UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Demand Response Compensation in Organized Wholesale Energy Markets	))))	**Docket No. RM10-17-000**

COMMENTS OF
THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

The California Independent System Operator Corporation ("California ISO") respectfully submits these comments in response to the Commission's Notice of Proposed Rulemaking, Demand Response Compensation in Organized Wholesale Energy Markets ("NOPR").[1]

Introduction

The NOPR seeks comment regarding the Commission's proposed rule to require that, within the organized markets, each ISO and RTO whose tariff provides for demand response resource participation in the energy market, must pay the demand response resource, in all hours, the market price for energy, i.e., the full locational marginal price for the demand curtailment.[2] The Commission notes that the NOPR and its proposed rule are part of the Commission's continuing efforts to promote demand response, begun under Order Nos. 890 and 890-A and continued in Order No. 719.[3] The NOPR explains that these efforts reflect the Commission's long-standing policy to seek comparable

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1 130 FERC ¶ 61,213 (2010).

2 NOPR at P 11.

3 NOPR at PP 5-6.

treatment between supply-side and demand-side resources in the organized markets.[4]

The California ISO is fully committed to cooperating with the Commission in those efforts, as was explained in the California ISO's compliance filing for Order No. 719.[5] For many years, the California ISO has enabled the participation of demand response resources in its energy markets through its Participating Load product and, this year, the California ISO has proposed a second product called Proxy Demand Resource, submitted to the Commission in February.[6] The California ISO has taken steps, and continues to explore additional avenues, to ensure the nondiscriminatory access of demand response resources in the California ISO's ancillary services markets, including an evaluation of the potential for developing additional services that demand response resources could provide as the ISO works toward greater integration of variable energy resources. The California ISO has also partnered with IOUs and third party aggregators on important and ground-breaking pilot projects regarding the aggregation of small demand response resources to successfully

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[4] *Id.* quoting, *e.g.,* Order No. 719, *Wholesale Competition in Regions with Organized Electric Markets*, FERC Stats. & Regs. ¶ 31,281 (2008) ("Order No. 719"), Order on Rehearing, Order No. 719-A, FERC Stats. & Regs. ¶ 31,292 (2009) ("Order No. 719-A").

[5] *See* California ISO's Order No. 719 Compliance Filing, dated April 28, 2009, submitted in Docket Nos. RM07-19 and AD07-7, posted to the ISO's website at http://www.caiso.com/239e/239ee47a6710.pdf.

[6] California ISO's Proxy Demand Resource Tariff Amendment, submitted February 16, 2010 in Docket ER10-765, can be accessed on the ISO's website at http://www.caiso.com/273f/273fcac5d70.pdf.

demonstrate the technical feasibility of configuring and dispatching these resources in ways comparable to supply-side resources.[7]

In the NOPR, the Commission proposes that all demand response resources that participate through a bid in the wholesale energy markets should be compensated at the full locational marginal price ("LMP").[8] As explained below, the California ISO supports the Commission's specific proposal and believes that full LMP is appropriate for wholesale energy market settlements. All resource types should be settled on the same basis, *i.e.*, full LMP, in wholesale markets. The California ISO submits that other compensatory measures or methodologies outside of these markets, such as subtraction of the retail rate, or a portion thereof, is appropriate for consideration by the ISO or RTO, its stakeholders, and the relevant electric retail regulatory authority, rather than for standardization by the Commission. Compensation is a significant retail concern and "appropriate" compensation for demand response can vary by the type of demand response program and by the product being offered.[9]

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[7] *See, e.g.,* the IOU Participating Load pilot activities described in the California ISO's February 18, 2010 filing in Docket Nos. RM07-19-001, RM07-19 and ER09-1048, accessible on the ISO's website at http://www.caiso.com/2741/2741d04aa660.pdf.

[8] As stated in the NOPR, the Commission proposes to amend its regulations to add the following provision: "(v) Demand response compensation in energy markets. Each Commission-approved ISO or ISO that has a tariff provision permitting demand response resources to participate as a resource in the energy market by reducing consumption of electric energy from their expected levels in response to price signals must pay to those demand response providers, in all hours, the market price for energy for these reductions." *See* proposed 18 CFR Section 35.28, NOPR at page 31.

