other than in the performance of their duties under the tariff.

9.5 Members of the MSC shall not be compensated, other than by CAISO, for any expert witness testimony or other commercial services in connection with any legal or regulatory proceeding or commercial transaction relating to the CAISO.

9.6 Members of the MSC shall not accept anything of value from a market participant in excess of a de minimis amount.

9.7 Members of the MSC shall advise the CAISO Governing Board in the event they seek employment with a market participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the market participant.

9.7.1 For the purposes of this provision, the term “seeking employment” shall have the same meaning it does in 5 CFR § 2635.603, or its successor provision.

10. CAISO-Specific Provisions

10.1 This section intentionally left blank.

11 Protocol on Referrals of Investigations to the Office of Enforcement

11.1 This section intentionally left blank.

12. Protocol on Referrals of Perceived Market Design Flaws and Recommended Tariff Changes to the Office of Energy Market Regulation

12.1 This section intentionally left blank.

* * *

CAISO TARIFF APPENDIX P

CAISO Department of Market Monitoring ~~and Market Surveillance Committee~~

1 ~~CAISO DEPARTMENT OF MARKET MONITORING~~Introduction and Purpose

1.1 Establishment

There shall be established within the CAISO a Department of Market Monitoring (DMM)~~that shall be responsible for the ongoing development, implementation, and execution of the CAISO Market monitoring and information scheme described in this CAISO Tariff and the adherence to its objectives, as set forth in Section 38~~.

~~1.2 Composition~~

~~The Department of Market Monitoring shall be adequately staffed by the CAISO with full-time CAISO staff with the experience and qualifications necessary to fulfill the functions referred to in this CAISO Tariff. Such qualifications may include professional training pertinent to and experience in the operation of markets analogous to CAISO Markets, in the electric power industry, and in the field of competition and antitrust law, economics and policy. The Department of Market Monitoring shall be under the general management of the CAISO CEO, provided that the CAISO CEO may designate another CAISO officer for day-to-day oversight of the Department.~~

1.2 Mission Statement

To provide independent oversight and analysis of the ISO markets for the protection of consumers and market participants by the identification and reporting of market design flaws, potential market rule violations, and market power abuses.

2 Definitions

2.1 This section intentionally left blank.

~~1.~~3 ~~Accountability and Responsibilities~~Independence and Oversight

~~1.~~3.1 Department of Market Monitoring

DMM shall report to the CAISO Governing Board on all matters pertaining to the core monitoring duties specified under Section 5 of this Appendix P, and shall have direct access to the individual Governing Board Members at any time. DMM shall report to the CAISO CEO or his or her designee for administrative purposes, including matters relating to the internal administration of DMM. DMM shall advise the CAISO Governing Board about DMM's independent analysis of the CAISO's markets and its independent identification of market design flaws and market power abuses, and DMM also shall inform CAISO management about such matters.~~The Department of Market Monitoring shall report to and be accountable to the CAISO CEO and his or her designee on all matters pertaining to policy and other matters that may affect the effectiveness and integrity of the monitoring function, including matters pertaining to market monitoring, information development and dissemination and pertaining to generic or entity-specific investigations, corrective actions or enforcement.~~

~~1.3.2 CAISO CEO and MSC~~

~~The CAISO CEO and the MSC shall each have the independent authority to refer any of the matters referred to in Section 1.3.1 of this Appendix to the CAISO Governing Board for approval of recommended actions.~~

~~**1.3.3 CAISO Chief Executive Officer (CAISO CEO)**~~

~~**1.3.3.1** The Department of Market Monitoring shall report to and be accountable to the CAISO CEO and his or her designee on all matters relating to administration of the Department and the internal resources and organization of the CAISO in accordance with Appendix P, Section 1.3.3.2.~~

~~**1.3.3.2** The CAISO, through the CAISO CEO and Governing Board, shall determine that the Department of Market Monitoring has adequate resources and full access to data and the full cooperation of all parts of the CAISO organization in developing the database necessary for the effective functioning of the Department of Market Monitoring and the fulfillment of its monitoring function.~~

~~**1.3.4 Regulatory and Antitrust Enforcement Agencies**~~

~~Where considered necessary and appropriate, or where so ordered by the regulatory or antitrust agency with jurisdiction over the matter in question, or by a court of competent jurisdiction, the CAISO shall refer a matter to the regulatory or antitrust enforcement agency concerned, e.g., in cases of serious abuse requiring expeditious investigation or action by the agency. In all such cases of direct referral, the CAISO CEO shall promptly inform the CAISO Governing Board and the MSC of the fact of and the content of the referral.~~

3.2 The CAISO may not alter any reports generated by DMM or dictate the conclusions reached by DMM. The CAISO may, however, comment upon drafts of DMM reports where such right is otherwise conferred by this Tariff.

3.3 The employment of the Director of DMM shall not be terminated without the approval of the CAISO Governing Board.

~~1.2~~4 ~~Composition~~Structure

4.1 ~~The~~ D~~epartment of~~ M~~arket~~ M~~onitoring~~ shall be adequately staffed by the CAISO with full-time CAISO staff with the experience and qualifications necessary to fulfill the functions referred to in this CAISO Tariff. Such qualifications may include professional training pertinent to and experience in the operation of markets analogous to CAISO Markets, in the electric power industry, and in the field of competition and antitrust law, economics and policy. ~~The Department of Market Monitoring shall be under the general management of the CAISO CEO, provided that the CAISO CEO may designate another CAISO officer for day-to-day oversight of the Department.~~Subject to the respective oversight responsibilities as defined in this Tariff of the CAISO Governing Board and the CAISO CEO, responsibility for overseeing the conduct and operations of DMM shall be conferred upon the Director of DMM. **[Moved from Section 1.2 of Appendix P]**

~~P1.1.7~~4.2 ~~**Liability for Damages**As provided in Section 14 of the CAISO Tariff,~~Neither DMM nor any DMM employee ~~the Department of Market Monitoring, the MSC, the CAISO CEO and other CAISO staff, and the CAISO Governing Board~~ shall ~~not~~ be liable to any Market Participant under any circumstances whatsoever for any matter ~~described in those sections~~, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by ~~such CAISO entities of their~~ DMM of its functions under this CAISO Tariff. **[Moved from P1 1.7 of Appendix P1]**

4.3 CAISO shall provide DMM access to the resources, personnel, and consulting assistance (internal and external) sufficient to enable DMM to carry out its duties independently as defined under this

Appendix P. The CAISO shall ensure DMM personnel meet the general employment requirements applicable to CAISO employees.

5 Duties of Market Monitor

5.1 Review of Market Rules

DMM shall review existing and proposed market rules, tariff provisions, and market design elements and recommend proposed rule and tariff changes to the CAISO, the CAISO Governing Board, Commission staff, the California Public Utilities Commission, market participants, and other interested entities.

5.1.1 DMM's review shall include, but is not limited to, identification of flaws in the overall structure of the CAISO markets that may reveal undue concentrations of market power or other structural flaws. **[Merged with a portion of Section 38.2.3]**

5.1.2 DMM's responsibility to propose market design changes shall not extend to effectuating its proposed market design itself.

5.1.3 DMM must limit distribution of its identifications and recommendations to CAISO, the CAISO Governing Board, and Commission staff in the event that DMM believes broader dissemination of its identifications and recommendations could lead to exploitation of the identified market rule or design flaw. Where DMM so limits the distribution, it shall explain to Commission staff why further dissemination should be avoided.

5.1.4 Section 5.1 of this Appendix P shall not be understood to impose upon DMM the obligation to conduct an independent evaluation of every existing market rule, tariff provision, and market design element. DMM need only report on market rule, tariff, or market design elements it otherwise believes merit evaluation and scrutiny.

5.1.5 Per a request from the CAISO, or on its own initiative, DMM may provide a draft version of any report DMM prepares under Section 5.1 of this Appendix P to the CAISO. DMM may, but shall not be required to, amend its report in light of such comment.

5.1.6 Any report DMM makes under Section 5.1 of this Appendix P is advisory in nature and does not obligate the CAISO to effectuate the recommended market rule, tariff, or market design change.

5.1.7 Where the CAISO disagrees with DMM's recommendation pursuant to Section 5.1 of this Appendix P or DMM disagrees with a proposed market rule, tariff, or market design change, CAISO shall notify the Commission of such disagreement. Such notification shall be made in writing to the Commission's Director of the Office of Energy Market Regulation as part of a referral under Section 12 of this Appendix P.

5.2 Review of Market Trends and Performance

DMM shall review and report on market trends and the performance of the wholesale markets to the CAISO, the CAISO Governing Board, Commission staff, the California Public Utilities Commission, market participants, and other interested entities, on at least a quarterly basis and submit a more comprehensive annual state of the market report. Unless urgency requires otherwise, all annual and quarterly reports shall first be submitted to the MSC for review.

5.2.1 In conjunction with the annual and quarterly reports issued under Section 5.2 of this Appendix P, DMM shall hold conference calls with Commission staff, staff of the California Public Utilities Commission, market participants, and other interested entities to discuss market trends and the performance of the wholesale markets.

5.3 DMM shall identify and notify the Commission's Office of Enforcement staff of instances in which a market participant's behavior or the behavior of the CAISO itself is suspected to constitute a Market Violation.

~~**1.3.5 Complaints**~~**5.4** DMM shall consider any information or complaint a Market Participant may make ~~Any Market Participant, or any other interested entity, may at any time submit information to or make a complaint to the Department of Market Monitoring~~ concerning any matter that it believes may be relevant to DMM's~~the Department of Market Monitoring's~~ monitoring responsibilities. Such submissions or complaints may be made on a confidential basis in which case ~~the Department of Market Monitoring~~DMM shall preserve the confidentiality thereof. ~~The Department of Market Monitoring~~DMM, at its discretion, may request further information from such entity and carry out any investigation that it considers appropriate as to the concern raised. ~~The Department of Market Monitoring~~DMM shall periodically make reports to the CAISO CEO and CAISO Governing Board on complaints received. **[Moved from Section 1.3.5 of Appendix P]**

5.5 Prohibition on Tariff Administration and Market Mitigation – DMM shall not participate in the administration of CAISO's tariff or conduct prospective market mitigation.

