Stakeholder:	Question/request:	ISO Response:
APS	Requests further information in regards to the changes for accounting for regulation up and regulation down energy in EIM. Perhaps developing a numerical example to illustrate the issue would help explain the problem. In addition to an example, can CAISO describe how uninstructed imbalance as a result of imperfect market solutions is handled when regulation resources are moved to follow ACE in EIM today.	Additional information on the calculation of regulation energy is included the BPM-CG PC Real Time Energy Quantity. A link was provided in the revised straw proposal in footnote 24. Today, assume a resource is providing regulation up and has a 100MW dispatch operating point for the 5-minute real-time dispatch. In response to the BAA's regulation signal the resource at the start of the interval increases its output to 120MW for 2 minutes and then returns to 100MW for the balance of the hour. Assuming the resource exactly follows in DOT and regulation signal, the resource will generate 0.667 MWh above its DOT. This will be classified as uninstructed imbalance energy settled at the 5-minute real-time dispatch price unless a manual dispatch is communicated.
BPA	Base schedules: Will the shift to 15-minute base schedules result in a change in the submission deadline/timing of base schedules?	No. The submission timeline for base schedules is based upon the start time for the first binding interval 15-minute market run which commences 37.5 minutes prior to the start of the operating hour.
BPA	Optimization: BPA asks that the CAISO provide an overview of how the CAISO will optimize energy purchases to meet imbalance reserve product needs, ancillary services requirements and awarding energy in the day-ahead market. BPA also seeks to understand how the CAISO will reflect use of the Flexible Ramping Product in the Real Time Market when making these purchases.	The ISO has updated Appendix C and included an illustrative excel solver of the market optimization. The ISO has also updated the settlement example showing how IR and FRP are settled.

CDWR	CDWR requests that CAISO allow pumping loads (both participating load and non-participating load) and hydroelectric generators to submit 15-minute self-schedules in the day-ahead market. This will allow CDWR to more accurately communicate its load and generation profile to CAISO which will allow the CAISO to more accurately determine its ramping needs.	Only non-participating load / variable energy resources which schedule based upon a forecast can submit 15-minute self-schedules that vary by 15-minute interval. CDWR should self-schedule their load and/or generation if an hourly block schedule is desired. CDWR could also schedule load as an hourly block and then economically bid generation allowing for different 15-minute schedules. Lastly, CDWR could economically bid both the load and generation. In the real-time market, CDWR can self-schedule their day-ahead awards even if the 15-minute day-ahead schedules are different for each interval.
IEP	**Resource Certification/Eligibility.** The CAISO has determined that it is not necessary to have a certification process for Imbalance Reserve resources. Rather, the resources ramp-rate associated with providing energy will determine the eligible quantity of imbalance reserve that can be awarded. (p. 22). • Please describe in greater detail the certification process (referenced on p. 22). • Please describe in greater detail the Sufficiency Test (referenced on p. 23, 31). • How is the Sufficiency Test different than the current process used to certify resources to provide AS products/services?	Currently the ISO certifies resources to provide ancillary services. See Appendix K of the ISO tariff. The resource sufficiency evaluation is a design feature of the EIM to ensure BAAs in the EIM do not inappropriately lean on other BAAs for flexibility, capacity or transmission. Sufficiency test is part of EIM. AS certification is Appendix K.
IEP	**Deliverability.** Recognizing the that CAISO plans to address deliverability in detail in the next paper, please address the following as well: • Will all merchant generators physically located in the EIM footprint have comparable access to the imbalance reserve market?	These comments seem to conflate changes that are needed as part of the DAM enhancements (this initiative) and extending the DAM market to EIM entities (a follow on initiative). The following answers address DAM enhancements

	• What will merchant generators located in the EIM footprint need to show in order to prove deliverability?	without having EIM extended to the day-ahead market. Imbalance reserves can be awarded to imports/exports (external resources) regardless of the source/sink BAAs participation in EIM. In the real-time market, an intertie must tag a transmission profile prior to T-40 to cover the imbalance reserve award. If the tag is not available, the resource's bid curve cannot be supported because of insufficient external transmission and the imbalance reserve will be bought back at the FMM flexible ramping product price.
IEP	**Maximum Import Capability (MIC).** A Load-serving Entity (LSE) using an EIM resource for flexible capacity must demonstrate sufficient Maximum Import Capacity (MIC). A "Purely External Resource" also must demonstrate that it has sufficient MIC. • Must resources located in the EIM footprint (e.g. "merchant generators") bidding directly into the Imbalance Reserve market also demonstrate sufficient MIC? • Can merchant generators located in the EIM footprint obtain MIC allocations or, alternatively, are MICs allocated solely to LSEs and/or BAAs?	MIC is applicable for monthly ISO resource adequacy showing by ISO load serving entities. There is no MIC required for bidding energy or imbalance reserves at intertie scheduling points into the day-ahead or real-time market. No.
IEP	**CAISO Dispatch Control.** • What is the definition of a resource (p. 23) scheduled in the Imbalance Reserve market? Is a resource unit-contingent, a "pool" of specified resources, or system power? • If deliverability is determine via allocation of the MIC, how will the CAISO have direct dispatch control over specific units as it would for Dynamically Scheduled resources?	Resource is any generator, import or export. There is no sub-distinction needed for intertie transactions. MIC is irrelevant. Deliverability is based upon having an e-Tag with a transmission profile that is sufficient to support the resource's day-ahead energy schedule and imbalance reserve awards.

