



October 21, 2011

Submitted by email to phase2ri@caiso.com

**RE: Comments of the Large-scale Solar Association on the Renewable Integration Market Vision and Roadmap for Renewable Integration Market & Product Review, Phase 2**

The Large-scale Solar Association (LSA) submits these comments in response to the CAISO's request for stakeholder views on its **Renewable Integration Market Vision and Roadmap** (Proposal), the October 11<sup>th</sup> document continuing the CAISO's Renewable Integration: Market and Product Review, Phase 2 (RIMPR-2) effort. Our comments here build on our three sets of prior comments in this initiative.<sup>1</sup>

This Paper states the CAISO's intent to take an "incremental and evolutionary approach," focused on specific mid-term (2013-2015) initiatives, and it introduces these new elements and refinements to the CAISO's earlier proposal that are of particular interest and relevance to LSA:

- Introduction of a new "cost causation" element that would "holistically and comprehensively" examine the definition of that term and its application to integration and other services;
- Movement of the "Forward Procurement of Flexible Capacity" from the long-term timeframe to the mid-term timeframe;
- Reinstatement of the "Regulation Pay-for-Performance" element that was inadvertently omitted from the last proposal version; and
- Removal of several potential mid-term enhancements related to Variable Energy Resources (VERs) scheduling and imbalances.

**General Comments and Overview**

LSA supports the more-incremental approach to market design changes in the Proposal. This approach would provide sufficient time to fully understand the principles of market design being addressed, such as "cost causation," and would better align market and regulatory processes.

LSA supports some of the specific changes in the Proposal. We are particularly gratified to see that the CAISO has decided to look at "cost causation" in a broad fashion, consistent with our prior comments. However, certain elements of the Proposal seem inconsistent with the incremental approach recommended in the Proposal (e.g., the quick action proposed for the Flexi-ramp Product). We also have some concerns about some of the specific changes.

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<sup>1</sup> LSA comments on Discussion and Scoping Paper, RI-MPR Phase 2, April 29, 2011; LSA comments on Initial Straw Proposal, RI-MPR Phase 2, July 29, 2011; LSA comments on Revised Straw Proposal for Renewable Integration Phase 2, September 22, 2011.

LSA's positions on these issues are summarized below and discussed in the rest of this Paper.

- **Cost causation examination:** LSA supports the proposed broad and separate examination of this issue, and subsequent application of results to current and proposed market products. As we stated before, evaluation of cost causation rules should consider all resources and products, and not just VERs and products/services related to them.

LSA believes that costs, and the signals they send, should be directed to the parties best able to manage and minimize those costs and optimize the necessary tradeoffs. For procurement of resources under the Renewable Portfolio Status (RPS), Resource Adequacy (RA) capacity, and long-term procurement, that entity is the Load-Serving Entity (LSE).

However, LSA notes that this is the only mid-term initiative that does not have a tentative schedule for policy development and implementation, and we urge the CAISO to do so promptly. This should be the first, or one of the first, initiatives to move forward because it should be applied to the other initiatives, and not an afterthought.

- **Flexi-ramp Product:** The CAISO's continued push toward fast development of the Flexi-ramp Product is contrary to both its stated incremental approach and its commitment to examine costs on a more comprehensive basis and not "product-by-product." Moreover, implementation of this product seems premature, given: (1) lack of information about Flexi-ramp Constraint effectiveness; (2) potential interaction between this product and the Forward Procurement of Flexible Capacity (which will also provide ramping); and (3) there has been little or no discussion of potential options.
- **Forward Procurement of Flexible Capacity:** This proposal should be implemented in a manner that minimizes long-term integration costs, e.g., that is open to all resources that can provide the needed services and allows for competition from new resources. This would require an examination of the proposed 3-5 year contract timeframe and inclusion of Load-Serving Entity (LSE) ability to self-provide the necessary services.
- **Regulation Pay-for-Performance:** This is a common-sense reform that would facilitate entry of new technologies and incent existing resources to improve their performance – changes that could reduce renewables-integration and system operating costs.
- **VER scheduling and imbalance provisions:** LSA is concerned that the Proposal omits several elements in the last version and/or that were discussed with stakeholders that could allow better VER imbalance management and lower integration costs that ratepayers will ultimately pay.

### **Cost Causation Examination**

LSA believes that, if "cost causation" is to be used for cost allocation, it should be examined based on two principles: (1) Consideration of costs broadly – for all market products, for all resources, and considering also the benefits provided by those resources; and (2) provision of price signals to those that can best minimize costs and balance the necessary tradeoffs.

**Broad cost consideration:** The CAISO's operating practices and market rules have always implicitly accommodated specific fuel types and power plant designs. Therefore, principles of cost causation, non-discrimination, and technology agnosticism must be viewed with an eye to the whole system.

Thus, cost consideration should include, not only the per-MW costs of specific services or allocation to VERs, but all the costs associated with the service and allocation to all resources imposing those costs. For example:

- Start-up costs, long startup times, and minimum run times of conventional thermal generation impose significant costs to the system, as those plants must be operating when their power is not needed and their dispatch forces other more flexible plants offline even when such flexibility would be valuable to the CAISO. However, there is no discussion of allocating those uplift and other costs to those generating plants.
- Generating resources that comprise the “largest single contingency” in some areas may increase operating reserve or Resource Adequacy requirements in those areas.

