

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

Order Instituting Rulemaking to Create a  
Consistent Regulatory Framework for the  
Guidance, Planning, and Evaluation of  
Integrated Demand-Side Resource  
Programs.

Rulemaking 14-10-003  
(Filed October 2, 2014)

**CLEAN COALITION RESPONSE TO JOINT ASSIGNED COMMISSIONER  
AND ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING RESPONSES  
TO QUESTIONS**

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**I. INTRODUCTION**

Through Rulemaking 14-10-003 the California Public Utilities Commission (“Commission”) will develop and adopt a regulatory framework to provide policy consistency for the direction and review of demand-side resource programs. On March 11–12, 2015, the Commission hosted a workshop to solicit feedback on foundational issues within this proceeding. The Clean Coalition submits this response to Commissioner Florio and Administrative Law Judge Hymes’s Ruling seeking responses to questions resulting from the workshop.

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (“DER”)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

## II. RESPONSES TO QUESTIONS REGARDING THE BREADTH OF THIS PROCEEDING

1. *Are the descriptions of each of the seven problems provided above on pages 8 and 9 accurate? What additions or clarifications are needed?*

No comments.

2. *Following workshop discussions on the problems with current integration efforts, related questions and working toward solutions, the workshop participants reprioritized the identified problems. Do you agree with the final prioritization of problems and why? How would you prioritize the identified problems and why?*

No comments.

3. *Some of the definitions, goals, and objectives suggested by parties imply that the effective integration of demand-side resources requires demand-side resources to be better integrated with utility system planning, investment, and operation, as well as CAISO planning and operations. Is this correct? Do you agree? Should this broad challenge be addressed in this proceeding? Why and how?*

- Yes, effectively integrating demand-side resources requires better integration with utility system planning, investment, and operation, as well as CAISO planning and operation in order to properly evaluate, capture, and distribute benefits to support efficient development and use of these resources. This should include:
  - Updating cost effectiveness protocols;
  - Monetizing the value provided; and
  - Defining coordinating principles and guidance applicable to related proceedings.

The Clean Coalition strongly believes that effectively integrating demand-side resources requires better integration with utility system planning, investment, and operation, as well as CAISO planning and operation. Integration will involve several steps. First, the Commission will need to adopt an updated cost effectiveness protocol that properly values the benefits of both individual demand-side resources in addition to the interplay of different combinations of resources. This should include the value of

avoiding cost associated with energy delivery including both deferred capital investment and per unit delivery costs such as the appropriate application of Transmission Access Charges. As part of this process, the Commission should define different portfolios of resources that provide added benefits through complementary functionality. Such synergistic relationships can lead to substantial improvements in efficiencies and costs. For example, peak PV generation impacts can be mitigated with demand that is responsive to local or system supply levels—such as coincident local daytime electric vehicle charging.<sup>1</sup>

Second, the Commission will need to monetize these benefits in order to create effective price signals and either create revenue streams for parties financing demand-side resources or define appropriate utility investment—directly or through third parties. If done effectively, this will allow for better targeting of less efficient customers in addition to targeting key distribution circuits.

Complete resolution of these broad challenges may only partly be addressed in this proceeding. The proceeding's immediate goal should be to establish a roadmap with clear and coordinating principles applicable to the detailed technical decisions that will be addressed within related proceedings. Coordination with other proceedings will be discussed further in response to question four below. Two essential tasks for this proceeding are: (1) to create a framework to ensure that each step of the process occurs in a timely manner; and (2) to define standards by which solutions are evaluated, such as the proper accounting and allocation of value derived from actions benefiting grid operations, and ensuring that resources are cost-effectively employed by providing accessible monetization of value to all sources. The goals and metrics of individual programs may appropriately be determined elsewhere under the overarching guidance established here.