IEP	**Coordination between CAISO Imbalance Reserve market and CPUC Resource Adequacy (RA) program.** • Are changes in the CPUC RA program a pre-condition for changes in the CPUC Tariff? For example, the CAISO indicates that unless RA resources obtain a day-ahead schedule, an ancillary service, or an imbalance reserve award, the RA resource will no longer have a real-time must-offer obligation (MOO). (p. 25). • Will CAISO "control" over RA resources procured by load-serving entities (LSEs) under the jurisdiction of the CPUC differ from the CAISO control over resources selected in the Imbalance Reserve market? If so, how?	The ISO's FRACMOO2 initiative is recommending updates to the flexibility RA requirements consistent with the introduction of an imbalance reserve in the day-ahead market. While changes are not a pre-condition of the proposed market design changes, the ISO is seeking strong coordination between the RA program and ISO market for flexibility needs to address uncertainty. There is no concept of "control" over resources based upon the forward contracting for resource adequacy. The resource adequacy program ensures that there are sufficient resource procured on a forward basis to enable the ISO to utilize its day-ahead and real-time market optimization to reliability manage the grid.
IEP	**Merchant Generator Access to CAISO DA Imbalance Reserve market** • Can merchant generators external to the CAISO BAA participate in the Imbalance Reserve market without forming a BAA or joining a BAA? If not, why not? • Can merchant generators external to the CAISO BAA form their own BAA? If so, can these entities join the EIM? If not, why not?	Yes. This question is irrelevant to whether a scheduling coordinator can bid an import/export at an ISO intertie scheduling point and be awarded energy or imbalance reserves.
IEP	**Size of Imbalance Reserve Market.** • What is the gross amount of capacity expected to bid cleared through the Imbalance Reserve market? • What is the gross amount of capacity that could be supplied by resources located in the EIM footprint given existing transfer capability between EIM Participants and the CAISO?	The ISO has provided analysis of historical imbalances between IFM and FMM. This question is not relevant until discussion of extending the day-ahead market to EIM entities which will occur in a subsequent initiative.

NRG	**Performance evaluation:** • How do you develop an equitable and effective minimum performance threshold? • What happens if a resource that an LSE is counting on to satisfy its flexibility requirements (however that may be defined) is disqualified from providing IR?	Since the ISO is now proposing to settle imbalance reserve deviations with the flexible ramping product, we are not proposing any performance thresholds or penalties. If a resource is unable to meet its imbalance reserve award in the 15-minute market, the resource will be charged the 15-minute FRP price for the unavailable imbalance reserves.
NRG	**Deliverability:** • How the CAISO will ensure the deliverability of all CAISO-procured day-ahead and real-time capacity products – its ancillary service products, IR, FRP, perhaps even corrective capacity – is a topic that should be explored across all these products, not just for IR. For that reason, it would seem reasonable to consider deliverability in a broader initiative, not just in DA Enhancements.	The ISO has proposed to improve deliverability by enforcing sub-regional constraints within the ISO BAA. The ISO will distribute the total requirement to sub-regions (TAC). The constraint will ensure that resources within a sub-region cannot be awarded more IRU (IRD) than the sub-region requirement plus the transfer capability out (in) of the sub-regions. This will ensure that awards are at least deliverable between sub-regions. The ISO also proposes to use the same sub-region approach to ensure deliverability of FRP in the real-time market. Including AS or additional deliverability measures will need to be considered through the roadmap process.
NRG	**Re-Optimizing AS Between the DA and FMM markets:** While NRG is not opposed to further considering re-optimizing DA AS procurement in the FMM (page 30), NRG is concerned about how such re-optimization would be implemented. • Would the CAISO *force* buy-back of DA products?	The re-optimization of AS is not a forced buy back. If based upon real-time energy bids, it is more economic for the resource to be scheduled for energy than retain its day-ahead AS schedule, then the resource benefits from being paid for incremental energy and buying back its AS position at the real-time price.

	• Would it do so only when the market participant could earn a higher payment from providing a different product in the real-time market? On page 30, where the CAISO says "Thus, the need for economic bids for all ancillary services may not be needed." Does that imply that the CAISO would re-optimize the procurement of AS in real-time after throwing away a market participant's AS capacity bid? If so, NRG would oppose that.	The capacity bid in the day-ahead market is to reflect the costs of being available for dispatch in the real-time market: imbalance reserves via FMM or RTD and contingency reserves (spin and non-spin) via RTCD. Once imbalance reserves and contingency reserves are available in real-time, the ISO is not aware of any additional cost besides the opportunity cost of not being scheduled for energy. In the day-ahead market, the clearing price for IR and AS includes the bid cost (cost of being available for real-time dispatch) and energy opportunity cost. In the real-time market, the clearing price for IR (FRP) and contingency reserves would not include the cost to be available in the real-time. If a resource buys back in real-time, it will still receive the compensation for the cost of being available to the real-time market as this cost will not be reflect in the real-time clearing price. The ISO in not proposing eliminated real-time bids for regulation up and regulation down as there is potential cost since regulation energy is settled at the RTD price.
ORA	**Clarify Difference Between Fifteen-minute and Five-minute Requirements** CAISO should clarify what it means by "product" and explain how the sub-regional requirement, which will lead to procurement of only five-minute imbalance reserves, does not create a de-facto "product." CAISO's explanation should also address why it proposes a five-minute flexible resource adequacy (RA) capacity product in the Flexible Resource Adequacy Criteria and Must	The ISO day-ahead market will have an imbalance reserve requirement in the day-ahead market. The ISO will have a regional requirement equal to the total requirement. The ISO will also distribute the total requirement to sub-regions within the BAA which include only internal resources. The ISO currently plans to leverage the existing TAC zones. The VEA TAC may be combined with another TAC if it is