On the other hand, VERs will provide significant benefits to consumers, aside from their obvious environmental benefits. In fact, the CAISO’s concern about lower energy and other market revenues for gas-fired resources is really the “other side of the coin” of the benefits provided by renewable resources, e.g., lower market energy costs to consumers. Thus, any allocation of “costs” to VERs should also recognize the benefits that they will provide to consumers.

**Provision of price signals:** The CAISO’s RI-MPR1 proposal to allocate the cost of any PIRP “shortfalls” (Imbalance Energy costs beyond those borne by supplier Scheduling Coordinators through the PIRP netting mechanism) to the LSEs buying energy from PIRP plants recognizes that LSEs are the ultimate beneficiaries of the program, because they are either scheduling for the plant directly (and thus are billed for schedule imbalances) or they are buying from a plant that had lower scheduling risks and costs that were likely reflected in the price.

Likewise, “price signals” for CAISO integration and reserve costs would be most effective if directed at LSEs, e.g., based on the composition of their supply portfolio. They could then incorporate that information in their procurement decisions, subject to oversight of their respective regulatory authorities.

LSEs are in the best position to manage renewable-integration costs, through their negotiation and management of contracts with VERs and other resources and their total resource mix. Transparent integration charges would allow LSEs to factor estimates of those charges into their procurement decisions.

For example, LSEs that are concerned about certain kinds of costs can decide how best to manage that exposure through:

- Inclusion of requirements and flexibility in their procurement contracts for VERs and other resources; and
- Decisions about how to exercise that flexibility (e.g., holding resources to their scheduled output level, or using specific in actual operations). LSEs can best determine which contracts and resources could most economically provide the needed flexibility and minimize costs. For example, they could decide to constrain resources to their scheduled output level, or manage ramp-ups of specific VERs, to minimize deviation or ramping charges, respectively.

It would be particularly unfair to assign costs to VERs directly when (as noted in the introduction and explained further below) the CAISO does not intend to pursue changes that could allow VERs to minimize overall integration costs and reduce schedule imbalance costs. Determination of “accurate” charges to loads and resources to individual resources would be extremely difficult, as noted by Steven Stoft at the last MSC meeting (“Allocating Ramping Costs,” posted at <http://www.caiso.com/Documents/MS206%20Discussion%20of%20renewable%20integration%20market%20and%20product%20review%20phase%202>).

Moreover, suppliers would be forced to attempt to forecast such a liability over the lengthy contract term in order to recover the cost under the contract, and such estimates must necessarily be conservative. As we and others have said, consumers will ultimately pay for any integration charges, regardless of the original cost allocation.

In summary, applying “cost causation” as a market principle and allocating integration costs only to VERs, without ensuring that resources subject to those costs can provide economic solutions or considering costs imposed by other resource types, is discriminatory, and it would likely inflate renewable energy costs and result in suboptimal technology investments. Further, if the CAISO allocates costs to individual VERs that are already under or in the process of negotiating long-term contracts without consideration of integration costs, and thus may have no economically viable way to respond, then it will miss the opportunity to provide a useful signal for management of variability by LSEs, which can respond in a cost-effective manner.

The critical issue is how to minimize integration and reserve costs and assign them in a way that incentivizes behavior from entities that can make technology investments and provide the desired operational characteristics at the lowest cost. LSA encourages the CAISO to work with other jurisdictional entities to further evaluate how different allocation schemes will ultimately affect the price consumers pay for energy, and how market price signals can incentivize investment in the operational features required to provide integration services. This should be done by creating the desired product and price signals, rather than penalizing variability.

### **Flexi-ramp Product**

LSA raised several questions about this product – and the CAISO’s intent to move quickly to develop and implement it – in its prior comments. The Proposal does not address those questions, and the changes in the Proposal raise other concerns. LSA requests that the CAISO explicitly address these questions and concerns before proceeding with its development efforts.

First, the quick development start (with a Market Notice already issued on October 17<sup>th</sup>, before the issues have been fully aired in this initiative) seems inconsistent with the CAISO’s new “incremental” approach. Most obviously, the Flexi-ramp Constraint has not even been implemented, and it would be prudent to gather data on its effectiveness, and the associated benefits and costs, before proceeding to convert this functionality into an explicit product that could also impact other CAISO markets.

Second, the inclusion of cost allocation in this quick development effort would jump ahead of the CAISO’s commitment to examine costs on a more comprehensive basis and not “product-by-product.” Moreover, implementation of this product seems premature, given the lack of information about Flexi-ramp Constraint effectiveness.

