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)

RESPONSES OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION PURSUANT TO THE JOINT ASSIGNED COMMISSIONER AND ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING RESPONSES TO QUESTIONS

The California Independent System Operator (CAISO) submits the following responses to questions posed in the April 15, 2015 Joint Assigned Commissioner and Administrative Law Judge's Ruling (Ruling). The CAISO's responses are intended to help the Commission specify a scope for this proceeding that will lead to effective integration of demand side and distribution-connected resources while maintaining a complementary and coordinated relationship with other ongoing Commission proceedings and CAISO stakeholder processes.

I. Introduction and Foundational Recommendations

Before addressing the questions posed in the Ruling, the CAISO offers several foundational recommendations regarding the scope and objectives of this proceeding. As the Commission is well aware, the electricity system – especially, but not exclusively, in California – is undergoing unprecedented changes at both the "macro" and "micro" levels. The "macro" level, which is not the subject of this proceeding, is the transmission system and wholesale markets operated by the CAISO, where reliable and efficient integration of renewables and enhanced coordination across the western region have been the major focus in recent years. The "micro" level, which is the realm of this proceeding, consists of the distribution system and the premises of end-use customers who depend on that system. Accordingly, there have been proceedings at the Commission and initiatives at the CAISO to facilitate and, to some extent, shape the micro-level transformation to both maximize the value ratepayers realize from the expansion of distribution-level resources and to ensure that the macro and micro levels of the whole electricity system remain integrated and coordinated. As a starting point for these comments, the CAISO recommends that the Commission frame this proceeding as a vehicle to develop and maintain a comprehensive perspective on the changes occurring at the "micro" level

of the electric system, and to do so as a complement to and in coordination with the Commission's distribution resources plan (DRP) proceeding (R.14-08-013). The goals and scope of this proceeding should also take into account the objectives, accomplishments and lessons learned in other Commission proceedings and CAISO stakeholder processes that are concurrently working to address changes at the "micro" level of the electric system.

In this introductory section, the CAISO offers the following foundational recommendations which form the basis for the CAISO's responses to the Ruling's proposed questions: (A) the Commission should define the scope of this proceeding to encompass both resources installed and programs implemented behind the end-use customer meter and distributed energy resources (DER) connected on the utility side of the distribution system; (B) this proceeding should affirm and build upon the concept of bifurcation between load modifying and supply side resources as adopted in R.13-09-011 regarding demand response; (C) the procurement framework for demand side resources and DER should be structured to ensure a clear path from identification of need to procurement, delivery and verification of resources; and (D) the scoping ruling should define a clear basis for complementarity and coordination between this proceeding and the Commission's distribution resources plan (DRP) proceeding.

A. Define the scope of the proceeding to encompass both customer-side resources and DER connected on the utility side of the distribution system.

The term "demand side management" (DSM) has a long history in the industry. The term was coined at a time when the only choices for serving electric customers were to build central-station power plants and lines to deliver their output, or to modify demand at the end-use customer premises to alter reliance on the system. The proliferation of diverse DER presents a third strategy: to install relatively small-scale resources in local areas to meet customer needs without relying as much on central-station generation. As a result, the narrow traditional concept of DSM is too limited to form the basis of a proceeding that will effectively complement the DRP proceeding.[1] The CAISO therefore recommends that this proceeding look comprehensively at both customer-side resources and utility-side DER as elements of the "micro" or local side of the electric system.

[1] The CAISO expands upon the relationship between this proceeding and DRP in Section D below.

As one illustration of the need to view DSM and utility-side DER comprehensively, the CAISO points to the Commission's recent Order Instituting Rulemaking (OIR) on energy storage (R.15-03-011), which states at page 15:

> Currently, there is clear demarcation line at the customer meter with customer-side grid-connected assets operating under one set of rules and other grid-connected assets on the other side of the meter operating under a different set of rules. In the case of storage, there may be applications where it may be natural or more efficient to have a non-utility storage asset provide services to multiple customers but located on the utility side of meters for these customers.

The above excerpt indicates the Commission's clear recognition that the proliferation of DER, including, but not limited to, energy storage, is dissolving the long-standing boundary between customer-side resources and the use of small-scale, local, but utility-connected resources, to meet local needs of customers as well as the distribution system itself.

