Draft 2023 Policy Initiatives Catalog

Prepared by
Market and Infrastructure Policy

February 16, 2023

Table of Contents

1 Introduction

This *Revised Policy Initiatives Catalog* documents current, potential, planned, and ongoing policy initiatives to develop enhancements to the California ISO (ISO) markets or to related requirements for policy. These are enhancements requiring a stakeholder process and typically result in ISO tariff changes. This catalog does not list potential process improvements or administrative changes.[1]

This catalog is organized into the following sections:

- Initiative Categorization
- Stakeholder Policy Initiatives Catalog Submissions
    - Submissions Incorporated
    - Submissions Precluded
- Changes Since Previous Version
- Initiatives Completed Since Previous Catalog
- Initiatives Currently Underway and Planned
- Discretionary Initiatives
    - Energy and Ancillary Services Markets
    - Congestion Revenue Rights
    - Resource Adequacy

The ISO typically updates this catalog twice a year. Stakeholders may submit new initiative requests through the policy initiatives submission template posted on the *Annual Policy Initiatives* website.[2] Submissions will be collected and considered for its respective catalog update. Following the deadline of submissions, the process for updating the catalog is generally as follows:

1. Stakeholder submissions are posted
2. ISO publishes draft policy initiatives catalog
3. Stakeholders submit comments on draft policy initiatives catalog
4. ISO publishes revised draft policy initiatives catalog
5. Stakeholders submit comments on revised draft policy initiatives catalog
6. ISO publishes final policy initiatives catalog

[1] Such requests should be made through a ISO customer service representative or account manager.
[2] http://www.ISO.com/informed/Pages/StakeholderProcesses/AnnualPolicyInitiativesRoadmapProcess.aspx

7. Stakeholders submit comments on final policy initiatives catalog

The *Policy Initiatives Catalog* is used in the development process for the *Annual Policy Initiatives Roadmap*.

2 Initiative Categorization

Policy initiatives often contain several different elements that have been combined into one proceeding for purposes of stakeholder review. The different elements are not necessarily part of a single policy that must necessarily be approved or rejected together, but instead can be "severable" for decisional purposes. This means that one or more elements could be approved and filed with FERC without the remaining elements. When an initiative contains severable elements that could proceed separately, the severable elements are evaluated individually for purposes of determining how they will be presented for approval.

When an initiative contains elements that are severable and classified differently, each element will be presented in accordance with its classification. For example, an initiative could be classified partly as "joint authority" and partly as "advisory," in which case the EIM Governing Body's joint approval would be required for part, and the EIM Governing Body would have the option to provide advisory input on the remainder.

The following designation labels are used after the initiative names listed in this document and indicate the governance roles for each initiative.

- "**Joint Authority**" indicates that at least one element of the initiative appears to fall within the joint authority of the Board of Governors and the EIM Governing Body.
- "**Advisory**" indicates that the WEIM Governing Body appears to have an advisory role with respect to at least one element of the initiative, and that EIM Governing Body does not appear to have joint authority with respect to any part of the initiative.
- "**Board Only**" indicates that the WEIM Governing Body does not appear to have any role in deciding whether the proposed tariff amendments would be approved for filing at FERC.

These designations reflect the current state of each initiative, and are subject to change as the initiative evolves throughout the stakeholder process. All of these designations are ultimately subject to review by and the acceptance of the Board of Governors and the EIM Governing Body. Stakeholders who have questions or concerns about a proposed designation are encouraged to address the issue in their comments submitted throughout the stakeholder process.

This document includes the proposed classification for initiatives that are in Section 6 Initiatives Currently Underway and Planned. Once initiatives are prioritized on the Annual Policy Initiatives Roadmap, a proposed WEIM Governing Body classification will be assigned.

3 Stakeholder Policy Initiatives Catalog Submissions and Comments on Draft Policy Initiatives Catalog

This section lists stakeholders' submissions since the last catalog update.

The ISO received seven submissions for inclusion in the catalog. Of those, four were incorporated in the last catalog update, two are software issues currently being addressed, and one is a new initiative included herein as discretionary.

Stakeholder comments on initiatives already included in the Catalog are incorporated in Sections 5 (Current and Planned Initiatives) and Section 6 (Discretionary Initiatives).

Several stakeholders provided comments on specific elements of policies currently under development. While these comments are appreciated, they are not additions or changes to the Catalog and are deferred to those initiatives themselves.

Stakeholder comments on the topics of Demand Response and Distributed Energy Resources are appreciated. At this time, initiatives related to these topics are on pause, awaiting additional regulatory certainty. The Policy Roadmap includes an action plan for high-priority DR and DER policy initiatives that the ISO will undertake after California's regulatory framework for DR is further developed.

The ISO also received feedback on the Catalog and Policy Initiatives Roadmap processes themselves. Stakeholders expressed an interest in additional transparency with regards to the prioritization, selection process, and organization of initiatives. The prioritization of initiatives is largely driven by the ISO's strategic goals of reliability and efficiently integrating new resources, strengthening Resource Adequacy and meeting California's SB100 goals, and expanding western market opportunities. The volume of initiatives that the ISO can undertake is limited in scope by both ISO and stakeholder capacity. Much of the ISO's initiative prioritization and scheduling is driven by the needs associated with the ISO's current and ongoing work. The ISO appreciates the importance of transparency in the initiatives prioritization process, and is endeavoring to provide additional insight into this process in the next Catalog iteration.

3.1 Submissions Incorporated

The following new initiative is added to the catalog for the 2023 update:

- **Collapse Spinning and Non-Spinning Reserves into a Single Product** was submitted by Voltus. This initiative is located in Section 6 Discretionary Initiatives.
    - Voltus continues to express support for this initiative. The ISO is prioritizing this change and plans to include it in forthcoming EDAM enhancements as noted in the Policy Initiatives Roadmap.

3.2 Submissions Precluded

The following stakeholder initiative requests have not been included in the catalog:

- **Energy Storage Bid Cap Not Aligned with FERC Order 831:** This initiative was submitted by Southern California Edison. SCE notes that, currently, energy storage resources are only able to bid up to the soft bid cap of $1,000 MWh. FERC Order No. 831 raises the soft bid cap of $1,000/MWh to a hard bid cap of $2,000/MWh when cost-based offers can be verified, or the ISO-calculated maximum intertie bid price exceeds $1,000/MWh.

  The ISO has not included this proposed initiative in this catalog because this effort does not include policy changes. This is a known implementation gap that the ISO is working to address.

- **Pay for Performance Accuracy Calculations:** This initiative was submitted by Southern California Edison. SCE points out problems with the methodology the ISO uses to evaluate, verify, and dispute the regulation pay for performance accuracy calculations. Current market rules do not take into account how gas-fired generation with spinning mass and inertia cannot respond to the extremely short duration and small quantity regulation up and regulation down dispatches when on AGC.

  This initiative was included in the previous update to the catalog. It is included in Section 6 Discretionary Initiatives. The initiative is titled “Ancillary Services de minimus Regulation Awards.” In their September 2022 comments, SCE notes that this initiative does not address all of the issues present in Pay for Performance that it described in its previous submission.

- **Unit Initial Condition and Configuration Improvements:** Salt River Project notes that there are cases where unit telemetry is just slightly above or below a configuration Pmin or Pmax, and the initial condition for configuration is misinterpreted by the WEIM market.

  This initiative was included in the previous update to the catalog. It is included in Section 6 Discretionary Initiatives. The initiative is titled “Unit Initial Condition and Configuration Improvements.”

- **Base Scheduling below Pmin Enhancement:** Salt River Project notes that base scheduling below Pmin for warm and cold start-ups or for start-ups beyond the start-up ramp time is not currently a viable solution for unit types such as combined cycle. It may prevent participants from being able to implement the recent change to allow base schedules below Pmin for start-up.

  This initiative was included in the previous update to the catalog. It is included in Section 6 Discretionary Initiatives. The initiative is titled “Base Scheduling below Pmin Enhancement.”

- **Accounting for Upward Transition Costs in Settlements after Economic Commitments to Lower Configurations:** Salt River Project notes an issue with settlement of Multi-Stage Generators (MSG) in the case when the resource is base-scheduled in an upper configuration but instructed to transition to a lower configuration per economic commitment by the WEIM.

This initiative was included in the previous update to the catalog. It is included in Section 6 Discretionary Initiatives. The initiative is titled "Accounting for Upward Transition Costs in Settlements after Economic Commitments to Lower Configurations."

3.3 Submissions Removed

The following proposed initiatives were removed from consideration:

- Joint Owned Unit Model: this initiative was added to the Catalog by the ISO in July 2018, and was intended to modify the existing practice of modeling physical units owned by joint utilities as separate units to instead model these units as a single unit and determine how costs are distinguished between owners. This initiative is no longer needed. [KA1]

4 Initiatives Completed Since Previous Catalog

This section lists the initiatives where the policy development has been completed since the ISO published the 2021 Policy Initiatives Catalog. For the purpose of this catalog, policy development is considered completed when the stakeholder process is finished and the ISO Board of Governors approved policy's proposal.

For additional information on completed initiatives, please refer to the initiatives' web page.[3]

4.1 2021 Interconnection Process Enhancements Phase 1 (Board Only)

The Interconnection Process Enhancements process is the ISO's ongoing commitment to improve the Generator Interconnection and Deliverability Allocation Procedures (GIDAP) by making appropriate process enhancements as the environment for resource interconnection evolves. Phase 1 of this 2021 effort lead to the following changes:

- Cluster 14 enhancements
- Transmission Plan Deliverability allocation enhancements
- New emergency generation process, triggered by a state mandate for new generation under emergency conditions
- Minor process enhancements that improve the GIDAP

This initiative was approved by the Board of Governors at its May 12, 2022 meeting.

4.2 Adjustments to Intertie Constraint Penalty Prices (Advisory)

Monitoring of market outcomes during the 2021 summer months, when system conditions in the ISO and across the Western Interconnection were more constrained than other times of the year, the ISO identified instances where market schedules exceeded the de-rated limit of specific interties in the real-time market. Through this initiative, the ISO worked with stakeholders to identify the reasons the market overscheduling occurred, and develop changes

[3] http://www.ISO.com/StakeholderProcesses/

to specific penalty price parameters to ensure the market is able to resolve similar situations in the future consistent with observed conditions on the grid.

This policy initiative was approved by the Board of Governors and the WEIM Governing Body at their February 9, 2022 joint meeting.