5.5.1 For the purposes of Section 5.5 of this Appendix P, the term "prospective market mitigation" shall have the same meaning as provided in Commission Order No. 719, P 375.

5.5.2 DMM may conduct retrospective mitigation to the extent it is otherwise permitted to do so under this Tariff.

5.5.3 DMM may provide the inputs required for CAISO to conduct any prospective mitigation that is otherwise permitted under this Tariff. Such inputs may include, but are not limited to, Default Energy Bids, identification of competitive transmission constraints, and cost calculations.

6 Duties of the CAISO

6.1 CAISO responsibilities not expressly assigned to the MSC, DMM, or any specific individual or entity in this Appendix P remain with the CAISO.

7. Data Access, Collection, and Retention

7.1 The CAISO shall provide DMM access to the CAISO's databases of market information and any other market data necessary to enable DMM to carry out its duties as defined under this Appendix P.

7.2 Any data created by DMM, including, but not limited to, reconfiguring of the CAISO's data, will be kept within the exclusive control of DMM. This requires that the CAISO must ensure that DMM has control over which parties have access to the data, as well as control over the format and configuration of such data.

~~**P1.1.1.1**~~**7.3** ~~**Information System**~~DMM~~The Department of Market Monitoring~~ shall be responsible for developing an information system and criteria for evaluation that will permit it to effectively monitor the CAISO Markets to identify and investigate abuses of that market, whether caused by exercises of market power or by other actions or inactions. **[Moved from Section P1.1.1.1 of Appendix P1]**

~~**P1.1.1.2**~~**7.4** ~~**Data Categories**~~To develop the information system set forth in Section 7.3 of this Appendix P ~~P1.1.1.1~~, ~~the Department of Market Monitoring~~ DMM shall initially develop, and shall refine on the basis of experience, a detailed catalog of all the categories of data it will have the means of acquiring, and the procedures it will use (including procedures for protecting confidential data) to handle such data. **[Moved from Section P1.1.1.2 of Appendix P1]**

~~P1.1.1.3~~7.5 **~~Catalog of Market Monitoring Indices~~**~~The Department of Market Monitoring~~DMM shall initially develop, and shall refine on the basis of experience, a catalog of the CAISO Market monitoring indices that it will use to evaluate the data so collected. **[Moved from Section P1.1.1.3 of Appendix P1]**

~~P1.1.2.1~~7.6 **~~Ongoing Evaluation~~**~~The Department of Market Monitoring~~ DMM shall evaluate and reevaluate on an ongoing basis the data categories and market monitoring indices that it has developed under Sections 7.4 and 7.5 of this Appendix P~~1, Sections P1.1.1.2 and P1.1.1.3~~, and the information it collects and receives from various other sources, including and in particular the CAISO's operation of the CAISO Markets. Such ongoing evaluations shall provide the basis for its reporting and publication responsibilities as set forth in this ~~CAISO~~ Tariff, for recommendations on proposed changes to ~~the~~ this ~~CAISO~~ Tariff and CAISO Business Practice Manuals and other potential rules affecting the CAISO Markets, and for the development of criteria or standards for the initiation of proposed corrective or enforcement actions. In evaluating such information, the ~~Department of Market Monitoring~~DMM may consult the MSC or such external bodies as may be appropriate. **[Moved from Section P1.1.2.1 of Appendix P1]**

8. Information Sharing

8.1 Tailored Requests for Information from the CPUC to DMM – DMM shall consider requests from the CPUC for specifically identified information or data concerning general market trends and the performance of the wholesale markets. DMM may deny a request when it determines, in its sole discretion, that complying with a request would be unreasonably burdensome or if it would interfere with the core market monitoring functions of DMM as defined in Section 5 of this Appendix P. For the avoidance of doubt, this Section 8.1 of Appendix P shall not apply to subpoenas, court orders, or any other form of compulsory process issued by, or on behalf of, the CPUC.

8.1.1 DMM may agree to provide information about general market trends or performance. If DMM determines, in its sole discretion, that this information either is market sensitive or identifies an individual market participant, then the information may be shared only if the CPUC agrees in writing that the information shared will be covered under the terms of the agreement included as Attachment A to this Appendix P or a successor agreement that is as similarly protective as the current agreement.

8.1.2 DMM may agree to release to the CPUC raw CAISO data, but only after the information is redacted to satisfy any concerns that DMM may have about the need to maintain confidentiality.

8.1.2.1 If DMM agrees to provide the CPUC with raw data that pertains to a specific market participant, DMM shall notify the affected market participant and give it the opportunity to contest the accuracy of the data. The affected market participant may provide to DMM a written statement providing context to the data. So long as the process of providing such a written statement does not unduly delay release of the data to the CPUC, DMM shall provide an unedited copy of such written statement to the CPUC concurrently with DMM's submission of the data to the CPUC.

8.1.2.2. If the affected market participant asserts that the data to be provided is commercially sensitive, DMM shall share such sensitive information or data only if the CPUC agrees in writing that the information shared will be covered under the terms of the agreement included as Attachment A to this Appendix P or a successor agreement that is as similarly protective as the current agreement.

8.1.3 DMM shall not provide any requested information or data that is designed to aid an enforcement action by an instrumentality or political subdivision of the State of California against a specific party.

8.1.4 DMM shall not provide any requested information or data that would impinge on the Commission's confidentiality rules regarding referrals to the Commission pursuant to Sections 11 or 12 of this Appendix P.

~~**P1.1.4.2**~~**8.2** ~~**Regulatory Agencies**As required in the CAISO Tariff or by the CAISO CEO and CAISO Governing Board, or as required by the regulatory agency with jurisdiction over the matters in question, the Department of Market Monitoring shall prepare reports to the FERC and other regulatory agencies, which shall be reviewed and approved by the CAISO CEO or his or her designee and then submitted as required.~~ When publicly available reports are made to one regulatory agency with competent jurisdiction, such as the FERC,~~ the Department of Market Monitoring~~ DMM may simultaneously make such reports available to other regulatory agencies with legitimate interests in their contents, such as~~ the Electricity Oversight Board,~~ the California Public Utilities Commission, the California Energy Commission and/or the California Attorney General. **[Moved from Section P1.1.4.2 of Appendix P1]**

~~**P1.1.2.2**~~**8.3** ~~**Submission of Evaluation Results**~~The final results of ~~the Department of Market Monitoring~~DMM's ongoing evaluations under ~~Appendix P1, Section P1.1.2.1~~ Section 7.6 of this Appendix P shall routinely and promptly be submitted~~ to the CAISO CEO and~~ to the MSC for comment. **[Moved from Section P1.1.2.2 of Appendix P1]**

~~**P2.2.8.1**~~ **8.4** ~~**Market Monitoring Data and Indices**The CAISO Department of Market Monitoring shall, pursuant to Appendix P1, Section P1.1.1, develop a catalog of data and indices. Upon approval of the CAISO CEO, such~~ The catalogs of data and indices developed pursuant to Sections 7.4 and 7.5 of this Appendix P shall be duly published on the CAISO Website and disseminated to all Market Participants. **[Moved from Section P2.2.8.1 of Appendix P1]**

8.5 Collection and Dissemination of Information Specific to a Market Participant

~~**P1.1.5.1**~~**8.5.1** ~~**Collection of Data**The Department of Market Monitoring~~DMM may request that Market Participants or other entities whose activities may affect the operation of the CAISO Markets submit any information or data determined by ~~the Department of Market Monitoring~~DMM to be potentially relevant. This data will be subject to due safeguards to protect confidential and commercially sensitive data. Failures by Market Participants to provide such data shall be treated under Section 37. In the event of failures by other entities to provide such data, the CAISO may take whatever action is available to it and appropriate for it to take, including reporting the failure to the pertinent regulatory agency, after providing such entity the opportunity to respond in writing as to the reason for the alleged failure and may include possible exclusion from the CAISO Markets or termination of any relevant CAISO agreements or certifications. Before any such action is taken, the CAISO Market Participant shall be provided the opportunity to respond in writing as to the reason for the alleged failure. **[Moved from Section P1.1.5.1 of Appendix P1]**

~~**P1.1.5.2**~~**8.5.2** ~~**Dissemination of Data**~~Any Market Participant may request that the CAISO provide data, including data that DMM has collected under Section 8.5.1 of this Appendix P, that the CAISO has collected concerning that Market Participant~~;~~. ~~and, such data may, s~~Subject to constraints on the CAISO's resources, subject to Section 7.2 of this Appendix P, and at the CAISO's sole discretion, such data may be provided by the CAISO subject to due safeguards to protect confidential and commercially sensitive data. Where such activity imposes a significant burden or expense on the CAISO, the data may be provided on the condition that a reasonable contribution to the cost incurred by the CAISO is made to the CAISO by the requesting party. **[Moved from Section P1.1.5.2 of Appendix P1]**

8.6 Information related to the Transmission Planning Process in accordance with Section 24 the release of which DMM determines may harm competitive markets shall be deemed confidential.

9. Ethics.

9.1 DMM employees shall have no material affiliation with any market participant or affiliate.

9.2 DMM employees shall not serve as officers, employees, or partners of a market participant.

9.3 DMM employees shall have no material financial interest in any market participant or affiliate, with the exception of mutual funds and non-directed investments.

9.4 DMM employees shall not engage in any market transactions other than in the performance of their duties under the Tariff.

9.5 DMM employees shall not be compensated, other than by CAISO, for any expert witness testimony or other commercial services in connection with any legal or regulatory proceeding or commercial transaction relating to the CAISO.

9.6 DMM employees shall not accept anything of value from a market participant in excess of a de minimis amount.

9.7 DMM employees shall advise a supervisor (or in the case of the Director of DMM, the CAISO CEO) in the event they seek employment with a market participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the market participant.

9.7.1 For the purposes of this provision, the term "seeking employment" shall have the same meaning it does in 5 CFR § 2635.603, or its successor provision.