If the Commission agrees with this CAISO recommendation, it would be useful to rename this proceeding as the "Integration of Distributed Energy Resources" (IDER) rather than IDSM (more on the rationale for this in the response to question 1 below). Absent a change to the name of this proceeding, the term "IDSM" will continue to convey to many stakeholders the traditional narrow meaning which could be misleading and may cause some parties to inadvertently ignore the proceeding. However, the CAISO does not recommend that the Commission should de-emphasize the attention this proceeding gives to IDSM in the traditional sense. As the CAISO discusses in the response to the Ruling's Question 1 below, traditional IDSM, focused on behind-the-customer-meter load reduction and reshaping,[2] will continue to be a valuable strategy for achieving the state's energy and environmental objectives. The CAISO recommends use of the term "IDER" to clarify that the proceeding includes, but is not limited to, traditional IDSM.

For simplicity, at various points throughout this filing, the CAISO uses the term DER or distributed energy resources as an umbrella term to refer to both demand-side (customer-side)

[2] As discussed below in the answer to question 1, the strict customer-side concept of traditional IDSM may need to be expanded to allow for possible combination of customer-side with utility-side facilities, as suggested by the quote above from the Commission's latest energy storage OIR.

and utility-side resources at distribution level, and will use the term IDSM only in the usual sense of that term, to refer to solutions aimed at reducing or shaping customer load.

B. Build Upon the Bifurcation Framework Adopted in R.13-09-011.

In R.13-09-011, the Commission adopted a bifurcation of demand response resources into load modifying and supply side resources. Load modifying resources are those that reshape or reduce the load and as such are captured in the demand forecasts developed by the California Energy Commission (CEC). Once reflected in CEC demand forecasts, load modifying demand response resources indirectly reduce resource adequacy requirements and long-term procurement needs. In contrast, supply-side resources are those that are bid into the CAISO markets and dispatched by the CAISO when and where needed.[3] This bifurcation is intended to support the Commission's long-standing objective to enhance the role of demand response in meeting the state's long-term energy goals in accordance with the loading order while maintaining system and local reliability. The objective of a load modifying resource is to maximize avoided costs by favorably reshaping load and thereby reducing capacity procurement requirements, whereas a supply resource is optimized alongside all other supply resources to feasibly serve net load at least cost.

Although the Commission has applied bifurcation only to demand response resources thus far, the bifurcation concept is equally applicable and should be applied to all demand-side resources and DER. For planning and procurement purposes, the Commission should apply bifurcation to DER to ensure that such resources are properly accounted for as load modifiers in the CEC's demand forecasts or, in the alternative, identified as supply-side resources eligible for qualifying capacity (QC) values to provide resource adequacy. The CEC's IEPR demand forecast is a crucial input to the Commission's Long Term Procurement Plan (LTPP) proceeding and the CAISO's Transmission Planning Process (TPP), and therefore the broad application of bifurcation under this proceeding is a necessary step to ensure consistent and accurate assumptions are adopted in the state's procurement and planning activities.

Currently, the Commission is considering how to value and monetize demand response resources in the demand response proceeding, R.13-09-011, in accordance with the bifurcation

[3] D.14-03-026, p. 20.

principle. The decisions made in that proceeding should inform the valuation and monetization of demand side resources and DER contemplated here.

C. Establish a Consistent Procurement Framework for Demand Side Resources and DER.

Currently, there is no consistent procurement framework for demand side resources and DER. Instead, these resources are procured through a variety of proceedings and through programs with different timelines. This ad hoc approach has fragmented and siloed the valuation of these resources and the monetization of benefits by resource category. The Ruling recognizes the need to address this by stating:

> On October 2, 2014, the Commission established this Rulemaking to consider the development and adoption of a regulatory framework to provide policy consistency for the direction and review of demand-side resource programs. According to the Order Instituting Rulemaking, the framework is envisioned to be a unified mechanism to authorize and direct the Commission-regulated electric and gas utilities to achieve demand response reduction and load shaping using integrated demand-side resources.[4]

