

**COMMENTS ON THE
2018 POLICY INITIATIVES CATALOG
November 29, 2017**

I. INTRODUCTION

PacifiCorp hereby submits the following comments to the California Independent System Operator Corporation (“CAISO”) on the draft 2018 Policy Initiatives Catalog that was published November 8, 2017, (“Catalog”). PacifiCorp appreciates the CAISO’s efforts to identify priorities for market enhancements and welcomes the opportunity to provide these comments on this initiative for the CAISO’s consideration.

II. COMMENTS

A. Policy Initiatives Catalog

PacifiCorp commends the CAISO for revising the annual Catalog process to publish the Catalog twice per year and allow for more stakeholder input on the proposed initiatives. PacifiCorp understands and appreciates that the timing of the 2018 Catalog process is a departure from the newly revised process, due to the timing of the process revisions, and that the new process timing will begin in August, 2018. Further, PacifiCorp appreciates the organized and categorized layout of the Catalog, making it easier to review and understand. However, PacifiCorp notes that in Section 6.1 of the Catalog, the CAISO has repeated subsection numbers in both the table of contents and the body of the Catalog. Specifically, subsection numbers 6.1.1 through 6.1.9 are duplicated; only the subsection numbers are duplicated, not the initiative proposals. PacifiCorp also noticed that the Over/Under Scheduling Load Enhancements initiative appears in the Catalog twice, under subsection 6.1.4 on page 16 and subsection 6.1.23 on page 23.

B. EIM-Related Policy Initiatives

PacifiCorp appreciates the CAISO’s efforts to initially categorize the initiatives it deems are related to or affect the Energy Imbalance Market (“EIM”). PacifiCorp comments on the initiatives categorized as E1, E2, E3, or E4 in Section 6 as follows.

6.1.1 EIM Default Energy Bid Option (D, E1)

Initiative text: Powerex, Idaho Power, and Seattle City Light suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative will explore creating a fourth option to the CAISO’s current default energy bid (DEB) options. The CAISO’s existing DEB options consist of a Variable Cost Option, which does not incorporate any opportunity costs; an LMP Option, which is based on a 90-day lagging metric of prices, and cannot represent same-hour or future-hour opportunity costs; and a Negotiated Rate Option based on

negotiations with CAISO's Department of Market Monitoring (DMM). The Negotiated Rate Option provides a framework for a customized estimate of marginal costs. However, the market participants requesting this initiative contend it does not eliminate hour-to-hour inaccuracies of any formulaic approach that attempts to estimate EIM resources' marginal costs, including opportunity costs. This initiative would evaluate a default energy bid option that would address these inaccuracies for EIM participants.

Comments: PacifiCorp is supportive of an initiative to explore default energy bid calculation alternatives.

6.1.2 Hourly EIM Resource Sufficiency Evaluation (D, E1)

Initiative text: Powerex, Puget Sound Energy, NV Energy, Idaho Power, Arizona Public Service Company, Portland General Electric, and Seattle City Light suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. The hourly resource sufficiency evaluation ensure that each EIM Entity and the CAISO have sufficient participating resources to individually meet their forecasted imbalance needs for the upcoming hour. This policy was developed to ensure that EIM balancing areas do not lean on other balancing areas to avoid incurring costs for capacity, flexibility, or transmission in the bilateral market. The evaluation tests for capacity, supply/demand balance, and ramping. In the event that a balancing area in the EIM fails a test, the balancing area is not allowed to have incremental transfers from the previous hour's last FMM transfer. EIM entities have expressed the need to consider potential enhancements to the resource sufficiency evaluations. They contend the enhancements to the test should include: (1) Correct overstatement of the flexible ramp sufficiency requirement; (2) address under-valuing EIM Entity resources; (3) correct improper consequences for failing the flexible ramp sufficiency test; (4) performing flexible ramp sufficiency at T-40 with 5 minute granularity; (5) potentially make uncertainty histogram enhancements; and (6) enabling participating resource scheduling coordinators visibility into the test obligations. If the CAISO adds this initiative to the roadmap, the CAISO anticipates that this initiative would first begin with a stakeholder workshop to fully identify areas to address in the initiative.

Comments: PacifiCorp is supportive of an initiative to investigate enhancements to the resource sufficiency tests.

6.1.4 Over/Under Scheduling Load Enhancements (D, E1)

Initiative text: Puget Sound Energy, NV Energy, Idaho Power, Arizona Public Service Company, and Portland General Electric suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative was originally requested by NV Energy in 2016. This initiative would examine possible improvements and enhancements to load forecasting transparency and accuracy. Items that could be discussed include changes to the existing penalty bands for EIM entities deviating from the forecast, the 1% exemption rule when an EIM entity uses the CAISO load forecast, additional situations that exempt an EIM entity when using the CAISO load forecast and actual load is off by the penalty bands. This initiative may also look at

changes to the distribution of penalty revenues to balancing areas in the EIM that did not incur a penalty over the operational day. For example, allocating revenues on an hourly basis to EIM balancing areas that did not incur a penalty for that hour.