9.8 DMM employees shall comply with the CAISO Employee Code of Conduct, as amended from time to time.

10. CAISO-Specific Provisions.

10.1 This section intentionally left blank.

11. Protocol on Referrals of Investigations to the Office of Enforcement.

11.1 DMM shall make a non-public referral to the Commission in all instances where DMM has reason to believe that a Market Violation has occurred. DMM's non-public referral shall provide sufficient credible information to warrant further investigation by the Commission. Once DMM has obtained sufficient credible information to warrant referral to the Commission, DMM shall immediately refer the matter to the Commission and desist from independent action related to the alleged Market Violation. DMM may, however, continue to monitor for any repeated instances of the activity by the same or other entities, which would constitute new Market Violations. DMM shall respond to requests from the Commission for any additional information in connection with the alleged Market Violation it has referred.

~~1.3.4~~11.1.1 **~~Regulatory and Antitrust Enforcement Agencies~~**~~Where considered necessary and appropriate, or where so ordered by the regulatory or antitrust agency with jurisdiction over the matter in question, or by a court of competent jurisdiction, the CAISO shall refer a matter to the regulatory or antitrust enforcement agency concerned, e.g., in cases of serious abuse requiring expeditious investigation or action by the agency.~~ The decision to make such a referral is committed to the sole discretion of DMM. In all such cases of direct referral, DMM ~~the CAISO CEO~~ shall promptly inform the CAISO Governing Board ~~and~~, the MSC and the CAISO CEO of the fact of and the content of the referral. **[Moved from Section 1.3.4 of Appendix P]**

11.1.2 For the avoidance of doubt, the CAISO itself is subject to referral by DMM.

11.1.3 The CAISO shall refer to DMM any matter for which the particular circumstances preclude the objective determination that a Rules of Conduct violation did or did not occur. If DMM concurs with the CAISO that the particular circumstances preclude the objective determination that a Rules of Conduct violation did or did not occur, DMM shall refer the matter to FERC according to the procedures of Section 11 of this Appendix P.

11.2 All referrals to the Commission of alleged Market Violations are to be in writing, whether transmitted electronically, by fax, mail, or courier. DMM may alert the Commission orally in advance of the written referral.

11.3 The referral is to be addressed to the Commission's Director of the Office of Enforcement, with a copy also directed to both the Director of the Office of Energy Market Regulation and the General Counsel.

11.4 The referral is to include, but need not be limited to, the following information.

11.4.1 The name[s] of and, if possible, the contact information for, the entity[ies] that allegedly took the action[s] that constituted the alleged Market Violation[s];

11.4.2 The date[s] or time period during which the alleged Market Violation[s] occurred and whether the alleged wrongful conduct is ongoing;

11.4.3 The specific rule or regulation, and/or tariff provision, that was allegedly violated, or the nature of any inappropriate dispatch that may have occurred;

11.4.4 The specific act[s] or conduct that allegedly constituted the Market Violation;

11.4.5 The consequences to the market resulting from the acts or conduct, including, if known, an estimate of economic impact on the market;

11.4.6 If DMM believes that the act[s] or conduct constituted a violation of the anti-manipulation rule of Part 1c, a description of the alleged manipulative effect on market prices, market conditions, or market rules;

11.4.7 Any other information DMM believes is relevant and may be helpful to the Commission.

11.5 Following a referral to the Commission, DMM is to continue to notify and inform the Commission of any information that DMM learns of that may be related to the referral but DMM shall not undertake any investigative steps regarding the referral except at the express direction of the Commission or Commission Staff.

12 Protocol on Referrals of Perceived Market Design Flaws and Recommended Tariff Changes to the Office of Energy Market Regulation.

12.1 DMM is to make a referral to the Commission in all instances where it has reason to believe market design flaws exist that it believes could effectively be remedied by rule or tariff changes. DMM must limit distribution of its identifications and recommendations to CAISO, the CAISO Governing Board, and to the Commission in the event it believes broader dissemination could lead to exploitation of the market design flaw, with an explanation of why further dissemination should be avoided at that time.

12.2 All referrals to the Commission relating to perceived market design flaws and recommended tariff changes are to be in writing, whether transmitted electronically, by fax, mail, or courier. DMM may alert the Commission orally in advance of the written referral.

12.3 The referral should be addressed to the Commission's Director of the Office of Energy Market Regulation, with copies directed to both the Director of the Office of Enforcement and the General Counsel.

12.4 The referral is to include, but need not be limited to, the following information.

12.4.1 A detailed narrative describing the perceived market design flaw[s];

12.4.2 The consequences of the perceived market design flaw[s], including, if known, an estimate of economic impact on the market;

12.4.3 The rule or tariff change(s) that DMM believes could remedy the perceived market design flaw;

12.4.4 Any other information DMM believes is relevant and may be helpful to the Commission.

12.5 Following a referral to the Commission, DMM is to continue to notify and inform the Commission of any additional information regarding the perceived market design flaw, its effects on the market, any additional or modified observations concerning the rule or tariff changes that could remedy the perceived design flaw, any recommendations made by DMM to CAISO, stakeholders, market participants or state commissions regarding the perceived design flaw, and any actions taken by CAISO regarding the perceived design flaw.

~~CAISO TARIFF APPENDIX P1~~

~~CAISO Department of Market Monitoring~~

~~P1.1 CAISO Department of Market Monitoring~~

~~P1.1.1 Information Gathering and Market Monitoring Indices for Evaluation~~

~~P1.1.1.1 Information System~~ ~~The Department of Market Monitoring shall be responsible for developing an information system and criteria for evaluation that will permit it to effectively monitor the CAISO Markets to identify and investigate abuses of that market, whether caused by exercises of market power or by other actions or inactions.~~

~~P1.1.1.2 Data Categories~~

~~To develop the information system set forth in Section P1.1.1.1, the Department of Market Monitoring shall initially develop, and shall refine on the basis of experience, a detailed catalog of all the categories of data it will have the means of acquiring, and the procedures it will use (including procedures for protecting confidential data) to handle such data.~~

~~P1.1.1.3 Catalog of Market Monitoring Indices~~

~~The Department of Market Monitoring shall initially develop, and shall refine on the basis of experience, a catalog of the CAISO Market monitoring indices that it will use to evaluate the data so collected.~~

~~P1.1.2 Evaluation of Information~~

~~P1.1.2.1 Ongoing Evaluation~~

~~The Department of Market Monitoring shall evaluate and reevaluate on an ongoing basis the data categories and market monitoring indices that it has developed under Appendix P1, Sections P1.1.1.2 and P1.1.1.3, and the information it collects and receives from various other sources, including and in particular the CAISO's operation of the CAISO Markets. Such ongoing evaluations shall provide the basis for its reporting and publication responsibilities as set forth in this CAISO Tariff, for recommendations on proposed changes to the CAISO Tariff and CAISO Business Practice Manuals and other potential rules affecting the CAISO Markets, and for the development of criteria or standards for the initiation of proposed corrective or enforcement actions. In evaluating such information, the Department of Market Monitoring may consult the MSC or such external bodies as may be appropriate.~~

~~P1.1.2.2 Submission of Evaluation Results~~

~~The final results of the Department of Market Monitoring's ongoing evaluations under Appendix P1, Section P1.1.2.1 shall routinely and promptly be submitted to the CAISO CEO and to the MSC for comment.~~

~~P1.1.3 Review of Rules of Conduct~~

~~The Department of Market Monitoring shall review Rules of Conduct for their effectiveness and consistency with its market monitoring activities and standards. The Department of Market Monitoring may at that time, and from time to time thereafter based on its experience in monitoring the CAISO Markets, propose to the CAISO CEO and/or the CAISO Governing Board that changes be made in such Rules of Conduct.~~

~~P1.1.4 Reports and Recommendations~~

~~P1.1.4.1 CAISO CEO and Governing Board~~

~~On the basis of the evaluation conducted under Appendix P1, Section P1.1.2 or the review conducted under Section P1.1.3, the Department of Market Monitoring shall prepare periodic reports, as required by the CAISO CEO, and specific ad hoc reports as appropriate, for the CAISO CEO and CAISO Governing Board on the state of competition in or the efficiency of the CAISO Markets; and on its monitoring activities, the results of its evaluation and review activities, and its development and implementation of recommendations. Where appropriate, the CAISO Department of Market Monitoring may recommend to the CAISO CEO and/or the CAISO Governing Board actions to be taken, including the amendment of the CAISO Tariff and CAISO Business Practice Manuals and corrective or enforcement action against specific entities. Such reports shall be made not less frequently than quarterly in the case of the CAISO CEO and annually in the case of the CAISO Governing Board and shall contain such information and be in such form as specified by such entities. Such reports shall be made public and publicized as specified by such entities except to the extent that they contain confidential or commercially sensitive information or to the extent such entities determine that effective enforcement of the monitoring function dictates otherwise.~~

~~P1.1.4.2 Regulatory Agencies~~

~~As required in the CAISO Tariff or by the CAISO CEO and CAISO Governing Board, or as required by the regulatory agency with jurisdiction over the matters in question, the Department of Market Monitoring shall prepare reports to the FERC and other regulatory agencies, which shall be reviewed and approved by the CAISO CEO or his or her designee and then submitted as required. When publicly available reports are made to one regulatory agency with competent jurisdiction, such as the FERC, the Department of Market Monitoring may simultaneously make such reports available to other regulatory agencies with legitimate interests in their contents, such as the Electricity Oversight Board, the California Public Utilities Commission, the California Energy Commission and/or the California Attorney General.~~

~~P1.1.4.3 CAISO Market Surveillance Committee~~

~~All reports and recommendations to be made to regulatory agencies under Appendix P1, Section P1.1.4.2, unless urgency requires otherwise, shall first be submitted to the MSC for comments, which comments shall be reflected in any submittal to the CAISO Governing Board seeking approval of any such reports or recommendations. All final reports made to external regulatory agencies shall be simultaneously submitted to the MSC.~~