	Offer Obligations 2 (FRACMOO2) stakeholder initiative while stating that it is not proposing a "product" for five-minute resources in this initiative. CAISO should also define "regions" and "sub-regions" and provide the basis for the definitions so stakeholders can understand the impact of CAISO's proposal.	determined there is insufficient competitive supply in that TAC. The ISO will also have a regional (BAA) requirement which includes intertie scheduling points as available supply. The total imbalance reserve requirement is based upon the potential imbalance energy that can be resolved in FMM and the FMM FRP requirement. The FMM FRP requirement can only be met by resources that can be dispatched in the 5-minute RTD. The ISO will distribute the FMM FRP requirement portion of the IR requirement to sub-regions that only include internal generation. This ensures that in the day-ahead market that sufficient 5-minute dispatchable resources are awarded imbalance reserves. FRACMOO2 ensures that through the resource adequacy program sufficient resources with the correct operational characteristics are procured. Since a portion of the imbalance reserve requirement can be met by resources that can be scheduled only in FMM (the potential FMM imbalance) and a portion can only be met by 5-minute dispatchable resources (FMM FRP uncertainty requirement). As a result, FRAMOO2 has a 15-minute requirement and a 5-minute requirement.
ORA	Address Impact of Bidding Requirements that Differ from Current Contracts If RA resources offer a non-zero bid for imbalance reserves and are dispatched, they could earn a double payment from providing imbalance reserves and the existing RA capacity costs.	The ISO is proposing to have a transition period where RA resources will bid a zero capacity price for imbalance reserves. This transition period will last until the day-ahead market is extended to the EIM entities or the end of 2020 whichever is sooner.

	Eliminating the obligation for these RA resources to bid into the real-time market for potential dispatch means ratepayers would pay for services the resources would no longer be obligated to provide. CAISO should provide an explanation for their proposal and address the issue of excess ratepayer costs.	
PAC	PacifiCorp would like further clarification on how the imbalance reserve product would be awarded and optimized based on the bids that are submitted, e.g. both capacity and energy bid, capacity bid only. If the award takes into consideration an energy bid, is there a requirement to bid the same energy bid in the real-time market that was provided in the IFM?	The ISO has updated Appendix C. The potential energy bid that will be submitted in the real-time market is not considered when awarding imbalance reserves. For example, assume two resources with the same bid price and there is no opportunity cost of providing energy in the day-ahead market. The optimization cannot differentiate between a resource with a high energy bid relative to a resource with a low energy bid when determining the imbalance reserve award. The ISO is not proposing that energy bids remain unchanged between day-ahead and real-time.
PAC	PacifiCorp is unclear on the transmission requirements for an imbalance reserve product award in the IFM. For example, if a provider outside of the ISO footprint is awarded imbalance reserves, is there a requirement to provide an e-tag on a day-ahead basis for firm transmission to facilitate the must-offer energy bids in the real-time market? • Would it be possible for EIM entities to submit imbalance reserve bids into the day-ahead market and utilize EIM available transmission to facilitate the energy bid in the real-time market? PacifiCorp supports the need for day-ahead firm transmission requirements for the imbalance reserve product for all entities, regardless of their EIM participation.	If an intertie resource is awarded imbalance reserves, it must submit an e-Tag prior to the start of the real-time market with a transmission profile that covers the bid range necessary to meet its imbalance reserve award. This e-Tag must be submitted prior to the start of the market run for the first 15-minute binding interval of the operating hour. This is at least 40 minutes prior to the operating hour. Until the DAM is extending to EIM entities, an EIM entity would be participating as an intertie system resource of the ISO. The transmission

	• Is there a possibility of double-counting the flexible capacity of the ISO and the EIM entity since there is only an energy bid requirement in the real-time market?	needed to provide real-time bids to the ISO could not be used as and ETSR and would be dedicated to meeting the imbalance reserve award. The system resource will have a corresponding auto-mirror resources for the EIM entity BAA. To address double counting, the imbalance reserve awarded to a system resource will reduce the ISO flexibility requirement and increase the requirement of the mirror resource EIM BAA.
PAC	PacifiCorp is unclear why a California load serving entity would not be allowed to self-supply for its imbalance reserve requirements. PacifiCorp requests that the ISO provide additional information on why it is reasonable to be able to self-supply ancillary services, but not imbalance reserves? Please provide additional information on the specific concerns the ISO has in allowing self-supply of imbalance reserves.	If a resource is allowed to self-schedule imbalance reserves this has the effect of not making energy available to be scheduled. The market optimization should determine if it is more economic to schedule the resource for energy or imbalance reserves.
PG&E	PG&E asks the CAISO to consider measuring the performance of Imbalance Reserve Product, as it is takes the place of RA Real-Time Must Offer Obligations, as based on energy delivery instead of, or in addition to, bids. Energy delivery performance can be linked to disqualification or can lead to no pay provisions. The CAISO should outline the full spectrum of options for penalty structures in its next draft proposal (more details on pages 2 & 3 of comments)	The ISO is no longer proposing to eliminate the RT MOO for RA resources if the resource is not awarded imbalance reserves. The ISO is proposing to settle imbalance reserve deviations at the FMM FRP price. If there is no imbalance reserve deviation, the resource is still subject to FRP non-performance review. The ISO is not proposing any additional penalties at this time.
PG&E	Tiered penalty prices for the Imbalance Reserve Product may impact the existing Flexible Ramping Product design as well as other existing capacity-based ancillary service products. PG&E asks the CAISO to discuss these potential impacts in future proposals.	The ISO is proposing to use a demand curve to procure imbalance reserves (DA FRP). This will be consistent with the real-time FRP uncertainty awards cleared using a demand curve.

PG&E	Clarify whether the LMPs for physical supply, virtual supply, virtual demands, bid-in load, and CAISO forecast at the same location are the same or different.	The LMPs will be the same. Physical supply will receive compensation at the imbalance reserve / flexible ramping product price based on its energy schedule/dispatch plus uncertainty award.
PG&E	Further explain if and how bid-in load is accounted for in the imbalance reserves requirements. PG&E would also benefit from seeing settlement examples where supply resources, either physical or virtual, bid a negative MW output.	The imbalance reserve requirement is set independent of the bid in load. However since both bid in load and imbalance reserves are co-optimized, the imbalance reserve awards are influenced by where bid in load clears against physical supply and virtual bids. The ISO has provided an excel solver.
PG&E	PG&E would appreciate an initial assessment of how these LMP differences may impact bidding behavior.	The ISO is proposing to keep the LMPs the same to address concerns about changes in bidding behavior.
PG&E	Explain how the different prices would be addressed under the CAISO revenue neutrality requirements. Discuss the allocation of any uplifts resulting from revenue neutrality requirements.	See the settlement example spreadsheet. The ISO proposes to allocate any scheduled movement from imbalance reserve/flexible ramping product costs to metered demand. It should be noted that the current FRP design allocates forecasted movement to measured demand. Under the imbalance reserve design, forecasted movement is no longer settled with resources.
PG&E	PG&E suggests the CAISO explore incorporating the effects of deploying Imbalance Reserves and Day Ahead energy schedules on transmission usage within the DA optimization.	The ISO has proposed to enforce sub-regional constraints that limit the IRU (IRD) awards to resources in a sub-region to the sub-region requirement and the transfer capability out (in) of the sub-region.

