Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Please use this template to provide your comments on the ESDER Phase 2 stakeholder initiative Straw Proposal posted on May 24 and as supplemented by the presentation and discussion during the stakeholder web conference held on May 31.

Submit comments to InitiativeComments@CAISO.com

Comments are due June 9, 2016 by 5:00pm

The Straw Proposal posted on May 24 and the presentation discussed during the May 31 stakeholder web conference may be found on the ESDER Phase 2 webpage.

Please provide your comments on the Straw Proposal topics listed below and any additional comments you wish to provide using this template.

NGR enhancements

The CAISO is proposing to explore two areas of possible NGR enhancement: (1) represent use limitations in the NGR model and (2) represent dynamic ramping in the NGR model.

The CAISO is requesting stakeholders provide comments in each of these two areas.

Comments:

No comments

Demand response enhancements

Two stakeholder-led work groups are up and running within ESDER 2 to explore two areas of potential demand response enhancement:

- Baseline Analysis Working Group – Explore additional baselines to assess the performance of PDR when application of the current approved 10-in-10 baseline methodology is sufficiently inaccurate.
- Load Consumption Working Group – Explore the ability for PDR to consume load based on an ISO dispatch, including the ability for PDR to provide regulation service.

The CAISO is requesting stakeholders provide comments in each of these two areas.

Comments:

Regarding the consideration of potential additional baselines:

WeatherBug Home is pleased to be able to provide input to the CAISO with respect to the development of appropriate alternative baselining methodologies for demand response. WeatherBug Home is a smart home management platform, providing added comfort and control, at heightened levels of efficiency. We do this by controlling home HVAC and a growing list of appliances for our customers, or the customers of utility or other channel partners in cooperation with a number of equipment manufacturers. In the process, we create additional value in the form of flexible load response capacity, which can help meet the needs of load serving entities, or wholesale market or grid operators. We are currently operating in ERCOT and PJM markets, and in New England, independently, and with utilities, and competitive retailers. This has given us experience with a number of alternative baselines. Our comments apply to aggregations of residential customers.

Southern California Edison has filed comments in proceedings before the CPUC (R13-09-011), in which it reports the results of studying the current "10 of 10" baseline. Even with the 20% "day-of adjustment," the utility states the 10 of 10 baseline methodology results in underreporting of residential demand response such that a day-of adjustment of nearly 300% would be required. This is due to the relative volatility of weather in California, but we have found the results to be similar elsewhere. Any time an extremely hot series of days might follow a relative mild series of days this approach can lead to a very low calculated baseline relative to the actual load at the time of the

event. The baseline, estimated in this way can even be below the level a reduction can reach on the day of the event, mathematically determining that the demand response had a negative effect, even where this is clearly not true, as shown, for example, by monitored appliance run times.

In working with CenterPoint Electric Delivery Company in Houston, Texas, WeatherBug found that using a "high 3 of 5 days" methodology with a day-of adjustment for weather up to 80%, got much closer to a true measure, more often, but again it would depend on the nature of the weather leading up to the event day. That is, the utility only used the highest three consumption days of the previous 5 for comparison. The very proximity of those days, and the likelihood that events are triggered by high temperature and high consumption, simply tends to increase the likelihood that the days are more similar. The added adjustment flexibility provides another cushion.

The most accurate reflection of the actual contribution of mass market customers is provided by some form of statistical comparison, based in part on the homogeneity of this population. For example, a control group composed of a random sampling of a given population will tend to provide a relatively accurate picture of the entire population. (The CAISO working group white paper refers to this as Randomized Control Trial.) WeatherBug used this approach with ERCOT : all customers in the aggregation were randomly moved into a number of subgroups, and then during a test or an event, one of the subgroups would be selected as the control group. The next event would use another subgroup. WeatherBug would not vary the energy use of the control group, so that it could be compared to the remaining groups comprising the aggregated resource. This method, while being extremely accurate, has the drawback of reducing the value of the aggregation (in proportion to the size of the control group), and reducing the resource available to the ISO. In CAISO, this cost could be multiplied if the resource would have to be evaluated separately for every zone or subLAP, given that a significant number of customers must be used in the control group to achieve accuracy.

