

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding Policies and Protocols for Demand Response, Load Impact Estimates, Cost-Effectiveness Methodologies, Megawatt Goals and Alignment with California Independent System Operator Market Design Protocols

Rulemaking R.07-01-041
(January 25, 2007)

**RESPONSE OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR
TO ALJ RULING SETTING FORTH ADDITIONAL ISSUES FOR FURTHER
COMMENT ON COST EFFECTIVENESS**

In Part 3 of her Ruling dated October 15, 2007, Administrative Law Judge Hecht set forth 18 additional questions on issues drawn from CLECA's and PG&E's requests for hearings, as well as from staff recommendations as to areas where further information would be helpful in developing a final cost effectiveness methodology. The California Independent System Operator Corporation ("CAISO") submits the following responses to selected questions in the ALJ Ruling. These comments do not include responses to Questions 11 through 16.

Question No. 1. To what extent does Demand Response avoid generation capacity: up to the level of the planning reserve margin, or beyond that level? (CLECA Issue 1.)

CAISO Response

Under MRTU, dispatchable demand response resources (aka Participating Load) that are fully integrated into the CAISO's markets and operation should count towards satisfying the PRM, as these resources avoid (i.e. substitute for) generation capacity. Price-responsive demand response (aka non-participating load), to the extent the LSEs timely communicate its quantity to the CAISO, and to the extent it is based on agreed-to load impact protocols and CAISO processes, should count toward meeting the PRM and, likewise, serves to avoid generation capacity.

Conversely, demand response programs such as emergency-triggered DR programs (aka reliability-based programs) that cannot be integrated into the CAISO markets or operations or for which the quantity of load curtailment cannot be timely communicated, *ex ante* to the CAISO in a sufficiently timely manner as to allow the CAISO to reflect the contribution in quantifiable load reduction from those resources in CAISO's Day-ahead and/or Real-time unit commitment processes, should not count toward the PRM. The reason is that the CAISO must commit sufficient resources on a daily basis to meet the total forecasted demand, including the non-firm load that is associated with these emergency-triggered DR programs.

Because these emergency demand response programs do not relieve the CAISO from the obligation to commit capacity, on a daily basis, for the component of demand that they purport to curtail, the DR resources do not serve the function of reducing *total* forecasted demand, do not avoid generation capacity, and, therefore, should not count toward the PRM.

Thus, contrary to CPUC policies to date (regarding the counting of DR programs for RA purposes), the CAISO's strongly held belief is that emergency triggered DR programs should not count toward satisfying the PRM, but, rather, would be appropriately considered as "reserve margin" above and beyond the established "planning" reserve margin that, in this context, does not avoid generation capacity.

Question No. 2. What Demand Response programs should be treated as avoiding generation capacity costs: those that qualify for RA status, or all Demand Response programs? (CLECA Issue 2.)

CAISO Response

The Commission has clearly stated that resource adequacy is about "laying a foundation for the required infrastructure investment and assuring that capacity is available when and where needed."¹ Therefore, demand response programs that meet this objective and can be configured such that they can be planned around and relied upon to be available when and where needed should qualify as avoiding generation capacity costs. As such, the CAISO would qualify DR resources as follows, with two types of DR that appropriately qualify as avoiding generation capacity costs and one that does not.

1. Qualify: Dispatchable Demand Response Resources

Day-ahead and real-time dispatchable demand response resources avoid generation capacity costs. These programs can be planned around and are fully integrated into the CAISO wholesale electricity markets and grid operations. Such resources could possibly be treated as use-limited resources and offer capacity to the CAISO on a planned and predictable basis.

¹ R.05-12-013, ALJ Ruling on Track 2 Proposals, February 29, 2007, at p. 4 (emphasis added).

2. Qualify: Price Responsive Demand Response Programs

Preferably, under MRTU, DR resources from price-responsive demand response programs are integrated into the LSE's price-sensitive demand curve which the LSE submits into the CAISO's Day-ahead integrated forward market. At minimum, the quantity of demand response committed by the LSE in the Day-ahead or Day-of timeframe must always be communicated to the CAISO, so that the CAISO can take actions to reduce, for example, its RUC procurement target related to Day-ahead programs and real-time unit commitment processes, as appropriate, related to Day-of programs.² In this way, the CAISO ensures that it prevents, to the best of its ability, the redundant procurement of capacity in its unit commitment processes and helps realize the full avoided capacity value of these programs. When tailored in this manner, price responsive DR program resources should qualify for RA status.