4. *If identified as an objective of this proceeding, how should system planning and benefits be considered in a way that does not duplicate what is being considered in the distribution resources plans (or long-term planning process) proceedings?*

- This proceeding should focus on coordination of efforts and application of

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<sup>1</sup> Craig Lewis, Presentation to California Energy Commission, *Flattening the Duck: Facilitating Renewables for the 21st Century Grid* (Feb. 2014), available at <http://www.clean-coalition.org/resources/february-2014-cec-presentation-flattening-the-duck/>.

conclusions achieved in the DRP and other proceedings, and ensure that they each reflect guidance developed in this proceeding.

The Commission should confront the challenge of effective integration of demand-side resources into system planning efforts in a number of proceedings, focusing expertise in specific topics and then incorporating those methods and standards across related proceedings. In the Distribution Resources Plan (“DRP”) proceeding, the Commission will lay the groundwork for the utilities to begin effectively planning for higher penetrations of DER within the distribution grid. By July 15, 2015, the utilities must file distribution resources plan proposals that “identify optimal locations for the deployment of distributed resources.”<sup>2</sup> In reviewing the utility proposals, the Commission should ensure that they clearly identify areas of high locational value where deploying a portfolio of demand-side resources meeting targeted performance standards would benefit the grid. The DRP proceeding should define customer and distribution grid needs in the same way as the current proceeding to work towards consistent goals where they overlap. The More Than Smart Working Group is developing recommended categories and definitions of benefits and avoidable costs that should be considered in the development of the DRPs.

In the demand response (“DR”) proceeding, the Load Modifying Demand Response Valuation Working Group, which was established following a recent settlement agreement concerning demand response,<sup>3</sup> has recommended methods and approaches to quantify the benefits resulting from some applications of DR; these may be appropriately extended to capture the interaction of multiple types of DER performing similar or additional services. One action that the Clean Coalition recommends taking in the current

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<sup>2</sup> Pub. Util. Code § 769(b). “Distribution energy resources” are defined as “distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies”. *Id.* § 769(a).

<sup>3</sup> Motion for Adoption of Settlement Agreement Between and Among Pacific Gas and Electric Company et al., on Phase 3 Issues, Cal. Pub. Util. Comm’n, Rulemaking 13-09-011 (Aug. 4, 2014), *available at* [http://www.clean-coalition.org/site/wp-content/uploads/2014/08/clean\\_Motion-for-Adoption-of-Settlement-Agreement\\_FINAL\\_CPUC\\_Settlement-attached.pdf](http://www.clean-coalition.org/site/wp-content/uploads/2014/08/clean_Motion-for-Adoption-of-Settlement-Agreement_FINAL_CPUC_Settlement-attached.pdf).

proceeding in context of DR is to begin utilizing pay-for-performance contracts.<sup>4</sup> These contracts would be both more effective and cost-effective than the IOU's current DR programs because performance incentives would be directly incorporated into the agreements. The utilities do not currently have any significant incentive to promote DR or demand-side management in general.

Further, the Commission should update the cost-effectiveness protocol to fully account for the benefits of demand-side resources. Specific items that the Commission should incorporate into the updated protocol include the value of deferred transmission and distribution investments, covariance or option value, the benefits arising from customer targeting, and actual peak and non-peak contributions. These factors were identified in the Report of the Load Modifying Resources Demand Response Working Group filed with the Commission on May 1, 2015.<sup>5</sup>

Local optimization should also reflect and consider broader system needs, and system optimization should fully recognize the capacities and services available from portfolios of local resources managed by Distribution System Operators or third parties to avoid unnecessary investment in system resources. As described in a paper on integrated distributed electrical systems by members of the More Than Smart Working Group,<sup>6</sup> a distribution system operator ("DSO") can be well positioned to manage demand side resources to most efficiently serve distribution level needs while operating within planned and agreed system level parameters.

As described above, in this proceeding the Commission should focus on creating a framework to ensure that all of the various components of a viable demand-side resources market come together in a timely and coordinated manner, guiding the consistent use and application of valuation, compensation, and planning methods across proceedings.