The methodology that most accurately represents the actual behavior of the resource, and does the least damage to the value of the resource, either for the aggregation or the ISO, is a variation on the control group approach. If the ISO selects a large random population of non-participant customers (not enlisted in any aggregation), this group can form the basis for one or more control groups. By using a process sometimes labeled "propensity score match," the members of the ISO selected population can be matched with the population of each participating aggregation, and a

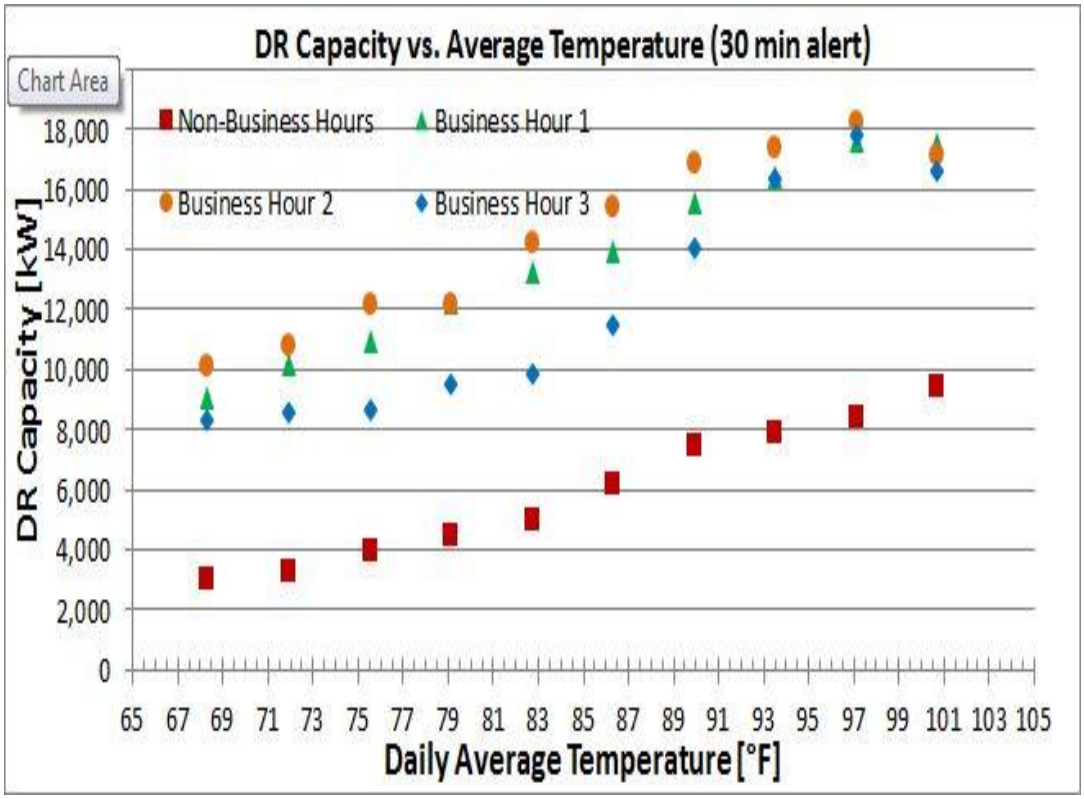
quite accurate baseline can then be constructed. (The CAISO paper referred to this approach as simply the matched control group.) A third party evaluator chosen by the PUC of Texas, working with the CenterPoint Electric staff, developed a plan for WeatherBug in which total consumption and peak consumption, for example, were chosen as key features of members of each population. These propensities were in turn then used to select a control group from within the ISO non-participant population that would characterize the important features of the normal behavior of the aggregation group. This matching process and baselining could be done after the event, or even at the end of the season, because it is based on matching historical usage behaviors. This approach has the benefit of not reducing the value of aggregations, and there will always be a large population of non-participants to choose from. The population of the control groups and the aggregations must be relatively large for these control group approaches to be appropriate and accurate, which makes them particularly well suited for residential mass market participant aggregations.