One problematic result of the current fragmented and siloed framework is that it is difficult to make planning decisions. For example, it is difficult to utilize local preferred resources to offset a need for a local reliability transmission upgrade while maintaining confidence that the needed resources will be operational and fully effective by the time the transmission upgrade is needed. Given the long lead time to implement a transmission upgrade versus the relatively short lead time to develop most DER, there is a risk to deferring a transmission upgrade beyond a critical trigger date absent a clear, Commission-overseen process that identifies need, specifies the preferred resource portfolio to meet the need, authorizes procurement and verifies timely development of resources and their on-going and persistent performance. To be effective, the process must include monitoring along the way and accountability by the responsible parties at each step.

The lack of a comprehensive and consistent procurement and implementation process is one of the key barriers to increased reliance on preferred resources to offset or defer system infrastructure upgrades. Given the scope and objectives of the Commission's DRP proceeding,

[4] Ruling, p. 1.

the same problem is likely to be a barrier to deferring distribution system upgrades as well, unless the Commission addresses these needs in a comprehensive manner. Based on the Commission's stated intention to use this proceeding to ensure that these preferred resources are most effective in meeting system needs, the CAISO believes that this proceeding is the appropriate venue to develop a consistent procurement and implementation framework for DER. Moreover, this issue provides an additional reason why the Commission should define the scope of the proceeding to include both demand-side resources and DER as suggested above: in meeting a local need with preferred resources, the optimal portfolio will likely include some combination of demand-side resources combined with utility-side DER.

D. Clearly define the relationship between this proceeding and the DRP proceeding.

As a fully engaged party in the DRP proceeding, the CAISO believes there is a relatively simple and clear basis for defining the boundary and the relationship between these two proceedings. In the simplest terms, the DRP proceeding is primarily concerned with the distribution system itself, including the wires and other physical infrastructure that interconnect customers and DER, whereas the present proceeding should be concerned with the demand-side resources and DER that would connect to, utilize and provide benefits or services to that system. In responding to some of the Commission's questions below the CAISO expands on this principle, but at this point an example can illustrate the logic.

One objective of the DRP proceeding is to identify and quantify locational benefits that DER can provide to the system, in the form of services to support distribution system operation or to defer the need for distribution infrastructure investment. These needs are to be described in a technology-neutral fashion, in terms of the resource performance capabilities required without getting into specific resource types that can offer those capabilities. In particular, the DRP proceeding will not address whether demand-side resources or utility-side DER, or some combination of the two, would be best suited to meet an identified need. In addition, the DRP will develop methods to estimate the value of the services such resources would provide, including the distribution utility's avoided operating expense or infrastructure investment cost. This analysis under the DRP framework will identify and quantify the opportunities for demand-side and utility-side DER to provide benefits to the system for which monetary compensation would be appropriate. Based on this understanding of the scope of the DRP, it would be a natural

fit for the present proceeding to address how to best structure and procure DER portfolios to meet specific needs identified under the DRP framework.

This is only one example of how the present proceeding and the DRP can complement each other; these comments will elaborate on this theme in responses to the questions below.

II. Responses to Commissioner Questions

A. Questions Regarding Definition and Goal

1. The workshop participants developed several definitions for the integration of demand-side resources or integrated demand-side management (see pages 4 through 5 of the Ruling). These definitions have similarities and differences. Is there one definition that stands out as the most appropriate to be used or do you suggest a different definition? Should the Commission define both the integration of demand-side resources and integrated demand-side management? If so, please comment on both terms.

The CAISO recommends that the Commission carefully distinguish between two separate concepts of "integration" and "integrated" that are somewhat obscured by the use of similar terminology. The first concept refers to the integration of DER into the operations and planning of the electric system, including the distribution and transmission systems, and into the wholesale markets. The use of "integration" in this context means essentially the same as it does in the phrase "renewables integration." Because of the commonly understood meaning of "renewables integration," the CAISO recommends that "integration" be used in the same sense in the present proceeding. This is consistent with the CAISO's Foundational Recommendation A to rename this proceeding "Integration of DER" or "IDER."