~~P1.1.5 Market Participants~~

~~P1.1.5.1 Collection of Data~~

~~The Department of Market Monitoring may request that Market Participants or other entities whose activities may affect the operation of the CAISO Markets submit any information or data determined by the Department of Market Monitoring to be potentially relevant. This data will be subject to due safeguards to protect confidential and commercially sensitive data. Failures by Market Participants to provide such data shall be treated under Section 37. In the event of failures by other entities to provide such data, the CAISO may take whatever action is available to it and appropriate for it to take, including reporting the failure to the pertinent regulatory agency, after providing such entity the opportunity to respond in writing as to the reason for the alleged failure and may include possible exclusion from the CAISO Markets or termination of any relevant CAISO agreements or certifications. Before any such action is taken, the CAISO Market Participant shall be provided the opportunity to respond in writing as to the reason for the alleged failure.~~

~~P1.1.5.2 Dissemination of Data~~

~~Any Market Participant may request that the CAISO provide data that the CAISO has collected concerning that Market Participant; and, such data may, subject to constraints on the CAISO's resources and at the CAISO's sole discretion, be provided by the CAISO subject to due safeguards to protect confidential and commercially sensitive data. Where such activity imposes a significant burden or expense on the CAISO, the data may be provided on the condition that a reasonable contribution to the cost incurred by the CAISO is made to the CAISO by the requesting party.~~

~~P1.1.6 External Consulting Assistance and Expert Advice~~

~~In carrying out any of its responsibilities under this CAISO Tariff, including the development of an information system, market monitoring indices and evaluation criteria, and the catalogs associated therewith, and in its analysis and ongoing evaluation of these catalogs and of the Rules of Conduct, the Department of Market Monitoring may hire consulting assistance subject to the budgetary approval of the CAISO CEO and may seek such expert external advice as it believes necessary.~~

~~P1.1.7 Liability for Damages~~

~~As provided in Section 14 of the CAISO Tariff, the Department of Market Monitoring, the MSC, the CAISO CEO and other CAISO staff, and the CAISO Governing Board shall not be liable to any Market Participant under any circumstances whatsoever for any matter described in those sections, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by such CAISO entities of their functions under this CAISO Tariff.~~

~~CAISO TARIFF APPENDIX P2~~

~~Market Surveillance Committee~~

~~P2.2 Market Surveillance Committee~~

~~P2.2.1 Establishment~~

~~There shall be established a Market Surveillance Committee (MSC), whose role it shall be to provide independent external expertise on the CAISO market monitoring process and, in particular, to provide independent expert advice and recommendations to the CAISO CEO and Governing Board. Members of the Committee shall not be, and shall not be understood to be, employees or agents of the CAISO.~~

~~P2.2.2 Composition~~

~~P2.2.2.1 Qualifications~~

~~The MSC shall comprise a body of three or more independent and recognized experts whose combined professional expertise and experience shall encompass the following:~~

~~(a) economics, with emphasis on antitrust, competition, and market power issues in the electricity industry;~~

~~(b) experience in operational aspects of Generation and transmission in electricity markets;~~

~~(c) experience in antitrust or competition law in regulated industries; and~~

~~(d) financial expertise relevant to energy or other commodity trading.~~

~~P2.2.2.2 Criteria for Independence~~

~~Each member of the MSC must meet the following criteria for independence:~~

~~**P2.2.2.2.1** no material affiliation, through employment, consulting or otherwise, with any Market Participant or Affiliate thereof consistent with the pertinent FERC Standards of Conduct; and~~

~~**P2.2.2.2.2** no material financial interest in any Market Participant or Affiliate thereof consistent with the pertinent FERC Standards of Conduct.~~

~~**P2.2.2.2.3** during their time on the Committee, members may not provide paid expert witness testimony or other commercial services to the CAISO or to any other party in connection with any legal or regulatory proceeding relating to the CAISO or any trade or other transaction involving the CAISO Markets (except that the Committee may consult with and make recommendations concerning the functioning of the markets to CAISO management or the CAISO Governing Board in connection with legal or regulatory proceedings).~~

~~P2.2.3 Appointments to the MSC~~

~~For each position on the MSC, the CAISO CEO shall conduct a thorough search and requisite due diligence to develop a nomination to the CAISO Governing Board, which nomination shall be consistent with meeting the combined professional expertise and experience of the MSC set forth in Appendix P2, Section P2.2.2.1 and with the criteria for independence set forth in Appendix P2, Section P2.2.2.2. The CAISO Governing Board shall expeditiously consider such nominations. If the nomination is approved, the CAISO CEO shall appoint the candidate so nominated to the MSC. If the nomination is rejected, the CAISO CEO shall expeditiously proceed to develop another nomination.~~

~~P2.2.4 Compensation and Reimbursements~~

~~Members of the MSC shall be compensated on such basis as the CAISO Governing Board shall from time to time determine.~~

~~Members of the MSC shall receive prompt reimbursement for all expenses reasonably incurred in the execution of their responsibilities under this Appendix P2, Section P2.2.~~

~~P2.2.5 Liability for Damages~~

~~As provided in Section 14 of the CAISO Tariff, the Department of Market Monitoring, the MSC, the CAISO CEO and other CAISO staff, and the CAISO Governing Board shall not be liable to any Market Participant under any circumstances whatsoever for any matter described in those sections, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by such CAISO entities of their functions under this CAISO Tariff.~~

~~P2.2.6 SPECIFIC FUNCTIONS OF MARKET SURVEILLANCE COMMITTEE (MSC)~~

~~P2.2.6.1 Information Gathering and Evaluation Criteria~~

~~The MSC shall review the initial catalogs of information and data and of evaluation criteria developed by the Department of Market Monitoring pursuant to Appendix P1, Section P1.1 and shall propose such changes, additions or deletions to such catalogs or items therein as it sees fit. In so doing, the MSC shall have full discretion to specify database items or evaluation criteria for inclusion in the pertinent catalog.~~

~~P2.2.6.2 Evaluation of Information~~

~~The MSC may, upon request of the Department of Market Monitoring, the CAISO management or the CAISO Governing Board, or on its own volition, evaluate such information or data, including as may be collected by the Department of Market Monitoring on the basis of the evaluation criteria developed by the Department of Market Monitoring or on such further articulated evaluation criteria developed by the MSC.~~

~~P2.2.6.3 Reports and Recommendations~~

~~P2.2.6.3.1 Required Reports~~

~~All evaluations carried out by the MSC pursuant to Appendix P2, Section P2.2.6.2, and any recommendations emanating from such evaluations, shall be embodied by the MSC in written reports to the CAISO CEO and CAISO Governing Board and shall be made publicly available subject to due restrictions on dissemination of confidential or commercially sensitive information. The MSC may submit any MSC report to FERC, subject to due restrictions on dissemination of confidential or commercially sensitive information.~~

~~P2.2.6.3.2 Additional Reports~~

~~The MSC may make such additional reports and recommendations as it sees fit relating to the monitoring program referred to in this CAISO Tariff, the analysis of information, the evaluation criteria or any corrective or enforcement actions proposed by the Department of Market Monitoring or proposed of its own volition.~~

~~P2.2.6.4 Publication of Reports and Recommendations~~

~~Upon request of the MSC, the CAISO shall publish reports and recommendations of the MSC or incorporate them, if consistent, into the CAISO's own reports or recommendations.~~

~~P2.2.7 IMPLEMENTATION OF RECOMMENDATIONS~~

~~P2.2.7.1 Plan and Rules of Conduct Changes~~

~~Following a recommendation of the MSC, the CAISO Governing Board may make such changes as it believes are appropriate to the CAISO Tariff, any CAISO Business Practice Manual or Agreement, or any Rules of Conduct applicable in accordance with Section 22.11 of this CAISO Tariff. .~~

~~P2.2.7.2 Tariff Changes~~

~~Upon recommendation of the MSC, the CAISO Governing Board shall consider and may adopt proposed CAISO Tariff changes in accordance with Section 22.11 of this CAISO Tariff.~~

~~P2.2.7.3 Sanctions and Penalties~~

~~Upon recommendation of the MSC, the CAISO may impose such sanctions or penalties as it believes necessary and as are permitted under the CAISO Tariff and related protocols approved by FERC; Section 37.9 or it may make any such referral to such regulatory or antitrust agency as it sees fit to recommend the imposition of sanctions and penalties.~~

~~P2.2.8 PUBLICATION OF INFORMATION~~

~~P2.2.8.1 Market Monitoring Data and Indices~~

~~The CAISO Department of Market Monitoring shall, pursuant to Appendix P1, Section P1.1.1, develop a catalog of data and indices. Upon approval of the CAISO CEO, such catalogs shall be duly published on the CAISO Website and disseminated to all Market Participants.~~

~~P2.2.8.2 Reports to Regulators~~

~~The CAISO shall develop annual reports of market performance for delivery to FERC, and such other reports as may be required by FERC, which shall be submitted for review to the MSC. The Department of Market Monitoring shall prepare and submit such reports to the CAISO CEO, CAISO Governing Board and to the regulatory agency concerned.~~

* * *

ENCLOSURE NO. 3

CLEAN REVISED TARIFF SHEETS

Enclosure No. 3 – Clean Sheets

RM07-19-000 and AD07-07-000

Order 719 Compliance Filing

4th Replacement CAISO Tariff (MRTU)

April 28, 2009

(e) The following information related to the resource adequacy program in accordance with Section 40:

(i) Annual and monthly Resource Adequacy Plans and Supply Plans;

(ii) Demand Forecasts; and

(iii) Information on existing import contracts.

(f) The following information related to the Transmission Planning Process in accordance with Section 24:

(1) Information received under Sections 24.2.3.2 and 24.2.3.3 to the extent such information has been designated as confidential in accordance with the Business Practice Manual;

(2) Information deemed confidential by DMM, per Section 8.6 of Appendix P;

(3) Information received by the CAISO pursuant to agreements and contracts, executed prior to December 21, 2007, that preclude the release of the information;

(4) Information that involves proprietary analytical tools, computer codes, or any other material that is protected by intellectual property rights held by the CAISO, Project Sponsor, Market Participant or other third-party; and

(5) Critical Energy Infrastructure Information.

However, composite documents, data, and other information that may be developed based on confidential information under this Section shall not be deemed confidential if the composite documents, data, and other information do not disclose any confidential information of any individual Scheduling Coordinator, Market Participant, or other third-party or Critical Energy Infrastructure Information.