PG&E	Create examples of settlement of Imbalance Reserves to sufficiently describe the impact of real-time buy back of reserve awards.	The ISO has updated the settlement example spreadsheet.
PG&E	Explain the process to allow 15-minute Interval load and variable energy resources (VERs) bidding in the Day Ahead Market.	The ISO has provided an illustration of load shaping in the 6/19 workshop presentation. The shaping of VERs is the same as is done currently in the real-time market using either the ISO forecast or the SC forecast.
PGE	The ISO should share more information on the technical challenges associated with processing 15-minute bidding granularity in the day-ahead market, and explain the cost-benefit calculus behind their decision to only support hourly bidding in the straw proposal	The ISO does not believe generation costs change every 15-minutes.
PGE	The ISO should share technical analysis that shows it is sufficiently capable of accurately forecasting 15-min variable supply and demand in the day-ahead timeframe to reduce average uncertainty error as compared to current practices.	The ISO is proposing a modification to the requirement calculation of FRP which considers the forecasted level of load, wind and solar.
PGE	The ISO should work with stakeholders, including the Department of Market Monitoring, to identify additional drivers of net-load ramping and imbalance management challenges related to the existing day-ahead and intra-day market processes that could be addressed through this initiative.	Please provide more specific areas that the ISO could consider.
PGE	The ISO should consider requiring day-ahead awards for energy or capacity sourced from outside the ISO's BAA (e.g., intertie awards) to be tagged day-ahead, or alternatively in the short-term unit commitment window	Intertie resources must have a transmission profile that supports their bid range prior to the start of the operating hour. The market optimization enforces a constraint that the energy schedule and FRP schedules cannot exceed the transmission profile on the e-Tag.

PGE	PGE supports the ISO's proposal to transition the EIM base-scheduling process and existing Resource Sufficiency test to a 15-minute basis. PGE also supports the process changes related to settlement of regulation up and regulation down energy, and appreciates the ISO's effort to batch this enhancement with the DAM-E initiative to facilitate near-term implementation.	Thanks
PGE	It is reasonable for the ISO to require a forward showing of physical supply contracts and a firm transmission path to the ISO's interties for external resources supporting an Imbalance Reserve award. PGE is open to discussing whether this should be required within a certain number of hours following the day-ahead market settling, or a certain number of hours prior to the corresponding operating hour(s) for the reward. PGE believes it is reasonable to expect that some level of resource and/or transmission substitution be allowed prior to the real-time market run, and for aggregated system resources to provide the resource backing for the award, so long as a firm commitment to physically deliver is upheld.	The ISO currently requires that 15-minute intertie bids that wish to be scheduled in the FMM have an approved e-Tag with a transmission profile that supports the bid range of the import/export. If an intertie resource receives an imbalance reserve award it must procure transmission to support the real-time must offer obligation. Otherwise, inability to meet imbalance reserve award will result in an imbalance that is charged the FMM FRP price. The ISO is not planning to submit substitution of imbalance reserves between the day-ahead market and real-time market. The resettlement of imbalance reserves with the FRP replaces the need for the ISO to support additional functionality around substitution.
PGE	PGE is concerned that there may be limited ability or standing for E-DAM stakeholders to influence market-design enhancements that may or may not apply to them and may or may not fall within the same governing body oversight classifications in the future.	This concern is unwarranted. The ISO's market design process is open to all current or future market participants and all other stakeholders. The ISO values and incorporates productive input to improve the overall market design. In addition, the EIM Governing Body will have primary authority over some elements of this initiatives proposal and since many elements will be relevant to the extended (or regional) day-ahead market it is staff's expectation that the EIM Governing Body will fully utilize their

		advisory role of the other elements of this proposal.
PGE	PGE understands the ISO is considering attaching a market enhancement to this DAM-E initiative that would allow for the use of a probabilistic variable energy resource forecast when establishing flexible ramp sufficiency requirements. PGE expects this enhancement would significantly improve the accuracy and predictability of the flexible ramp sufficiency test calculation by accounting for the expected directional exposure to incremental or decremental ramping events. PGE strongly supports this effort and requests the ISO consider whether this process enhancement could be implemented near-term, in advance of the DAM-E implementation timeline.	The ISO has discussed approaches to calculating the imbalance reserve requirement. The requirement is set to address the uncertainty between the day-ahead market and FMM and meet the FMM FRP uncertainty requirement. Since the ISO is proposing to resettle imbalance reserves with FRP, it is would be appropriate to use similar methods for calculating the FRP uncertainty requirement which is an input into the EIM hourly resources sufficiency test. Modification to the calculation of FRP requirements does not require tariff changes, but rather requires a BPM change. The ISO has not committed to a specific date at which the requirement calculations could be modified.
PGP	Clarify the differences between the imbalance reserve product and the current Residual Unit Commitment (RUC) capacity that warrant the ability for RA resources to submit non-zero bids into the day-ahead market.	Imbalance reserves ensure sufficient ramping capability to meet upward and downward uncertainty of the ISO reliability forecast between IFM and FMM. RUC only addresses shortfalls between cleared bid in demand and the ISO reliability forecast. The non-zero bid is to reflect different marginal costs for resources to be available for real-time dispatch. To the extent there is no marginal cost, the resource should be zero. The ISO is proposing a transition period that will require RA resources to bid zero for imbalance reserves.
PGP	Provide additional information regarding the magnitude and frequency of imports that do not tag their IFM schedules and	The ISO will address intertie scheduling deviations in a separate initiative.