Comments: It appears that there is a typo in the initiative text; in the last sentence the word “revenues” is likely to have been intended to be “revenues”. PacifiCorp is supportive of this initiative. With diverse load characteristics in each EIM entity’s balancing area, it is reasonable to further explore the accuracy of the CAISO load forecast and the associated penalties that can result from inaccurate forecasts.

6.1.6 Generator Modeling Enhancements (D, E2)

Initiative text: PacifiCorp suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative would examine the variety of different resource models within the CAISO market and potentially update them. PacifiCorp contends this would improve modeling of generating units (such as combined cycle, hydro, and coal units) and curtailable metered load, and improve the flexibility that could be offered into the market if those products were able to be modeled to better fit with the unique attributes of each type of generator.

Comments: PacifiCorp believes this initiative would be beneficial to the market and provide new resource models that will allow greater flexibility to the market and more reliable operation of the generating facility. PacifiCorp requests that this initiative be given a high priority as resources that provide flex may be removed from the portfolio and the flex requirement will increase with more VERs. The ability to model resources that provide flex such as industrial loads and DSM programs will be necessary.

6.1.8 15-Minute Day-Ahead Scheduling Granularity (D, E2)

Initiative text: This initiative was added to the catalog by the CAISO in October 2017. This initiative would assess how the day-ahead market could better account for ramping needs by moving from the current hourly scheduling construct to 15-minute scheduling and settlement intervals. This would provide significant benefits by enabling day-ahead market schedules to more closely follow the expected net load ramps. For example, the morning solar ramp could be more accurately scheduled using 15-minute granularity versus the average forecasted output over the hour used today. Using 15-minute granularity in day-ahead reduces the imbalance that must be resolved in real-time. This is because only forecast errors between 15-minute intervals must be resolved, unlike today where both granularity differences and forecast errors are left to the real-time market. In addition to ensuring that resources with sufficient ramping capability are scheduled optimally in the day-ahead timeframe, imports and exports that can respond on a 15-minute basis could be scheduled to help meet day-ahead net-load forecasts. The day-ahead market would still support hourly block (and longer) scheduling; however, flexible resources that are able to be scheduled economically on a 15-minute basis will be able to capture the value of their flexibility. This initiative may also assess whether EIM base schedules should similarly be at 15-minute granularity.

Comments: PacifiCorp is supportive of this initiative and encourages the CAISO to include assessment on whether the EIM base schedules should be submitted with 15-minute granularity.

6.1.2 Full Network Model Expansion – Phase 2 (N, E2)

Initiative text: This initiative would be the second phase of the Full Network Mode Expansion initiative implemented in fall 2014. That initiative provided reliability and market efficiency benefits by enhancing the CAISO’s modeling capabilities to account for unscheduled flows and enforce intertie power flow constraints in the day-ahead market. As part of this, the full network model topology was expanded to include information on resources, load, and interchange schedules in other balancing authority areas.

Phase 2 will explore modeling imports and exports into the CAISO balancing at their actual source and sink to improve the CAISO market’s modeling of actual electrical flow. Although the CAISO market currently uses an approximation of this for imports and exports to and from EIM areas, it currently models imports and exports to and from the CAISO balancing areas as point injections and withdrawals at the intertie scheduling point. Consistent modeling across the CAISO and EIM balancing areas would improve the market’s accuracy. The initiative would likely consider the potential use of “scheduling hubs” as representations of import and export sources and sinks, e-tagging or settlement rule refinements, and remapping congestion revenue rights to scheduling hubs.

Comments: This initiative is numbered incorrectly and should be 6.1.11. In addition, the ISO has categorized it as “N” (Nondiscretionary), which has been revised to “C” (ISO Committed), as set forth in the CAISO’s draft final proposal on the annual catalog and roadmap process. However, the initiative is listed under the “Discretionary” items in Section 6 of the Catalog. PacifiCorp requests clarification regarding the categorization of this initiative.

6.1.6 Bid Floor (N, E2)

Initiative text: This initiative would examine lowering the CAISO’s bid floor. On December 19, 2013 FERC accepted the CAISO’s proposal to lower the bid floor from - \$30/MWh to -\$150/MWh under the notion of facilitating increased real-time economic bidding by variable energy resources. By lowering the bid floor, the opportunity costs of not producing for many variable energy resources could be reflected in the resource’s economic bid. It also provides an incentive for resources with positive marginal costs to economically bid instead of self-schedule. Those resources can avoid negative prices in both day-ahead and real-time, for schedules above day-ahead, and generate more revenues in real-time for decremental dispatches below day-ahead. During the 2013 stakeholder initiative, it was contemplated that a further reduction to -\$300/MWh would occur at some later date.