The second concept refers to the familiar, traditional meaning of IDSM, the formation of combined, aggregated, amalgamated or "integrated" demand-side or customer-side solutions for the purpose of meeting a specific customer need or achieving a desired impact on the magnitude or shape of the load of an individual customer, group of customers, local area of the system or the entire system. The CAISO recommends that the Commission retain this second concept in the present proceeding, but recognize that it will likely need to be expanded to allow for combinations of customer-side and utility-side DER, as suggested in the CAISO's Foundational Recommendation A.

In expanding on the second concept to consider resource combinations, the CAISO suggests the Commission retain the rationale that has supported the concept of IDSM in the past.

The purpose of constructing traditional IDSM solutions or combining different types of demand-side and utility-side DER should be to provide greater value to the grid and to the customer than individual DER provide on their own. Thus, forming aggregated or integrated DER is appropriate when the following two principles are met:

- **The whole is greater than the sum of the parts.** The integrated DER solution provides synergistic effects, such that its value is greater than the sum of values of the individual DER parts.
- **Grid and customer values are mutually reinforcing.** An integrated DER solution cannot harm the customer while helping the grid, and vice versa. The customer and grid values are mutually reinforcing, not in conflict or antagonistic to each other.

2. Should the Commission adopt more than one definition for the integration of demand-side resources and why or why not?

See answer to question 1 above.

3. The workshop participants developed several goals for the integration of demand-side resources (see pages 6 through 7 of the Ruling). Should the Commission consider having one overarching goal or should it have several goals? Why?

The Commission should set a single over-arching goal, with supporting sub-goals. An over-arching goal sets a direction and vision. Sub-goals serve as strategies or milestones to achieve the over-arching goal. The CAISO recommends the Commission adopt the following goal and sub-goals:

In alignment with its bifurcation policy, and in support of the loading order and attainment of state energy and environmental policy goals, the Commission will create the regulatory framework for integration of distributed energy resources (IDER), to enable distributed energy resources (DER) and integrated demand side management (IDSM) solutions to compete as supply resources for capacity and energy services and to avoid the procurement of supply resources or infrastructure investment by favorably modifying load, for the benefit of customers and the grid.

To achieve this goal, the Commission will need to address the following sub-goals:

a) Identify and overcome barriers that prevent IDSM and DER solutions from

providing mutually reinforcing benefits for customers, the grid, and the environment;

b) *Create a framework that allows incumbent and third-party providers to compete to offer DER and IDSM solutions to customers on a level-playing field;*

c) *In coordination with the DRP proceeding, develop methods to evaluate the cost-effectiveness of alternative DER and IDSM solutions to meet distribution system needs identified in the DRPs;*

d) *Create a framework for Commission tracking and oversight of DER and IDSM procurement and development to offset identified transmission or distribution infrastructure upgrades, to ensure that the needed IDSM and DER are implemented and fully functional by the time the upgrades would have been needed;*[5]

e) *Develop and refine measurement and verification techniques to validate the performance of IDSM and DER; and*

f) *Evaluate LSE procurement processes to ensure level-playing field for the procurement of DER and IDSM solutions that provide net benefits to customers, the grid, and the environment.*

4. If the Commission selects one goal for the integration of demand side resources, what should that goal be? Remember that a goal or goals should be broad, generic, long-term, and not strictly measureable or tangible.

   See answer to question 3.

5. If the commission determines that it needs several goals for the integration of demand-side resources, what should the structure of these goals entail? For example, should there be an overarching goal with sub-goals or should there be several goals based on categories? Please explain why.

   See answer to question 3.

[5] See Foundational Recommendation C earlier in this filing.

6. If the Commission determines it should have an overarching goal with sub-goals, what should these be and why?

See answer to question 3.

7. If the Commission determines it should have several goals based on categories, what should the categories be and what should the goals be based on the category and why?

See answer to question 3.

B. Questions Regarding Breadth of this Proceeding

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

CAISO offers the following comments and clarifications regarding the seven problems identified on pages 8 and 9 of the Ruling:

1. *Market Failure of Revenue Streams*. The Commission should distinguish a few distinct types of revenue streams that must be considered. The first type is the inability of the investor to capture the benefit stream of customer-side investment. The CAISO has no comment on this item.