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<sup>4</sup> Advanced Metering Infrastructure ("AMI") data is currently available to measure customer performance for compensation.

<sup>5</sup> Load Modifying Resource Demand Response Valuation Working Group Compliance Report, filed in compliance with Ordering Paragraph ("OP") 4, f. (ii) of Decision 14-12-024.

<sup>6</sup> Lorenzo Kristov, California Independent System Operator & Paul De Martini, Caltech Resnick Institute, 21st Century Electric Distribution System Operations (May 2014).

5. *Should policies supporting the integration of demand-side resources maximize system benefit, including greenhouse gas reductions, maximize customer participation and benefits, or some combination of the two? In the integration of demand-side resources, how can we harmonize the needs and wants of customers with system needs, including greenhouse gas reductions? Should financial benefits and/or customer incentives for the integration of demand-side resources be uniform across the state and/or service territory or differentiated by locational value?*

- Both system benefits and customer participation and benefits should be considered and balanced.
- Portfolio level valuation should be applied.
- Compensation should reflect value, which is location and time specific
- A pay-for-performance approach may be most effective for optimizing both system and customer benefits.

The Clean Coalition urges the Commission to maximize both system benefits and customer participation/benefits in supporting the integration of demand-side resources. As both work towards greater deployment of demand-side resources, these goals can be viewed as complementary. While the Commission should properly seek the greatest common good while protecting equal treatment of individual customers, it should consider balancing a narrow focus on system needs against the greater development of demand-side resources that may result from promoting customer value. While it is often difficult or impossible to attribute system benefits to small incremental impacts of demand-side resources, the aggregate and cumulative impact of encouraging customer action and contribution must be fully considered and valued.

The Clean Coalition recommends several steps that promote both system benefits and customer participation/benefits. The Commission should first target customers with high-energy usage to maximize customer benefits. Second, distribution system modeling that will be performed within the DRP proceeding can show areas with deferral options and high locational value. Third, covariance analysis should be used to provide a clearer picture of needs and preferred solutions. Finally, solutions can be optimized through packages or portfolios of demand-side resource offerings.

While ratepayer benefits from the integration of demand-side resources should be uniform across utility service territories, individual customers may appropriately benefit

in proportion to the value of services they can provide. This may be a more long-term objective than can be accomplished through this proceeding, but financial benefits and customer incentives should eventually be differentiated by locational value. Through the DRPs, the utilities will identify areas with increased locational benefits, and integrating locational value into payments for demand-side resources will then incentivize citing of resources in these areas of significant need. Utility customers should receive equal access to the grid and equal charge for use, and incentives to finance demand-side resources in high value areas would not infringe on these rights. Instead, more targeted incentives would allow the marketplace to quickly provide grid services where most valuable to ratepayers in general, while promoting greater uptake of clean DER.

Customers must be subject to equal standards and equal right to participate; however, where and when a customer can provide demand-side resources determines the value—which is time and location dependent—that they have to offer. Under a policy of equal access, customers may expect to be charged equally for service received regardless of location. However, when a customer or other party is acting in the role of *providing* services to the grid, each provider should receive compensation based on a standard metric for determination of the value of the service provided, and this may appropriately reflect locational and other differences. This is in line with a “pay-for-performance” approach.

6. *Should the Commission shift from the current framework of encouraging the integration of demand-side resources through individual customer revenue streams from bill reductions and utility incentive payments to a different framework in which those benefit streams can be commoditized (bought and sold) to meet system needs (e.g., MW, MWh, flexible resource adequacy, greenhouse gas reductions)? Should the Commission create an open procurement or similar framework through which the integration of demand-side resources meets system needs? How can such a framework reflect customer needs, wants and benefits? How can such a framework encourage integrated customer actions?*

- The Commission should support commoditization of benefits while retaining the simplicity of customer billing credit.
- This promotes customer participation and leverages value that may be achieved through aggregation.