4.3 Short-Start and Long-Start Definitions Update (Joint Authority)

The purpose of this initiative was to align the tariff definitions of generating units that can be committed in the real-time market and the day-ahead market to how the CAISO market software functions. Through the initiative, the ISO also endeavored to address a gap in the application of resource adequacy availability incentive mechanism (RAAIM) penalties under the CAISO's resource adequacy program.

The changes to Short-Start and Long-Start resources was approved by the Board of Governors and the WEIM Governing Body at their joint meeting on March 16, 2022. The change to the RAAIM penalties was not approved.

4.4 Transmission Service and Market Scheduling Priorities Phase 1 (Advisory)

In this initiative, the ISO and stakeholders worked to identify near-term enhancements to the existing scheduling priorities framework that the ISO can implement for summer 2022. Longer-term, more holistic framework development will continue in Phase 2 of the initiative. Key near-term outcomes recommended through this stakeholder process are as follow:

- Extension of the current, interim wheeling through scheduling priorities framework for summer 2022 and summer 2023
- Enhancement to provide additional visibility of the non-RA capacity for a supporting resource as well as notifications when a high priority export schedule exceeds the non-RA capacity of the supporting resource
- Clarification to tariff language regarding high priority exports from Variable Energy Resources

This initiative was approved by the Board of Governors at its January 20, 2022 meeting.

4.5 Maximum Import Capability Enhancements (Board Only)

Through this initiative, the ISO addressed stakeholder concerns, raised during the maximum import capability stabilization and multi-year allocation initiative completed in 2020, about potential improvements to the calculation of maximum import capability and the process used to allocate and track it during the resource adequacy process. This initiative scope also included the following elements:

- The development of a process that would permit wheel-through transactions to reserve import capability and transmission across the ISO system
- The associated review of wheel-through priorities when accessing the ISO system.

The Board of Governors approved this initiative at its November 3, 2021 meeting.

4.6 WEIM Resource Sufficiency Evaluation Enhancements Phase 1 (Joint Authority)

In this initiative the ISO developed, with stakeholders, further improvements to the WEIM resource sufficiency evaluation (RSE). The ISO and stakeholders reviewed several potential changes in the recent *Market Enhancements for Summer 2021 Readiness* initiative. That initiative added net load uncertainty to the RSE. This initiative's goal is to continue reviewing potential enhancements that improve the accuracy and transparency of the RSE. Enhancements include:

- Changes to the resource sufficiency evaluation's "capacity test" to more accurately count a balancing authority area's available supply capacity.
- Changes to resource sufficiency evaluation's "flexible ramping test" to more accurately count available resource energy ramping capability.
- Resource sufficiency evaluation changes so that it more accurately accounts for imports and exports.
- No longer include the ISO balancing authority area in the allocation of the resource sufficiency evaluation's "balancing test" penalty revenues.
- Changes to provide that the resource sufficiency evaluation will consider certain actions balancing authority areas take outside of the ISO market.

Management also plans system enhancements to provide WEIM participants with more of the data the resource sufficiency evaluation uses to test their balancing authority area. This will enable them to better ensure their balancing authority area passes the resource sufficiency evaluation and more readily identify data errors.

The Board of Governors and the WEIM Governing Body approved Phase 1 of this initiative at its February 9, 2022 joint meeting.

4.7 Reliability Demand Response Resource Bidding Enhancements Tracks 1 and 2 (Joint Authority)

Reliability demand response resource (RDRR) program administers requested additional policy development to enable them to more accurately represent the costs of their programs. This includes their ability to represent their minimum load costs, as well as their bidding rules under the FERC Order 831 paradigm. Through the two Tracks of this stakeholder process these issues were examined, and resolutions were developed to address stakeholder concerns.

The Board of Governors and WEIM Governing Body approved Track 1 of this policy at their March 16, 2022 joint meeting, and approved Track 2 of this policy at their July 20, 2022 joint meeting.

4.8 Resource Contract Management Enhancements 2021 (Board Only)

The initiative was undertaken to work with stakeholders to provide updates and clarification to a number of generator interconnection contract-related policies. These changes include the topics of: ISO as an affected systems, clarify and expand retirement and repower language, develop a pro forma study agreement for ISO as an affected system, aligning modification

timelines among the various study processes, revise the droop and dead band for asynchronous generators, and allow asynchronous projects to convert to 100% storage.

The Board of Governors approved this initiative at their December 17, 2021 meeting.

4.9 Central Procurement Entity Implementation (Board Only)

Through the Central Procurement Entity Implementation initiative, the ISO and stakeholders developed supporting tariff and business process enhancements that would allow for the creation of a new entity that can be assigned the local RA obligation of a subset of Load Serving Entities (LSEs) by a Local Regulatory Authority. This new entity will show the procured RA resources to the ISO for validation and would be subject to CPM cost allocation. This initiative also created processes to accept and validate Flexible RA CAM credits and existing System RA CAM credits to allow for the allocation of the flexible as well as system attributes of the procured local resources by the CPE to its jurisdictional LSEs. Rules around how LSEs local and system obligations will be capped under a CPE or for LSEs with load in multiple TAC areas were clarified.

The Board of Governors approved this initiative at their March 17, 2022 meeting.

4.10 Hybrid Resources (Board Only)

This initiative explored the topic of how hybrid generation resources can be registered and configured to operate within the ISO market and identified new and enhanced market rules and business processes to accommodate hybrid resources. Phase I of this initiative initiated a market model for co-located resources and allowed the variable energy resource component of hybrid resources to receive CISO forecasts. Phase II of this initiative further developed solutions to optimize hybrid resources, including a framework under which interconnection customers may use multiple aggregate capability constraints for portions of a co-located resource at a single generating facility.

4.11 Short-Long Start Unit Definitions Update (Joint Authority)

This initiative updated the definitions of short and long start units to align with the real-time market horizon. This update ensured that the real-time market optimization was able to consider a short start unit's start-up and minimum run time.

5 Initiatives Currently Underway and Planned

This section summarizes policy initiatives that are currently or will soon begin a stakeholder process. It also summarizes initiatives the ISO already committed to during the development of the 2022 Policy Initiatives Roadmap and Annual Plan.

(The ISO Board and WEIM Governing Body governance approval roles are shown in the parenthesis after each initiative's title.)

5.1 Energy Storage Enhancements (Joint Authority)

The purpose of this initiative is to explore and develop enhancements to existing market rules, bidding parameters, optimization algorithm, and post market processes applied to energy storage resources. A key component of this initiative is to develop market based mechanism to replace of the Minimum State of Charge Requirement developed and implemented as part of the Resource Adequacy Phase 1. This tool will enable the ISO to procure and compensate resources for holding energy (state of charge) and ensuring the ISO can maintain reliability during critical periods.

5.2 Energy Storage Modeling Enhancements (Joint Authority)

Through this initiative, the ISO will continue to pursue enhancements to its market's energy storage models. In particular, the following changes will be considered:

- Incorporation of costs based on state-of-charge into the ISO's Energy Storage Resource (ESR) market model
- Enhancements to the ISO's Non-Generation Resource (NGR) model

5.3 Storage Transmission Services and Market Scheduling Priorities Phase 2 (Advisory)

This initiative follows on to work completed in Phase 1 to create a holistic framework for wheeling through market scheduling priority on the ISO grid while effectively accounting for transmission capacity needed to serve native load reliably. Key considerations include the following:

- Calculating available transfer capability in monthly and daily increments
- Accessing and reserving available transfer capability
- Development of a transmission study and expansion process
- Establishment of a compensation framework for wheeling through scheduling priority

5.4 Resource Adequacy Enhancements Phase 2 (Advisory)

The rapid transformation of the resource fleet to cleaner and more variable energy resources is exposing shortcomings in the current resource adequacy framework. In collaboration with the CPUC and stakeholders, the ISO is proposing reforms to the ISO's resource adequacy rules, requirements, and processes to ensure the future reliability and operability of the grid. With stakeholders, the ISO is exploring the following topics to align the Resource Adequacy Program with new products and processes developed in the Day-Ahead Market Enhancements initiative:

- Must offer obligation (MOO) and bid insertion modifications to minimize exemptions and ensure resources are offered into the market to meet their RA obligations and,
- Enhancements to the flexible resource adequacy capacity construct to ensure sufficient resources are procured with the right attributes to meet ramping and uncertainty needs given supply and demand variability.

5.5 Day-Ahead Market Enhancements (Advisory, Joint Authority)

The Day-Ahead Market Enhancements initiative is developing a new day-ahead market product, termed "imbalance reserves," to address increasing uncertainty and variability of both supply and demand. Imbalance reserves will procure resource capacity in the ISO's to help ensure sufficient ramping capability is available in real-time to address net load uncertainty help ensure there is sufficient ramping capability to meet real-time ramping needs that may be greater than accounted for by hourly day-ahead market schedules.

The Day-Ahead Market Enhancement initiative is also enhancing the day-ahead market's residual unit commitment process to enable it to schedule downward capacity to address excess supply.

The day-ahead market's integrated forward market (IFM) will co-optimize imbalance reserves with energy and ancillary services. It will model and price imbalance reserves respecting locational constraints to help ensure imbalance reserves are deliverable. It will also produce market prices that reflect each resource's value in to set aside capacity to be able to potentially provide energy ramping capability to the real-time market.

Imbalance reserves will enable the day-ahead market to efficiently allocate the resource fleet's ramping capability between that needed to meet hourly day-ahead schedules and that needed to meet additional ramping needs in real-time. They will also enable the day-ahead market to efficiently commit resources to meet ramping needs. Their co-optimization in the integrated forward market will be more efficient than the ISO's currently practice of ensuring sufficient real-time ramping capability through out-of-market actions, which mostly consist of increasing the load forecast used by the day-ahead market's residual unit commitment process (aka "conforming," or "biasing" load).

Imbalance reserves will also have an important role in the extended day-ahead market (EDAM). They will allow EDAM to optimize across the EDAM footprint the scheduling of capacity reserved to meet real-time ramping needs. They will also ensure EDAM transfers have a high and constant degree of reliability. Finally, they will likely be a part of the EDAM's resource sufficiency evaluation, which ensures each BAA is making sufficient supply available to the market.

5.6 Price Formation Enhancements (TBD)

This initiative will explore several topics related to price formation in the ISO markets focused on real-time market pricing. Scarcity prices are important to attract supply and incent resources to be available and perform. They are also important to provide appropriate price signals to demand reduce demand. Recent energy shortages and associated prices in the ISO real-time market have emphasized the need for the ISO to review and enhance its scarcity pricing provisions.