20.3 Other Parties.

No Market Participant shall have the right hereunder to receive from the CAISO or to review any documents, data or other information of another Market Participant to the extent such documents, data or information is to be treated as in accordance with Section 20.2; provided, however, a Market Participant may receive and review any composite documents, data, and other information that may be developed based upon such confidential documents, data, or information, if the composite document does not disclose such confidential data or information relating to an individual Market Participant and provided, however, that the CAISO may disclose information as provided for in its bylaws.

20.4 Disclosure.

Notwithstanding anything in this Section 20 to the contrary,

(a) The CAISO: (i) shall publish individual bids ninety (90) days after the Trading Day with respect to which the bid was submitted and in a manner that does not reveal the specific resource or the name of the Scheduling Coordinator submitting the bid, but that allows the bidding behavior of individual, unidentified resources and Scheduling Coordinators to be tracked over time; and (ii) may publish data sets analyzed in any public report issued by the CAISO or by the MSC, provided that such data sets shall be published no sooner than six (6) months after the latest Trading Day to which data in the data set apply, and in a manner that does not reveal any specific resource or the name of any Scheduling Coordinator submitting bids included in such data sets.

37.1.4 FERC Authority.

In addition to any authority afforded in this Section 37, FERC shall have the authority to assess the sanctions, and otherwise to enforce the rules as set forth and described in this Section 37. FERC shall have authority to remedy a violation under this Section 37 from the date of the violation. Nothing in this Section 37 shall be deemed to be a limitation or condition on the authority of FERC or other entities under current law or regulation.

37.1.5 Administration.

The CAISO will administer the Rules of Conduct specified herein, except for Section 37.7, which shall be administered by FERC, and except as provided in Section 37.2.5 and Section 37.4.4.

37.2 Comply with Operating Orders.

37.2.1 Compliance with Orders Generally.

37.2.1.1 Expected Conduct.

Market Participants must comply with operating orders issued by the CAISO as authorized under the CAISO Tariff. For purposes of enforcement under this Section 37.2, an operating order shall be an order(s) from the CAISO directing a Market Participant to undertake, a single, clearly specified action (e.g., the operation of a specific device, or change in status of a particular Generating Unit) that is feasible and intended to resolve a specific operating condition. A Market Participant's failure to obey an operating order containing multiple instructions to address a specific operating condition will result in a single violation of Section 37.2. If some limitation prevents the Market Participant from fulfilling the action requested by the CAISO, then the Market Participant must promptly and directly communicate the nature of any such limitation to the CAISO. Compliance with CAISO operating orders requires a good faith effort to achieve full performance as soon as is reasonably practicable in accordance with Good Utility Practice.

37.7 Prohibition of Electric Energy Market Manipulation.

It shall be a violation of this CAISO Tariff for an entity, directly or indirectly, in connection with the purchase or sale of electric energy or the purchase or sale of transmission services subject to the jurisdiction of the FERC, (i) to use or employ any device, scheme, or artifice to defraud, (ii) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading, or (iii) to engage in any act, practice, or course of business that operates or would operate as a fraud or deceit upon any entity. Violations or potential violations of this rule shall be referred to FERC for appropriate sanction.

Actions or transactions by a Market Participant that are explicitly contemplated in the CAISO Tariff or are undertaken at the direction of the CAISO are not in violation of this Rule of Conduct.

37.8 Process for Investigation and Enforcement.

37.8.1 Purpose; Scope.

The provisions of this Section 37.8 set forth the procedures by which the CAISO will independently investigate potential violations of the Rules of Conduct and administer enforcement activities. Except as hereinafter provided, and except as provided in Section 37.2.5 and Section 37.4.4, the provisions of this section apply to the Rules of Conduct set forth in Sections 37.2 through 37.7.

37.8.2 Referrals to FERC.

Section 37.7 shall be enforced by FERC, in accordance with FERC's rules and procedures. Pursuant to Section 11 of Appendix P, DMM shall refer suspected violations of Section 37.7 to FERC. Although Sections 37.2 through 37.6 will generally be enforced by the CAISO, the CAISO shall refer to FERC any Sanction that it believes would be modified in accordance with Sections 37.2.5, 37.4.4, or 37.9.1. Pursuant to Section 11.1.3 of Appendix P, the CAISO shall refer to DMM any matter for which the particular circumstances preclude the objective determination that a Rules of Conduct violation did or did not occur, and if DMM concurs with the CAISO's conclusion that the circumstances preclude such an objective determination, then DMM shall refer the matter to FERC under the protocol on referrals outlined in Section 11 of Appendix P. The time limitation contained in Section 37.10.1 to assess a Sanction under this Section 37 shall be determined as of the date that a Sanction is initially assessed by the CAISO, excluding the time required for FERC to investigate a potential Rules of Conduct violation and/or determine a Sanction in accordance with this section, Sections 37.2.5, 37.4.4, or 37.9.1.

37.8.3 Investigation.

The CAISO shall conduct a reasonable investigation seeking available facts, data, and other information relevant to the potential Rules of Conduct violation.

37.8.4 Notice.

The CAISO shall provide notice of the investigation in sufficient detail to allow for a meaningful response to the Scheduling Coordinator and, as limited below, to all Market Participants the Scheduling Coordinator represents that are the subject(s) of the investigation. The CAISO shall contact the Market Participant(s) that may be involved, so long as the CAISO has sufficient objective information to identify and verify the role of the Market Participant(s) in the potential Rules of Conduct violation. Such Market Participant(s) will likely have an existing contractual relationship with the CAISO (e.g., UDC, MSS, CAISO Metered Entity, Participating Transmission Owner, Participating Generator, or Participating Load).

37.8.5 Opportunity to Present Evidence.

The CAISO shall provide an opportunity to the Market Participant(s) that are the subject(s) of the investigation to present any issues of fact or other information relevant to the potential Rules of Conduct violation being investigated. The CAISO shall consider all such information or data presented.

37.8.6 Results of Investigation.

The CAISO shall notify the Market Participant(s) that are the subject(s) of the investigation of the results of the investigation. The Market Participant(s) shall have thirty (30) days to respond to the findings of the CAISO before the CAISO makes a determination of whether a Sanction is required by this CAISO Tariff.

37.8.7 Statement of Findings and Conclusions.

Where the investigation results in a Sanction, the CAISO shall state its findings and conclusions in writing, and will make such writing available to the Scheduling Coordinator and, as provided in Section 37.8.4, to the Market Participant(s) that are the subject(s) of the investigation.

37.8.8 Officer Representative.

Where an investigation results in a Sanction by the CAISO, the CAISO shall direct its notice of such result to a responsible representative of the Scheduling Coordinator and, as provided in Section 37.8.4, to the Market Participant(s) that are the subject(s) of the investigation at the officer level.

37.8.9 Record of Investigation.

Where an investigation results in a Sanction, the CAISO will maintain a record of the investigation until its decision has been finally reviewed, if review is sought, or until the period for seeking review has expired.

37.8.10 Review of Determination.

A Market Participant that receives a Sanction may obtain immediate review of the CAISO's determination by directly appealing to FERC, in accordance with FERC's rules and procedures. In such case, the applicable Scheduling Coordinator shall also dispute the Initial Settlement Statement T + 38 BD containing the financial penalty, in accordance with Section 11. The Initial Settlement Statement

T + 38 BD dispute and appeal to FERC must be made in accordance with the timeline for raising disputes specified in Section 11.29.8.2. The penalty will be tolled until FERC renders its decision on the appeal. The disposition by FERC of such appeal shall be final, and no separate dispute of such Sanction may be initiated under Section 13, except as provided in Section 37.9.3.4. For the purpose of applying the time limitations set forth in Section 37.10.1, a sanction will be considered assessed when it is included on an Initial Settlement Statement T + 38 BD, whether or not the CAISO accepts a Scheduling Coordinator's dispute of such Initial Settlement Statement T + 38 BD pending resolution of an appeal to FERC in accordance with this section or Section 37.9.3.3.

37.9 Administration of Sanctions.

37.9.1 Assessment; Waivers and Adjustments.

Penalty amounts for violation of these Rules of Conduct shall be calculated as specified in Section 37.2 through Section 37.7. A Sanction specified in this Section 37 may be modified by FERC when it determines that such adjustment is just and reasonable. With the concurrence of DMM, the CAISO may make a recommendation to FERC to modify a Sanction. An adjustment generally shall be deemed appropriate if the prescribed Sanction appears to be insufficient to deter the prohibited behavior, or if the circumstances suggest that the violation was inadvertent, unintentional, or some other mitigating circumstances exist.

37.9.2 Excuse.

The following circumstances shall excuse a violation of a Rule of Conduct under the terms of this CAISO Tariff:

37.9.2.1 Uncontrollable Force.

No failure by a Market Participant to satisfy the Rules of Conduct shall be subject to penalty to the extent and for the period that the Market Participant's inability to satisfy the Rules of Conduct is caused by an event or condition of Uncontrollable Force affecting the Market Participant; provided that the Market Participant gives notice to the CAISO of the event or condition of Uncontrollable Force as promptly as possible after it knows of the event or condition and makes all reasonable efforts to cure, mitigate, or remedy the effects of the event or condition.

37.9.3.2 Payment.

Except as provided in Section 37.2.5, Section 37.4.4, Section 37.8.10 or Section 37.9.3.3 below, the Scheduling Coordinator shall be obligated to pay all penalty amounts reflected on Settlement Statements to the CAISO pursuant to the CAISO's Settlement process, as set forth in Section 11.