	information on how CAISO will calculate how much upward imbalance reserves will be procured to account for untagged imports. PGP continues to recommend the ISO require imports to tag their IFM schedule instead of procuring upward imbalance reserves to resolve potential upward imbalance resulting from untagged IFM import schedules.	
PGP	PGP requests CAISO affirm that downward imbalance reserve awards to resources outside the CAISO BAA would not be subject to TAC and uplift charges.	An import must be awarded a day-ahead energy schedule in order to be awarded downward imbalance reserves. If in FMM the import schedule is reduced because the downward imbalance reserve has been converted to decremental energy, just as today, there will not be an allocation of measured demand charges. An export does not need to be awarded a day-ahead energy schedule to be awarded downward imbalance reserves. If in FMM the export schedule in increased because the downward imbalance reserve has been converted to decremental energy, just as today, there will be an allocation of measured demand charges. The measured demand costs should be reflect in the export's energy bid. If in FMM the export schedule is reduced because the upward imbalance reserve has been converted to energy, this will reduce measured demand charges. Measured demand charges are based upon the final export energy schedule.
PGP	PGP requests clarification about why CAISO has proposed no self-provision of imbalance reserves. Clarify whether there will be	If a resource is allowed to self-schedule imbalance reserves this has the effect of not making energy available to be scheduled. The

	no self-provision of imbalance reserves for EIM Entities if the day-ahead market is extended to EIM Entities.	market optimization should determine if it is more economic to schedule the resource for energy or imbalance reserves. For these same reasons, no self-provision will be allowed when the day-ahead market is extended to EIM entities.
PGP	Clarify why ISO believes the penalty for non-performance of imbalance reserves should warrant a less severe penalty than non-performance of ancillary services. Consider disqualifying a resource from bidding to provide the day-ahead imbalance reserve product for a defined period going forward, if the resource persistently fails to perform when called upon.	The ISO has modified the proposal and will settle imbalance reserves with the flexible ramping product. In addition, the ISO is now proposing to re-optimize ancillary services in FMM. The non-availability provisions of both FRP and AS will be evaluated. With non-availability applied to the lowest quality reserve first.
PGP	PGP requests CAISO consider an approach for back testing its imbalance reserve requirement and that the data and analysis be made transparent and discussed with stakeholders as part of a re-occurring CAISO forum.	The imbalance reserve requirement and the flexible ramping product requirement will be documented in the business practice manual. The ISO will evaluate if there are additional metrics which can be included in the bi-monthly Market Performance and Planning Forum to monitor uncertainty requirements.
PGP	Consider changes to the enforcement of resource sufficiency that do not enable the ability for one entity to lean on another. PGP also requests CAISO consider moving the discussion of changes to the resource sufficiency test to a specific stakeholder process on resource sufficiency where the resource sufficiency evaluation can be examined more holistically, rather than make incremental changes to the resource sufficiency framework through the Day-ahead Market Enhancements initiative	The ISO believes that the changes necessary to align with movement to 15-minute base schedules remain in this initiative. Any other changes to the EIM resource sufficiency evaluation will be considered in a separate initiative.
Powerex	Powerex recommends that CAISO revise the bidding design of the imbalance reserve product to enable participants to specify	The ISO proposes to add a Masterfile flag that allows an intertie system resource to specify if

	the price and quantity of this product separately from the price and quantity of offers for energy. Appropriate constraints will need to be defined to ensure the combined awards of energy and imbalance reserve do not exceed the capability of a resource.	the resource can be awarded imbalance reserves ~~The ISO has modified the bidding design. All resources can submit a bid quantity between zero and the resources 15-minute ramp capability.~~
Powerex	The Revised Straw Proposal also identifies "imports that don't tag their IFM schedule" as a use of imbalance reserves. Powerex strongly disagrees with this use, and urges CAISO to revisit how it views the relationship between non-delivered imports and imbalance reserve.	The ISO will clarify that intent is of the imbalance reserve is to cover uncertainty in the ISO reliability forecast which is load adjusted for VER forecast differences. The ISO is addressing in a separate initiative measures to address financial determinations not to deliver a day-ahead import. The ISO does believe that allocating FRP costs to undelivered imports/exports is appropriate and will provide additional incentives to deliver day-ahead awards.
Powerex	Provide additional clarification regarding CRR clawback rule. Specify which of the four day-ahead prices (or a combination of those prices) establishes the maximum offer price for re-bidding imports into the real-time market under the CRR clawback rule, given that real-time offers will still be required to submit a single bid curve for the entire hour.	The CRR clawback will be evaluated by comparing 15-minute CRR holdings with 15-minute virtual awards. Thus the price used is the day-ahead 15-minute interval price and the real-time price is the corresponding FMM interval price.
Powerex	Powerex requests that CAISO clarify that resources providing Flexible RA will be required to offer imbalance reserve at a price of $0/MWh in the day-ahead market, with any day-ahead compensation for imbalance reserves being attributed to the entity that has purchased the Flexible RA capacity from the resource.	The ISO is proposing a transition period until the end of 2020 or EDAM implementation where RA resources will be $0.00 for DA FRP. The compensation for the DA FRP also includes the marginal opportunity cost of a resources be dispatched out of merit to meet the uncertainty requirement. Since RA resources will be bidding $0.00 for capacity during the transition period, opportunity costs will drive the DA FRP price. The ISO does not believe it is appropriate