(This initiative was previously named "Scarcity Pricing Enhancements and System Market Power Mitigation.")

The ISO conducted a limited review of its market's scarcity provisions as part of its recent Market Enhancements for Summer 2021 policy initiative. It resulted in an enhancement that

ensures the real-time market sets prices at the energy bid cap under severe shortage conditions.

Some stakeholders have suggested the ISO should reexamine adopting fast-start pricing which has been adopted by other ISO/RTOs. The ISO previously examined this topic in response to FERC's 2016 NOPR addressing fast-start pricing.[4] Fast-start pricing is a methodology that allows commitment costs of fast-start resources to be factored into ISO market energy prices.

Finally, there have been recent stakeholder discussions regarding how the real-time market's multi-interval optimization's dispatches storage and the resulting changes. There were suggestions that relatively straightforward changes to the optimization's weighting of future market interval prices could reduce suboptimal storage dispatches. There were also suggestions that bid cost recovery changes would more equitably compensate storage resources.

Consequently, the ISO plans to address the following topics in this Price Formation initiative:

- Further real-time market scarcity pricing enhancements to better reflect tight supply conditions;
- Consideration of fast-start pricing;
- Enhancements to the how the real-time market uses advisory prices to dispatch resources
- Limited bid cost recovery changes focused on storage resource interaction with the real-time market's multi-interval optimization.
- Examine system-level market power mitigation

5.7 WEIM Resource Sufficiency Evaluation Enhancements Phase 2 (Joint Authority)

The second phase of WEIM Resource Sufficiency Evaluation Enhancements will review the implemented enhancements in phase 1. Prior to initiating this phase 2, the ISO proposes to first focus efforts on completing the core of the EDAM resource sufficiency evaluation design. The enhancements from phase 1 will serve and the EDAM RSE core design will serve as the baseline for the second phase. The second phase will consider the following topics and potentially others that may arise: RSE failure consequences, treatment of storage resources within the flexible ramping sufficiency test, relaxation of the flexible ramping sufficiency down requirement during periods of high marginal energy prices, and any further potential measures to prevent misusing the ability to adjust the load forecast used by the RSE to account for demand response.

[4] *Fast-Start Pricing in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 81 Fed. Reg. 96,391 (Dec. 30, 2016), FERC Stats. & Regs. ¶ 32,720, at PP 3, 36-37 (2016) (NOPR).

5.8 Extended Day-Ahead Market (TBD)

This initiative will enable WEIM entities to participate in the day-ahead market in a framework similar to the existing WEIM approach for the real-time market, rather than requiring full integration into the ISO balancing area as participating transmission owners (PTO). The extended day-ahead market (EDAM) will improve market efficiency and more effectively integrate renewable resources by optimizing day-ahead unit commitment and scheduling across a larger footprint.

The same principles of the Western WEIM will be maintained: voluntary participation, low-entry cost, no exit fees, and balancing authorities retain operational control over their resources and transmission. Participation in EDAM will be optional for WEIM entities such that WEIM entities may still elect to only participate in the ISO's real-time market. However, participating in the EDAM requires participation in the WEIM.

WEIM entities that elect to participate in the day-ahead market will retain flexibility and independence, including retaining their balancing authority and planning functions. The EDAM approach will bring many of the benefits of day-ahead market participation, notably, increased ability to integrate renewable resources and optimized unit commitment over a larger footprint. Resource adequacy will be the responsibility of each WEIM entity and their state and local regulatory authority, although a resource sufficiency evaluation similar to the WEIM will have to be considered for the day-ahead market.

The EDAM will not change state or local control over integrated resource planning. The decisions regarding forward procurement of capacity for resource adequacy will remain with the utility in coordination with their state and local regulatory authorities. Likewise, transmission planning and investment decisions remain with each balancing authority area, state and local regulatory authority.

As discussed below, the EDAM initiative covers a variety of market design and policy decisions. It should be noted, EDAM design changes may result in corresponding changes to the WEIM design to maintain consistency between the day-ahead and real-time markets.

The primary market design and policy considerations include:

Transmission Provision

In WEIM, transmission is made available to support energy transfers through contributions by interchange rights holders or available transmission capacity provided by WEIM entities. This transmission supports energy transfers between balancing authority areas at no transmission usage rate. Interchange rights holders have procured transmission and on a voluntary basis have chosen to allow the transmission to be used for transfers. Available transmission capacity is residual transmission, i.e. unused after the T-20 tagging deadline, with WEIM transfers as the lowest priority use of the transmission. That is, if in real-time the transmission is used bilaterally, the market will re-dispatch participating resources to ensure WEIM transfers stay within the unused portion. EDAM will require a different approach than WEIM. Since transmission customers can use transmission up until just prior to the operating hour, EDAM cannot assume transmission will be unused. As a result, this initiative will develop rules and

approaches for making transmission available in the day-ahead timeframe to support transfers between balancing authority areas.

Distribution of Congestion Rents

Congestion occurs in the day-ahead market when generation that is economic cannot be fully dispatched to serve load because it is located in a transmission constrained area. As a result, load pays a higher locational marginal price (LMP) than what the generation is paid. The ISO market's financial settlement must allocate this over-collection of market revenue (i.e. congestion rent) to market participants. In the current ISO day-ahead market, congestion revenue rights (CRRs) are the primary mechanism to distribute congestion revenue. This initiative will evaluate approaches to distribute day-ahead market congestion rents collected in balancing authority areas other than the ISO.

Resource sufficiency evaluation

Since resource participation in EDAM will be voluntary, i.e. there will not be an obligation to offer specific resources into the day-ahead market, this initiative must develop resource sufficiency evaluation criteria and related rules. Similar to the existing criteria and rules in the WEIM, EDAM resource sufficiency rules must ensure that balancing authority areas do not inappropriately lean on the capacity, flexibility, or transmission of other balancing authority areas. As part of this, this initiative will explore potential mechanisms to trade resource flexibility and/or balancing authority area obligations needed to pass the resource sufficiency evaluation between EDAM balancing authority areas.

Ancillary services

The current ISO day-ahead market co-optimizes energy and ancillary services. Most WEIM entities participate in reserve sharing groups. This initiative will assess if day-ahead market ancillary services could complement existing reserve sharing groups and whether to enable trading of ancillary services between balancing authority areas. If ancillary services procurement were included in the EDAM, a secondary question regarding how such reserves are deployed would also need to be addressed.

Modeling of non-EDAM imports and exports

In the WEIM and the existing day-ahead market, ISO imports and exports are modeled as injections or withdrawals at the intertie scheduling point while WEIM entities' imports and exports are modeled at the source/sink balancing authority areas. In light of other market modeling enhancements, this initiative will look to align the modeling approach of ISO imports and exports to the approach currently used for WEIM entities. In doing so, it will be necessary to consider the potential use of "scheduling hubs" as representations of import and export sources and sinks, e-tagging or settlement rule refinements, and remapping of congestion revenue rights to scheduling hubs.

External Resource Participation

The WEIM entity communicates its bilateral imports/exports through hourly base schedules. The EDAM design will also need to accommodate bilaterally contracted imports and exports in

the day-ahead market and rules around how bilaterally contracted external resources can help a balancing authority area pass its resource sufficiency evaluation will also need to be developed. Currently, resources not operating within WEIM entity balancing authority areas, e.g. external resources, do not economically participate in the WEIM. This initiative will also explore the rules needed for economic participation of external resources in EDAM.

Accounting for greenhouse gas (GHG) costs

The current WEIM approach limits the potential GHG obligation attribution quantity to an WEIM participating resource to the dispatch capability above its hourly base schedule. Imposing limitations on the amount of GHG awarded to an external participating resource was a recent market enhancement that sought to more accurately account for the emissions resulting from serving California (e.g., ISO, SMUD) load. Assuming no base schedules in EDAM, a different approach will be needed to determine which resources are serving load within regions for which there are obligations for GHG costs. The EDAM GHG solution should also explore other unintended effects of remaining potential secondary dispatch effects and how to avoid them. In addition, the current paradigm defines GHG compliance regions by balancing authority area. Since other states in the West are looking at potential GHG programs, this initiative will look to define GHG compliance regions based upon a different approach, such as state boundaries.

Convergence bidding

Convergence bidding can potentially improve market efficiency by providing greater day-ahead market liquidity that can potentially produce better convergence between day-ahead and real-time prices. Convergence bids that clear the day-ahead market are settled at the day-ahead price and liquidated in the real-time market at the 15-minute market price. For the EDAM, it will be necessary to determine if convergence bidding is universal across the EDAM footprint or enabled by individual balancing authority areas.

Price formation

In the WEIM entities' September 16, 2019 letter to the ISO Board of Governors and WEIM Governing Body, it was requested that the ISO review price formation. This is a broad ranging topic with relevant day-ahead and real-time markets considerations. The WEIM entities specifically requested the ISO to evaluate fast-start pricing and scarcity pricing so consideration of these design elements is included in this initiative.

Market Power Mitigation

Enhancements to how the ISO's market power mitigation assess competiveness may be appropriate under the EDAM. These enhancements would assess competiveness of groups of transmission constrained BAAs rather than the current methodology, which only assess competiveness individual BAAs.

EDAM administrative fee

In the WEIM, the WEIM administrative fee is determined based upon the services WEIM entities and WEIM participating resources receive through the WEIM. This initiative will examine a

similar approach for an EDAM administrative fee based upon the services provided through the EDAM.

5.9 Variable Energy Resources (VER) Dispatch Enhancements (TBD)

This initiative was added to the catalog by the ISO in July 2019. This initiative covers several topics, including Decremental Market Power Mitigation, Bid Floor, Exceptional Dispatch Decremental Settlement, Export Charges, Ramp Rate Limitations, and Accurate Curtailment Response. VER Dispatch Enhancements would review and develop enhancements to the current obligations for resources to comply with dispatch instructions.

Decremental Market Power Mitigation

During the stakeholder process *for Local Market Power Mitigation Enhancements 2018*, Deseret Power raised the issue of decremental market power that was beyond the scope of the initiative. Consequently, the ISO added this issue to the catalog as part of the February 2019 policy initiative catalog process. Currently, the market power mitigation test does not account for instances when a supplier can seek to exercise market power in the real-time market through low price bids below marginal costs. After a supplier has received a day-ahead schedule, a scheduling coordinator can submit a new bid curve into the real-time market. If a resource is dispatched through the real-time market above its day-ahead schedule, the imbalance is paid the locational marginal price. If a resource is dispatched below its day-ahead schedule, the imbalance is charged the locational marginal price. In the event the locational marginal price is negative, the imbalance results in a payment to the scheduling coordinator. In the event that the resource must be dispatched lower to resolve congestion, suppliers who have the ability to exercise market power will submit negative priced bids below their marginal cost so that the scheduling coordinator will be paid by reducing generation. The current market power mitigation test does not test for this strategic bidding behavior. This initiative would explore solutions to prevent suppliers from strategically bidding to exert decremental market power.