3. Does not Qualify: Emergency-triggered Demand Response Programs

The CAISO cannot plan around the contribution from the reliability-based emergency-triggered demand response programs, since these programs, as currently configured, are available for dispatch only after the CAISO has declared an emergency. As discussed above (response to Question 1), in the CAISO's Day-ahead planning process, the CAISO must plan to meet all load, including the portion of interruptible/non-firm load associated with emergency-triggered DR programs. Under MRTU, the CAISO must commit both RA resources and non-RA resources (when needed and available) in its Residual Unit Commitment process, before CAISO can access emergency-resources, to ensure that sufficient capacity exists to meet the next day's forecast of demand. Therefore, the emergency-triggered demand response programs do not avoid the CAISO's obligation to procure generation capacity resources, committed on a forward basis, to cover all forecasted load (without regard to what load could potentially be interrupted, should a system emergency be declared.)

Question No. 3. Regardless of method of calculation, should an adjustment be made to fixed avoided costs due to margins on energy sales from any marginal resource(s)? (related to CLECA's Issue 3.)

CAISO Response

How to treat margins on energy sales, or Peak Energy Rents ("PER"), is an important issue for the Commission to undertake if it plans to more closely compare and

² The process for incorporating price-responsive demand response programs into the CAISO's MRTU Release 1 market design has been the objective of the DR Working Group #1- *DR Participation in MRTU Release 1*. Information about how the quantity of price-responsive demand response is communicated to the CAISO is captured in the *CAISO Demand Response Resource User Guide*. *Guide to Participation in MRTU Release 1*. Additional information about this working group and User Guide can be found at: <http://www.caiso.com/1893/1893e350393b0.html>.

align demand-side resources with supply-side resources. To align DR resources with supply-side resources, the Commission should, at some point in the near future, consider an adjustment to an avoided cost approach, to account for PER. However, now may not be the time to consider this adjustment, given the timing constraints of this proceeding.

The Joint Utilities suggest that the appropriate venue for addressing avoided cost methodology is Phase 3 of R.04-04-025 (Order Instituting Rulemaking to Promote Consistency in Methodology and Input Assumptions in Commission Applications of Short Run and Long-Run avoided Costs, Including Pricing for Qualified Facilities).³ If so, then the outcomes of R.04-04-025 need to somehow tie back to this specific issue and its application to demand response resources.

The CAISO does have experience with calculating and applying a PER. The CAISO vetted the PER issue with its stakeholders in the development of the CAISO's Reliability Capacity Services Tariff ("RCST").⁴ Under RCST, the PER is an *ex-post* calculated deduction to a negotiated capacity value (\$/kW-yr) for a CT, based on expected energy rents from a "reference resource" participating in the wholesale energy and ancillary services markets.⁵ The calculation is pinned to the negotiated set of assumptions that define the reference resource. For example, predetermined assumptions must be made about the reference resource's assumed heat rate, availability and variable operations and maintenance costs including estimates to determine the reference resource's variable costs, such as daily gas prices. Additional assumptions need to be made about how the resource would operate, assuming that the reference resource would be dispatched when such dispatch was economically rational and would otherwise provide Ancillary Services, like non-spinning reserves.

Given this experience, the CAISO appreciates that developing and applying the PER for application on an *ex-ante* basis would prove challenging. Accordingly, the Commission should clearly state whether proceeding R.04-04-025 is the best forum for resolving the issue, or if it should be resolved elsewhere, and where.

³ Joint Response of [the Utilities to Request by CLECA for Hearings], dated Oct 2, 2008, at p. 5 fn 6. (This document is posted on the CPUC Web site at <http://docs.cpuc.ca.gov/efile/RESP/73446.pdf>.)

⁴ The RCST is set forth in Section 43 of the CAISO Simplified and Reorganized Tariff (starting at Third Revised Sheet No. 439), found on the CAISO Web site at: <http://www.aiso.com/1c6a/1c6aaff4b6d0.pdf>.

