April 6, 2018

Submitted to the CAISO at initiativecomments@caiso.com by Tim Mason, Policy Director, Large-scale Solar Association

RE: LSA comments on CAISO Variable Energy Resource (VER) Dispatch Operating Target (DOT) Draft Tariff

The Large-scale Solar Association (LSA) is pleased to provide these comments on the CAISO Variable Energy Resource (VER) Dispatch Operating Target (DOT) draft tariff language. The LSA members fully understand the numerous challenges to integrating VER generation into the grid which may require tariff and operational changes, and we are committed to working with the CAISO in constructive, robust stakeholder processes to ensure these changes are achieved in the most efficient, non-discriminatory and cost-effective manner.

In lieu of providing alternative tariff language, we recommend the proposed tariff language not be considered until CAISO has identified and resolved the policy issues related to the dispatch authority. Only then should it develop tariff language that reflects the policies considered in the stakeholder process. Further, pursuant to our discussion with CAISO staff, we reserve the right to provide additional comments, including tariff language, at a later point in the Stakeholder process.

Achieving policy goals and stakeholder process

It is imperative that the CAISO, in modifying its tariff, consider the implications of the proposed change - on generators, markets, and state policies. Based on LSAs recent discussions with CAISO staff, it is evident that the CAISO has only considered the tariff modifications impact on CAISO dispatch operations, ignoring the economic and state policy ramifications of this change. CAISO has provided no descriptive or technical information regarding how the tariff provisions would be implemented, under what circumstances and with what frequency they would be used, nor identified the policies necessary to ensure there is a consistent and non-biased application of the tariff change. One may consider these issues as implementation details, but in this case "the devil is in the details", and the details must be enumerated in order to ensure the tariff change achieves not only its narrow goal of providing the CAISO with operating flexibility, but fully considers the impacts on generators, markets, and state policies.

- **Tariff revision must consider economic impacts and state policy goals**

The proposed tariff revisions will impact the dispatch of over 25% of the generating capacity currently operating in the CAISO market. Further, the impacted generators are the resources upon which California is depending to meet its renewable energy requirements, as well as reduce electric sector emissions to meet SB32 greenhouse gas targets. While the tariff revisions provide CAISO additional flexibility to maintain reliability, per LSA's conversations with CAISO staff, the CAISO has not considered the impact of the tariff revisions on the dispatch of these resources, the impact on renewable energy production, nor the impact on the achievement of state emissions targets.

- **Stakeholder process**

LSA is concerned by the failure of CAISO to engage in the meaningful stakeholder process to which it committed. The DOT stakeholder initiative is the successor to a CAISO-proposed change to its Business Practice Manual for Market Operations (BPM) contained in Proposed Revision Request (PRR) 1004, which the CAISO placed on hold on November 28, 2017. In suspending the PRR 1004 initiative, the CAISO stated:

> *The ISO has placed PRR 1004 ON HOLD. The variable energy resources dispatch operating target will be discussed through a separate stakeholder process. More information will be sent via market notice within the next couple weeks.*[1]

There was substantial opposition to PRR 1004 from a number of parties representing a broad set of interests[2] who raised a variety of concerns, including lack of an assessment of the economic impact on generators, questions about methods the CAISO would employ operationally to implement the procedures, and the equity of implementing this policy only on VERs. It was LSA's understanding that CAISO would initiate a stakeholder process to fully vet these issues prior to developing tariff language. Instead, four months after the notice to put the PRR on hold, without further stakeholder involvement, the CAISO released draft tariff language and a schedule of activities, which includes:

- Release of tariff language on March 22, 2018
- Stakeholder comments on draft tariff language due April 6, 2018
- Two-hour teleconference on April 13, 2018
- File with FERC on May 9, 2018 (added on April 2, 2018)

It is impossible, under any circumstance, to view this as a robust or meaningful stakeholder process. CAISO, in drafting the tariff language, seemingly ignored the questions and issues that stakeholders raised in PRR 1004. Further, the process, as defined, does not provide stakeholders an opportunity to review or comment on final tariff language that will be submitted to FERC, nor does it provide a schedule of activities after the single teleconference. While CAISO management stated this initiative will be extended as required in order to address all stakeholder concerns during our phone conversation on, the proposed schedule to file the amendments with FERC do not contemplate this.

Understanding of the proposed tariff amendments

LSA understands the proposed tariff amendments provide the CAISO broad authority to curtail VER generation when it deems appropriate but provides no details on how it will be implemented. Implementing this will require development of new rules, software modification and operating processes, among other things. It is imperative that, in developing the tariff, the market understands both the full impacts of this change, and under what circumstances this authority will be employed. Based on a conversation between LSA and CAISO staff on April 2, and additional information posted by the CAISO on the tariff on April 2, LSA understands the proposed tariff change would be implemented as follows:

[1] https://bpmcm.caiso.com/Pages/ViewPRR.aspx?IsDlg=1&PRRID=1004

[2] In PRR 1004, comments submitted by Large-scale Solar Association, Southern California Edison Company, Pacific Gas & Electric Company, Western Power Trading Forum, NextEra Energy Resources, Avangrid, Independent Energy Producers Association.