Bid Floor

This initiative would also examine lowering the ISO's bid floor. On December 19, 2013, FERC accepted the ISO'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 the hard energy bid cap (+$2000/MWh) are not symmetrical. This results in under-scheduled load in the day-ahead market being potentially subject to real-time prices at the $2,000/MWh hard energy 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 the ISO we moves toward a 50 percent renewable performance standard. The current bid floor also may not provide accurate price signals during periods of high downward flexibility needs.

The ISO discussed a lower bid floor with stakeholders in 2016 as part of the Bid Cost Recovery Enhancements initiative. The ISO 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 ISO decided the benefits would be limited because the market relatively infrequently curtails self-scheduled generation, indicating it rarely runs out of economic bids under the current bid floor. ISO will continue to monitor levels of self-schedule curtailments and other market results to determine whether a lower bid floor is appropriate.

Exceptional Dispatch Decremental Settlement

This initiative would also explore changes to settlement rules for decremental exceptional dispatch energy including shutdown energy (energy from minimum load to shutdown). This initiative would review how decremental energy is settled at the lower of the locational marginal price, default energy bid, or market bid. Additionally it would seek to clarify what a price is used when a resource is exceptionally dispatched to shut down from minimum load.

Ramp Rate Limitations

This portion of the VER Dispatch Enhancements initiative was added to the catalog by the ISO in July 2019. The ISO's real-time market relies on resources, such as solar, during the afternoon to meet afternoon demand. However, renewable resource's energy can suddenly disappear from the market due to cloud cover, decrease in wind, a loss of power, etc. When these resources drop off the system, market operators dispatch ancillary services to backfill the energy needed to meet demand. Consequently, when renewable resources return to the market, they do so quickly and make it difficult for market operators to maintain a balanced system. This initiative would explore creating ramp limitations so when renewable resources return to the market, they can do so at a pace that does not jeopardize system balance issues.

Accurate Curtailment Response

This portion of the VER Dispatch Enhancements initiative was added to the catalog by the ISO in July 2019. In 2018, the ISO clarified its existing obligations for eligible intermittent resources to comply with ISO-issued dispatch instructions under its tariff. This initiative would review and develop enhancements to the current obligations for resources to comply with dispatch instructions.

5.10 Frequency Response Measures (TBD)

This initiative will consist of a comprehensive examination of mechanisms for the ISO balancing authority areas to continue to meet NERC/WECC frequency response requirements. This initiative is in response to an observed degradation in frequency response performance,

potentially related to a changing resource mix within the ISO BA area. Over the past few years, the ISO has relied on procuring frequency response capabilities from other balancing authority areas to meet NERC/WECC frequency response requirements.

Initially, the ISO plans to complete an analysis of its current frequency response capabilities. This will consist of reviewing the ISO balancing authority area's nominal frequency response capabilities compared to its actual frequency response during recent events. For each of these events, it will quantify the response of each individual governor-enabled resource, evaluate each resources performance against expected response and will examine potential reasons and recommend corrective actions for instances of under-response. In addition ISO plans to review the capability of variable energy and storage resources in meeting these reliability needs.

Based on this analysis, the ISO plans to initiate a stakeholder process to develop any additional needed mechanisms to continue to meet NERC/WECC frequency response requirements. Potential options include the continuation of transferred frequency response, inclusion in a frequency response sharing group, or a market frequency response product targeting all frequency responsive resources potentially in the form of:

- Reservation of unloaded frequency responsive capacity,
- Reservation of frequency response capacity via additional regulation,
- Reservation of frequency response capacity via a fast regulation or fast frequency response product,
- Mechanisms to ensure the market commits sufficient inertial resources, and
- Products for interruptible demand to provide frequency response.

Any adopted solution may potentially include one or more of these mechanisms.

Finally, this initiative may examine enhancements to the ISO's "pay-for-performance" regulation product. The ISO implemented a market design for a regulation market in response to FERC's directive under Order 755. In this design, the ISO compensates resources for their performance through a mileage payment. This initiative would potentially review and analyze the current method of compensating resources in the regulation market, potentially explore enhancements to the pay-for-performance payments, and/or explore enhancements to the ISO's minimum performance criteria and regulation certification process.

5.11 Resource Adequacy Enhancements Phase 3 (TBD)

The rapid transformation of the resource fleet to cleaner and more variable energy resources is exposing shortcomings in the current resource adequacy framework. In collaboration with the CPUC and stakeholders, the ISO is proposing reforms to the ISO's resource adequacy rules, requirements, and processes to ensure the future reliability and operability of the grid. With stakeholders, the ISO is exploring the following topics:

- Resource Adequacy capacity valuation rules that properly reflect resource availability through forced outage rates;
- Must offer obligation (MOO) and bid insertion modifications to align with new capacity valuation rules

- Planned outage process enhancements to ensure sufficient capacity is procured in advance to over expected planned outages; and,

5.12 Energy Storage Distributed Energy Resources Enhancements (TBD)

This initiative was added to the catalog by the ISO in July 2019. This initiative would explore enhancing the ability of ISO connected and distribution-connected resources to participate in the ISO market, including rooftop solar, energy storage, plug-in electric vehicles, and demand response. These resources represent an increasingly important part of the future resource mix and will help lower carbon emissions and provide operational benefits.

5.13 Washington WEIM Greenhouse Gas Enhancements (Joint Authority)

This initiative focuses on market enhancements to support Washington WEIM entities with their reporting of WEIM transactions under Washington's Climate Commitment Act.

5.14 Capacity Procurement Mechanism Enhancements Track 1 (Board Only)

Track 1 of this initiative will address five operational and process enhancements to the ISO's capacity procurement mechanism used to address resource adequacy deficiencies and potential reliability concerns. The following potential changes will be evaluated:

- Reduction in the MW volume of significant event CPM designations when the designated capacity is committed and visible to the ISO
- Reduction in the term of significant event CPM designations when the designated capacity if already committed but not visible to the ISO
- Relocation of CPM reporting from CIRA to OASIS
- Change to the CPM designation market notice timeline
- Change to update process for CPM designation contact information

5.15 Market Parameter Changes Enhancements (Joint Authority)

As part of its continued assessment of market performance, ISO has identified two enhancements to how it manages market parameters. The ISO is initiating this Stakeholder process to introduce the issues to be addressed and identify a solution. The scope of this initiative is twofold:

- Address market issues arising from the utilization of a shift factor threshold in the ISO's energy market, which has implications in the congestion revenue right market, and
- Create a mechanism to effectuate expedited changes to the values of the penalty prices utilized in the CAISO's energy market to address production issues that may arise.

5.16 Regional Transmission Planning Process (TBD)

On July 15, 2021, the Federal Energy Regulatory Commission (FERC) issued an Advance Notice of Proposed Rulemaking (ANOPR), "Building for the Future Through Electric Regional Transmission Planning and Cost Allocation and Generator Interconnection." The ANOPR indicated that FERC is considering the potential need for major reforms or revisions to its

regional transmission planning, cost allocation and generator interconnection regulations and policies. Many of the issues identified in the ANOPR call for potential changes to address the generation fleet shifting away from resources close to population centers toward others, including renewables, that are often located far away and in geographically remote areas. These issues have generally largely already been addressed in the ISO's planning processes due California's aggressive drive to renewable generation and decarbonizing the electricity sector. However, the ANOPR itself, resulting changes to our neighboring systems' processes, and the ISO's own review of its related resource interconnection processes may create opportunity for additional enhancements, calling for the consideration of revisiting the ISO's regional planning process.

5.17 Ancillary Service State of Charge Constraint (TBD)

This initiative addresses compensation for storage resources providing ancillary services. All resources are required to be able to provide ancillary services awarded in the day-ahead and real-time markets for specified periods of time. Storage resources have an additional constraint to enforce this requirement in the real-time market, which can result in uneconomic energy awards. Appropriate compensation will be considered when these conditions exist.

5.18 FERC Order No. 881 – Managing Transmission Line Ratings (TBD)

This initiative addresses the ISO's compliance with FERC Order No. 881, which establishes new transmission line rating requirements for public utility transmission providers. The ISO must implement systems and procedures to allow transmission owners to electronically update transmission line ratings at least hourly, and will evolve its current practices to comply with the order.

5.19 Planning Standards – Remedial Action Scheme Guidelines Update (TBD)

The ISO Remedial Action Scheme (RAS) guidelines are part of the ISO's Planning Standards and complement the existing NERC/WECC Reliability Standards to ensure reliable infrastructure development within the ISO. These guidelines are being updated to incorporate stakeholder comments and consider several new drivers related to the guidelines, such as RAS modeling within the ISO market, new updated reliability standards, and an expected increase in the number of RAS proposed through the planning process. In addition, this initiative will review and update the current System Protection Schemes (SPS) guidelines in the ISO Planning Standards to align with NERC Reliability Standards and ensure secure and reliable ISO infrastructure development.

5.20 WEIM Governance Review, Phase III (TBD)

The purpose of this initiative is to continue the work of the EIM Governance Review Committee to evaluate potential changes to governance based on the development of an Extended Day Ahead Market (EDAM). These governance changes are intended to give EDAM participants assurance that the market will be governed with the objective of benefitting the market as a whole while accommodating the needs of the full market participants.

6 Discretionary Initiatives

This section describes the discretionary policy initiatives that were suggested by either the ISO or stakeholders. This category includes potential market design enhancements that impact the day-ahead and/or real-time markets. This section also includes topics such as price formation, outage management, and resource modeling.

6.1 Energy and Ancillary Services Markets

As background, the ISO's day-ahead market consists of the market power mitigation process, the integrated forward market and the residual unit commitment process. The structure and rules for the day-ahead market are presented in the business practice manuals for market operations and market instruments.[5]

The real-time market includes three market runs: the 15-minute granularity short-term unit commitment process, the 15-minute granularity real-time unit commitment process, and the 5-minute granularity real-time dispatch. The short-term unit commitment process and real-time unit commitment process both commit resources. The second interval of the short-term unit commitment process is used for the 15-minute market, which includes financially binding 15-minute energy and ancillary service schedules and prices. The 5-minute granularity real-time dispatch also produces financially binding 5-minute energy dispatches. For more details regarding the real-time market, refer to the business practice manuals for market operations and market instruments.[6]

The western energy imbalance market (WEIM) extends the real-time market to other balancing authority areas in the West. The ISO's market minimizes overall dispatch costs across the combined footprint of all WEIM entity balancing authority areas and the ISO balancing authority area. The WEIM improves reliability by increasing the operational awareness and responsiveness to changing grid conditions across its large footprint. Further, the WEIM allows for more efficient integration of renewable resources by capturing the diversity benefits across a geographical dispersed footprint.

