

Participating Load Issue Identification, Prioritization and Resolution

The prepared testimony of Southern California Edison concerning its preparation for implementing demand response in the California ISO’s Market Redesign and Technology Upgrade, in Application A.08-06-001, identifies a number of issues that assist in discussion of implementation issues for demand response. In this table, the CAISO has attempted to summarize SCE’s identification of issues, and offers an initial analysis of these issues.

Row #	Area of Concern	Issue Summary	California ISO Comment
1	Tariff Changes and Participating Load Agreement	<p>The CAISO’s view is that the PLA is sufficiently broad that its existing FERC approved tariff is sufficient and no additional FERC filings are necessary prior to using the PLA for adoption of both PL and PDR products.</p> <p>CAISO assures the IOUs that no FERC tariff changes are required to affect the DR changes that it seeks. A PLA, which has been filed with FERC and approved by FERC, can be modified without seeking approval from FERC for amendments.</p>	<p>The MRTU Tariff already includes the required provisions for Non-Participating Load and MRTU Release 1 Participating Load. Implementing DDR and PDR will require tariff amendments, for which the CAISO is seeking Board approval in December 2008.</p> <p>The MRTU Tariff includes a pro-forma Participating Load Agreement (PLA), which seems to cover future programs (e.g., DDR and PDR) by including them in the tariff’s definition of “Participating Load”, without re-execution of the PLA. Adding resources is done by updating Schedule 1 of the PLA, not execution of a new PLA. Changing a resource’s attributes (e.g., method of participation, amount of eligible load, etc.) is done by updating the Implementation Plan and possibly CAISO masterfile data, without needing to update Schedule 1 of the PLA.</p>
2	Registration of DR Resources	<p>DR that is offered must be validated. This will require developing a robust certification process that is shared by direct access participants, DR Aggregators, IOUs and the CAISO. The structure, processes, metrics and assurance mechanisms for a robust certification</p>	<p>Registration requirements are being developed and detailed for inclusion in the User Guide for MRTU Release 1 Participating Load.</p>

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		system should be a central consideration of WG2.	
3	Management of Custom Load Aggregations	<p>None of Edison’s DR is currently located in CLAPs. Concern over cost and time for configuration.¹</p> <p>CLAPs do not align with meters resulting in accounting issues. How IOUs measure, track, and validate the split for revenue accounting purposes may have impacts on both IOU information systems including meter data management systems, and CAISO’s MAP systems.</p> <p>The pricing of DR at the granular CLAP level may lead to mismatches between where DR is needed and where DR is offered. Analysis of likelihood, variances, and associated risks, and related costs is important to undertake.</p> <p>Reaching the level of granularity of information necessary to configure CLAPs in the PDR model will take a serious effort. SCE estimates that the time required to achieve this is at least a year. Therefore, consideration should be given to when PDR can become a useful DR product and what the underlying costs of PDR will be given the costs of achieving the necessary level of granularity of information within SCE’s service territory.</p> <p>The level of detail in functional requirements definitions of CLAPs, how customers are aligned with circuits and substations needs to be much more specific if SCE is to be ready to deliver DR when MAP activates. The costs of mapping the entire LSE system to the level of detail required should be detailed and weighed against</p>	<p>Establishing CLAPs is required for resources that use the MRTU Release 1 Participating Load functionality, and later for DDR. These CLAPs will be defined within the boundaries of Local Capacity Areas (LCAs) that already exist for Resource Adequacy purposes, or in the area of a Default LAP that is not within LCAs.</p> <p>The PDR model uses Proxy Generators that represent the amount of Participating Load that is bid within the Sub-LAPs that have been defined for CRR purposes, or as existing CLAPs. Some Sub-LAPs are the same as LCAs, while others are subsets of LCAs or of the area outside LCAs. SCs for Participating Loads that use the PDR model may choose to define CLAPs, or may choose to use standard representations of Participating Load in Sub-LAPs that the CAISO will maintain. Because the PDR model does not settle Participating Loads at the Sub-LAP level, and because the PDR model does not provide AS or RUC participation, or bid cost recovery for the equivalent of start-up and minimum load costs, the CAISO will not require precise management of the amount of Participating Load within Sub-LAPs, and instead will monitor performance at a program level.</p> <p>The CAISO is publishing the identification of the Sub-LAP that contains each Pricing Node in the</p>

¹ SCE’s testimony uses the acronym “CAG” to mean “Custom Load Aggregation Point”. The CAISO has established the acronym “CLAP” to mean “Custom Load Aggregation Point”, and prefers to avoid the confusion that would be created by having two acronyms that mean the same thing.