Currently, the bid floor (-\$150/MWh) and bid cap (+\$1000/MWh) are not symmetrical. This results in under-scheduled load in the day-ahead market being potentially subject to real-time

prices at the \$1,000/MWh bid cap, and for overscheduled load in the day-ahead market potentially incurring a cost of \$150 per MWh. Thus the incentive for not under-scheduling load in the day-ahead market is not equivalent to the incentive for not over-scheduling load in the day-ahead market. Furthermore, as the supply fleet evolves towards a 50 percent renewable portfolio standard, there may be increased instances of over-supply conditions. A deeper pool of economic bids could enable the market to more efficiently manage over-supply conditions, but may require a bid floor such that resources are able to fully reflect the cost of not producing. The current bid floor of -\$150/MWh may not be sufficiently low enough to incent the procurement of downward flexible resources that will be needed as we move toward a 50 percent renewable performance standard and may not provide accurate price signals during periods of high downward flexibility needs.

The CAISO discussed a lower bid floor with stakeholders in 2016 as part of the Bid Cost Recovery Enhancements initiative. The CAISO decided not to lower the bid floor after weighing both the benefits of a lower bid floor and the potential adverse effects of a lower bid floor, such as increased overall market costs. The CAISO decided the benefits would be limited because the market relatively infrequently curtails self-scheduled generation, indicating it relatively runs out of economic bids under the current bid floor. CAISO will continue to monitor levels of self-schedule curtailments and other market results to determine whether a lower bid floor is appropriate.

Comments: This initiative is numbered incorrectly and should be 6.1.15. In addition, the CAISO has categorized it as “N” (Nondiscretionary), which has been revised to “C” (ISO Committed), as set forth in the CAISO’s draft final proposal on the annual catalog and roadmap process. However, the initiative is listed under the “Discretionary” items in Section 6 of the Catalog. PacifiCorp requests clarification regarding the categorization of this initiative.

6.1.8 Real-Time Market Enhancements (D, E2)

Initiative text: This initiative will examine market design changes needed to enable the 5-minute real time dispatch to perform many of the functions that are now performed by the 15-minute real time unit commitment. These functions may include real-time unit commitment, ancillary services procurement, local market power mitigation, and the EIM hourly resource sufficiency evaluation. The 15-minute market would continue to schedule interties and internal resources at 15-minute granularity but would run with a shorter lead time. Along with these changes, the CAISO may consider extending the horizon of short-term unit commitment process to allow for a longer look-ahead period, enabling it to commit resources that have a start-up time longer than five hours and to more optimally commit all resources, particularly those with limited starts.

Comments: This initiative is numbered incorrectly and should be 6.1.17. In addition, the CAISO has categorized it as “D” (Discretionary). However, this initiative was committed to by the CAISO on the 2017 Policy Initiatives Roadmap and PacifiCorp believes that this initiative should be categorized as “C” (ISO Committed) and prioritized on the 2018 Policy Initiatives Roadmap.

6.1.17 Enhancing Participation of External Resources (D, E1)

Initiative text: This initiative would investigate potential EIM enhancements to allow participation of resources in balancing authority areas that have not joined the energy imbalance market. The proposed changes will ensure that external participation is complementary and compatible with bilateral trades. In addition, the external resources will need to meet similar requirements of EIM participating resources. Such as locational bidding of a physical resource, modeling of resource characteristics, telemetry, and metering to enable accurate modeling of physical flows, congestion management, and ensure feasible dispatches. Also, these external resources will need to be subject to market power mitigation procedures and make transmission available to exclusively accommodate its maximum bid range. Lastly, rules will need to be developed to address potential leaning by extending the resource sufficiency evaluation to external participation.

Comments: This initiative is numbered incorrectly and should be 6.1.26. As stated in comments submitted on the ISO's 2017 Stakeholder Initiatives Catalog, PacifiCorp recommends using the EIM Regional Issues Forum ("RIF") as the vehicle for the ISO and stakeholders to identify and discuss potential problem statements prior to beginning an ISO stakeholder process that is geared towards a particular solution. For example, there may be one set of issues relating to potential impacts to bilateral trading resulting from EIM implementation, another set of issues relating to participants outside of existing EIM boundaries that desire access to the EIM, and potentially a third set of issues relating to small balancing authority areas ("BAAs") that wish to enter the EIM but need entry alternatives, such as BAA aggregation or contracted EIM services in order to cost justify implementation. In the meantime, each EIM entity already has its own tariff provisions that govern how external resources may participate in the EIM. For example, PacifiCorp's tariff provides that resources outside of PacifiCorp's BAAs may participate in the EIM as long as they are PacifiCorp transmission customers and are pseudo-tied into PacifiCorp's BAA. PacifiCorp requests that this initiative be given low priority.