⁵ Insight into the *ex-post* calculation of PER may be helpful to understanding the complexities of applying PER on an *ex-ante* basis. Under RCST, at the end of the month, the CAISO determines all those hours during which the Reference Resource would have been dispatched (based on predefined Reference Resource characteristics) to provide either energy or non-spinning reserves and calculates, on a per kW-Month basis, the total dollar amount of rent (*earnings in excess of proxy unit variable costs calculated using Reference Resource unit characteristics having unit heat rate at 10,500 BTU*) that would have been earned by the Reference Resource. The Reference Resource is assumed to have been dispatched for energy in any hour in which the hourly energy price described below is greater than the Reference Resource variable cost; the CAISO uses its Day-ahead Non-spinning Reserve price to calculate the rent for all hours in which the Reference Resource is not assumed dispatched to provide energy (i.e., any hour where the hourly price is less than the Reference Resource variable costs). The CAISO will use hourly energy prices that are the weighted average of the applicable zonal on/off peak day-ahead index prices set forth in Platt's Megawatt Daily, shaped to hourly profiles.

Question No. 4. Do the cost effectiveness protocols apply to the Demand Response portfolios in addition to specific demand response programs, and if so, how? (PG&E issue 1: Portfolio and Program Evaluation; comparison exhibit Table 2, 2.03.)

CAISO Response

The CAISO believes that, once appropriate cost effectiveness protocols are agreed to, such protocols should apply by demand response program, not by portfolio. Individual DR programs that are not cost-effective should be eliminated and not perpetuated due to portfolio-averaging approaches for evaluating efficacy.

Question No. 5. To what extent and how should geographic location be accounted for in the cost effectiveness methodology? Please explain the factual bases and assumptions that support your response. (PG&E Issue 2: Geographic Granularity; comparison exhibit Table 2, 2.05.)

CAISO Response

In the CPUC's resource adequacy proceeding (R.05-12-013), the IOUs made a Transfer Payment Proposal that would enable LSEs that were long on local capacity in a CAISO designated local area⁶ to sell a local "attribute" to another LSE that was short on local capacity in the local area. The IOU proposal set a value of \$24/kW-Yr on the local attribute.⁷ The value of the local attribute was effectively a proxy for the premium of local capacity over system capacity.

It may be appropriate to use such an approach in this proceeding. Without a transparent market to reveal the premium of local capacity over system capacity, such a proxy value and its derivation may be an appropriate mechanism to credit locational value to demand response resources that are active in the CAISO designated local areas.

Question No. 6. What is the appropriate definition of ancillary services, and how should the ancillary service value of a demand response resource be treated in evaluating the cost effectiveness of that resource? (PG&E Issue 3: Ancillary Services; Table 2, 2.20 and 2.32.)

⁶ For more information about the designation of local areas and local capacity needs, see the CAISO's 2008 Local Capacity Technical Analysis, found at: <http://www.caiso.com/1bb5/1bb5edc5475b0.pdf>.

⁷ The derivation for this amount can be found in an IOU filing in the Resource Adequacy proceeding, R.05-12-013, Joint Comments of Pacific Gas and Electric Company (U 39 E), San Diego Gas & Electric Company (U 902 E), and Southern California Edison Company (U 338 E) on Phase 1 Resource Adequacy Issues, dated March 13, 2006, at p. 2.

CAISO Response

The CAISO believes that an appropriate definition for of Ancillary Services (A/S) is the definition that the CAISO has set forth in the CAISO's MRTU Tariff. The CAISO Tariff defines A/S as:

Regulation, Spinning Reserve, Non-Spinning Reserve, Voltage Support and Black Start together with such other interconnected operation services as the CAISO may develop in cooperation with Market Participants to support the transmission of Energy from Generation resources to Loads while maintaining reliable operation of the CAISO Controlled Grid in accordance with WECC standards and Good Utility Practice.⁸

Overarching reliability standards are defined by the North American Electric Coordinating Council ("NERC"), with additional standards development, compliance monitoring and enforcement performed by the Western Electricity Coordinating Council ("WECC") to ensure the reliability of the Western Interconnection Bulk Power System. The CAISO's MRTU Tariff addresses how A/S standards are developed for the CAISO-controlled grid:

Section 8.2.1 Determination of Ancillary Service Standards.