Third, though the Flexi-ramp Product may well be the optimal product to provide ramping services, there has been little or no discussion of potential alternatives. For example, the Proposal does not explain why the Flexi-ramp Product was selected over:

- The Real-Time Imbalance Service, which was extensively described in an earlier proposal but apparently abandoned, with little explanation for the reasons for the change; or
- Additional procurement of Spinning Reserve, an alternative suggested by the CAISO itself in the last proposal. The CAISO said on the stakeholder conference call that it was concerned that this option would not provide downward flexibility; however, an August 18<sup>th</sup>, 2011 memo to the Board from CAISO Market and Infrastructure Development VP Keith Casey about renewables integration (posted at <http://www.caiso.com/Documents/110825BriefingonRenewableIntegration-Memo.pdf>) indicating a need for up to 800 MW of downward flexibility under the CAISO “High Load” scenario by 2020 noted that this flexibility could be provided by “using curtailment and/or additional storage” and does not mention the need for a separate product.

The CAISO has not discussed with stakeholders any other options that may have been considered and why these options were not selected for further examination. LSA is concerned that the CAISO does not yet have the information to know that this product is the optimal approach and sees no reason why a more deliberate and rigorous analytical approach to elicit ramp capability through product or pricing design cannot be followed.

Finally, the CAISO has not explained the interaction between this product and the ramping capability it seeks through the Forward Procurement of Flexible Capacity product. That latter product is explicitly intended to provide “ramping and balancing” services through longer-term (3-5 years) contractual arrangements with the CAISO, and the need for both ramping products, the amounts to be procured for each, and the resource selection and dispatch criteria, have not been explained. For example, if the CAISO is paying Forward Procurement resources under long-term contracts to provide ramping and balancing flexibility, and then pays those same resources for specific bids under the Flexi-ramp Product, would the CAISO be paying twice for the same service?

### **Forward Procurement of Flexible Capacity**

LSA is concerned that, if this program is pursued, procurement of resources will be conducted at the least cost to ratepayers and that it not function as a barrier to entry of new resources and technologies that could provide the service more efficiently in the long run.

Costs can be minimized, in part, by ensuring that all resources that can provide the service are allowed to compete to do so. While this program may have been motivated by concerns about the economic viability of certain gas-fired resources, the program should not be limited to only those resources if others with the required attributes would be more economic.

New resources should also be able to compete; however, the proposed 3-5 year contract term is not sufficient to support most new-resource development at a reasonable cost. Thus, the CAISO should consider lengthening the contract term or, preferably, specifying the attributes that it wants and allowing the LSEs to incorporate those attributes in their resource portfolios. This is consistent with the Resource Adequacy (RA) model – RA requirements are annual or shorter term, but LSEs routinely execute multi-year procurement contracts that also cover their RA requirements, as well as other needs. This enables new resources to compete with existing resources in the longer-term and lowers costs to ratepayers in the long run.

Finally, the resource procurement under the program should recognize all aspects of the cost to provide the service, and the potential benefits if any. For example, procurement-cost assessments should consider: (1) uplift costs for start-up, ramping, and minimum-run times, as described above; (2) operational limitations like limits on the number of start-ups; and (3) the RPS value of storage options that could provide ramping and balancing but also avoid potential VER curtailments.

### **VER scheduling and imbalance provisions**

LSA is concerned that the Proposal omits several elements in the last version and/or discussed with stakeholders that could allow better VER imbalance management, and also lower the integration costs that ratepayers will ultimately pay. Concepts that seemed to be favored by many stakeholders included:

- **Movement of the Hour Ahead Scheduling Process (HASP) schedule-submission deadline closer to real time.** It seems obvious that, the closer that VER hourly forecasts are made to real time, the more accurate the forecasts will be. It wasn't clear why this option couldn't be implemented under the current hourly framework.
- **15-minute market.** This would be particularly attractive if it includes the ability to update actual schedules (and not just "availability").

The CAISO said on the conference call that it had the technical capability to implement these changes. However, it had concluded that these changes wouldn't be beneficial, and it had concerns about imports and tagging requirements, especially if the rest of the WECC does not make a corresponding change.

The CAISO did not explain in any detail the reasons why more-accurate VER forecasts closer to real time, or schedule updates in real time, would not reduce schedule imbalances and/or integration costs. LSA is not saying that this conclusion is incorrect (though it is somewhat counter-intuitive), only that the CAISO has not presented evidence that these issues were thoroughly examined or why it chose to forego these options. Tagging issues could perhaps be addressed in the design and implementation phases, and CAISO move toward scheduling closer to or during real time might even act as a motivator to other adjacent BAAs to do the same.

In addition, LSA is disappointed that the Proposal does not include the option to submit four 15-minute schedules, instead of one hourly schedule, which has been discussed before. This change would fix one CAISO structural element that fits operation of gas-fired resources but makes no sense for VERs.

The current CAISO scheduling algorithms take hourly schedules for generators and divide the energy into equal intra-hour intervals, assuming that inter-hour ramps occur in the last 10 minutes of the current hour and the first 10 minutes of the next, and imbalances are measured against these calculated interval "schedules." Thus, VERs and other resources can incur imbalance-energy costs even if their hourly schedule is completely accurate.

Submission of four 15-minute schedules, instead of one hourly schedule, would greatly help manage schedule imbalances for VERs (and perhaps the accuracy of CAISO dispatch of integration or other resources, or Flexi-Ramp Product procurement) in hours when solar and wind resources are ramping up or down, when interval imbalances have the most potential to be systematically large.