Convergence (or virtual) bidding is a mechanism whereby market participants can make self-liquidating sales (or purchases) of non-physical energy in the day-ahead market, with the explicit requirement to buy back (or sell back) that energy in the real-time market. Virtual bids improve the efficiency of the markets because they tend to make day-ahead and real-time market prices converge.

Currently, the ISO procures four types of ancillary services products in the day-ahead and real-time markets: regulation up, regulation down, spinning reserve, and non-spinning reserve. Section 4 of market operations business practice manual describes these ancillary services.[7]

[5] http://www.ISO.com/rules/Pages/BusinessPracticeManuals/Default.aspx
[6] Ibid.
[7] https://bpmcm.ISO.com/Pages/BPMDetails.aspx?BPM=Market%20Operations

6.1.1 Ancillary Service Deliverability and Real-Time Re-optimization

Currently ancillary services are procured based upon system and zonal requirements. The zonal requirements seek to minimize procuring large quantities of capacity in one region that may not be accessible if a contingency event occurs in a different region. But, the zonal approach does not guarantee that the ancillary services are deliverable because the capacity may be located behind a transmission constraint inside the zone. Operators perform studies to identify day-ahead awards that are not accessible and block these resources from being awarded ancillary services so that additional capacity can be procured in the real-time market.

This initiative will look at implementing nodal ancillary services by including a deployment scenario in the market optimization to ensure the capacity awards are transmission feasible when a contingency event occurs. This functionality will also support the re-optimization ancillary services in the real-time market because operators will be assured the capacity awards are deliverable. The ISO also plans to review the re-optimization of ancillary services in both the 15-minute real-time unit commitment and 5-minute dispatch. Currently, only incremental ancillary services are procured in the 15-minute market.

6.1.2 Intertie Scheduling Enhancements

The ISO currently uses Intertie Scheduling Limits (ISLs) and Intertie Transmission Constraints (ITCs) to manage scheduling constraints. Using these methodologies to ensure that the segment limitations within the varying scheduling paths are respected is becoming increasingly complex due to the increasing WEIM footprint, as well as the increase in volume and frequency of dynamic schedules.

Through this initiative, the ISO plans a design change to more directly utilize the market in the management of scheduling constraints to better ensure all segments of a scheduling path can be kept their within default limits. To do this, the ISO is contemplating requiring a declaration of scheduling paths for all bids on intertie scheduling points, as well as explicit registration of all scheduling paths and segments in Masterfile. These changes will serve to provide the information necessary for the ISO to calculate and publish marginal prices for each scheduling path available to reach each intertie scheduling point.

6.1.3 Ancillary Services de Minimis Regulation Awards

A reoccurring issue has been observed whereby the market dispatches very small Regulation Up and Regulation Down awards (i.e. less than 1 MW) to resources with large Pmax values (e.g. 510 MW). The small MW quantity of these regulation awards is insufficient for performing meaningful measurements of regulation accuracy. Moreover, these awards account for such a small fraction the resources' Pmax value that ISO Operators cannot be confident in the response to the AGC signal. As such, rule changes should be considered to prevent these types of de Minimis regulation awards to resources with large Pmax values

6.1.4 Collapse Spinning and Non-Spinning Reserves into a Single Product

This initiative was proposed by Voltus in 2022. This initiative will examine collapsing Spinning and Non-Spinning Reserves into a single contingency reserve product without a frequency response requirement. The frequency response requirement will be evaluated to determine if it is obsolete given current operational practice. If the two products are collapsed into one product without a frequency response requirement, new resources will be attracted to the market that

were previously limited to providing non-spinning reserves. This can increase competition by broadening the pool of eligible and interested suppliers.

6.1.5 Local RMR Cost Allocation

This initiative will be focused on the commitment the ISO made during the July 2021 Board of Governors meeting to assess how local RMR costs should get allocated when there is also a system need.

6.1.6 Contract Import Service

This initiative will focus on the need to consider import service offerings for developers if major new out of state resources are bringing their resources to the ISO border under long term contracts.

6.1.7 SoCalGas Nomogram Expansion

This initiative will expand the existing Operational Reliability Nomogram within SoCalGas' footprint to include the LADWP service area.

6.1.8 Operational Reliability Nomograms

This initiative will create a new nomogram that follows the process used in the previously-approved SoCalGas nomogram.

6.1.9 Use Limit and Opportunity Costs Enhancements

This initiative was added to the catalog by NCPA in 2021. This initiative would revisit the Use-Limited eligibility and resource Opportunity Costs. NCPA learned in 2018 that its annually cycled, use limited Hydro resources were ineligible for Use Limited designation as a result of the proposals implemented in Commitment Costs Enhancements Phase 3. ISO offered a compromise in the form of a hydro specific Default Energy Bid and the initial results were encouraging. However, as we enter a second year of a historical drought, we are finding that the Hydro DEB is insufficient in ensuring that the resource will be available during periods of critical need. The hydro DEB is tied to gas indices and forward curves which do not take into account scarcity of the fuel which results in low value mitigated bids that risk ensuring Hydro will be available during net peak hours in periods of extreme heat later in in the summer. ISO needs to recognize Hydro's use limited characteristics in its model in order to ensure this highly flexible resource is available to meet net peak needs late in the summer.

As California transitions to a carbon free grid, there is little incentive for market participants to make capital investments in natural gas fired resources. As a result, many existing gas-fired resources are nearing end of life while little to no new gas fired resources are replacing them. As observed in the summer of 2020, gas-fired resources are critical to bridge the transition from the current grid to the carbon-free grid of the future. This initiative would explore implementing Use Limited designations and associated Opportunity Costs for natural gas resources nearing end of life.

In their September 2022 comments, NV Energy reiterated their support for this initiative and proposed that the initiative further explore whether use limited resources could reserve a certain number of the limitations to be used for Ancillary Services. NV Energy observes that currently, the use limited opportunity cost model utilizes the entire limitation for market use rather than removing a certain amount of the limitation to be utilized for Ancillary Services. This results in

the lowest possible opportunity cost for the benefit of the market without considering the potential reliance of the resource to meet the balancing authority Ancillary Service needs. Since the Energy Imbalance Market and Extended Day Ahead Market do not include an Ancillary Service market, NV Energy comments that the current market design is unworkable and proposes that solutions be explored via this initiative.

6.1.10 Weekly Clearing of Wheeling Access Charges

This initiative was added to the catalog by NCPA in 2021. This initiative would address changing the publication of settlement statements and invoices associated with the weekly clearing of the Wheeling Access Charge (WAC).

6.1.11 Unit Initial Condition and Configuration Improvements

This initiative was added to the catalog by Salt River Project in 2021. This initiative would enhance the determination of configuration initial conditions by increasing deadband or by other means. This will allow units to avoid being “stuck” in a transition zone or above or below a unit Max or Min.

6.1.12 Base Scheduling Below Pmin Enhancement

This initiative was added to the catalog by Salt River Project in 2021. This initiative would address allowing for the submission of hot, warm, and cold Startup Ramp Time parameters in the Generator Resource Data Template (GRDT) to accurately reflect the true startup ramp time required to get to Pmin.

6.1.13 Accounting for Upward Transition Costs in Settlements after Economic Commitments to Lower Configurations

This initiative was added to the catalog by Salt River Project in 2021. This initiative would address the following:

A recent case was identified where a Multi-Stage Generator (MSG) was base scheduled in an upper configuration but was instructed to transition to a lower configuration per economic commitment by the WEIM. Due to a long minimum down time/transition time, the Short Term Unit Commitment (STUC) run did not identify the need to transition back up to the higher configuration shortly after the STUC horizon. The unit met its minimum down time, but it did not stay in the lower configuration much longer. The transition cost was then not accounted for in the market decision to move back to the upper configuration in a subsequent market run because the unit continued to be base scheduled in the upper configuration. It is understood that this transition cost is also not accounted for in Bid Cost Recovery (BCR) or other settlements processes, even though it is a direct result of the market decision to transition to the lower configuration. One solution might be to keep the transition cost out of the market optimization decision, but later account for it in the BCR process in the event the unit does not recover its cost for following the transition instruction.

6.1.14 Transmission Access Charge Structure Enhancements

Formerly known as Review Transmission Access Charge Structure, this initiative considers possible changes to the structure of the transmission access charge. The ISO currently applies the transmission access charge to each MWh of metered internal end-use load and exports to

recover participating transmission owners' costs of owning, operating, and maintaining transmission facilities under ISO operational control. Included in the initiative scope are questions such as: (1) whether today's purely volumetric structure should be retained, or should be changed to include other factors such as peak demand; and (2) whether the billing determinant for internal load should be modified to account for the load that is offset by the energy output of distributed energy resources.

This initiative's draft final proposal is complete and on hold pending policy development of the Extend Day-Ahead Markets to WEIM Entities initiative to ensure the proposed policies have consistent treatment for transmission cost recovery.

6.1.15 Storage as a Transmission Asset (SATA)

This initiative considers using electric storage to provide grid services as a transmission asset, with all or a portion of costs recovered through the transmission access charge. This initiative would further explore issues around electric storage resources seeking to receive cost-based rate recovery for providing certain transmission services. It is also exploring enabling SATA resources to receive market revenues for their market participation.

This initiative is currently on hold. The ISO may restart after completion of the Energy Storage Enhancements and RA Enhancements initiatives, which are required to provide sufficient tools and policies to preserve and manage state of charge.

6.1.16 Multi Greenhouse Gas Area

Pending other state's greenhouse gas regulations, this initiative would explore how the ISO would incorporate different greenhouse gas rules into the market. Since balancing authority areas can be comprised of multiple states, this initiative will look at modifying the current attribution approach based upon balancing authority area boundaries to state geographic boundaries.