[9] The following simple example illustrates how this is a retail concern particularly when there is no explicit contract by the Demand Response Provider to buy the demand response energy forward: If a demand response resource is modeled and treated like a supply-side resource in the wholesale market, then the LSE and the Demand Response Provider are separate entities and the load deviation payment to the LSE, i.e. the wholesale market "double payment" concern, is resolved in the ISO's/RTO's demand response market design. The demand curve is flat and energy clears at $50/MWh. An LSE submits an offer to buy 100 MWh and 100 MWh of supply is sold to serve that load – 90 MWh from generation resources and 10 MWh from

In this regard, the California ISO notes that, in laying out the parameters under which organized markets were directed to open their ancillary services markets to direct bidding in Order No. 719, the Commission expressly declined the invitation of commenters to include treatment of the "double payment" problem within the rule, noting that the issue was "more appropriately addressed by each region" as it worked with stakeholders, "including state and local regulatory entities."[10] Moreover, within Order No. 719, the Commission stated that, by opening the wholesale market to direct bidding of aggregated retail customer demand response, it did not intend to eclipse the authority of the retail regulator to determine whether the retail customers can or cannot participate in direct bidding in the market. The California ISO submits that these sentiments speak to a federal-state comity concern, arising out of the confluence of federal (wholesale participation) and retail (of aggregated retail customers) interests surrounding demand response resources; although the wholesale market may set a wholesale compensation rate for participation (i.e. payment of LMP), there is an intersecting retail interest, pursuant to which state or local regulatory

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demand response resources. In this example, $5,000 is paid to the ISO by the load and $5,000 is paid by the ISO to the supply-side resources. The ISO market remains revenue neutral.

On the retail side, 90 MWh of load is metered and is, in turn, paid to the LSE at the full retail rate by the retail consumers. However, the LSE bought 100 MWh of energy to serve its load, but only received compensation for 90 MWh from its retail customers. The LSE paid $500 ($50/MWh x 10 MWh) for the underlying load that supported the sale of the demand response resource into the ISO market. What the ISO/RTO cannot determine is how the subtraction of the retail rate, or a portion thereof, for the 10 MWh of load not consumed but procured by the LSE impacts that LSE's costs. This issue is especially complex if a demand response resource is made up of aggregate end-use customers, e.g., small and large commercial customers, that take service under different retail rate schedules. In this instance, which retail rate should be subtracted? Only the relevant retail regulatory authority can appropriately make this determination and resolve in coordination with the ISO or RTO.

[10] Order No. 719 at P 159.

entities may wish to make adjustments to the retail rate – i.e., the ultimate compensation that the retail customer will be paid for its participation in the composite demand response.[11]

General Comments

Determining the appropriate price for demand response involves the resolution of complex issues. Among these, particular cost concerns arise from the fact that the sellers of demand response are selling a commodity that they do not own if there is no explicit contract for the demand response provider to procure the underlying load that it sells as demand response to the ISO or RTO in the first instance. Dr. Larry Ruff has explained this issue in his paper titled *Economic Principles of Demand Response in Electricity* as follows:

> Normal markets allow consumers to sell what they do not consume as long as they own it, but no rational market pays consumers for not consuming what they do not own, even if they can prove that they would have bought it but didn't.[12]

The California ISO's Market Surveillance Committee articulated a related cost concern in connection with its consideration of the PDR product design proposal during the stakeholder process, namely that any direct payment for demand response may constitute a double payment to the curtailing customer. This is because the sellers of demand response would not only receive that payment, but also, as potential consumers, would reduce their electricity bills and

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[11] For Commission statement that it has sought to encourage interests of federal-state comity, see, e.g. Order Accepting Depreciation Rates, *Duke Energy Carolinas, LLC* (issued January 29, 2010) 130 FERC ¶ 61,079 (Docket No. ER09-1717-000) at P 4.

[12] Larry E. Ruff, PhD., *Economic Principles of Demand Response in Electricity,* Prepared for Edison Electric Institute, October 2002, at 4. Available at: http://www.hks.harvard.edu/hepg/Papers/Ruff_economic_principles_demand_response_eei_10-02.pdf.

avoid the cost of energy procurement in the first instance. As the Market Surveillance Committee stated:

> This problem has been identified as the major issue in [demand response] design in ISO-New England, and has long been a concern with demand-side management in general. This problem arises when a consumer that reduces her load by 1 kWh saves money by avoiding having to pay the retail rate associated with that kWh, and in addition is given a payment for reducing load. This can provide an over-incentive for demand reductions if the sum of the retail rate and payment exceeds the marginal cost of providing power.[13]

Based on this concern, the Market Surveillance Committee recommended limiting the payment to demand response resources to no more than the difference between the relevant LMP and the wholesale energy price implicit in the retail price. "If a utility pays any more than the LMP-retail price difference, then there will be a revenue deficiency that the utility's other customers will need to make up."[14]

These points identify cost issues that relevant retail regulatory authorities may wish to consider in the context of their overall energy policy goals regarding retail energy pricing and energy consumption. Accordingly, while retail load can be configured to participate in the California ISO market as demand-side resources, their situation is different from that of generation suppliers because the resource configuration cannot be fully accomplished without the cooperation of the relevant retail regulatory authority.