		to settle the energy opportunity cost is someone other than the SC of the resource.
Powerex	As recently discussed at the April 30 EIM Offer Rules workshop, Powerex has identified several specific gaps in the existing EIM Resource Sufficiency framework that are preventing the existing tests from functioning effectively and from being applied in a consistent manner to all EIM Entities and the CAISO BAA. Powerex believes it is imperative that the issues raised at the April 30th workshop be thoroughly evaluated in a separate stakeholder process, in conjunction with enhancements to the EIM Resource Sufficiency framework.	The ISO believes that corresponding changes EIM because of 15-minute granularity should remain in this initiative. Additional changes to the EIM resource sufficiency test as a result of the workshop will need to be considered in a separate initiative.
PSE	Provide clarification of how the imbalance reserve product impacts/interacts with other elements of the real time market (e.g., the flexible ramping product, Energy Imbalance Market (EIM) resource sufficiency test, etc.)	The ISO has proposed to settle imbalance reserve deviations at the FMM FRP price. For the ISO, the imbalance reserve awards are required to bid into the real-time market. Since the ISO has procured this bid range in the day-ahead market, the ISO believes that it will rarely fail the EIM resource sufficiency evaluation. As part of FRACMOO2, the ISO is establishing the rules that allow resources within an EIM entity BAA to offer into the resource adequacy program. The ISO will have rules that ensure that the real-time bid range from ISO imbalance reserve awards correctly are attributed to the ISO.
PSE	Explanation of what CAISO sees as the trade-offs between the different options on which CAISO has requested feedback, e.g., the imbalance reserve penalty price, the performance evaluation of imbalance reserve resources, and the additional design considerations in Section 3.6 of the proposal.	Since the imbalance reserves have become the DA flexible ramping product, the proposal is to use a FRP demand curve in DA and the performance evaluation/re-settlement of RT FRP.

PSE	PSE requests that CAISO clarify that the proposal to implement 15-minute base schedules in the EIM is that CAISO will still accept hourly base schedules, but with 15-minute granularity. PSE is concerned that a proposal that would require EIM entities to submit base schedules every 15 minutes would result in an undue administrative burden as it has the potential to significantly increase the amount of time that operators would need to commit to this activity.	Yes. Hourly base schedules can still be submitted by submitting four 15-minute interval base schedules at the same value.
Rainbow	Could CAISO please provide market clearing data on a set of representative days given the current DAM scheduling, in comparison to simulations of the same days using the proposed DAM enhancements? If full CAISO Network Model simulations are not available or feasible, are there simulations on some simplified Network Model which nevertheless captures the essential details? Explain the impact on LMPs in the DAM and the Real-Time Market (RTM) (ex: average prices, the distribution of prices and volatility; extreme prices, etc). Explain the impact on LMPs in the DAM and the Real-Time Market (RTM) (ex: average prices, the distribution of prices and volatility; extreme prices, etc). Explain the changes to net payments or charges in the DAM and RTM. Explain the impact on the clearing of virtual volume (e.g. total volume on demand/supply). How often the proposed imbalance reserve constraints are binding, and the range of values of the shadow prices they imply? Explain the approximate difference between the effects of these new shadow prices and the old bid cost recovery (BCR), especially on virtual bids.	The ISO does not provide such analysis. This would require assumptions in how market bidding behavior may change. The ISO is proposing the design changes in this initiative to evolve the market to support the reliability needs of a changing grid.
Rainbow	Could CAISO please point us to a comparison between full settlements (the breakdown of the final financial settlements into their components) in the current market structure and the proposed one for virtual bids?	There is no change to the energy settlement of virtual bids. Virtual awards settle between their day-ahead LMP and FMM LMP. Similar to the RUC allocation today, net virtual supply will be allocated upward imbalance reserve costs needed to cover shortages in cleared physical

		supply relative to the ISO's reliability forecast. A new cost allocation to net virtual demand will be added to cover the downward imbalance reserve cost when physical supply is cleared above the ISO reliability forecast. No changes are proposed to the allocation of day-ahead BCR to net virtual demand.
SCE	Will the CAISO provide correctly simulated fifteen minute Day Ahead schedules and present the analysis, as assured during the 4/18 meeting?	The ISO does not have day-ahead 15-minute load forecast or VER forecasts. To estimate 15-minute schedules, the ISO drew a line between the midpoint of the day-ahead hourly forecast. Then chose the point on that line which corresponded to the midpoint of each 15-minute interval in the hour. This represented the 15-minute forecast.
SCE	Provide descriptives (such as kurtosis) of the distributions of differences between the status quo and fifteen minute granularity so stakeholders may determine a clear and substantive benefit from fifteen minute scheduling.	The ISO has updated the analysis to provide this additional information.
SCE	Has the CAISO considered that IRP may not be the best tool to meet the CAISO's needs?	Yes. The proposal is now to have DA flexible ramping product.
SCE	Has the CAISO considered the potential impact of the proposal to the consistency between the DAM and RTM?	Yes. It should improve consistency because unit commitment in the real-time market is performed with 15-minute granularity.
SCE	To increase the consistency between the DAM and RTM, for instance, has the CAISO considered using DA procurement of FRP as an alternative to IRP? SCE strongly recommends the CAISO consider such an option given the two key benefits of (a) a seasoned product, and (b) minimal impacts and externalities.	The ISO is proposing to settle imbalance reserve deviations at the FMM FRP price. The proposed changes do make the imbalance reserve product look like a day-ahead FRP.