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		<p>the benefits of PDR and PL in CAISO markets.</p> <p>There will be technical difficulties adapting CBP, which is currently focused at LAPs, to PDR, which requires more granular CLAP level configurations.</p>	<p>CAISO Markets, as input to discussion at the 11/5/08 stakeholder and working group meeting. The CAISO invites the identification of any other detail that is needed by market participants. Given that the CAISO is listing the Pricing Nodes within each Sub-LAP, and will consider requests for additional information, the CAISO understands that managing CLAPs will involve development and management of data by market participants, but considers these tasks to be internal processes for each market participant.</p>
4	Forecasting for Custom Load Aggregations	<p>During recent technical design sessions between the IOUs, the CAISO, and other parties, issues related to forecasting and forecasting accuracy were raised. While forecasting concerns may apply to all DR venues the CAISO is advancing, it is especially important when dealing with PL.</p> <p>While forecasting may be manageable at the aggregate level on a daily basis year around, it is unclear what LSEs will face as granularity reduces the focus to locational points within the grid. Absent experience pertinent to an unprecedented change, it will be important to work through implications as best they can be articulated.</p>	<p>This issue will be considered during development of the User Guide for MRTU Release 1 Participating Load.</p>
5	Metering and Telemetry	<p>Certain PL sources of DR may require metering and telemetry. For load participating in Ancillary Services markets, this is necessarily so. It is unclear if other PL sources of DR would have similar requirements.</p> <p>For those PL sources of DR requiring metering and telemetry, it is in the interests of customers that no unnecessary investments in metering and telemetry be made if the implementation of advanced metering</p>	<p>As the CAISO has previously stated, interval metering is required for all Participating Loads, but telemetry is required only for Participating Loads that provide Ancillary Services. Telemetry for Ancillary Service providers is a WECC requirement.</p>

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		<p>provides equivalent or comparable information sources and availability. As considerations are given to PL contributing to Ancillary Services, issues of cost effectiveness and timing should be explored.</p>	
6	Telemetry for SCE Pilot	<p>It will be particularly challenging to determine how (and if) SCE's SPR-PL pilot will implement the CAISO's telemetry requirement for PL. At the present time, these customers do not have interval metering. SCE will determine if the Edison SmartConnect™ deployment aligns with the chosen circuit areas for the SPR-PL pilot, and will examine how the interval metering capability of Edison SmartConnect™ can be utilized to facilitate SPR-PL pilot telemetry or settlement. There will likely be a need to consider a "telemetry proxy" and even a metering proxy for settlement in lieu of actual metering at each customer site. SCE will work with CAISO in the SPR-PL pilot development to come to a mutually acceptable metering solution which will likely include a combination of circuit metering and sample customer metering.</p>	<p>The CAISO will work with SCE to develop a pilot agreement and plan to cover this Participating Load's capability until longer term requirements are addressed.</p>
7	Real-Time Market Participation	<p>As currently structured and envisaged going forward, DR must be bid into the Day-Ahead market, and thus is not be available to participate in the Real-time market. However, Day-of DR resources may be more useful, and more valuable, in the Real-time market. But if the Day-of DR is held back from the Day-Ahead market in anticipation of need in the Real-time market, the DR resources are ignored by the CAISO and their use RUC.</p>	<p>There is no limitation on participation in the RT Market for Participating Loads that use the DDR model.</p> <p>For Participating Loads that use the MRTU Release 1 and the PDR models, the CAISO is exploring participation on the RT Market starting a few months after the PDR model becomes available in the DA Market.</p>
8	Market Timelines	<p>There may be adjustments in notices required to ensure effectiveness of PL. For instance, current day-of programs require 165 minutes notice, and the RT</p>	<p>The RT Market is not limited to providing 75 minutes of notice for dispatches. The RT Market includes the Short-Term Unit Commitment</p>