37.9.3.3 Other Responsible Party.

Where a party or parties other than the Scheduling Coordinator is responsible for the conduct giving rise to a penalty reflected on a Settlement Statement, and where the Scheduling Coordinator bears no responsibility for the conduct, such other party or parties ultimately shall be liable for the penalty. Under such circumstances, the Scheduling Coordinator shall use reasonable efforts to obtain payment of the penalty from the responsible party(ies) and to remit such payment to the CAISO in the ordinary course of the Settlement process. In the event that the responsible party(ies) wish to dispute the penalty, or the Scheduling Coordinator otherwise is unable to obtain payment from the responsible parties, the Scheduling Coordinator shall notify the CAISO and dispute the Initial Settlement Statement T+ 38 BD. The CAISO promptly shall notify FERC. If the CAISO finds, and DMM concurs, that a Market Participant separate from the Scheduling Coordinator that is unable to obtain payment from the responsible party(ies) is solely responsible for a violation, the Scheduling Coordinator that is unable to obtain payment may net its payment of its Invoice amount by the amount of the penalty in question. The CAISO may refuse to offer further service to any responsible party that fails to pay a penalty, unless excused under the terms of the CAISO Tariff, by providing notice of such refusal to the Scheduling Coordinator. Following such notice, the Scheduling Coordinator shall be liable for any subsequent penalties assessed on account of such responsible party.

37.9.3.4 Dispute of FERC Sanctions.

The right that a Market Participant may otherwise have under the CAISO Tariff to dispute a penalty that has been determined by FERC shall be limited to a claim that the CAISO failed properly to implement the penalty or other Sanction ordered by FERC, except as provided by Section 37.2.5 and Section 37.4.4.

38 Market Monitoring.

To comply with Commission Order No. 719, P 392, Section 38 has been consolidated with, and moved to, Appendix O (for the MSC) and Appendix P (for DMM). Where a provision in Appendix O or Appendix P is cross-referenced in another section or appendix of this Tariff, the language in Appendix O or Appendix P shall govern in the event of any conflict.

[NOT USED]

[NOT USED]

[NOT USED]

[NOT USED]

Deliverability Assessment	An evaluation by the Participating TO, CAISO or a third party consultant for the Interconnection Customer to determine a list of facilities, the cost of those facilities, and the time required to construct these facilities, that would ensure a Generating Facility could provide Energy to the CAISO Controlled Grid at peak Load, under a variety of severely stressed conditions, such that the aggregate of Generation in the local area can be delivered to the aggregate of Load on the CAISO Controlled Grid, consistent with the CAISO's reliability criteria and procedures.
Delivery Network Upgrades	Transmission facilities at or beyond the Point of Interconnection, other than Reliability Network Upgrades, identified in the Interconnection Studies to relieve Constraints on the CAISO Controlled Grid.
Delivery Point	The point where a transaction between Scheduling Coordinators is deemed to take place. It can be either the Generation input point, a Demand Take-Out Point, or a transmission bus at some intermediate Location.
Demand	The instantaneous amount of Power that is delivered to Loads and Scheduling Points by Generation, transmission or distribution facilities. It is the product of voltage and the in-phase component of alternating current measured in units of watts or standard multiples thereof, e.g., 1,000W=1kW, 1,000kW=1MW, etc.
Demand Bid	The Bid component in a Bid submitted in the DAM that indicates the MWh of Energy the Scheduling Coordinator is willing to purchase, the price at which it is willing to purchase the specified Energy and the applicable Trading Hours for the next day.
Demand Forecast	An estimate of Demand over a designated period of time.
Department of Market Monitoring (DMM)	The department of the CAISO established under Section 1 of Appendix P.

Dispatch Instruction	An instruction by the CAISO for an action with respect to specific equipment, or to a resource for increasing or decreasing its Energy Supply or Demand from the Day-Ahead Schedule, RUC Schedule, and Day-Ahead AS Award to a specified Dispatch Operating Point pertaining to Real-Time operations.
Dispatch Interval	The Time Period, which may range between five (5) and thirty (30) minutes, over which the Real-Time Dispatch measures deviations in Generation and Demand, and selects Ancillary Service and supplemental energy resources to provide balancing Energy in response to such deviations. The Dispatch Interval shall be five (5) minutes. Following a decision by the CAISO Governing Board, the CAISO may, by seven (7) days' notice published on the CAISO Website, increase or decrease the Dispatch Interval within the range of five (5) to thirty (30) minutes.
Dispatch Interval LMP	The price of Imbalance Energy determined at each Dispatch Interval in accordance with Section 11.5.4.
Dispatch Operating Point	The expected operating point of a resource that has received a Dispatch Instruction. The resource is expected to operate at the Dispatch Operating Point after completing the Dispatch Instruction, taking into account any relevant Ramp Rate and time delays. Energy expected to be produced or consumed above or below the Day-Ahead Schedule in response to a Dispatch Instruction constitutes Instructed Imbalance Energy. For resources that have not received a Dispatch Instruction, the Dispatch Operating Point defaults to the corresponding Day-Ahead Schedule.
Distribution System	The distribution assets of an IOU or Local Publicly Owned Electric Utility.
Distribution Upgrades	The additions, modifications, and upgrades to the Participating TO's electric systems that are not part of the CAISO Controlled Grid. Distribution Upgrades do not include Interconnection Facilities.
DMM	Department of Market Monitoring

Market Notice	An electronic notice issued by the CAISO that the CAISO posts on the CAISO Website and provides by e-mail to those registered with the CAISO to receive CAISO e-mail notices.
Market Participant	An entity, including a Scheduling Coordinator, who either: (1) participates in the CAISO Markets through the buying, selling, transmission, or distribution of Energy, Capacity, or Ancillary Services into, out of, or through the CAISO Controlled Grid; or (2) is a CRR Holder or Candidate CRR Holder.
Market Power Mitigation-Reliability Requirement Determination (MPM-RRD)	The two-optimization run process conducted in both the Day-Ahead Market and the HASP that determines the need for the CAISO to employ market power mitigation measures or Dispatch RMR Units.
Market Surveillance Committee (MSC)	The committee established under Appendix P.2.
Market Usage Charge	The component of the Grid Management Charge that provides for the recovery of the CAISO's costs, including, but not limited to the costs for processing Day-Ahead, Hour-Ahead Scheduling Process and Real-Time Bids, maintaining the Open Access Same-Time Information System, monitoring market performance, ensuring generator compliance with market rules as defined in the CAISO Tariff and the Business Practice Manuals, and determining LMPs. The formula for determining the Market Usage Charge is set forth in Appendix F, Schedule 1, Part A.
Market Violation	A violation of a market behavior rule promulgated by the Commission or a violation of a provision of this Tariff other than those provisions that carry a sanction specifically enumerated under Section 37 of this Tariff.
Master File	A file containing information regarding Generating Units, Loads and other resources, or its successor.

CAISO TARIFF APPENDIX O

CAISO Market Surveillance Committee

CAISO TARIFF APPENDIX O

CAISO Market Surveillance Committee

1. Introduction and Purpose

1.1 There shall be established a Market Surveillance Committee (MSC), whose role it shall be to provide independent external expertise on the CAISO market monitoring process and, in particular, to provide independent expert advice and recommendations to the CAISO CEO and Governing Board.

2. Definitions

2.1 This section intentionally left blank.

3. Independence and Oversight

3.1 This section intentionally left blank.

4. Structure

4.1 The MSC shall comprise a body of three or more independent and recognized experts whose combined professional expertise and experience shall encompass the following: (a) economics, with emphasis on antitrust, competition, and market power issues in the electricity industry; (b) experience in operational aspects of Generation and transmission in electricity markets; (c) experience in antitrust or competition law in regulated industries; and (d) financial expertise relevant to energy or other commodity trading.

4.2 Members of the MSC shall be compensated on such basis as the CAISO Governing Board shall from time to time determine. Members of the MSC shall receive prompt reimbursement for all expenses reasonably incurred in the execution of their responsibilities under this Appendix O.

4.3 Members of the MSC shall not be, and shall not be understood to be, employees or agents of the CAISO.

4.4 For each position on the MSC, the CAISO CEO shall conduct a thorough search and requisite due diligence to develop a nomination to the CAISO Governing Board, which nomination shall be consistent with meeting the combined professional expertise and experience of the MSC set forth in Section 4.1 of this Appendix O and with the criteria for independence set forth in Section 9 of this Appendix O. The CAISO Governing Board shall expeditiously consider such nominations. If the nomination is approved, the CAISO CEO shall appoint the candidate so nominated to the MSC. If the nomination is rejected, the CAISO CEO shall expeditiously proceed to develop another nomination.

4.5 No member of the MSC shall be liable to any Market Participant under any circumstances whatsoever for any matter, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by the MSC of its functions under this CAISO Tariff.

5. Duties of Market Monitor

5.1 The MSC may, upon request of DMM, the CAISO management or the CAISO Governing Board, or on its own initiative, evaluate such information or data, including as may be collected by DMM on the basis of the evaluation criteria developed by DMM or on such further articulated evaluation criteria developed by the MSC.

5.2 The MSC may, upon request of DMM, the CAISO management or the CAISO Governing Board, or on its own initiative, recommend such changes as it believes are appropriate to the CAISO Tariff, any CAISO Business Practice Manual, any CAISO agreement or any Rules of Conduct applicable in accordance with Section 22.11 of this CAISO Tariff. The CAISO Governing Board shall consider and may adopt proposed CAISO Tariff changes in accordance with Section 22.11 of this CAISO Tariff.

5.3 Upon request of the MSC, the CAISO shall publish reports and recommendations of the MSC or incorporate them, if consistent, into the CAISO's own reports or recommendations.

5.4 The MSC may on its own initiative recommend that the CAISO impose sanctions and penalties for violations of the CAISO Tariff and related protocols. Upon recommendation of the MSC, the CAISO may impose such sanctions or penalties as it believes necessary and as are permitted under the CAISO Tariff and related protocols approved by FERC.

5.5 The MSC may make such additional reports and recommendations as it sees fit relating to the monitoring program referred to in this CAISO Tariff, the analysis of information, the evaluation criteria or any corrective or enforcement actions proposed by DMM or proposed on its own initiative.

5.6 The MSC may review in draft form, and provide pre-publication comment on, all quarterly and annual reports DMM produces pursuant to Section 5.2 of Appendix P.

5.7 The MSC may review in draft form, and provide pre-submission comment on, all referrals to FERC pursuant to section Sections 11 and 12 of Appendix P.

5.8 The MSC may not participate in the administration of CAISO's tariff or conduct prospective market mitigation.

6. Duties of the CAISO.

6.1 CAISO responsibilities not expressly assigned to the MSC, DMM, or any specific individual or entity in this Appendix O remain with the CAISO.

