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Arizona Public Service Company ("APS") is a wholly-owned subsidiary of Pinnacle West Capital Corporation and is engaged in the business of generating, transmitting, and distributing electricity in eleven of Arizona's fifteen counties. APS serves more than one million retail electric customers in Arizona and participates in the wholesale energy market. APS purchases from and sells energy to the California Independent System Operator ("CAISO") in its Day Ahead and Hour-Ahead Markets when it is advantageous to APS' native-load customers to do so. APS does not own generation or serve retail or wholesale customers within the state of California.

APS is supportive of initiatives that help to integrate intermittent renewables, improve reliability and strengthen economic dispatch. Therefore, in providing comments and participating in CAISO's stakeholder process, APS aims to provide recommendations that will strengthen the collaboration between EIM Participants and Entities such that both can maximize their expected benefits of EIM participation. At this early stage in the stakeholder engagement process, APS would like to offer the following feedback:

## Carbon Allowance Calculations

**Challenge:** Ensuring the proper price signals are used to dispatch resources will be essential in the new market. Power sold into California is subject to Carbon Cap and Trade rules and the cost of that energy must include the cost of California Carbon Allowance ("CCA") purchases for compliance. In order to recover these carbon related costs, EIM participants could include an adder in their unit dispatch price. However, this dispatch price would end up being the wrong price signal for energy that does not end up in California.

Suggested solutions included looking at e-tags after the fact and allocating carbon allocations based energy flowing into California. There are a couple of problems with that approach. Currently, e-Tags do not adequately track sources and sinks of power when that power is transferred through the CAISO. This means that all power sold to the CAISO would include a cost adder for California Carbon Allowance ("CCA") purchases whether or not the power is ultimately delivered to California. Likewise, for power purchased from the CAISO, the original generation source is unknown. It could be coming from out of state. The other problem is that the price signal for economic dispatch would be wrong because the carbon cost would not be included.

**Recommendation:** APS recommends separate technical conferences that would include representatives from CAISO, California Air Resources Board, load serving entities ("LSEs"), generation providing entities ("GPEs"), and electricity importers. This issue is complex enough that all affected parties should have a voice in providing solutions to this challenge.

## Grid Management and CAISO Exit Fees

**Challenge:** Current CAISO Grid Management and related fees for exports amount to nearly $6/MWh, which from our understanding is based upon a fully imbedded cost of providing

transmission and ancillary services. When energy is priced out of a resource it is usually based upon the incremental cost of producing the energy plus an adder to cover uncertainty and for fixed cost recovery.  It is not typically priced based upon the fully imbedded cost of service.  If they were very few energy sales would occur.

 Any future grid management or exit fees associated with EIM transactions should be very minimal and reflect only incremental costs.  Otherwise few transactions will occur and the benefits of an EIM will not be realized.

**Recommendation:** Eliminate or minimize grid management charges for EIM transactions and make sure that any charges are adequately reflected in the LMPs such that the SCED reacts to true price signals.

## Market Rule Oversight & Structure

**Challenge:** As proposed, the CAISO Board would administer the market rules and oversight procedures for EIM Participants and Entities. Since joining the EIM is not equivalent to joining the ISO, this is cause for concern.  By definition, the potential for the range of participants is much broader than the CAISO footprint and potential participants will likely want a broader oversight committee than the current California Governor-appointed CAISO Board.

**Recommendation:** Despite the potential impact to cost structures, APS believes that an independent body from the current CAISO Board would be necessary in order to gain maximum EIM participation, and therefore, maximum benefits to all participants.

## Existing Information Systems ("IS") and Upgrades

**Challenge:** The Straw Proposal mentions several CAISO-specific information systems, such as the Scheduling and Logging system for the CAISO, Outage Management System, and Scheduling Infrastructure and Business Rules system. The CAISO startup and administrative fees help potential EIM participants assess one portion of EIM costs. Information regarding specific IS requirements is not readily accessible for those that would like to estimate compatibility/upgrade costs. In order to evaluate true cost of entry, potential EIM participants need to know IS requirements and this is not addressed in the existing Straw Proposal.

**Recommendation:** Post IS requirement estimates on the EIM Stakeholder website.

## Ease of Exiting an EIM

**Challenge:** CAISO representatives have made statements regarding the ease of exit of an EIM should it not produce the anticipated benefits that are currently prescribed.

**Recommendation:** Include specific language regarding how an EIM Participant can exit the EIM after joining.

## Scenario illustrations:

**Challenge:** The various scenarios regarding the minimum administrative rate (5% Load and 5% Generation), GHG adders, instructed and uninstructed deviations, mechanics of communicating adjusted base schedule, etc. are difficult to visualize with the current information that has been provided.

**Conclusion:**  Please include more descriptive examples of the life cycle of a set of transactions. Perhaps provide a running story board with relative timestamps, which entity does which function on what system, how items are communicated, etc.