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[13] Wolack, Bushnell, and Hobbs, "The California CAISO's Proxy Demand Resource (PDR) Proposal" at 5, available on the ISO's website at http://www.caiso.com/241e/241eb5ba44d2.pdf (footnote omitted).

[14] *Id.*

As Commissioner Moeller has noted in his concurrence in part and dissent in part to the NOPR, public utility commissions have differing policy concerns regarding demand response and, therefore, differing responses to these compensation issues.[15] For example, some policy makers may conclude that conservation and environmental goals require a commission to promote demand response through additional incentives, even if the incentives are arguably inefficient in a strictly economic sense. Others may conclude that such incentives unjustifiably increase the overall costs of electricity procurement for all consumers.

In California, the California Public Utilities Commission ("CPUC") is evaluating demand response compensation issues in its demand response proceeding.[16] In that proceeding, certain parties have argued that a settlement between the demand response provider and the load-serving entity is not necessarily appropriate because, for example, utilities are already reimbursed for operating their utility-operated retail demand response programs through balancing accounts.[17] On the other side of the issue, other parties have

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[15] NOPR, Moeller concurrence and dissent at 3. Commissioner Moeller contrasted the position of the Indiana Utility Regulatory Commission (*i.e.*, LMP less the generation portion of retail rates is an accepted indication of cost-effectiveness) with the position taken by the New Jersey Board of Public Utilities and the District of Columbia Public Service Commission (*i.e.*, compensation for demand response should be based solely on LMP). *Id.* at n. 8.

[16] CPUC R. 07-01-041, Phase Four (Direct Participation).

[17] *See*, e.g. Reply Comments of Pacific Gas & Electric on the Direct Participation of Demand Response in the California Independent System Operator Markets, CPUC R. 07-01-041, filed January 29, 2010, at p. 2 and fn 2, summarizing this view by various parties to the proceeding:

> A few parties stated that it is unnecessary to have the DRP repay the LSE for the power procured by the LSE in the CAISO's market that is then curtailed by the DRP. For example, the Joint Parties asserted that the Investor-Owned Utilities (IOUs) can be made whole through their balancing accounts. They asserted that

contended that benefits and externalities, as well as costs associated with demand response participation, must be considered together when evaluating ultimate compensation concerns.[18] Still others have argued for a strict adherence to the economic principles of demand response.[19]

Moreover, the focus of this NOPR, compensation for energy related to demand reduction in the wholesale market, generally plays a smaller role than other forms of compensation in the overall incentive structure that motivates the development of demand response. For instance, demand response resources generally function like use-limited resources. This makes it unlikely that they will be dispatched as frequently as supply-side resources. Therefore, the potential for demand response resources to earn a majority of its revenue from energy rents is likely small relative to other revenue sources. The more important revenue sources, the ones that motivate demand response development, are capacity sales, both for resource adequacy purposes and, in ancillary services, although to a somewhat lesser extent, and only if the demand response is configured properly, so that it can be certified as an ancillary service resource.

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the requirement that the DRP pay money to the LSE would be a disincentive against the DRP providing Demand Response.

(These comments are accessible on the CPUC's website at https://www.pge.com/regulation/DemandResponseOIR/Pleadings/PGE/2010/DemandResponseOIR_Plea_PGE_20100129-01.pdf.

[18] *See, e.g.* Comments of Energy Curtailment Specialists, Inc.'s Response Comments On Direct Participation Of Retail Demand Response In CAISO Electricity Markets, CPUC R. 07-01-041, filed January 25, 2010, available on the CPUC's website at http://docs.cpuc.ca.gov/efile/CM/110992.pdf,

[19] *See, e.g.,* Comments of Southern California Edison Company on Workshop Report, CPUC R. 07-01-041, filed January 22, 2010, accessible on the CPUC's website at http://www3.sce.com/sscc/law/dis/dbattach3e.nsf/0/F0110C35FF7DAB21882576B40001879F/$FILE/R.07-01-041+DROIR_SCE+Comments+on+Workshop+Report+Ph4.pdf.

Thus, the California ISO understands the economics of demand response to be largely driven by capacity payments, not energy rents.