7. Data Access, Collection, and Retention

7.1 The MSC shall review the initial catalogs of information and data and of evaluation criteria developed by DMM pursuant to Sections 7.4 and 7.5 of Appendix P and shall propose such changes, additions or deletions to such catalogs or items therein as it sees fit. In so doing, the MSC shall have full discretion to specify database items or evaluation criteria for inclusion in the pertinent catalog.

8 Information Sharing

8.1 All evaluations carried out by the MSC pursuant to Section 5.1 of this Appendix O, and any recommendations emanating from such evaluations, shall be embodied by the MSC in written reports to the CAISO CEO and CAISO Governing Board, and DMM, and shall be made publicly available subject to due restrictions on dissemination of confidential or commercially sensitive information. The MSC may submit any MSC report to FERC, subject to due restrictions on dissemination of confidential or commercially sensitive information.

9. Ethics

9.1 Members of the MSC shall have no material affiliation with any market participant or affiliate.

9.2 Members of the MSC shall not serve as officers, employees, or partners of a market participant.

9.3 Members of the MSC shall have no material financial interest in any market participant or affiliate, with the exception of mutual funds and non-directed investments.

9.4 Members of the MSC shall not engage in any market transactions other than in the performance of their duties under the tariff.

9.5 Members of the MSC shall not be compensated, other than by CAISO, for any expert witness testimony or other commercial services in connection with any legal or regulatory proceeding or commercial transaction relating to the CAISO.

9.6 Members of the MSC shall not accept anything of value from a market participant in excess of a de minimis amount.

9.7 Members of the MSC shall advise the CAISO Governing Board in the event they seek employment with a market participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the market participant.

9.7.1 For the purposes of this provision, the term “seeking employment” shall have the same meaning it does in 5 CFR § 2635.603, or its successor provision.

10. CAISO-Specific Provisions

10.1 This section intentionally left blank.

11 Protocol on Referrals of Investigations to the Office of Enforcement

11.1 This section intentionally left blank.

12. Protocol on Referrals of Perceived Market Design Flaws and Recommended Tariff Changes to the Office of Energy Market Regulation

12.1 This section intentionally left blank.

CAISO TARIFF APPENDIX P

CAISO Department of Market Monitoring

CAISO TARIFF APPENDIX P

CAISO Department of Market Monitoring

1 Introduction and Purpose

1.1 Establishment

There shall be established within the CAISO a Department of Market Monitoring (DMM).

1.2 Mission Statement

To provide independent oversight and analysis of the ISO markets for the protection of consumers and market participants by the identification and reporting of market design flaws, potential market rule violations, and market power abuses.

2 Definitions

2.1 This section intentionally left blank.

3 Independence and Oversight

3.1 Department of Market Monitoring

DMM shall report to the CAISO Governing Board on all matters pertaining to the core monitoring duties specified under Section 5 of this Appendix P, and shall have direct access to the individual Governing Board Members at any time. DMM shall report to the CAISO CEO or his or her designee for administrative purposes, including matters relating to the internal administration of DMM. DMM shall advise the CAISO Governing Board about DMM's independent analysis of the CAISO's markets and its independent identification of market design flaws and market power abuses, and DMM also shall inform CAISO management about such matters.

3.2 The CAISO may not alter any reports generated by DMM or dictate the conclusions reached by DMM. The CAISO may, however, comment upon drafts of DMM reports where such right is otherwise conferred by this Tariff.

3.3 The employment of the Director of DMM shall not be terminated without the approval of the CAISO Governing Board.

4 Structure

4.1 DMM shall be adequately staffed by the CAISO with full-time CAISO staff with the experience and qualifications necessary to fulfill the functions referred to in this CAISO Tariff. Such qualifications may include professional training pertinent to and experience in the operation of markets analogous to CAISO Markets, in the electric power industry, and in the field of competition and antitrust law, economics and policy. Subject to the respective oversight responsibilities as defined in this Tariff of the CAISO Governing Board and the CAISO CEO, responsibility for overseeing the conduct and operations of DMM shall be conferred upon the Director of DMM.

4.2 Neither DMM nor any DMM employee shall be liable to any Market Participant under any circumstances whatsoever for any matter, including but not limited to any financial loss or loss of economic advantage resulting from the performance or non-performance by DMM of its functions under this CAISO Tariff.

4.3 CAISO shall provide DMM access to the resources, personnel, and consulting assistance (internal and external) sufficient to enable DMM to carry out its duties independently as defined under this Appendix P. The CAISO shall ensure DMM personnel meet the general employment requirements applicable to CAISO employees.

5 Duties of Market Monitor

5.1 Review of Market Rules
DMM shall review existing and proposed market rules, tariff provisions, and market design elements and recommend proposed rule and tariff changes to the CAISO, the CAISO Governing Board, Commission staff, the California Public Utilities Commission, market participants, and other interested entities.

5.1.1 DMM's review shall include, but is not limited to, identification of flaws in the overall structure of the CAISO markets that may reveal undue concentrations of market power or other structural flaws.

5.1.2 DMM's responsibility to propose market design changes shall not extend to effectuating its proposed market design itself.

5.1.3 DMM must limit distribution of its identifications and recommendations to CAISO, the CAISO Governing Board, and Commission staff in the event that DMM believes broader dissemination of its identifications and recommendations could lead to exploitation of the identified market rule or design flaw. Where DMM so limits the distribution, it shall explain to Commission staff why further dissemination should be avoided.

5.1.4 Section 5.1 of this Appendix P shall not be understood to impose upon DMM the obligation to conduct an independent evaluation of every existing market rule, tariff provision, and market design element. DMM need only report on market rule, tariff, or market design elements it otherwise believes merit evaluation and scrutiny.

5.1.5 Per a request from the CAISO, or on its own initiative, DMM may provide a draft version of any report DMM prepares under Section 5.1 of this Appendix P to the CAISO. DMM may, but shall not be required to, amend its report in light of such comment.

5.1.6 Any report DMM makes under Section 5.1 of this Appendix P is advisory in nature and does not obligate the CAISO to effectuate the recommended market rule, tariff, or market design change.

5.1.7 Where the CAISO disagrees with DMM's recommendation pursuant to Section 5.1 of this Appendix P or DMM disagrees with a proposed market rule, tariff, or market design change, CAISO shall notify the Commission of such disagreement. Such notification shall be made in writing to the Commission's Director of the Office of Energy Market Regulation as part of a referral under Section 12 of this Appendix P.

5.2 Review of Market Trends and Performance
DMM shall review and report on market trends and the performance of the wholesale markets to the CAISO, the CAISO Governing Board, Commission staff, the California Public Utilities Commission, market participants, and other interested entities, on at least a quarterly basis and submit a more comprehensive annual state of the market report. Unless urgency requires otherwise, all annual and quarterly reports shall first be submitted to the MSC for review.

5.2.1 In conjunction with the annual and quarterly reports issued under Section 5.2 of this Appendix P, DMM shall hold conference calls with Commission staff, staff of the California Public Utilities Commission, market participants, and other interested entities to discuss market trends and the performance of the wholesale markets.

5.3 DMM shall identify and notify the Commission's Office of Enforcement staff of instances in which a market participant's behavior or the behavior of the CAISO itself is suspected to constitute a Market Violation.

5.4 DMM shall consider any information or complaint a Market Participant may make concerning any matter that it believes may be relevant to DMM's monitoring responsibilities. Such submissions or complaints may be made on a confidential basis in which case DMM shall preserve the confidentiality thereof. DMM, at its discretion, may request further information from such entity and carry out any investigation that it considers appropriate as to the concern raised. DMM shall periodically make reports to the CAISO CEO and CAISO Governing Board on complaints received.

5.5 Prohibition on Tariff Administration and Market Mitigation – DMM shall not participate in the administration of CAISO's tariff or conduct prospective market mitigation.

5.5.1 For the purposes of Section 5.5 of this Appendix P, the term "prospective market mitigation" shall have the same meaning as provided in Commission Order No. 719, P 375.

5.5.2 DMM may conduct retrospective mitigation to the extent it is otherwise permitted to do so under this Tariff.

5.5.3 DMM may provide the inputs required for CAISO to conduct any prospective mitigation that is otherwise permitted under this Tariff. Such inputs may include, but are not limited to, Default Energy Bids, identification of competitive transmission constraints, and cost calculations.

6 Duties of the CAISO

6.1 CAISO responsibilities not expressly assigned to the MSC, DMM, or any specific individual or entity in this Appendix P remain with the CAISO.

7. Data Access, Collection, and Retention

7.1 The CAISO shall provide DMM access to the CAISO's databases of market information and any other market data necessary to enable DMM to carry out its duties as defined under this Appendix P.

7.2 Any data created by DMM, including, but not limited to, reconfiguring of the CAISO's data, will be kept within the exclusive control of DMM. This requires that the CAISO must ensure that DMM has control over which parties have access to the data, as well as control over the format and configuration of such data.

7.3 DMM shall be responsible for developing an information system and criteria for evaluation that will permit it to effectively monitor the CAISO Markets to identify and investigate abuses of that market, whether caused by exercises of market power or by other actions or inactions.

7.4 To develop the information system set forth in Section 7.3 of this Appendix P, DMM shall initially develop, and shall refine on the basis of experience, a detailed catalog of all the categories of data it will have the means of acquiring, and the procedures it will use (including procedures for protecting confidential data) to handle such data.

7.5 DMM shall initially develop, and shall refine on the basis of experience, a catalog of the CAISO Market monitoring indices that it will use to evaluate the data so collected.

7.6 DMM shall evaluate and reevaluate on an ongoing basis the data categories and market monitoring indices that it has developed under Sections 7.4 and 7.5 of this Appendix P, and the information it collects and receives from various other sources, including and in particular the CAISO's operation of the CAISO Markets. Such ongoing evaluations shall provide the basis for its reporting and publication responsibilities as set forth in this Tariff, for recommendations on proposed changes to this Tariff and CAISO Business Practice Manuals and other potential rules affecting the CAISO Markets, and for the development of criteria or standards for the initiation of proposed corrective or enforcement actions. In evaluating such information, the DMM may consult the MSC or such external bodies as may be appropriate.