- CAISO would add a flag in the ADS system during periods when the DOT for EIR is "active" – would be set to yes/no. The decision to activate the flag would be at the discretion of real-time dispatch (RTD) operators.
- During "yes" periods, the RTD operator could enforce this flag, so that generator(s) would receive an Operating Instruction to reduce generation to return to their forecasted output during the 5-minute operating period.
- Flag could be activated for any length time period. CAISO suggested this would be limited (i.e. ½ hour), but there is no proposed governor on amount of time this flag could be used, so it is unlimited as proposed.
- Per tariff Section 7.6, this would only be invoked:
    - After all economic bids accepted
    - If resource has accepted negative SUPP bid
- All Operating Instructions would be to Scheduling Coordinator through CAISO ADS system.

Analysis of tariff on generating resources
Pursuant to conversations with staff, LSA understands that the CAISO has not studied the potential impacts on the energy generation from VERs and has provided no estimates of the potential energy reduction from VERs, the revenue reductions to VERs, nor potential impacts on specific generators.

Depending on the frequency of using the DOT, generators could face significant generation reductions. This could cause substantial harm to both the generator and the generator off-taker as most generators are paid volumetrically, only being paid for energy delivered. Additionally, off-takers depend on this generation to ensure they have sufficient renewable energy to meet RPS and GHG-emissions requirements.

This could be more problematic for specific generators in local resource areas. If the DOT is being used to resolve generation issues in local resource areas, certain generators may be substantially and repeatedly curtailed. Given this potential reduction in VER dispatch, prior to adopting any new tariff that impacts this reduction the CAISO should assess and make publically available the expected impact of the DOT on generator output, revenues, and achievement of RPS and GHG goals.

Issues that need to be considered in this initiative:
Based on the above understanding of the proposed tariff and the implementation of the tariff detailed above, LSA offers a recommendation for CAISO to provide additional information to stakeholders, and, based on our understanding of the proposal, two recommendations for policy / implementation actions that should be specified in the tariff.

1. **Conduct analysis of tariff on generating resources**

The CAISO has not, to date, conducted any analysis of the impacts of this tariff and operating change on generation resources, the market, or the achievement of policy goals. This analysis should be completed as part of the stakeholder process, so that all stakeholders will have a full and comprehensive understanding of the impacts of the tariff change.

2. Clearly defined criteria for enforcing the DOT

Based on LSA's discussion with CAISO, a RTD operator would have discretion over when the DOT would be active, and when it would be enforced. While the CAISO's intention is that this would occur during only during limited periods, there is no defined criteria when the RTD operator could or should employ this flexibility. This will result in inconsistent application of the DOT enforcement and is subject to potential abuse. LSA envisions a scenario where the DOT is "on" during all ramping periods, including morning and afternoon ramping periods when solar output is most dynamic.

The CAISO should develop conditions-based criteria that guides the RTD operator when they may enforce the DOT.

3. Payments to generators for curtailed energy

Generators must be compensated for all DOT instructions issued by CAISO. The draft tariff, and the additional information provided by CAISO, are silent on whether the forced reduction in generation will be compensated, but it is essential to maintain current power purchase agreements (PPA) contractual obligations, to promote the use of market mechanisms in CAISO operations, and to maintain a viable and robust market for renewable resources.

Most VERs operate under long-term PPAs between generators and utilities. Those PPAs typically require the generator to dispatch as-available, and the off-taker purchases all energy. Most generators are paid volumetrically, only getting paid for actual energy produced with no capacity payments. Typical renewable resource PPAs are silent on whether these resources can be scheduled to provide for flexible generation, so are operated as "must-take" resources. Limiting generation from these resources will have a financial impact on the generators.

As LSA understands the proposed tariff implementation, the DOT would only be enforced after all economic bids are exhausted. This leaves the generators at the mercy of the market – if there are sufficient bids to resolve operational issues, then generators will not be curtailed. If, however, there are insufficient economic bids to resolve the operational issue and the DOT is enforced, VERs will be penalized for "normal" operations. The VER generators have no ability to influence the market bid stack and should not be penalized for shortcomings in CAISO markets. Ironically, solar VERs could provide these services to the CAISO, but the CAISO's criteria for generators to provide flexibility precludes these resources from participating in the market. This risk is exacerbated in areas where there may be local resource constraints, or in local areas without a deep pool of flexible resources. In those areas the VER DOT may be used frequently, further penalizing individual generators that are located in these areas.

Regular use of the DOT on VERs will add substantial uncertainty to resource development. Under current VER contracting, generators must forecast output for the off-taker, and price their energy based on this forecast of generation output. Based on the information provided by the CAISO to date, the potential VER DOT lost generation cannot be forecasted, providing substantial ambiguity to the forecasting and pricing models. Without certainty that curtailed generation will be fully compensated, this will:

- Reduce a VER's ability to get project financing if a portion of expected revenue is at risk
- Increase PPA costs to LSEs, who may need to over-procure VERs to ensure they have sufficient renewable energy to ensure compliance with RPS and GHG targets.
- Increase VER contract costs, to ensure that VERs achieve sufficient revenuers to meet operating costs in light of potential curtailments.

LSA appreciates the CAISO's consideration of these comments in the VER DOT draft tariff initiative.