In certain contexts, it may be preferable to shift from the current framework of encouraging the integration of demand-side resources through individual customer revenue streams from bill reductions and utility incentive payments to a different framework in which those benefit streams can be commoditized to meet system needs. Generally, the benefits of simplicity provided by compensating customers directly on their bills is preferable because it will likely lead to greater customer adoption. However, in certain circumstances having customers act in an open market may better encourage integrated customer actions.

Large numbers of customers may each individually reflect small value and may only be incented to participate if the effort required is at or near zero, yet in aggregate these customers represent a very large resource. Market efficiencies may be realized when applied to aggregated portfolios of demand-side services or capacity, and this should be explored further.

The Commission should ensure that customers participating in the provision of services receive fair compensation for the value of those services even where simplification is prioritized to promote participation. For example, the utility or DSO may be the most efficient intermediary for aggregation of individually low value customer resources, but would properly receive only a regulated rate of return on the market value of those resources. The balance would then be credited to participating customers, and the operational and capital savings would be realized by ratepayers. Third party aggregators may more efficiently identify higher value customer resources and competitively offer these to the ISO, DSO, or other markets, thereby establishing the market value and cost effectiveness of all resources.

This framework can encourage integrated customer actions simply through operation of the market. In areas where large investments in transmission and distribution infrastructure can be avoided, customers will be offered a higher return on investment and will have an incentive to adopt specific packages of demand-side resources. Pay-for-performance contracts will also ensure that customers have a long-term incentive to continue operating and receiving payments for their demand-side resources.

*7. How can the long run benefits of distributed energy resource investments be monetized and captured in an environment where ownership and occupancy of*

*residential and commercial buildings changes in a much shorter time frame than the life cycle benefits of those investments?*

While this is a significant barrier to some DER, and energy efficiency upgrades in particular, DER investments take many forms. Third party or utility ownership of fixed large capital assets, such as leased or power sale contract PV facilities, allows continuity across changes in occupancy or ownership. PACE financing and related approaches can offer financeable benefits across owners, and the Commission may choose to support ratepayer investment in both financing or subsidy where net ratepayer benefits warrant. At the same time, it should be recognized that DR equipment, such as A/C controllers, may offer much shorter payback. The equipment also relies more upon customer behavior in response to incentives than continuation of operation, while still allowing change of occupancy or ownership. Assets that have other primary value, such as EVs offering secondary use for load modification or even storage, realize their investment value mainly through their primary function separate from demand-side service provision, and may maintain predictably reliable aggregate portfolio capacity even if individual units come and go online.

*8. How can the various benefits of distributed energy resource investments that are considered in a complete cost-effectiveness evaluation be converted into financial benefits that flow to those who finance such investments (which may or may not include onsite customers receiving the energy service)?*

Converting the benefits of DER investments that are considered in a complete cost-effectiveness evaluation into financial benefits that flow to those financing the investments requires a two-step process.

First, the benefits of DER investments must be properly recognized. This step of the process has been initiated in part through the DR proceeding's valuation working groups.

Second, the benefits must be monetized and adequately transferred to the investor. This step involves converting the benefits into value that would influence the decision to invest in different types of DER. Such value may generally be realized in aggregate for the entire portfolio of resources. The compensation for the value of individual investments and the services they provide would accrue to the entity offering those

aggregated services, who would in turn offer an agreed upon compensation to the investor.

This proceeding should focus on creating a roadmap to monetization and standards for compensation as discussed in response to question 6 above, but it may allow the markets and participants to work out all of the details.

9. *How can ratemaking better consider and reflect the value of the integration of demand-side resources? Are there any steps this proceeding could or should take on this issue? What level of priority should this issue be within this proceeding?*

- DSM resources should be considered as portfolios that can provide a variety of specific and non-exclusive services.
- The value of integrated portfolios can be assessed through pay-for-performance results.
- Stochastic analysis, including “Option Value”, should be applied in pricing and dispatch, as reflected in the previously cited Load Modifying Resource Demand Response Valuation Working Group Compliance Report.