6.1.17 Curtailment Prioritization for Deliverable Projects

This initiative was submitted by First Solar, Inc. in July 2020. Generation projects that are designated as Energy-Only have the same priority in the real-time market as resources with Full Capacity Deliverability Status that must comply with must-offer obligations. First Solar requests the ISO create distinct market dispatch priorities for curtailment based on deliverability status. First Solar suggests aligning curtailment and deliverability may be an effective method to incentivize transmission investment, and clarify how deliverability statuses impact interconnection customers that choose to fund the upgrades to avoid excessive curtailment.

6.1.18 Variable Energy Resources Providing Ancillary Services

This initiative was added to the catalog by the ISO in July 2020. In 2019, the ISO certified a solar photovoltaic resource for spinning reserve. The ISO continues to work with the scheduling coordinator and owner of the resource to ensure the ISO's market systems and forecasting practices accurately account for any spinning reserve awards the resource receives. This initiative would explore potential refinements to its ancillary services rules to facilitate greater participation by intermittent resources in its ancillary services markets. The initiative would also explore how the ISO's market systems and forecasting practices can accommodate greater participation by intermittent resources in its ancillary services markets.

6.1.19 Real-Time Flexible Ramping Product Extended Horizon Enhancement

During the stakeholder process for the Flexible Ramping Product Refinements initiative, the Department of Market Monitoring suggested the ISO enhance the real-time flexible ramping product to address uncertainty in net load forecasts over longer time horizons. The flexible ramping product design that was implemented in the real-time market to manage ramp capability to address uncertainty related to load and variable energy resources in both the real-time unit commitment (RTUC) process and the 5-minute real-time dispatch (RTD). The 15-minute market (FMM) is the second interval of RTUC and generates financially binding schedules. In the RTUC, the flexible ramping product requirement covers the differences between the 15-minute market FMM interval and the highest and lowest binding RTD interval for the same 15-minute time interval. This 15-minute requirement is included in all intervals of RTUC. This ensures that there is sufficient ramp capability committed to clear RTD. This initiative would explore enhancing the design of the flexible ramping product by increasing the uncertainty requirement to cover larger uncertainty that can occur over an hour or longer than the current approach which includes a 15-minute or 5-minute requirement used in each of the advisory intervals in the real-time market.

6.1.20 De-commitment of WEIM Base Schedule Short Start Units

This initiative was submitted by Arizona Public Service in February 2020. This initiative would explore the possibility of allowing the WEIM to not start quick-start resources that are base scheduled by WEIM Entities, if it is economical to do so while still maintaining the capacity to be called upon due to the fast-start nature if required.

NV Energy expressed their support for this initiative in their September 2022 comments, noting that the initiative has the potential to enhance the market for gas units or other use limited resources in order to increase the capacity that could be offered into the market to provide additional use to all market participants and for the entities that historically relied on these resources to serve their load to receive appropriate credit in the applicable resource sufficiency tests.

6.1.21 Bid Cost Recovery and Fifteen Minute Market Start-ups

This initiative was added to the catalog by the ISO in July 2020. This potential initiative would explore a narrow change to the bid cost recovery rules for the real-time market. This issue has arisen from market participant questions regarding resource settlement in a specific circumstance. This circumstance is when the fifteen-minute market issues a start-up instruction and energy schedule to a resource and then the next run of the real-time pre-dispatch shuts down the resource. This can occur because the fifteen-minute market is based on the second fifteen-minute interval of each real-time pre-dispatch run, so the real-time pre-dispatch can shut down a fast start resource started in the fifteen-minute market prior to the five-minute real-time dispatch. In this situation, ISO settlements pays the resource for its fifteen-minute market schedule and charges the resource for negative energy imbalances in the five-minute real-time dispatch. The resource will incur a net charge in settlements if five-minute real-time dispatch prices are greater than the fifteen-minute market prices. Bid cost recovery makes the resource whole for this loss for its fifteen-minute market schedule above its minimum load. However, the current settlement rules do not apply bid cost recovery to the energy corresponding to the resource's minimum load because the settlement rules require resources committed by the real-time market to actually start to have their minimum load subject to bid cost recovery. This is

different than the bid cost recovery rules for the day-ahead market, which account for minimum load energy if the real-time market instructs a resource committed by the day-ahead market not to start.

6.1.22 Pumped Storage with Multiple Pumping Levels

This initiative was added to the catalog by the ISO in July 2020 following a request from CDWR. This potential initiative would explore enhancements to the market models to allow pumped storage units to participate using discrete pumping levels, rather than a single on/off or continuous dispatchable pumping level. This capability would allow aggregate pump storage resources with discrete pumping levels to expand their market participation and be dispatched within their operating ranges. CDWR reiterated their support for this initiative in their September 2022 comments.

6.1.23 Use-limited Gas Resource Default Energy Bid

During the stakeholder process for *Local Market Power Mitigation Enhancements 2018*, Nevada Energy expressed use-limited gas resources have opportunities for bilaterally selling energy at different hub locations. The Western Power Trading Forum also expressed the opportunity cost methodology for use-limited gas resources should include daily limitations. Both issues went beyond the scope of the *Local Market Power Mitigation Enhancements 2018* initiative. Consequently, the ISO added these issues to the catalog as part of the February 2019 policy initiative catalog process. *Commitment Cost Enhancements Phase 3* developed a default energy bid opportunity cost methodology for use-limited resources. This initiative would consider whether it is appropriate to account for bilateral energy sales at different hub locations and daily limitations in default energy bids for use-limited gas resources.

In their September 2022 comments, NV Energy, Arizona Public Service, and Salt River Project Agricultural Improvement and Power District expressed support for prioritizing incorporating this initiative into the roadmap. The ISO continues to monitor this topic but has not designated it as a priority at this time.

6.1.24 Multi-Stage Generator Requirements

Silicon Valley Power suggested in the January 2019 policy initiative catalog process that this initiative be added to the catalog. In 2010 the ISO implemented new market rules to accurately model the unique operational and economic parameters of combined cycle generating units and other resources that have multiple operating or regulating ranges that limit the resource to operate in only one of those ranges at any particular point in time. At the time, the ISO was unable to include Metered Subsystems or resources within a Metered Subsystem, Pumped-Storage Hydro Units, and Pumping Loads, and System Resources that are not Dynamic Resource-Specific System Resources from qualifying as Multi-Stage Generating Resources. These resources were excluded because the policy was developed to provide a method for modeling combined cycle units as required by FERC. The ISO was unable to model all resources due to technology restraints. This initiative would explore expanding the ISO's multi-stage resource model and registration process to include the previously exempt resources.

6.1.25 California ISO to Market Participant Relationship Enhancement

Southern California Edison suggested in the July 2018 policy initiative catalog process that this initiative be added to the catalog. Currently, the ISO relies on Scheduling Coordinators to

provide information regarding the physical attributes of resources. While the ISO has Participating Generator Agreements with resources, the ISO does not rely on its relationship with the generator to meet the ISO's requirements. ISO has continued relying on Scheduling Coordinators to provide resource information, which if incorrect is ultimately the responsibility of the generator and places Scheduling Coordinators in an unnecessary intermediary role. This can lead to inefficiencies and costs due to the ISO using unreliable data because it preferred that the Scheduling Coordinator provided data, when in fact the resource owner should have done so. This initiative would explore changing the ISO's Participating Generator Agreement requirement from scheduling coordinators to generators.

6.1.26 Exceptional Dispatch Revenue Treatment in Bid Cost Recovery

This initiative was added to the catalog by the ISO in July 2018 and would examine exceptional dispatch revenues that are currently not included in the daily netting of revenues. Additionally, it would examine costs for both day-ahead and real-time bid cost recovery calculations and determine if these revenues should be considered when offsetting bid costs.

6.1.27 BAA Islanding of Internal Regions

This initiative was added to the catalog by the ISO in July 2018. This initiative will consider if a single balancing area authority (BAA) could island specific regions and continue to operate the market optimization dispatch for each region separately.

6.1.28 Bid Insertion from Short-Term Unit Commitment (STUC)

This initiative was added to the catalog by the ISO in August 2018. Currently, when clean bids are unavailable, the real-time market is unable to re-optimize the system. As a result, the real-time market utilizes advisory interval results from the last market optimization that had clean bids. When the horizon of advisory intervals is exhausted, a market disruption must be called. This initiative will evaluate means to continue to run the market optimization absent clean bids.

6.1.29 WEIM Contingency Price Corrections

This initiative was added to the catalog by the ISO in July 2018. This initiative would examine what prices should be used in the market when the ISO is in contingency dispatch mode (RTCD). Currently, MW prices from the advisory real-time dispatch solution and contingency solution do not match.

6.1.30 Settlement of Non-Conforming Loads in WEIM Balancing Areas

This initiative was added to the catalog by the ISO in July 2018. Currently, the WEIM rules require the non-conforming load responsible party to submit base schedules and updates during the hour to the WEIM market. Non-conforming load is subject to WEIM imbalance charges. WEIM entities' Open Access Transmission Tariffs (OATT) do not allow them to pass imbalance charges through to non-conforming load, which puts a financial risk on WEIM entities. This initiative would explore alternatives to administer non-conforming loads' imbalance charges if load volatility is supported by the WEIM balance area authorities operating reserve during the scheduled operating time of the non-conforming load.

6.1.31 Over/Under Scheduling Load Enhancements

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 WEIM entities deviating from the forecast, the 1% exemption rule when an WEIM entity uses the ISO load forecast, additional situations that exempt an WEIM entity when using the ISO 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 WEIM that did not incur a penalty over the operational day. For example, allocating revenues on an hourly basis to WEIM balancing areas that did not incur a penalty for that hour.

6.1.32 Limiting WEIM Energy Transfer System Resource Transfers

Idaho Power Company suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative would explore limiting the magnitude of inter-interval changes to transfers of power dispatched by the WEIM between WEIM balancing areas. Idaho Power Company states that that large transfer changes between intervals has the potential to cause reliability issues.

6.1.33 Generator Modeling Enhancements

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 ISO 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.

6.1.34 Multi-Day Unit Commitment

This initiative was added to the catalog by the ISO in October 2017 and was based on the *Combined Integrated Forward Market/Residual Unit Commitment with Multi-Day Unit Commitment* initiative listed in last year's catalog. This initiative would evaluate if the day-ahead market should include a multi-day unit commitment. Having the day-ahead market look out two to three days would create more efficient commitment decisions that would better reflect whether resources are expected to run for a single day or multiple days.