Second is the asserted conflict between system-wide allocation of transmission and distribution upgrade costs versus the ability of investors in DER to capture the benefits of avoiding such upgrades. CAISO does not see a necessary conflict here; the fact that upgrade costs are allocated over a distribution utility's service territory or even the entire CAISO area does not preclude compensating the investors in a preferred DER solution for the value of their investment. The CAISO TPP considers possible DER solutions to offset needed transmission upgrades and the utilities' DRPs will identify opportunities for DER solutions to defer distribution upgrades. There is nothing in the cost allocation for such avoided upgrades that prevents the developer from being fairly compensated for providing the DER solution.

A third revenue stream is the potential for DER to provide operational services to the distribution system, the transmission system, or both. The CAISO has provisions in place for DER to earn revenues via wholesale market participation and the Commission's

DRP proceeding is currently working to specify operational services DER can provide to the distribution system for which DER can be compensated.

2. *Lack of Access to Data*. CAISO notes that data access is a significant issue being addressed in the Commission's DRP proceeding, and urges the Commission to scope the present proceeding to ensure coordination on this issue.

3. *Demand-side Resources do not Adequately Impact System Planning, Investments & Operations*. CAISO agrees this issue is extremely important, and points to foundational recommendations B (bifurcation), C (procurement framework) and D (coordination with DRP) in the introduction section as particularly germane to addressing this issue.

4. *Current Efforts Do Not Address Grid Needs*. This is essentially an aspect of problems 1 and 3, not a separate problem.

6. *Current Efforts Are Not Forward Looking*. As discussed in the CAISO's response to the Ruling's Question 5 below, an important element of forward-looking policy and strategy is viewing adoption of customer-side and utility-side DER from both a top-down and a bottom-up perspective. The top-down perspective considers benefits to the system as the basis for promoting and anticipating DER expansion; i.e., contributions to electric system operational and infrastructure needs, impact on greenhouse gas reduction, local area reliability needs, and load reduction and shaping to meet such needs. The present proceeding and the DRP proceeding are making great progress in identifying and beginning to address issues to move forward from the top-down perspective. In addition, the Commission must recognize that DER adoption will be driven to an increasing extent from the bottom up, by decisions of end-use customers,[6] individually and through local municipal and county authorities, to exercise greater choice in energy uses and sources, implement local climate action plans, stimulate local economies, and realize the synergistic benefits of convergences between energy and energy-intensive municipal/county services.[7] DER expansion from both directions, without excluding or

[6] Perhaps the extreme of customer choice is "load defection" – the decision to separate from the grid. The "Economics of Load Defection" as described in a recent Rocky Mountain Institute report appears to be making this a more accessible and viable choice (http://www.rmi.org/electricity_load_defection). Looked at another way, an important question for utilities and regulators to explore in the era of DER proliferation is how to redefine the value of being connected to the network, so that customers who can make the choice will choose to stay connected.

[7] See De Martini, Paul and Jeffrey Taft, *Value Creation Through Integrated Networks and Convergence*, available at the following link: http://smart.caltech.edu/papers/ElectricNetworksConvergence_final_022315.pdf.

deemphasizing one or the other, will be most effective in achieving the state's energy and environmental goals.

Finally, in addition to the seven problems listed in the Ruling, the CAISO would include the need for greater coordination among the various proceedings dealing with demand-side resources and DER. For example, the problem of how DER could be compensated for services to the grid (operational and investment deferral at distribution and transmission level) has been raised in separate proceedings dealing narrowly with demand response, energy efficiency, energy storage, and electric vehicles. The present proceeding can make great progress in addressing this problem by becoming in effect an umbrella proceeding to address questions such as this one comprehensively rather than in separate siloes for each resource type (in coordination with the DRP proceeding and related CAISO initiatives, as discussed elsewhere in these 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?

The CAISO believes the list of challenges is germane and relevant. The CAISO believes the following represent the highest priority challenges:

Priority 1:
- Problems #1, #3 and #4 are tightly interrelated and should be address holistically.

Priority 2:
- #2. Lack of Access to Data

Priority 3:
- #6. Current Efforts are Not Forward Looking

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, demand-side resources and DER must be integrated into planning, investment, operations and procurement activities. The CAISO's responses to Question B.1 above and foundational recommendation C in the introduction are relevant to this question.