This proceeding is a good opportunity for the Commission to further examine how time of use pricing will affect uptake of demand-side resources and provide direction in response. The Commission’s recently proposed decision in the residential rate reform proceeding instructs the utilities to start time-of-use (“TOU”) pilots by next year, as well as to file proposals by the end of 2017 that move towards a default TOU rate structure beginning in 2019.<sup>7</sup> This proceeding should further investigate what TOU rate structure would best promote greater uptake of demand-side resources, and support rate options that allow customers to offer the greatest value to the grid. TOU rates significantly incent customers to shift consumption, which can reinforce other customer incentives to change load-shapes. More dynamic TOU rates will be needed to address issues that arise as the “duck curve” alters previous on-peak times and extends the

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<sup>7</sup> Cal. Pub. Util. Comm’n, Rulemaking 12-06-013, Proposed Decision on Residential Rate Reform for Pacific Gas and Electric Company, Southern California Edison Company, and San Diego Gas and Electric Company and Transition to Time-of-Use Rates (Apr. 21, 2015), *available at* <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M151/K305/151305677.PDF/>.

evening peak later in the day. A good example of the complementary nature of TOU rates and demand-side resource offerings can be seen in Sacramento Municipal Utility District's Smart Homes programs, development of which was driven by recently adopted TOU rates.<sup>8</sup>

*10. Is it important that any framework that emerges from this proceeding encourages third parties or utilities to deliver, and customers to take, integrated packages of technologies, at the same or within a limited time frame? How important is this (i.e., integrated demand-side management or actions) as compared to the integration of demand-side resources into system planning, etc., as discussed above? Should this proceeding take up both issues? Why or why not?*

- While customers may benefit from integrated packages, their individual participation may be quite diverse or limited while still contributing to the whole; the development of integrated portfolios is more important than the adoption of integrated packages by individual customers

When cost effective, this proceeding should adopt a framework that encourages third parties or utilities to deliver, and customers to purchase, integrated packages of technologies at the same time—or within a limited time frame—through pay-for-performance contracts. For example, the grid benefits provided by residential-scale energy storage are insufficient to justify the investment and the associated transaction costs. However, the value of this resource can better be harnessed if coupled with solar, EVs, and automated Demand Response management opportunities that respond to both distribution and system level needs. Further, aggregating the resources and coordinating their dispatch provides an even greater value proposition. Overall, incrementally optimizing behind-the-meter resources will provide grid benefits, but the return on investment would not likely justify the purchase absent some mechanism to aggregate the services.

The proceeding should recognize that the value of demand-side resources lies in their ability to perform specific services as an alternative to other investments. The ability to perform services resides in the specific portfolio available, but is agnostic to the

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<sup>8</sup> Sacramento Mun. Util. Dist., Smart Homes, <https://www.smud.org/en/residential/environment/smart-homes/> (last visited May 7, 2015).

specific technologies providing those services. Integration is only relevant at the portfolio level where sufficient to provide the required service. As such, while customers may in aggregate integrate packages of demand-side resource capabilities, and may benefit from integrated packages, their individual participation may be quite diverse or limited while still contributing to the whole.

Additionally, customers may be overloaded with information and are not in the best position to optimize different resource portfolios. The Commission should work towards structuring and valuing specific services that can be met by demand-side resource portfolios that DSOs or vendors can then adapt to more specific customer classes. If customers are presented with a simple package of technologies, TOU rates, and pay-for-performance opportunities, and can then evaluate the benefits across offerings, they are likely to be more responsive. Vendors will be in a position to identify the most cost-effective options and offer the benefits to customers on a shared value basis. This proceeding should address both this issue of customer integration of demand-side management or actions as well as integration of demand-side resources into system planning, as discussed above. The Commission will have a more limited role in system planning in this proceeding, but it is important to coordinate the proceedings in order to promote the complementary goals.

### III. CONCLUSION

The Clean Coalition appreciates this opportunity to respond to questions arising from the March 11–12 workshops.

Respectfully submitted,

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