The CAISO shall set the required standard for each Ancillary Service necessary to maintain the reliable operation of the CAISO Controlled Grid. Ancillary Services standards shall be based on WECC Minimum Operating Reliability Criteria (MORC), NERC and CAISO Controlled Grid reliability requirements. The CAISO Operations Committee, in conjunction with the relevant reliability council (WECC), shall develop these Ancillary Services standards to determine reasonableness, cost effectiveness, and adherence to NERC and WECC standards. The standards developed by the CAISO shall be used as a basis for determining the quantity and type of each Ancillary Service which the CAISO requires to be available. These requirements and standards apply to all Ancillary Services whether self-provided or procured by the CAISO.

In the CAISO control area, Ancillary Services, including operating reserves- non spinning reserves and spinning reserves- and regulation, are procured through the CAISO's wholesale markets. The CAISO's current Tariff Appendix K, *Ancillary Service Requirements Protocol*, outlines the operating characteristics and technical requirements that must be met by resources bidding these products into the CAISO's A/S markets.⁹ As such, the CAISO believes that the CPUC should point to the CAISO Tariff for the

⁸ CAISO MRTU Tariff, Appendix A. Note that the MRTU tariff will become applicable on or about March 31, 2008, when CAISO launches MRTU. In the meantime, the applicable tariff is CAISO's Simplified and Reorganized Tariff.

⁹ CAISO Tariff, Appendix K can be found at: <http://www.aiso.com/1c40/1c4087aa47890.doc>.

definition of Ancillary Services and for the nature and characteristics required of the IOU demand response resources to be considered as cost-effective. In other words, these DR resources are cost-effective to the extent that they can successfully bid these products into the CAISO's A/S markets.

Those generating and non-generating resources that can meet the Ancillary Service requirements as specified in the CAISO Tariff are the resources that the CAISO is able and willing to procure from the market to meet its Ancillary Service requirements. However, under the current structure of WECC reliability standards, the only Ancillary Service demand response resources that can provide A/S services is non-spinning reserves, which, in many cases, can also be provided by a simple-cycle combustion Turbine ("CT"). Thus, demand response resources do not provide incremental value over a CT for provision of non-spinning reserves.

It is anticipated, however, that the WECC standards will change within the near future, and will allow for the entrance into the A/S market of non-generating resources such as demand response resources. The anticipated WECC standards change should provide the opportunity for non-generation resources such as DR resources to provide other types Ancillary Services, those being spinning reserves, regulation, and possibly new products that could, for example, replace or enhance spinning reserves, known as frequency response reserves. This sort of accommodation, to expand the products which non-generation resources can provide, would not be unprecedented. PJM, for example, permits demand response resources to provide similar reliability services within its interconnection.¹⁰

If enabled through revised WECC standards, incremental value could be captured by demand response resources that are capable of offering spinning reserves, frequency responsive reserves and/or regulation to the CAISO since a CT, as a proxy resource, is typically not configured or operated in a manner to offer these reliability services to the CASIO. The CAISO publishes on its OASIS Web site the market clearing prices for the different Ancillary Service products that CAISO procures through the market. As such, this market data could be used to derive an incremental value for demand response resources that are appropriately configured to provide those Ancillary Services not typically provided by a CT.

Question No. 7. What environmental factors should be included in the cost effectiveness analysis, and how should they be valued and analyzed? (PG&E Issue 4: Environmental Benefits; Table 2, 2.28.)

¹⁰ The PJM Market provides opportunities for demand resources to realize value for demand reductions in the [Energy](#), [Capacity](#), [Synchronized Reserve](#), and [Regulation](#) markets. The FERC authorized PJM to provide these opportunities as permanent features of their markets in early 2006. Additional information can be found at: <http://www.pjm.com/markets/demand-response/demand-response.html> .

CAISO Response

Demand response may provide environmental benefits, to the extent that it reduces or avoids generation plant emissions (that would have been created to accommodate the load which is curtailed) during peak periods. Reductions during peak periods should be balanced against possible emissions increases during off-peak hours, as well as from any increased use of on-site generation.

In addition, if the implementation of demand response contributes to reduced or delayed generation facility construction, there may be additional environmental and aesthetic benefits.

Demand Response resources provide a further environmental benefit by eliminating the line losses that would have been associated with transmitting the power to the load (again, with respect to that amount of energy needed to serve the load which was curtailed).

Demand response may also provide conservation effects, either directly from load reductions (that are not made up at another time) or indirectly from increased customer awareness of their energy usage and costs. In this regard, demand response programs might be said to have potential to produce a “net conservation” effect. This is because, in many cases, electricity end users would not replace, during the off-peak, on a one-for-one basis, all of the demand they reduced on peak. (For example, a home or business would not turn on its lights twice as much at night to make up for a reduction in lighting use during the peak afternoon hours).