This issue must be front and center in this proceeding if demand-side resources and DER are to offset conventional infrastructure in a substantial and measurable way. That said, this objective comprises a broad range of activities, which should be addressed in a coordinated fashion through several related proceedings and initiatives, not just in this proceeding alone. A possible way to approach this objective would be to describe the activities that already occur in other venues, and then identify gaps that need to be addressed in order to create a framework for IDSM and DER development that covers the whole life cycle from specification of needs to in-service operation of the preferred DER solution.

In addition, this proceeding would be the appropriate venue to consider the relative merits of, and the balance of effort devoted to developing more effective ratepayer-funded programs versus a competitive framework for independent entities to develop effective solutions. Where Commission-authorized ratepayer funding is involved, as it often is for demand-side resources, the resources must demonstrate the avoidance or deferral of new conventional infrastructure and related reduction in greenhouse gas emissions. If these resources are not fully embedded in the state's and utilities' planning and procurement functions, they will be overlooked, resulting in redundant procurement and wasteful spending of ratepayer funds.

To meet California's clean energy future by offsetting the need for conventional infrastructure, this proceeding must ensure demand-side resources and DER are properly configured to be incorporated accurately into all planning and procurement functions either as: 1) load-modifying resources that demonstrably reduce the need for conventional resources by reshaping and reducing the amount of load that must be served; or as 2) supply-side resources that can displace conventional generation and transmission assets to serve and balance load. Toward this end, this proceeding should explicitly recognize the LTPP-TPP-IEPR process alignment that was developed and mapped via a collaborative effort between the Commission, the CEC and the CAISO during 2013-14.[8] In the DRP OIR the Commission stated the clear intention of establishing an ongoing biennial process to refresh the IOUs' DRPs following their

[8] The TPP-LTPP-IEPR process alignment diagram and explanatory text are available at the following link: http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx

initial filings on July 1, 2015. To support this Commission directive, in the context of the More Than Smart stakeholder working group that has been meeting to discuss many of the complex issues raised in the DRP orders, the CAISO has been working with the participants to develop a straw proposal for how a new biennial DRP process could align with the LTPP, TPP and IEPR demand forecast. Alignment of these processes includes mapping the crucial information flows and other inputs and outputs between processes that support the overall objective of ensuring that planning and procurement activities all use consistent and up-to-date forecasts and assumptions to prevent these separate activities from arriving at inconsistent decisions or conclusions. As the Commission defines the scope and structure of this proceeding to address these DER integration questions, the CAISO recommends that it include an activity to examine the need for inputs and outputs between this process and these other planning and procurement processes and how best to align with them for most effective timing of such inputs and outputs.

Regarding coordination with other proceedings and identification of gaps, consider the example of infrastructure planning. The CAISO TPP identifies needs and evaluates proposed alternatives to meet the needs to determine the most cost-effective solution. However, once a DER solution is selected as the preferred solution, the rest of the life cycle to ensure the DER solution is procured, placed in service when needed, and, most importantly performs as needed and persists for many years, is not well specified or understood. Thus there is a significant gap this proceeding should address. Similarly, the DRPs the IOUs will file shortly will begin to identify distribution upgrade needs that could be avoided with demand-side resources or DER. The CAISO understands, however, that the DRP proceeding will not address the procurement and implementation of such resources, nor their performance and persistence. Thus there are important gaps this proceeding could address to better integrate DER into planning and procurement to offset needs for conventional infrastructure investment.

4. <u>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?</u>

With regard to the DRPs, this proceeding can avoid duplication or inconsistency by leaving the identification and quantification of local needs, values and benefits of DER to the DRP proceeding and the IOU DRPs, and instead focus on creating the framework for ensuring

that desirable DER solutions to meet identified needs are developed in a timely and cost effective manner. Where avoiding distribution system investment is the objective, this framework will likely involve procurement by the utilities under regulatory oversight, in which case coordination with the LTPP will be crucial, plus processes for monitoring of and accountability for the timely development and persistent performance of the committed DER solution. Consistent with the strategy articulated in answer to the previous question, this would be a good example of how this proceeding can identify and address gaps that currently exist and challenge DER expansion.