8. Information Sharing

8.1 Tailored Requests for Information from the CPUC to DMM – DMM shall consider requests from the CPUC for specifically identified information or data concerning general market trends and the performance of the wholesale markets. DMM may deny a request when it determines, in its sole discretion, that complying with a request would be unreasonably burdensome or if it would interfere with the core market monitoring functions of DMM as defined in Section 5 of this Appendix P. For the avoidance of doubt, this Section 8.1 of Appendix P shall not apply to subpoenas, court orders, or any other form of compulsory process issued by, or on behalf of, the CPUC.

8.1.1 DMM may agree to provide information about general market trends or performance. If DMM determines, in its sole discretion, that this information either is market sensitive or identifies an individual market participant, then the information may be shared only if the CPUC agrees in writing that the information shared will be covered under the terms of the agreement included as Attachment A to this Appendix P or a successor agreement that is as similarly protective as the current agreement.

8.1.2 DMM may agree to release to the CPUC raw CAISO data, but only after the information is redacted to satisfy any concerns that DMM may have about the need to maintain confidentiality.

8.1.2.1 If DMM agrees to provide the CPUC with raw data that pertains to a specific market participant, DMM shall notify the affected market participant and give it the opportunity to contest the accuracy of the data. The affected market participant may provide to DMM a written statement providing context to the data. So long as the process of providing such a written statement does not unduly delay release of the data to the CPUC, DMM shall provide an unedited copy of such written statement to the CPUC concurrently with DMM's submission of the data to the CPUC.

8.1.2.2. If the affected market participant asserts that the data to be provided is commercially sensitive, DMM shall share such sensitive information or data only if the CPUC agrees in writing that the information shared will be covered under the terms of the agreement included as Attachment A to this Appendix P or a successor agreement that is as similarly protective as the current agreement.

8.1.3 DMM shall not provide any requested information or data that is designed to aid an enforcement action by an instrumentality or political subdivision of the State of California against a specific party.

8.1.4 DMM shall not provide any requested information or data that would impinge on the Commission's confidentiality rules regarding referrals to the Commission pursuant to Sections 11 or 12 of this Appendix P.

8.2 When publicly available reports are made to one regulatory agency with competent jurisdiction, such as the FERC, DMM may simultaneously make such reports available to other regulatory agencies with legitimate interests in their contents, such as the California Public Utilities Commission, the California Energy Commission and/or the California Attorney General.

8.3 The final results of DMM's ongoing evaluations under Section 7.6 of this Appendix P shall routinely and promptly be submitted to the MSC for comment.

8.4 The catalogs of data and indices developed pursuant to Sections 7.4 and 7.5 of this Appendix P shall be duly published on the CAISO Website and disseminated to all Market Participants.

8.5 Collection and Dissemination of Information Specific to a Market Participant

8.5.1 DMM may request that Market Participants or other entities whose activities may affect the operation of the CAISO Markets submit any information or data determined by DMM to be potentially relevant. This data will be subject to due safeguards to protect confidential and commercially sensitive data. Failures by Market Participants to provide such data shall be treated under Section 37. In the event of failures by other entities to provide such data, the CAISO may take whatever action is available to it and appropriate for it to take, including reporting the failure to the pertinent regulatory agency, after providing such entity the opportunity to respond in writing as to the reason for the alleged failure and may include possible exclusion from the CAISO Markets or termination of any relevant CAISO agreements or certifications. Before any such action is taken, the CAISO Market Participant shall be provided the opportunity to respond in writing as to the reason for the alleged failure.

8.5.2 Any Market Participant may request that the CAISO provide data, including data that DMM has collected under Section 8.5.1 of this Appendix P, that the CAISO has collected concerning that Market Participant. Subject to constraints on the CAISO's resources, subject to Section 7.2 of this Appendix P, and at the CAISO's sole discretion, such data may be provided by the CAISO subject to due safeguards to protect confidential and commercially sensitive data. Where such activity imposes a significant burden or expense on the CAISO, the data may be provided on the condition that a reasonable contribution to the cost incurred by the CAISO is made to the CAISO by the requesting party.

8.6 Information related to the Transmission Planning Process in accordance with Section 24 the release of which DMM determines may harm competitive markets shall be deemed confidential.

9. Ethics.

9.1 DMM employees shall have no material affiliation with any market participant or affiliate.

9.2 DMM employees shall not serve as officers, employees, or partners of a market participant.

9.3 DMM employees shall have no material financial interest in any market participant or affiliate, with the exception of mutual funds and non-directed investments.

9.4 DMM employees shall not engage in any market transactions other than in the performance of their duties under the Tariff.

9.5 DMM employees shall not be compensated, other than by CAISO, for any expert witness testimony or other commercial services in connection with any legal or regulatory proceeding or commercial transaction relating to the CAISO.

9.6 DMM employees shall not accept anything of value from a market participant in excess of a de minimis amount.

9.7 DMM employees shall advise a supervisor (or in the case of the Director of DMM, the CAISO CEO) in the event they seek employment with a market participant, and must disqualify themselves from participating in any matter that would have an effect on the financial interest of the market participant.

9.7.1 For the purposes of this provision, the term "seeking employment" shall have the same meaning it does in 5 CFR § 2635.603, or its successor provision.

9.8 DMM employees shall comply with the CAISO Employee Code of Conduct, as amended from time to time.

10. CAISO-Specific Provisions.

10.1 This section intentionally left blank.

11. Protocol on Referrals of Investigations to the Office of Enforcement.

11.1 DMM shall make a non-public referral to the Commission in all instances where DMM has reason to believe that a Market Violation has occurred. DMM's non-public referral shall provide sufficient credible information to warrant further investigation by the Commission. Once DMM has obtained sufficient credible information to warrant referral to the Commission, DMM shall immediately refer the matter to the Commission and desist from independent action related to the alleged Market Violation. DMM may, however, continue to monitor for any repeated instances of the activity by the same or other entities, which would constitute new Market Violations. DMM shall respond to requests from the Commission for any additional information in connection with the alleged Market Violation it has referred.

11.1.1 The decision to make such a referral is committed to the sole discretion of DMM. In all such cases of direct referral, DMM shall promptly inform the CAISO Governing Board, the MSC and the CAISO CEO of the fact of and the content of the referral.

11.1.2 For the avoidance of doubt, the CAISO itself is subject to referral by DMM.

11.1.3 The CAISO shall refer to DMM any matter for which the particular circumstances preclude the objective determination that a Rules of Conduct violation did or did not occur. If DMM concurs with the CAISO that the particular circumstances preclude the objective determination that a Rules of Conduct violation did or did not occur, DMM shall refer the matter to FERC according to the procedures of Section 11 of this Appendix P.

11.2 All referrals to the Commission of alleged Market Violations are to be in writing, whether transmitted electronically, by fax, mail, or courier. DMM may alert the Commission orally in advance of the written referral.

11.3 The referral is to be addressed to the Commission's Director of the Office of Enforcement, with a copy also directed to both the Director of the Office of Energy Market Regulation and the General Counsel.

11.4 The referral is to include, but need not be limited to, the following information.

11.4.1 The name[s] of and, if possible, the contact information for, the entity[ies] that allegedly took the action[s] that constituted the alleged Market Violation[s];

11.4.2 The date[s] or time period during which the alleged Market Violation[s] occurred and whether the alleged wrongful conduct is ongoing;

11.4.3 The specific rule or regulation, and/or tariff provision, that was allegedly violated, or the nature of any inappropriate dispatch that may have occurred;

11.4.4 The specific act[s] or conduct that allegedly constituted the Market Violation;

11.4.5 The consequences to the market resulting from the acts or conduct, including, if known, an estimate of economic impact on the market;

11.4.6 If DMM believes that the act[s] or conduct constituted a violation of the anti-manipulation rule of Part 1c, a description of the alleged manipulative effect on market prices, market conditions, or market rules;

11.4.7 Any other information DMM believes is relevant and may be helpful to the Commission.

11.5 Following a referral to the Commission, DMM is to continue to notify and inform the Commission of any information that DMM learns of that may be related to the referral but DMM shall not undertake any investigative steps regarding the referral except at the express direction of the Commission or Commission Staff.

12 Protocol on Referrals of Perceived Market Design Flaws and Recommended Tariff Changes to the Office of Energy Market Regulation.

12.1 DMM is to make a referral to the Commission in all instances where it has reason to believe market design flaws exist that it believes could effectively be remedied by rule or tariff changes. DMM must limit distribution of its identifications and recommendations to CAISO, the CAISO Governing Board, and to the Commission in the event it believes broader dissemination could lead to exploitation of the market design flaw, with an explanation of why further dissemination should be avoided at that time.

12.2 All referrals to the Commission relating to perceived market design flaws and recommended tariff changes are to be in writing, whether transmitted electronically, by fax, mail, or courier. DMM may alert the Commission orally in advance of the written referral.

12.3 The referral should be addressed to the Commission's Director of the Office of Energy Market Regulation, with copies directed to both the Director of the Office of Enforcement and the General Counsel.

12.4 The referral is to include, but need not be limited to, the following information.

12.4.1 A detailed narrative describing the perceived market design flaw[s];

12.4.2 The consequences of the perceived market design flaw[s], including, if known, an estimate of economic impact on the market;

12.4.3 The rule or tariff change(s) that DMM believes could remedy the perceived market design flaw;

12.4.4 Any other information DMM believes is relevant and may be helpful to the Commission.

12.5 Following a referral to the Commission, DMM is to continue to notify and inform the Commission of any additional information regarding the perceived market design flaw, its effects on the market, any additional or modified observations concerning the rule or tariff changes that could remedy the perceived design flaw, any recommendations made by DMM to CAISO, stakeholders, market participants or state commissions regarding the perceived design flaw, and any actions taken by CAISO regarding the perceived design flaw.

[NOT USED]

[NOT USED]

Certificate of Service

I hereby certify that I have this day served a copy of this document upon all parties listed on the official service lists compiled by the Secretary in the above-captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 28th day of April, 2009 at Washington, D.C.

Michael Ward /CRJ

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