SCE	Under the CAISO's proposal, do virtual bids make bets against the CAISO model? How does the CAISO address virtual bidding when the virtual is not settling against other market participant decisions but the CAISO's modeling itself?	The ISO has provided additional information on price formation in Appendix C.
SCE	Further, if virtual bids are driving commitment decisions, should they not be allocated BCR?	The ISO has clarified that net virtual demand will be allocated DA BCR. In additional, both net virtual demand and net virtual supply will be considered in the allocation of imbalance reserves to cover differences between cleared physical supply and the ISO reliability forecast.
SCE	What is the empirical system impact, system MW and system dollar cost, of moving from hourly to fifteen minute Day Ahead (with a combined IFM & RUC, or at the least the impact just from hourly → fifteen-minute)?	The day-ahead market enhancements improve market efficiency by ensuring sufficient ramping capability is made available to the real-time market.
SCE	How often is the forecast accurate enough to benefit from the additional granularity?	The day-ahead market enhancements improve market efficiency by ensuring sufficient ramping capability is made available to the real-time market.
SCE	What is the incremental empirical system impact, system MW and system dollar cost, of implementing the imbalance reserve product (IRP) in addition to the hourly → fifteen-minute change?	The day-ahead market enhancements improve market efficiency by ensuring sufficient ramping capability is made available to the real-time market.
SCE	What are the details proposed for procuring the IRP? Specifically, what is the defined uncertainty that needs to be mitigated?	The ISO has provided empirical data on the amount of imbalance observed. The ISO needs sufficient real-time economic bids to address uncertainty between the day-ahead market and the real-time market that can be address by FMM and to cover the FRP requirement in FMM.

SCE	What is the range (specific upper target and specific lower target) of MW to be met, the percent of uncertainty to be met, and the sample of days to be used to determine the need? The CAISO should illustrate using both forecast load and bid-in load. How does the range move over time (different days)? Does the range stay constant or does it vary?	The ISO is proposing to set the requirement based upon the historical uncertainty of load, wind and solar and then scaling the requirement based upon the forecasted levels of load, wind, and solar. The methodology will be presented at the workshop. In additional DA FRP will be procured via a demand curve similar to RT FRP.
SCE	If there is no bid-in load but only a load forecast, what energy schedules come from the market?	There is bid in load.
SCE	How do Virtuals Bids play into securing baseline generation?	Virtuals cannot be awarded imbalance reserves. Virtuals can clear against bid in load and physical supply when determining day-ahead energy awards.
SCE	How do Virtual Bids affect the IRP procurement range?	Virtuals do not affect procurement range, but can affect where the IFM clears which determine how much imbalance reserve up or imbalance reserve down
SCE	What are the details of cooptimizing in DAM with Virtuals given that the existing IFM+RUC process does so sequentially?	See Appendix C which has been updated.
SCE	Will the IRP be solely procured in the DAM with none of it procured in the RTM?	The ISO is proposing to settle imbalance reserves deviations with FMM FRP.
SCE	Will IRP be procured locationally?	No. We will have sub-region requirements to improve deliverability.
SCE	How does this interact with Corrective Capacity?	No different than energy, ancillary services and FRP do today.

SCE	With a more granular locational procurement, would it not be able to substitute for Corrective Capacity?	No.
SCE	Will Corrective Capacity change AS procurement to nodal, rather than zonal? If so, will FRP procurement also become nodal?	No.
SCE	What is the reduction in RT price volatility, frequency, MW, and dollar cost, from each incremental change, first from the forecast error minimization (hourly → fifteen-minute) and then from uncertainty minimization (IRP)?	The day-ahead market enhancements improve market efficiency by ensuring sufficient ramping capability is made available to the real-time market.
SCE	What is the expected impact on DA energy prices, especially on high load/peak days?	The day-ahead market enhancements improve market efficiency by ensuring sufficient ramping capability is made available to the real-time market via.
SCE	Consider the hypothetical scenarios, where the CAISO has a: a. 100% gas resource fleet. b. Substantial amount of storage resources in the fleet. c. Fleet of non-conventional resources that are dispatchable. Does the CAISO need the IRP in any of the above scenarios?	Yes. All.
SCE	How is the procurement range a function of fleet capability?	It isn't.
SCE	How does the DAM optimization procure IRP and co-optimize with Energy, AS, and Corrective Capacity?	See Appendix C which has been updated.
SCE	Does the DAM optimization only consider capacity bids of IRP and ignore the energy costs of the IRP resource?	Similar to AS, the market co-optimizes energy bids for energy and capacity bids for providing capacity. Thus the capacity bid plus opportunity costs from not providing another service determines if a resource is awarded imbalance reserves.

SCE	Will the system end up with a lot of high cost energy bids in the RTM?	No. The real-time must offer obligation remains for flexible and local RA resources.
SCE	Can a resource bid the same portion of its capacity for energy, AS, and IRP?	Resources do not bid portions of their capacity. The operational characteristics of the resource along with its energy, AS and imbalance reserve bids determine which of the commodities it is awarded.
SCE	Does BCR apply to an entire day's procurement of IRP from a resource?	Yes.
SCE	Is the bid cap for IRP proposed at $247? If not, then what is the cap?	Yes by default since we will use the FRP demand curve.
SCE	What is the specific penalty price proposed for IRP?	The ISO is proposing to use the FRP demand curve.
SCE	How does the CAISO account for double-payment for RA capacity by allowing RA resources to bid above $0 for IRP? Are there not existing rules to prevent EIM entities from leaning on RA?	The ISO is proposing a transition period until the end of 2020 or the implementation of EDAM. Yes there are existing rules to address EIM leaning.
SCE	How does IRP interact with Contingency Reserves, Corrective Capacity, AS, and FRP in Real Time?	The imbalance reserve and FRP will be settled as a single product across IFM, FMM and RTD.
SCE	The DAM optimizes to minimize the cost of energy, AS, corrective capacity, and IRP. The RTM continues to minimize the cost of energy, AS, FRP. Therefore, DAM and RTM are not clearing against same categories of bids. How will the CAISO address the structural differences between the DAM and RTM?	The ISO is proposing to settle imbalance reserve deviations at the FMM price. Thus, there is consistence between both the day-ahead market and real-time market.
SCE	Can IRP substitute for every RTM product?	The ISO is proposing to co-optimize all products in the real-time market.