The Commission has taken important steps to ensure that demand response resources can participate and are compensated in organized ancillary services markets in the same manner as other resources, and is now taking action to achieve the same ends in energy markets.[20] Inasmuch as the economics of demand response are significantly influenced by capacity payments over ancillary services and energy payments, the California ISO is concerned that the NOPR's additional regulatory action addresses only the *energy* side of the demand response equation (requiring ISOs and RTOs to pay full LMP) and may not advance the Commission's intended policy objective of compensating demand response for its full worth:

> [W]e are concerned that the current compensation levels appear to have become unjust and unreasonable. Providers may submit price and quantity bids into the organized wholesale energy markets and the market clears at the marginal resource yet *they fail to compensate demand response at levels that reflect the marginal value of the resource* being used by the RTO or ISO to balance supply and demand. *The current wholesale compensation levels may therefore be leading to under-investment in demand response resources*, resulting in higher, and unjust and unreasonable, prices in the organized electricity markets.[21]

The California ISO is concerned that focusing only on the energy payment may be insufficient to spark the optimized investment in demand response resources.

The California ISO believes that the subject of demand response compensation requires a holistic view that considers both energy and *capacity*

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[20] Order No. 719 at PP 21-63. The California ISO notes that Order No. 719 speaks of improving organized markets in the areas of demand response and market pricing *during periods of operating reserve shortage*. (See Summary at p. 1.)

[21] NOPR at P 13 (emphasis added).

payment concerns. Capacity pricing issues must be addressed to approach market parity (in price and scope of market participation) between generation and non generation resources. And as stated above, the California ISO believes that the situation for non-generation resources is different from that of generation suppliers because the resource configuration cannot be fully accomplished without the cooperation of the relevant retail regulatory authority.

Issues arising in California on the subject of resource adequacy provide an important illustration of the challenges facing the Commission in achieving its objectives. Currently, the only formal resource adequacy capacity mechanism in California is the resource adequacy program, administered by the CPUC for its jurisdictional load-serving entities.[22] Under the CPUC's resource adequacy program, load-serving entities must procure the necessary capacity through bilateral arrangements. Accordingly, under this paradigm, their path to resource adequacy revenues is procurement by load-serving entities. There is no alternative path for demand response resources that participate directly in the California ISO market but do not have bilateral contracts to supplement revenues from the California ISO's energy markets with resource adequacy capacity payments.

More specifically, under the CPUC's current resource adequacy program, the megawatts from utility operated retail demand response programs and contracts come "off the top" and reduce the utility's overall resource adequacy requirements that the CPUC allocates to its jurisdictional load-serving entities.

[22] Local regulatory authorities may establish resource adequacy programs for other load-serving entities.

Demand response that is not currently procured through utility managed retail demand response programs or through utility procurement contracts has no clear path for earning, or being counted as, resource adequacy capacity by the CPUC as a result of participation in the California ISO market and, as the California ISO's Department of Market Monitoring noted in its 2009 Annual Report, is unable to earn capacity payments.[23] Such demand response resources therefore have no opportunity to compete with generation in the bilateral "market" for resource adequacy capacity, which is controlled solely by the relevant LSE.

Many of the California ISO's stakeholders have concluded that without access to resource adequacy capacity payments, there will be insufficient incentive for aggregators to develop demand response resources that participate directly in the California ISO market. The report on barriers to demand response that the California ISO filed with the Commission in compliance with Order No. 719 identified this as a significant barrier to demand response.[24] The viewpoint is also consistent with the Commission's observation in the NOPR that "[w]here compensation for demand response is inadequate, demand response resources will be hesitant to invest in demand response devices."[25]

Thus, demand response compensation is a larger issue than just the energy settlement, which is under FERC's purview. Until parity exists between

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[23] Cal. Indep. Sys. Operator Corp., Dept. of Market Monitoring, Annual Report at 19 (2010), available at http://www.caiso.com/2777/27778a322d0f0.pdf.

[24] *See* Freeman, Sullivan & Co. and Energy and Environmental Economics, Inc., *California Independent System Operator Demand Response Barriers Study (per FERC Order 719*) at 30, (April 28, 2009), available at http://www.caiso.com/2410/2410ca792b070.pdf.

[25] NOPR at P 16.

supply-side and demand-side resources for energy *and capacity*, inadequate demand response participation may continue into the future.