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		<p>Market provides only 75 minutes notice. Day-of programs would no longer serve the current Hour-Ahead market or the future equivalent of the Hour Ahead Scheduling Protocol (HASP). Day-of programs would be required to manifest themselves into PL and serve the real-time market. Thus, the notice provision would be shortened from 165 minutes to 75 minutes for a day-of energy based DR resource.</p>	<p>process, which has a time horizon of 270 minutes. (See the BPM for Market Operations, particularly section 7.3.3.)</p>
9	Valuation of RUC Capacity	<p>It remains unclear how RUC value is treated under MAP. Receiving RUC credits with DR bid into the MAP model must be sorted out in advance of MAP deployment. How RUC is valued will have potentially significant effects on how DR providers bid into CAISO markets.</p> <p>As noted previously, clarification of accounting for RUC has been a topic since the beginning of MRTU and consideration of DR in MRTU. It will serve all participants in CAISO markets if ambiguities regarding how DR in RUC is accounted for are cleared up as deployment of MAP occurs.</p>	<p>MAP does not alter the Settlement of RUC capacity or RUC procurement. As explained elsewhere, the CAISO will adjust its RUC procurement target for demand response that does not participate in the DA Market, but that is reported by LSEs before the DA Market runs. For Participating Loads in MRTU Release 1, the CAISO treats the DA Schedule as the Demand forecast, and does not procure RUC capacity for the Participating Loads. For resources using the PDR model, the DA Schedules of Proxy Generators are treated as capacity that has already been scheduled in IFM. These adjustments do not result in RUC payments to the Participating Loads, but instead result in reduced RUC procurement.</p> <p>Participating Loads using the DDR model may bid in RUC and receive RUC capacity payments, subject to the same procedures as other resources that are eligible for RUC.</p>
10	Scheduling of Direct Access Load	<p>LSE's can not self-schedule direct access load. This needs to be worked out if it is important to the efficient and effective use of PDR.</p>	<p>The ISO has re-examined whether self-scheduling of load is needed for MRTU PL, PDR, or DDR. For DR resources that only schedule Energy, the process of registering DR resources</p>

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			<p>will validate that the eligible DR enrollment does not exceed the available demand at its location, and thus self-scheduling of demand will not be required. For DR resources that schedule AS, the ISO’s compliance processes will verify before settlements that adequate energy was scheduled (and thus available for curtailment) to support awarded AS schedules, but the energy does not need to have been self-scheduled. If the scheduled energy is not sufficient to support the awarded AS, no-pay provisions will apply to the excess AS awards. Thus, unless operational issues arise after demand response programs begin operation, there is no need for Participating Loads to self-schedule – just for final schedules to be sufficient to support AS awards.</p>
11	<p>Coordination of Direct Access Participation in Demand Response Programs, and Role of DR Aggregators</p>	<p>If direct access is uncoupled from LSE operations it increases uncertainty and associated risk when forecasting expected loads and resources on a daily basis. The uncertainty stems from DR Aggregators offering resources directly into CAISO markets but having no requirements to provide information to LSE trying to regulate grid operations.</p> <p>DR Aggregators present their customers as a single portfolio to IOUs. To shift to a direct access link to the CAISO for DR Aggregators there are technical issues to sort concerning how an Aggregator portfolio might be structured for an IOU as a customer and how it might be structured for direct access.</p> <p>DR Aggregator resources are presented as a single product portfolio, but PDR is intended to enable direct access bidding. For DR Aggregators to bid directly,</p>	<p>Issues concerning direct access customers’ participation in the IOUs’ demand response programs, and broader issues concerning DR Aggregators’ participation in CAISO Markets separately from LSEs, will both be examined in an upcoming stakeholder process for compliance of FERC’s Oct 17th Order.</p>

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		<p>there will be protocol and process requirements specifications in MAP that may not now be sufficiently detailed.</p> <p>There are accounting challenges for rate purposes concerning DR aggregators presenting their customers as a single portfolio. These are not big issues but may require tariff changes filed with the CPUC. Differentiation of direct access DR will require changes to accounting practices which will result in changes to IT, data management and customer relationship management systems.</p> <p>There are operational challenges to MAP related to mapping of the details of how direct access is included in a PL bid. To configure DR in a locational context as the CAISO prefers, DR resources must be organized as more granular CLAPs</p> <p>APX has presented information to SCE on the complexities of functioning as an aggregator and as the settlement service for the Capacity Bidding Program (CBP). The central issue is whether, or how, IOUs can schedule direct access DR. Presently, constraints are driven by having to present a balanced schedule to the CAISO. While the balanced schedule requirement is eliminated in MRTU Release 1, this may not wholly eliminate problems associated with SC-to-SC DR related trades.</p>	
12	Alignment with Retail Tariffs	<p>In preparing for PDR and PL use in 2010 and beyond, the structuring of how PDR and PL DR bids align with incentives should be examined.</p> <p>There may be limitations to how customers can be differentiated for DR purposes within a specific</p>	<p>The structure of rate incentives in retail rates appears to be a CPUC-jurisdictional issue.</p> <p>Potential differences between the price at which PDR resources are dispatched and the effective credit that results directly from CAISO</p>