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?

In general IDSM and DER solutions should serve the reliability needs of the grid as identified in the various state and LSE planning and procurement activities, but not at the expense of greenhouse gas reduction and increased customer flexibility and choice. In other words, the objectives stated in the question should be viewed as mutually reinforcing, not as antagonistic or in "zero-sum" terms. The CAISO's comments in response to Question B.1 above regarding "forward looking" views of DER expansion are relevant to this question also. The traditional single-minded paradigm of providing reliable delivery of the kWh commodity at the lowest cost is no longer sufficient for a 21st century electricity system. Thus while distribution utilities and the CAISO seek to advance DER to meet system operational and infrastructure needs, the Commission should expect and encourage substantial customer-driven adoption of IDSM and DER for reasons more varied than the basic reliability and cost criteria. In other words, financial incentive will not be the sole driver of IDSM and DER development. It may occur in response to specific customer demands, which may not be intended to meet grid needs, but rather to satisfy customer and local jurisdiction preferences and goals. For example, in some areas the residents and businesses might choose to participate in a micro-grid to achieve greater local resilience to disturbances and rely on local resources to a higher degree. While reliability of

and benefits to the larger system should be considered, these might not be the most significant motives for creating the micro-grid.

The goal is not IDSM or DER for their own sake, nor can the goal be summarized as one single objective. Rather, the goal is to create a regulatory framework that promotes cost, operational, environmental and reliability synergies from combining diverse DERs to develop dependable resources that serve the customers' and the grid's evolving needs in the spirit of the loading order and ultimately to displace resources with negative environmental impacts. For these reasons, the Commission should both establish a competitive framework for the procurement of IDSM and DER solutions that serve particular and identified needs of the grid, and continue to engage end-use customers in understanding, evaluating and choosing the ways to meet their energy needs that best fit their particular circumstances. Depending on the needs of the grid, demand-side and DER solutions may have more or less value to the grid. IDSM and DER providers that can craft the best and least cost solutions to satisfy customer needs and the needs of the grid will be benefitted. How and to what extent providers compensate individual participating customers is less of a Commission concern and calculus so long as the solution was procured competitively with appropriate customer protections in place. An additional benefit is competitive procurement enables tailored solutions that can solve challenges while aligning the needs of customers and grid. This is in contrast to the common and restrictive "one-size fits all" program paradigm that largely exists today.

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?

Yes, the Commission should establish a competitive procurement framework for all demand-side resources. This theme runs throughout the CAISO's responses to these questions.

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?

No comment.

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)?

In a competitive environment, providers will evaluate the costs and benefits of investing to address an identified need, be it new capacity, new transmission, new distribution, etc. An integrated DSM solution that is procured competitively, where there is not a pivotal supplier, should be deemed cost-effective. In a competitive procurement environment, the contractor/solution provider bears the risk of non- or under-performance, not the ratepayer. This is a significant reason why the Commission should move to competitive procurement of demand-side resources, to spur innovation and to shift the risk of performance away from ratepayers and onto third-party providers.

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?

It is important to communicate accurate signals to affect the operation of DER and demand-side resource to be helpful, or at a minimum, not operate in a way that would be detrimental to the grid. While the CAISO does not have a position on what the pricing or rate structure should be, signals should be differentiated between months or seasons of the year and times of day based on expected grid conditions. The CAISO has observed the availability of energy surplus from renewables in several months during the day-time hours. It is important for this proceeding to consider this time-differentiated signaling as it factors into procurement and other issues in the proceeding.

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?

As discussed at various places above, these strategies should be viewed as complementary ways to achieve state goals, not antagonistic.

III. Conclusion

The CAISO appreciates and fully supports the Commission's efforts to expand the scope of this proceeding in order to address the many issues that have been surfaced in the IDSM workshops and were presented in the Ruling for comments. The CAISO looks forward to continued participation in the proceeding and collaboration with the Commission to enable cost-effective development of environmentally sustainable demand-side resources and DER to achieve state policy goals and provide benefits to all customers.

Respectfully submitted,

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