Saying this, the CAISO does not have a recommended approach for how these benefits could be captured. Instead, the CAISO would suggest that the Commission defer this issue and reconsider these potential important benefits for the 2012-2014 DR program cycle, after further investigation of environmental benefits has been made.

Question No. 8. What reliability benefits should be included in the cost effectiveness analysis, and how should they be valued or analyzed? (PG&E Issue 5: Reliability Benefits; Table 2, 2.29.)

CAISO Response

See CAISO response to Question No. 6, in addition to the following:

Further, if the WECC enables non-generation resources, like demand response resources, to provide spinning reserves and regulation, then the value of DR resources will be greater than the value captured by the concept of a proxy CT. If the WECC were to make this change, then the extended value of DR resources--to account for spinning

reserves and regulation--would depend on the quantity of these ancillary services types that appropriately configured DR resources could provide.

Question No. 9. Should a market performance benefit be included in the cost effectiveness methodology, and if so, how should it be valued and analyzed? (PG&E Issue 6: Market Performance Benefits; Table 2, 2.33.)

CAISO Response

Price-responsive demand response resources have the potential to provide market performance benefits. DR resource bids have the potential to lower day-ahead and real-time market clearing prices for energy and to reduce market power, by adding depth and liquidity to the wholesale energy markets.

However, the extent of these benefits depends largely on the price at which DR resources may reduce demand relative to the price of supply options, i.e. use of a CT in a market where (generation) bid price caps are in effect. For example, DR resources that bid curtailment of demand at the price point of \$250/MWH may operate to reduce demand, and thus may provide significant market performance benefits, in a market that is subject to a price cap of \$500/MWh or higher. In contrast, DR resources that only reduce demand at the price cap would provide little to no market performance benefits.

An additional market performance benefit could be had if the demand response resources could be appropriately configured so that they prevent the triggering of reserve scarcity pricing.¹¹ For instance, price-responsive DR could prevent reserve scarcity pricing from triggering in the CAISO's real-time markets, by lowering the demand forecast and, correspondingly, the amount of incremental Ancillary Services ("A/S") that are needed to meet CAISO system operating requirements to support that load. (This is because the amount of ancillary services needed to support the system is proportional to the amount of demand on the system.) Likewise, Participating Loads (aka dispatchable demand response resources) that are capable of offering non-spinning reserves (and possibly other ancillary services in the future) to the CAISO would add depth to the A/S markets and could help to prevent a reserve deficiency, and, therefore, the triggering of reserve scarcity pricing.

As they are currently configured, emergency-triggered DR programs cannot act as a tool to mitigate the potential for scarcity pricing with respect to reserves. This is because the emergency must happen first: The CAISO must already be in a reserve shortage situation before the CAISO can call on the emergency DR resources.¹²

¹¹ Additional information about the CAISO's proposed Reserve Scarcity Pricing Design can be found at: <http://www.caiso.com/1bef/1bef12b9b420b0.html>.

¹² Emergency Notices specifically relating to deficiencies in Regulation or Operating Reserve are issued by the ISO based on the level of severity:

- **Stage One:** Actual or anticipated Operating Reserves are less than the WECC Minimum Operating Reliability Criteria (typically between 6-7%);
- **Stage Two:** Actual or anticipated Operating Reserves are less than or equal to five percent (5%);

Accordingly, the emergency-triggered DR programs cannot capture market performance benefits in the day-ahead energy market under MRTU nor can they prevent reserve scarcity pricing from triggering in the day-ahead or real-time markets. The DR resources are useful to mitigate the emergency (i.e. as an alternative to load shedding), but not useful in the forward or real time markets to reduce demand or operate as a generation resource substitute.

While the study of general market performance benefits of DR is complex, the ability to develop quantitative estimates of the potential benefits is not unprecedented. For example, as many are aware, The Brattle Group retrospectively studied the market performance effects of DR in the PJM Interconnection.¹³ Quantifying potential prospective market performance benefits as a proxy value requires significant sets of assumptions about future market conditions which, obviously, could prove challenging. Thus, a retrospective evaluation, like the one performed by The Brattle Group, may be as useful as any methodology for deciding upon a proxy value, to be applied to appropriately configured demand response, when such market performance benefits could not similarly be attributed to a CT, for example, due to timing or event-related issues that make timely adding additional generation capacity infeasible. Thus, the market performance benefits may only be realized for an interim period, when such circumstances arise.