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		<p>geographic territory. Based on discussions in the previously referenced technical design sessions, the significance of this barrier is unclear. SCE's interests are in assuring fair treatment to all its customers, so obtaining a clear answer to the question is important.</p> <p>As discussed in other sections of this Volume, triggering DR activation on a CLAP price, which is not cleared in CAISO markets and is settled on LAP prices, may result in misalignments of DR locational availability relative to locational need. It will be important to detail the business rules associated with PDR to understand whether this is a serious barrier to effective use of PDR.</p>	<p>Settlements are recognized as inherent in the simplifications that allow the PDR model to be easier for the CAISO and market participants to implement than the DDR model. However, there are indirect benefits to market participants from reduction in IFM market clearing prices, RUC procurement costs, and potentially RT market clearing prices. Participating Loads that wish to avoid the potential differences between the dispatch price and the credit in Settlements can choose to use the DDR model instead, which does not have this impact.</p>
13	Implementation Process	<p>SCE suggests and encourages a process to implement DR market changes in both PDR and PL, as necessary, which involves at least the following steps and associated deliverables.</p> <ol style="list-style-type: none"> (1) User Guide: A consolidated, comprehensive user guide for CAISO's DR products is needed. This can be developed in WG2. The issues raised in preceding sections of this document should be taken up in preparing the User Guide. (2) DR Program Consolidation: A joint review of IOU DR program designs to identify opportunities for consolidation and elimination based on overlaps and changing market circumstances should be done in WG2. (3) Map Process Changes: IOUs must outline the internal process changes required to implement the consolidated user guide with the CAISO so there is a shared understanding of scope, timing, and costs. 	<p>The MRTU Release 1 Participating Load functionality has already been established in the CAISO's MRTU Tariff, and documented in its BPMs. The CAISO is supplementing the BPMs with a User Guide for Release 1.</p> <p>The CAISO management is presenting the PDR and DDR functionality to its Board for approval in December 2008, and, upon approval, will proceed to develop supplements to the BPMs and User Guide. These tasks can only proceed within the availability of CAISO staff resources. Generally, FERC expects tariff amendments to be filed 60 days before their effective dates, although earlier filings may be desirable to support compliance requirements for Scarcity Pricing.</p> <p>The purpose of the information developed by the CAISO is to document the functionality that is available in the CAISO Markets. The CAISO will</p>

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		<p>Based on the outcome of this effort, subsequent funding requests for process and systems changes may be appropriate.</p> <p>(4) Map IT Requirements: IT requirements should be specified for PDR and PL products that cover DR daily bidding, planning, settlements, metering, and billing. Internal processes related to DR daily bidding, planning, settlements, metering, and billing also should be mapped.</p> <p>(5) WG2 Meeting Schedule & Process Output: SCE believes WG2 will require several meetings of the principals (IOUs, the CAISO, DR Aggregators, and customers, as well as other stakeholders) to work through the agenda items described. Given the compression of time as the CAISO seeks to achieve maximum DR participation in its wholesale markets as soon as possible, the WG2 working sessions should be scheduled with the goal of being finished with WG2 work by the middle of November, or sooner.</p> <p>SCE considers a structured engagement processes focused on producing essential documents to be the appropriate mode of achieving deliverables. The CAISO should be responsible for drafting documents based on discussions at WG2 meetings and WG2 participants should be responsible for written responses that are discussed in subsequent meetings.</p>	<p>continue to provide information as needed through discussions with market participants, but specific business processes and their implementation are the responsibility of the market participant.</p>
14	Documentation for Program Implementation	<p>Edison needs a better understanding of IT challenges with PL and PDR. Multiple systems could be impacted and at this point Edison does not have a handle on the costs or data requirements.</p>	<p>The CAISO will continue to work with market participants to understand and detail data flows, sequencing and timing between the CAISO and market participant. The CAISO has also provided detailed descriptions of market</p>

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			participation for MRTU Release 1 Participating Load in its BPMs, and is supplementing the BPMs with a User Guide. The CAISO will supplement the BPMs and User Guide during PDR implementation, and then during DDR implementation.