What is apparent to the California ISO from this conclusion is that the issue is fundamentally intertwined with retail rates, ratepayer issues, and state jurisdictional concerns. The Commission itself has acknowledged that "demand response is a complex matter that is subject to the confluence of state and federal jurisdiction."[26] Because retail issues will and must ultimately be sorted out by state commissions, the California ISO has concluded that there is no obvious reason to treat demand response resources differently from supply resources *at the wholesale level*. Compensatory and other ratepayer concerns that are outside of the purview of the wholesale market should be addressed by the relevant retail regulatory authority. This conclusion is reinforced by the California ISO's own experience evaluating compensation alternatives during the California ISO's development of its new wholesale demand response products.[27] The California ISO therefore agrees with the Commission proposal that all resource types participating in wholesale energy markets should be settled on the same basis, i.e., at full LMP. Retail concerns, including rates and ratepayers' issues, are appropriately under the purview of the relevant retail regulatory authority. As such, it should be the prerogative of the relevant retail regulatory authority, based on its own policies, concerns, and the type of demand response being offered, to determine if full LMP compensation for demand response

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[26] Order No. 719-A at P 54.

[27] For example, the CAISO's Proxy Demand Resource product. Details about this product can be found here: http://www.caiso.com/23bc/23bc873456980.html

resources, as settled at the wholesale level, is sufficient or if some other form of full LMP "minus" is appropriate. Either way, these decisions should be made by the relevant retail regulatory authority and coordinated with the ISO or RTO.

Responses to Specific Requests for Comments

1. **Whether current compensation for demand response providers is adequately procuring demand response.**

The California ISO's current and proposed demand response products are settled at the full LMP. Thus, the California ISO's current compensation method for its existing Participating Load product and its proposed Proxy Demand Resource product are consistent with the Commission's compensation proposal. The extent to which this compensation, in combination with whatever, if any, settlement the CPUC adopts apart from the wholesale market settlement, will provide adequate demand response resources is yet to be determined.

2. **Alternative approaches to compensating demand response resources.**

As noted, the California ISO has concluded that the Commission's proposal for RTOs and ISOs to compensate demand response resources participating in wholesale energy markets at the full LMP, which is consistent with the treatment of other resource types participating in the organized markets, appropriately resolves the issues before the Commission as the regulator of wholesale markets, assuming that the ISO or RTO resolves the double payment and maintains revenue neutrality, as is the case in California. Any other compensation measures for demand response resources should be within the purview of the relevant retail regulatory authority in the furtherance of its public policy goals and the fulfillment of its consumer-service obligations and, as

appropriate, coordinated with the ISO or RTO. Thus, regional difference may exist depending upon how DR compensation issues are ultimately resolved between the ISO or RTO, its stakeholders, and, the relevant retail regulatory authority.

3. **Merits of those approaches.**

   Not applicable.

4. **Whether a reduction in consumption is comparable to an increase in electricity production.**

   While there may be some differences in the manners in which reductions of consumption and increases of production can be used by an RTO or ISO to manage markets, congestion, and reliability, the California ISO does not believe those differences are relevant to determining appropriate compensation.

5. **Whether paying LMP to demand response resources is comparable to compensation or is more or less than comparable to compensation paid to generation.**

The California ISO believes that paying LMP to demand response resources is appropriate in the wholesale markets. Whether generation and demand resources ultimately receive comparable compensation will depend on the type of demand response product offered and on actions taken, where appropriate, by the relevant retail regulatory authority. For instance, if the demand response provider did not have an explicit contract to procure the energy it sold to the ISO or RTO in the first instance, then the relevant retail regulatory authority may deem other compensatory measures are appropriate, or not, in furtherance of its public policy goals and consumer-service obligations.

6. **Whether payment of LMP should apply to all hours.**

The LMP price is an accurate indicator of the changes in demand and congestion that occur over time. Thus, the LMP should apply in all hours.

7. **Whether requiring payment of LMP is appropriate across all ISOs/RTOs or are variations appropriate.**

The Commission should enable regional differences to exist concerning the compensation of demand response resources as agreed to by the ISO or RTO, its stakeholders, and the relevant retail regulatory authority.

8. **Whether the Commission should allow regional variations in demand response compensation.**

See answer to Question #7

9. **Whether and under what circumstances should the Commission conduct periodic review of demand response compensation.**

No special or periodic review for demand response compensation is necessary. Inasmuch as the California ISO believes that all resources should receive comparable compensation based on sound economic principles, regardless of type, it also believes that review would only be appropriate if FERC was reviewing the settlement of all resource types in the organized markets. In addition, to the extent a party concludes the compensation established by the Commission has become unjust and unreasonable, it could file a complaint.

10. **Whether terms such as "expected levels," "price signals," and "market prices" are sufficiently defined.**

The California ISO believes that these terms, as used in the proposed regulation, are well-understood terms of art that need no further explanation. Indeed, the California ISO believes that any technical definition would be overly complex and might have unintended consequences.

Respectfully submitted,

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