6.1.35 Ancillary Services Verification, Compliance Testing, and Auditing

This initiative was added to the catalog by the ISO in October 2017. This initiative would consider revisions to the ISO's program for ancillary services performance audits and compliance tests. Under section 8.9 and 8.10 of its tariff, the ISO conducts both performance audits of how resources with spinning reserve and non-spinning reserve awards respond to contingency dispatches as well as unannounced compliance tests conducted by operations. Pursuant to the ISO's operating procedures, a resource must reach 90 percent of its awarded capacity within 10 minutes to pass a performance audit or compliance test. This initiative would consider changes to the payment rescission rules associated with this program as well as eliminating the issuance

of notices to regulatory authorities when resource adequacy resources do not pass an ancillary services performance audit or compliance test.

Pacific Gas & Electric also suggested in the July 2018 policy initiative catalog process that this initiative be added to the catalog. Under current ISO market rules, if a resource fails two sequential Ancillary Service (AS) tests, the resource is disqualified from providing any of its' qualified amount of AS Reserve Capacity. The current pass/fail testing does not distinguish resources that provided most of the ancillary service reserve capacity (e.g. 88% of the award) from those that completely failed to perform. This initiative would also examine current disqualification rules and consider what level is appropriate for a resource to pass the ancillary service test.

San Diego Gas & Electric also suggested in the May 2021 policy initiative catalog process that this initiative be added to the catalog. This initiative would also consider issuing testing notices through ADS dispatch rather than just a phone call. A phone call creates a delay that has made it difficult to meet certain testing requirements.

6.1.36 Regulation Service Real-Time Energy Make Whole Settlement

This initiative would examine whether rule changes are appropriate for the settlement of real-time imbalance energy when resources are providing regulation. The regulation up and regulation down products allow the ISO to move a resource up or down, respectively, in real-time within a defined capacity range using automatic generator control. The resulting imbalance energy is settled as real-time instructed imbalance energy at the real-time price. NCPA noted the price of this imbalance energy can result in a significant net loss to a resource despite the resource performing as dispatched by the ISO. For example, the ISO market can schedule a resource for downward regulation and then move the unit down in real-time. If the energy price is high, this can result in the resource "buying-back" its energy schedule at a loss.

6.1.37 Fractional Megawatt Regulation Awards

SDG&E proposed in a previous policy initiative catalog process that this initiative be added to the stakeholder initiatives catalog. This initiative would explore the ISO establishing minimum thresholds for regulation awards. SDG&E has observed that certain of its automatic generation capacity capable (AGC-capable) units receive regulation awards of as little as 0.01 MW, which is not only infeasible but also removes otherwise available capacity above the regulation range from the market. An effective solution may be to enable market participants to specify a minimum regulation award quantity.

6.1.38 Multi-Stage Generator Regulation Refinements

This initiative was added to the catalog by the ISO in September 2015. When there is low hydro availability, ISO operations is more dependent on the thermal units on automatic generation control. This requires more realistic regulation modeling for the thermal units. One advantage of the multi-stage generator model is if a plant could provide regulation at different configurations, every configuration could have its own regulation bid price and regulation ramp rate.

6.1.39 Allowing Convergence Bidding at CRR Sub-Load Aggregation Points

WPTF suggested during a previous policy initiative catalog process that this initiative be added to the catalog. Currently convergence bidding does not allow virtual bids at congestion revenue right sub-load aggregation points. WPTF would like the ISO to consider adding congestion revenue right sub-Load Aggregation Points to the available locations for convergence bidding.

6.1.40 Implement Point-to-Point Convergence Bids

DC Energy suggested during a previous policy initiative catalog process that this initiative be added to the catalog. This initiative would examine market rules to allow market participants to bid point-to-point – a source and a sink combined with specified up to congestion price. Point-to-point up-to-congestion bids would clear as long as the specified congestion spread bid is greater than the congestion spread in the day-ahead market. Congestion spread is the difference between the sink and source's locational marginal price in the day-ahead market. A point-to-point up-to-congestion bid will pay the difference of locational marginal price at the sink minus locational marginal price at the source in the day-ahead market and will be paid that difference in the real-time market. These price differences may be positive or negative, determining whether the market participant is paid or has to pay in either market.

6.1.41 Review of Convergence Bidding Uplift Allocation

This initiative would explore a settlement rule to allocate real-time congestion offset costs to convergence bids to the extent convergence bids contribute to these costs. These offset costs can occur when the ISO needs to adjust constraint limits downward in the 15-minute market below levels incorporated in the day-ahead market model. For instance, this occurs due to transmission de-rates or modeling inaccuracies that cause actual flows to exceed the available transmission. This can cause significant real-time imbalance offset costs currently allocated primarily to load-serving entities.

SDG&E suggests the ISO expand on this initiative based on the Department of Market Monitoring (DMM) highlighting the issue of paired virtual supply and virtual demand bids in every Market Issues and Performance Report for at least the last 8 years. As DMM notes, these are likely a means for betting on congestion that the Day Ahead Market is not accurately modeling. SDG&E supports a clawback rule, which could solve for modeling inaccuracies and potentially save ratepayers money. SDG&E understands that ISO wants to solve this issue with better modeling in the Day Ahead Market, but such fixes could be difficult and take a long time to implement. SDG&E recognizes that a clawback rule is not ideal, but it is an interim fix that can get ratepayers effective relief from congestion uplifts until the Day Ahead Market is better positioned to handle the issue. Further, PG&E suggests the ISO expand on this initiative to address real-time imbalance offset costs.

6.1.42 Enhancing Participation of External Resources

This initiative would investigate potential WEIM 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 WEIM 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.

6.1.43 Potential WEIM-wide Transmission Rate

This initiative would develop and design evaluation criteria to assess the merits of alternative transmission service rates for transmission compensation in the WEIM. The ISO would likely consider the following alternatives that were outlined in the WEIM 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[8]

6.1.44 Flow Entitlements for Base / Day-ahead Schedules

This initiative would evaluate adding this functionality if there is a material impact on the constraints within a balancing authority area in the WEIM footprint from other WEIM balancing authority areas or the ISO. Currently, the real-time congestion offset is allocated based solely upon where the constraint is located. This design change would allocate a portion of a balancing authority area's real-time congestion offset to other balancing authority areas in the WEIM in the event that base schedule flows exceed agreed to flow entitlement.

6.1.45 Equitable Sharing of Wheeling Benefits

This initiative would evaluate wheel-through transactions occurring throughout the WEIM area. A wheel through is a transaction in which a WEIM Entity facilitates a transfer without sourcing or sinking energy. When a wheel through occurs, the entity "in the middle" receives no direct financial benefit even though they facilitated the transfer. This initiative will also investigate the need for compensation when net wheeling occurs.

This initiative was originally considered in 2017 but it was determined at the time that all WEIM Entities currently benefit more than they facilitate wheels. Therefore, because all entities receive direct financial benefit from the WEIM (in comparison to net wheeling), an ex-post settlement or hurdle rate to compensate for wheels was not favorable. This item will remain in the catalog and can be revisited if it is prioritized and deemed necessary. Wheeling data will be published quarterly in the WEIM Quarterly Benefits Report.

6.1.46 Third Party Transmission Contribution

The initiative would explore allowing third parties to contribute transmission capacity located between two WEIM Balancing Authority Areas for use in the WEIM. This would increase energy transfer throughout the WEIM 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 ISO agreed to keep this item in the catalog so it can be prioritized at a later date if deemed necessary.

The ISO believes implementation of the third party transmission contribution may address concerns regarding transmission compensation for net wheeling. For example, if a WEIM entity releases available transmission capacity to the WEIM, this may exceed the WEIM transfer in and WEIM transfers out of that Balancing Authority Area needed to meet its own imbalance energy needs. The WEIM entity may be concerned that other market participants are not submitting

[8] The Energy Imbalance Market Draft Final Proposal can be found at: https://www.westerneim.com/Documents/EnergyImbalanceMarket-DraftFinalProposal092313.pdf

hourly base schedules for wheel transactions, but rather waiting for the WEIM 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 WEIM and avoiding the transmission charges. The WEIM entity could modify its open access transmission tariff such that only transmission necessary to meet its own imbalance is release to the WEIM. This now removes the high level of certainty that the wheel transaction will flow in the WEIM. 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 WEIM which would enable the wheel to flow if economic in the WEIM.

6.1.47 Bidding Rules on External WEIM Interties

Currently, the WEIM design allows full discretion to the WEIM entity as to whether real-time economic bidding is allowed on intertie scheduling points with balancing authority areas outside the WEIM footprint. This initiative would determine the calculation of a default energy bid for intertie transactions and other issues to resolve should a WEIM 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 ISO would model economic bids consistently between ISO and WEIM areas.

6.1.48 Hourly Bid Cost Recovery Reform

The ISO implemented market changes in 2014 that separated bid cost recovery calculations and payments between the day-ahead and real-time markets. This initiative would break the bid cost recovery review horizon further in real-time which is in line with the Market Surveillance Committee's opinion on the bid cost recovery rule changes wherein it suggests that "separable decisions" should receive separate bid cost recovery. One possibility is to afford separate bid cost recovery to separate commitments of short-start units in the real-time market.

6.1.49 Inter-Scheduling Coordinator Trade Adjustment Symmetry

NRG suggested in a previous stakeholder initiative catalog process that this initiative be added to the catalog. Currently, market participants engage in an Inter-Scheduling Coordinator Trade (IST) based on a forecast for a variable energy resource (VER). The ISO then updates the VER forecast, if the revised forecast is lower than the amount in the agreed upon IST, the IST is reduced and the Scheduling Coordinator (SC) for the VER is "forced" into a Converted Physical Trade (CPT) for the difference between the previous IST and the new IST. However, if the revised ISO VER forecast is higher than the amount in the IST, the IST is not adjusted. This creates asymmetrical treatment in two ways: (1) by forcing the VER SC into a CPT only where the forecast is lower but never forcing the SC for the VER buyer into a CPT where the forecast is higher, and (2) creating a mechanism in which the amount of the IST can only be reduced, but never increased, by a more accurate forecast. If the ISO VER forecast is unbiased, the IST should be allowed to go up – creating a CPT for the SC buyer – when the T-45 forecast is higher than the IST.

6.1.50 Extending the submission deadline for Real-time Inter-SC trades

Boston Energy Trading and Marketing suggested in the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative would examine a mechanism to allow for inter-scheduling coordinator trades (IST) to reflect bilateral contracts transacted in the real-time. The real-time IST would allow ISO to account for these bilateral contracts between two parties

through the real-time market in its Fifteen Minute Market and Real-Time Dispatch settlements. This would reduce the Scheduling Coordinator (SC) need to perform additional transactions outside of ISO Market while mitigating against potential double settlement both in the organized and bilateral markets. It would also examine extending the inter-SC physical trade submission deadline until some period after the hour is completed or allow Variable Energy Resources to update their inter-SC physical trade MW value some period after the hour is completed.