6.1.18 Potential EIM-wide Transmission Rate (D, E1)

Initiative text: This initiative would develop and design evaluation criteria to assess the merits of alternative transmission service rates for transmission compensation in the EIM. The CAISO would likely consider the following alternatives that were outlined in the EIM draft final proposal:

- Reciprocity in Use of Transmission Made Available by Rights-Holders
- Transmission Access Charge
- Transfer Charge as a Minimum Shadow Price
- Transmission Access Charge Applicable to Load and Wheeling

Comments: This initiative is numbered incorrectly and should be 6.1.27. PacifiCorp requests that the ISO give this initiative low priority, to allow more time for the EIM footprint to expand and gain experience with diversely situated EIM entities. PacifiCorp also cautions that any consideration of transmission compensation in the EIM must not be unduly preferential or

discriminatory as to any particular class of market participant and any such undertaking should consider a wide range of potential ramifications to ensure that benefits and costs of the EIM among all participants continue to be fairly apportioned.

6.1.21 Third Party Transmission Contribution (D, E1)

Initiative text: The initiative would explore allowing third parties to contribute transmission capacity located between two EIM BAAs for use in the EIM. This would increase energy transfer throughout the EIM area and enable the third party to receive congestion rents. This initiative was originally considered in 2017, but it was determined at that time the implementation costs may outweigh use and benefits. The CAISO agreed to keep this item in the catalog so it can be prioritized at a later date if deemed necessary.

The CAISO believes implementation of the third party transmission contribution may address concerns regarding transmission compensation for net wheeling. For example, if an EIM entity releases available transmission capacity to the EIM, this may exceed the EIM transfer in and EIM transfers out of that BAA needed to meet its own imbalance energy needs. The EIM entity may be concerned that other market participants are not submitting hourly base schedules for wheel transactions, but rather waiting for the EIM because the market participant knows there would be unused transmission made available such that the wheel transaction had a very high probability of flowing in the EIM and avoiding the transmission charges. The EIM entity could modify its open access transmission tariff such that only transmission necessary to meet its own imbalance is release to the EIM. This now removes the high level of certainty that the wheel transaction will flow in the EIM. The market participant now has an incentive to procure transmission and if the market participant did not want base schedule the wheel, the market participant could contribute the transmission to the EIM which would enable the wheel to flow if economic in the EIM.

Comments: This initiative is numbered incorrectly and should be 6.1.30. PacifiCorp is confident that the overall financial benefit of the EIM increases with additional transfer capacity across interties between balancing authorities in the EIM area. However, PacifiCorp cautions that the mechanism that delivers additional transfer capacity must be transparent and fair to all EIM market participants. If it is later deemed necessary to prioritize this initiative, PacifiCorp recommends that the ISO produce information and proposals sufficient to ensure market transparency and shadow settlement accuracy of the real-time congestion offset mechanism, which would be used to enable third parties to receive congestion rents.

6.1.22 Bidding Rules on External EIM Interties (D, E1)

Initiative text: Currently, the EIM design allows full discretion to the EIM entity as to whether real-time economic bidding is allowed on intertie scheduling points with balancing authority areas outside the EIM footprint. This initiative would determine the calculation of a default energy bid for intertie transactions and other issues to resolve should an EIM entity decide to allow economic bidding at its interties. *Full Network Model Expansion – Phase 2* would be a necessary precursor

to this initiative so that the CAISO would model economic bids consistently between CAISO and EIM areas.

Comments: This initiative is numbered incorrectly and should be 6.1.31. PacifiCorp requests that the ISO give this initiative low priority, because this initiative would resolve issues that are non-existent until an EIM entity decides to allow economic bidding at its interties.

C. Other Initiative

PacifiCorp offers the following comments on one initiative in Section 6 that is not categorized as EIM-related.

6.1.30 Export Charges (D)

Initiative text: This initiative would address real-time intertie liquidity by increasing the quantity of export bids in the real-time market by exempting real-time exports from transmission access and measured demand uplift charges.

Comments: This initiative is numbered incorrectly and should be 6.1.38. PacifiCorp requests that this initiative be given high priority and recommends that it be included on the 2018 Policy Initiatives Roadmap. Exempting real-time exports from transmission access and measured demand uplift charges should limit the amount of energy curtailments on renewable resources within the CAISO during periods of over-supply. The removal of this charge could create an incentive for importers of real-time energy from the CAISO by displacing higher cost and potentially carbon emitting resources.

III. CONCLUSION

PacifiCorp appreciates the CAISO's consideration of these comments.