Regarding how to address loads that vary unpredictably, ERCOT uses what it calls an Alternative Baseline, and what PJM calls a Firm Service Level or FSL baseline. In this instance a load simply agrees that on any day in which a called event occurs for which it has accepted an obligation to respond, that it will not consume above a certain per agreed level (FSL). ERCOT calls this a 'drop-to' baseline, as opposed to a 'drop-by' baseline. So long as the load does not demand power above an agreed upon maximum level during a called event, it has met its performance obligation. This makes sense for steel plants for example. Their furnaces turn on and off based on production schedules, and could come on at any time. If they agree to participate, using an Alternative Baseline or FSL Baseline, they would simply agree that they would not come on during the event, leaving their consumption below the level agreed upon. This is a simple baseline approach from an evaluation point of view because it just entails measuring actual consumption during the event.

In addition, where the ISO wants to obtain a forward commitment for a number of weeks or months, where it expects to call upon loads frequently or in a wide variety of circumstances, an FSL approach works for a number of resources, including residential AC load controls. On a very cool day an air conditioning control product will have very little load to drop, or on a warm winter day, a heating control product will similarly have little load to drop. This does not diminish the value of HVAC control products to the market, because most resource adequacy related events will be weather driven, but it does mean that a methodology that only evaluates the gross load reduction may not be appropriate for weather sensitive loads. Below is a graph

showing the available load reduction during a number of windows during the day during a previous year in Houston, Texas.

business hours 1 -- 8:00 AM to 1:00 PM weekdays
business hours 2 – 1:00 PM to 4:00 PM weekdays
business hours 3 – 4:00 PM to 8:00 PM weekdays
non-business hours – all other hours and weekends and holiday



For 10,000 Homes in Houston, TX
From WeatherBug Home CenterPoint Evaluation

For this reason evaluating a residential load on a 'drop-by' measure will result in a variable amount of capacity being available. The value of a residential load control program or product is that it can be relied upon to 'drop-to' an agreed upon maximum demand level when the weather is driving a resource adequacy based event. If an event is caused by an unpredictable plant trip on a cool morning, for example, it cannot be relied upon to contribute a load reduction.

This raises another issue, which is not how accurately the baseline methodology measures actual response, but how the market values and compensates the load response contribution of such variable resources. The baseline methodology must work

in conjunction with the market construct for the resource. For example, ERCOT rules permit a weather sensitive load to bid its actual peak capacity (at the higher temperature range when emergency events are more likely to occur.) This allows the ISO to have transparency through to the total potential of the aggregation should it have a high-temperature, weather-driven event. On the other hand, to recognize that the resource is different, and variable, the ISO calculates performance and payment based on the actual contribution made for tests or events during their four month summer contracted obligation period. So, ERCOT uses a drop-by baseline methodology, but recognizes the value of controllable weather sensitive load resources for what they are, and pays for what they deliver.

In California, however, this exact approach may not be possible. Under the pilot Demand Response Auction Mechanism (DRAM), bidders win a capacity payment from an IOU, and then perfect the value of that capacity through a must-offer obligation in the day-ahead market (DAM). If this approach to integration of DR into the CAISO market requires that DRAM winners daily bid a fixed amount into the CAISO DAM, this would almost require that the CAISO accept an FSL, 'drop-to' type baseline calculation if weather sensitive loads are to be allowed to participate. An FSL alternative baseline would allow the value of the resource on a peak day to be fully reflected in capacity bids, while at the same time recognizing actual load drop will vary with the weather. A drop-to or firm service level baseline method would facilitate this operationally for residential and other weather-sensitive loads, and allow the utilities to receive the full value of the capacity they have acquired.

Multiple-use applications

The ISO has not yet identified specific MUA issues or topics that require treatment in ESDER 2. The ISO proposes to continue its collaboration with the CPUC in this topic area through CPUC Rulemaking 15-03-011. If an issue is identified that should be addressed within ESDER 2 the ISO can amend the scope and develop a response.

The ISO is requesting stakeholders provide comments on this topic area as well as this proposed approach.

Comments:

No comments.

Distinction between charging energy and station power

The ISO proposes to seek Board approval in two ways:

- To revise the ISO tariff definition of station power to exclude explicitly charging energy (and any associated efficiency losses); and
- Permit the ISO to revise its tariff later to be consistent with IOU tariffs, as needed, in the event that they revise their station power rates.

The CAISO is requesting stakeholders provide comments on this proposed approach.

Comments:

No comments

Other comments

Please provide any additional comments not associated with the topics above.

Comments:

No comments