6.1.51 FMM Block Scheduling of Demand Response Resources

PG&E suggested during the 2017 policy initiative catalog process that this initiative be added to the catalog. This initiative would explore enhancements to Reliability Demand Response Resources through block scheduling to dispatch these resources in the real-time market only in the 15-minute market.

6.1.52 Marginal Loss Surplus Allocation Approaches

Since the start of the ISO's nodal market, the ISO has allocated the marginal loss surplus based on measured demand. This methodology was accepted by FERC in its September 21, 2006 Market Redesign Technology Upgrade order. PG&E previously expressed concerns regarding the accepted methodology and suggested an alternative approach to allocate marginal loss surplus. The ISO agreed to study alternatives and published analyses in April 2007 and October 2010 comparing its current methodology to other proposed alternatives. The April 2007 report found that allocation based on measured demand was within the bounds of alternative methodologies. Using data from the first year of operation after the start of the nodal market, the October 2010 report found that allocation based on measured demand did not lie within the bounds of alternative methodologies. Based on these results, the ISO agreed to perform further analysis using "data covering the period after April 1, 2010, which will further inform the stakeholder process". To re-launch this stakeholder process, the ISO would need to release an update to the October 2010 report.

6.1.53 Multi-Stage Generator Bid Cost Recovery

In 2014, the ISO implemented market design changes resulting from the completed "Renewable Integration Market and Product Review" and "Bid Cost Recovery Mitigation Measures" initiatives that separately calculates bid cost recovery for the day-ahead and real-time markets. For non-multi-stage generators, this is a straightforward calculation that clearly assigns costs to either market. However, multi-stage generators may be committed in different configurations between the day-ahead and real-time markets. This initiative would further refine the allocation of costs between the day-ahead and real-time markets for multi-stage generators committed in different configurations in the two markets.

6.1.54 Integrated Optimal Outage Coordination – Phase 2

This initiative would examine including economic criteria for approving or rejecting planned outage repair requests. In an effort to improve and expedite outage management studies and decisions on system-wide level, the ISO is developing an analysis engine capable of solving the short-term integrated optimal outage coordination. The "Integrated Optimal Outage Coordination" application is intended to provide a comprehensive support for the operation engineers and outage coordination groups in their evaluation and approval process of both transmission and generation outages in an integrated system-wise and optimal manner.

Using the Integrated Optimal Outage Coordination application, the ISO will have the ability to consider physical characteristics of resources, system and network constraints in addition to the constraints associated with independent and dependent repairs. The Integrated Optimal Outage Coordination application will provide an optimal outage schedule while ensuring reliable system operation. In the first phase, the resulting outage schedule will be optimal in the sense that it can minimize bid-in costs while taking into account physical constraints of generating and transmission assets and maintaining power system reliability requirements.

6.1.55 Rescheduled Outages

Currently, section 9.3.7 of the ISO tariff describes the process by which the ISO may cancel or change an approved maintenance outage if it is "required to secure the efficient use and reliable operation of the ISO-Controlled Grid." Section 9.3.7.3 describes what compensation will be paid to a participating transmission owner or participating generator as the result of the cancellation of an approved maintenance outage. Stakeholders have indicated that they believe this may not adequately consider their situations and would like to re-examine these rules to ensure that they result in the most efficient operation of the grid and their resources and ensure fair compensation.

6.1.56 Aggregated Pumps and Pumped Storage

This initiative would include enhancements to participating load that would improve participating load's ability to participate more fully in the market. Since the implementation of the ISO's nodal market in 2009, participating load's functionality has been limited to providing non-spinning reserves. State Water Project recommends that the ISO conduct a study on what improvements could be made to participating load functionality that would provide system benefits and conforms to pumping load/pumping storage limitations. For instance, SWP believes that the ability for participating load to bid demand in the real-time market would greatly reduce the current barriers to participating load's participation in wholesale demand response and possibly improve system reliability during over-generation periods. Also, by allowing participating load to change its demand bid in the real-time market, participating load could potentially better respond to ramping needs by shifting demand during critical ramping periods when water conditions permit. CDWR reiterated their support for this initiative in their September 2022 comments.

6.2 Congestion Revenue Rights

This section describes potential enhancements to the ISO's rules and systems related to congestion revenue rights (CRRs), including both short-term (*i.e.*, one-year seasonal and monthly) CRRs, as well as long term CRRs. The ISO allocates CRRs to load serving entities in the ISO balancing area and makes them available to all market participants through auction. Further details are available in the business practice manual for CRRs.

6.2.1 Long-Term Congestion Revenue Rights

This initiative would explore potential long-term CRR products, as well as refinements to the long-term CRR products. These would include some or all of the following items:

- A multi-period optimization algorithm for long-term CRRs. When the ISO performed the initial release of long term CRRs for the period 2008-2017, the simultaneous feasibility test optimization treated the entire 10-year time horizon as a single time period (for each combination of season and time of use period) with respect to network model

assumptions. A multi-period algorithm may result in a more optimal allocation of long term CRRs because it would reflect different assumptions for each year regarding the availability of grid capacity for CRRs, in particular the known expiration of previously released long term CRRs, existing transmission contracts, and converted rights.

- Flexible term lengths of long-term CRRs. FERC's July 6, 2007 Order on CRRs encouraged the ISO to consider future flexibility to allow: (1) long-term CRRs in excess of 10 years: (2) annual CRRs with guaranteed renewal rights up to year 10: or, (3) long term CRRs with terms ranging from 2 to 9 years. FERC notes that any subsequent change in the available term lengths would have to respect the rights of the holders of any outstanding 10-year CRRs. This initiative could modify the annual CRR process to allow market participants in subsequent auctions to submit bids/offers for any remaining months in the current year, as well as any block of months in the current year.

- A long-term CRR auction. The ISO's January 29, 2007 compliance filing on long term CRRs noted that several parties wanted the ISO to implement an auction process for long term CRRs, which the ISO agreed to consider for a future release. FERC's July 6, 2007 order on CRRs encouraged the ISO to initiate a stakeholder process and file tariff language to implement an auction for residual long term CRRs in a future release of the new market. If the ISO and the stakeholders decide to move forward with a long-term CRR auction, the ability to sell CRRs in the auctions would be included in the scope of that effort.

6.2.2 Congestion Revenue Rights Revenue Sufficiency

This initiative would also evaluate various improvements to revenue sufficiency which would include some or all of the following items:

- Improved Requirements for Transmission Outage Submission. DC Energy proposed in a previous catalog process that this initiative be added to the catalog. According to the Outage Management Business Practice Manual, "requests for planned outages of Significant Facilities must be submitted to ISO Outage Coordination at least 30 days prior to the start of the calendar month for which the outage is planned to begin". The "30-day rule" is intended to improve the fidelity of the Monthly CRR network models, however the current construct does not include an incentive mechanism for adhering to the rule. That is, the rule is advisory only and there is no implication for schedules submitted inconsistent with the rule's timeline. Adhering to the rule has numerous important benefits since outages on Significant Facilities significantly impact the amount of CRR network capacity offered and the resultant CRR revenue adequacy. In addition, it promotes the transparency of high impact outages, which can help rationalize CRR clearing prices and foster CRR price convergence.

  DC Energy proposed a similar initiative in the 2017 catalog process, requesting the ISO post information related to CRR modeling on its market participant portal and address advanced notification changes to congestion management, requiring entities to submit transmission outages so they can be included when submitting nomination in the CRR

market model, and expanding the definition of significant entities to possibly include 100kV elements.

- CRR Allocation. In their September 2022 comments, CDWR reiterates their request that the ISO revise the Counter-flow CRR methodology used for allocating CRRs sourced at the trading hubs, as the current methodology is insufficient and contributes to revenue imbalance of the CRR balance account.

6.3 Resource Adequacy

The ISO is working to enhance its resource adequacy policies, processes, and rules that ensure sufficient resources are available to meet the system's capacity and energy needs in the right places and with the right capabilities all hours of the year.

6.3.1 Reform of the Deliverability Assessment Methodology

This initiative was added to the catalog by CalWEA-CESA in 2021. CalWEA, CESA, and Terra-Gen reiterated their support for this initiative in their September 2022 comments. The ISO appreciates the importance of this initiative and is awaiting finalized changes to California Resource Adequacy regulation before proceeding with this initiative. This initiative would explore reforms needed to the deliverability assessment methodology. This stakeholder process would consider whether reformed conditions should be used to determine deliverability for all resources for each of the new "RA time periods" (or "slices of day" as they are termed under the Commission's adopted framework). For each slice, the assessment methodology should reflect the expected net peak load in that time period. The rarest and most constrained system operating conditions could be considered for the more critical slices of day (the ones with higher net load) for a planning year. The ISO can advise the CPUC to raise the PRM raised if deemed necessary for such critical slices of day to ensure that there are sufficient RA resources on the system.

This initiative would also explore reforms for the process of granting resources local RA credit. Currently, a resource located in a Local Reliability Constrained Area (LCRA) is required to qualify as a system RA resource before it is qualified to provide local RA capacity. Qualifying as a system RA resource could require transmission upgrades to deliver energy from, for example, a battery project in SCE's Los Angeles Basin LCRA to PG&E's Bay Area LCRA, preventing it from providing local RA capacity in the Los Angeles LCRA. ISO and stakeholders should consider whether to eliminate the system-RA requirement for resources providing local RA capacity.

6.3.2 Resource Adequacy Enhancements

This initiative was added to the catalog by CDWR in 2021. This initiative would address the following:

1. Local RA obligations should be capped based on a LSE's load in the specific TAC area and not on the System wide load. Local RA capping at a LSE's system RA requirement causes an unfair requirement for LSEs with load in multiple TAC areas, both in the monthly and annual showings.

2. Negative or down load ramps (SWP dropping pumps) should be rewarded or counted as zero for LSEs offering their load to help counter system ramping needs. Allocation formula(s) for flexible capacity due to load ramp (ΔL) need to be revised to only count positive load ramps, in allocating flexible RA obligations, thus reflecting appropriate causation.

6.3.3 Multi-Year Resource Adequacy

This initiative was added to the catalog by the ISO in July 2019 as a placeholder to address changes needed in the ISO's resource adequacy provisions to accommodate multi-year resource adequacy program and its potential application to ISO market participants as necessary and appropriate.