Question No. 10. Should Modularity and Flexibility Benefits be included in the cost effectiveness methodology, and if so, how should they be valued or analyzed? (PG&E Issue 7: Modularity and Flexibility Benefits; Table 2, 2.36.)

CAISO Response

Demand response resources are clearly modular and flexible and offer the potential for significant benefits in the context of longer-term Resource Adequacy and Integrated Resource Planning. DR resources reduce the reliability and financial risk associated with various supply and demand-side uncertainties associated with longer term planning, by providing resource options that might be ramped up relatively quickly, in specific locations to meet resource shortfalls that may develop, due to unexpected demand growth, supply delays, or unavailability. A ramp up in demand response resources in a specific area of need can be done, without having to overcome many of the hurdles and pitfalls associated with building generation resources. Under this scenario, benefits of this flexibility may stem from increased reliability and/or the ability to reduce longer term planning reserve margin targets. As with all potential reliability benefits, it may be necessary to adopt a LOLP approach (and an assumed financial value of lost

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- **Stage Three:** Actual or anticipated Spinning Reserves are less than or equal to the Spinning Reserve Requirement defined in the WECC Minimum Operating Reliability Criteria (typically between 1.5% and 3%). Reserve scarcity pricing will be triggered if the CAISO has to declare a Stage 1, 2 or 3 emergency.

¹³ The Brattle Group prepared the following report called *Quantifying Demand Response Benefits in PJM*. It can be found at: <http://www.pjm.com/documents/downloads/reports/brattle-report-quantifying-demand-response-benefits-pjm.pdf>.

load) to quantify these reliability benefits in terms of a financial adder that might be applied in assessing DR. As is the case in many instances, quantifying these potential benefits on a prospective basis requires developing sets of assumptions about future market conditions, and should be viewed as proxies for these potential benefits.

Question No. 17. Is more research needed on the following topics and, if so, why?

- Market effects of demand response;

CAISO Response—Yes, further research is needed to understand, evaluate, and verify the purported benefits of demand response for the wholesale electricity market.

- Avoided transmission and distribution costs;

CAISO Response—Yes, further research is needed to evaluate how to appropriately model DR resources and the impact they may have on investment deferral and grid efficiency.

- customer costs;
- Is a Combustion Turbine really the appropriate proxy unit for demand response?

CAISO Response—As CAISO responses above have indicated, a CT proxy unit may not capture all of the CE of DR resources. (See Response to Question No. 6 regarding the anticipated development by WECC of a new Frequency Response Reserve and Response to Question No. 10 indicating that DR resources might provide interim, locational benefits that a CT might not provide.)

Question No. 18. Is further research needed on additional areas, and if so, what areas and why?

CAISO Response

An important area for further research is the issue of what technology and infrastructure is necessary to further integrate demand response resources into wholesale electricity markets and grid operations. In particular, if there is way to economically provide the CAISO “visibility” to small, aggregated demand response resources so that these small and dispersed resources can provide the higher quality reliability services to the CAISO, like ancillary services, and in doing so capture the revenue streams associated with these services.

Further research is needed to investigate how demand response can integrate and better shape the energy output from a growing portfolio of renewable intermittent resources, like wind.

Both of the above two issues, integration with renewable resources and providing reliability services to the CAISO, will largely depend on the ability for demand response resources to be highly responsive, dependable and sustainable. Thus, the further development and propagation of AutoDR technology and its application will be essential.

An investigation into the environmental benefits of demand response needs to be studied and could address some of the benefits noted in the CAISO's response to Question No. 7.

Dated: November 19, 2007

Respectfully submitted,

CALIFORNIA INDEPENDENT SYSTEM
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CERTIFICATE OF SERVICE

I hereby certify that on November 19, 2007. I served on the parties listed on the Service List for Proceeding R.07-01-041, by electronic mail, a copy of the foregoing Response of the California Independent System Operator to ALJ Ruling Setting Forth Additional Issues for Further Comment on Cost Effectiveness.

Executed on November 19, 2007 at
Folsom, California

--/s/-- Melissa Hicks

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