SCE	How are prices set by IRP when it substitutes for RTM products?	Imbalance reserve deviations are settled at the FRP price. The FRP formulation has be modified to align with the imbalance reserve formulation.
SCE	The CAISO proposal would eliminate the RAAIM provisions in RT. It appears that this may be based on the CAISO's ability to either dispatch as energy or imbalance reserves. What will the CAISO expect from a resource that is an RA resource but was not picked up by either the DA energy or imbalance reserve optimization? Will such a resource still have a must offer obligation to the CAISO in RT pursuant to the current RA tariff? If so, what will be the consequences of failing to perform that must offer if RAAIM is not applied in RT?	The ISO is no longer proposing to eliminate the RT MOO for flexible RA resources when the resource does not have an imbalance reserve award. Therefore, no changes to the RAAIM provisions are being proposed.
SCE	FRP is procured based on a demand curve, thus, will the RTM may forego an overall cheaper FRP resource since the DAM has already procured a lower capacity-cost IRP resource?	The optimization will determine which resources it is most economic to schedule/dispatch for energy and which resources to maintain ramping capability to address uncertainty.
SCE	Does IRP face buyback penalties if a resource cannot perform?	Yes. It is subject to imbalance settlement with FRP and the FRP no pay rules. See the settlement spreadsheet.
SCE	How is the non-performing resource replaced? Who gets the bill for the cost of replacement?	The resource would be charge the FMM FRP price if imbalance reserve are unavailable prior to the start of the real-time market.
SCE	Is hourly bidding available for interties?	Yes. Block schedules can be bid by intertie resources
SCE	If the resource is in the money for some intervals but out of the money in others, how will the CAISO deal with this? How would BCR work?	DA BCR is netted over the operating day. RT BCR is netted over the operating day.

SCE	How do the details of cost allocation and settlement work?	The ISO has provided an illustrative settlement model.
SCE	What are the details of cost allocation to Virtual Bids? How is the imbalance reserve deviation price/rate (for Tier 1) calculated?	The ISO has provided an illustrative settlement model.
SCE	Will the CAISO provide a process walkthrough from procurement through cost allocation settlement using simulated DAM bids and RTM bids?	The ISO has provided an illustrative settlement model.
SCE	What resource types are eligible to provide IRP? Can wind and solar resources provide IRP?	All resources that can submit an economic bid are eligible for an imbalance reserve award.
SCE	How will the upper economic limit (UEL) work for bid-in demand? Will setting a UEL prevent additional demand to be purchased for a given interval by capping the bid curve? If so, that would seem to effectively neutralize the bid curve above the UEL.	The ISO has provided an illustration as to how an hourly load bid will be shaped based upon the SC's 15-minute forecast.
SCE	How will unit decommitment work? Will the unit decommitment process consider both peaks and DA awards during its decommitment decisions?	In the day ahead market, unit commitment decisions are made based upon the economics of the entire day.
SCE	Will the 15-minute granularity change for bidding be required (i.e. no hourly block option for internal resources)? If optional, for how long until required?	Internal resources are scheduled economically each 15-minute interval. There is not hourly block option. Only if an internal resource self-schedules will it be awarded the same MW value in each interval.
SCE	How will STUC work with this change? Is there any thought to changing the time horizon for STUC	The ISO has a separate initiative to address STUC horizon.

SCL	Seattle is interested in learning more details about the design, mechanics, and quantity of the sub-regional imbalance reserve requirement and encourages CAISO to expand on this element in its next draft.	The purpose of the sub-region requirement is to distribute the total BAA requirement to improve deliverability and for sub-regions that only include internal resources to meet the portion of the total requirement that needs to be 5-mintue dispatchable (FMM FRP requirement).
SCL	As suggested by stakeholders, explore payment claw-back and disqualification provisions; and, for intertie awards, a day-ahead tagging or resource identification requirement in the next proposal.	The ISO is proposing to settle imbalance reserve deviations at the FMM FRP price. In order for an intertie resource to meet its real-time must offer obligation, there must be an e-Tag with a transmission profile that covers the must offer obligation before the start of the real-time market.
Six Cities	Capacity that is procured in the Day-Ahead Market for imbalance reserves should not be eligible to receive payment for Flexible Ramping Product in the Real-Time Market.	The ISO is proposing to settle imbalance reserve deviations at the FMM FRP price.
Six Cities	Develop a mechanism to allow Real-Time energy bids for imbalance reserve capacity to increase to recover such increases in legitimate costs while preventing gaming.	The scenario outlined in Six Cities comments misconstrues the interaction between interaction between energy bids and imbalance reserve capacity bids. If a resource bids a low energy bid, it is more likely to be scheduled for energy because it will incur an opportunity cost if used for imbalance reserves which will be reflected in the cost of schedule that resource to provide imbalance reserves. Thus a resource with no energy opportunity cost is more likely to be awarded imbalance reserves. The concern expressed is that a resource may use a low imbalance reserve capacity bid to be awarded imbalance reserves and then increase its energy bid in real-time since not all resources will have a real-time must offer obligation. The ISO

		recognizes this to potentially occur however we believe that competitive forces, ie there isn't a requirement that resources with energy schedule only will not bid into the real-time market, we limit this behavior. Also, the ISO believes that benefit of allow resources to change energy bid between day-ahead and real-time to reflect changes in marginal costs outweighs the potential risk.
Six Cities	Explain why precluding self-provision of imbalance reserves is necessary or appropriate.	If a resource is allowed to self-schedule imbalance reserves this has the effect not making energy available to be scheduled. The market optimization should determine if it is more economic to schedule the resource for energy or imbalance reserves.
Six Cities	The payment for imbalance reserves also should be disallowed or rescinded for failure to comply with Real-Time dispatch instructions.	Since imbalance reserves and FRP are now settled, the FRP no pay rules will apply for imbalance reserves that are held to meet uncertainty all the way through RTD. In addition, since FRP is settled on both the energy schedule and uncertainty award portion, the ISO has proposed settlement rules for uninstructed imbalance energy. See the settlement spreadsheet.
SMUD	It is not clear from the Revised Proposal whether the current intertie block scheduling capability will be maintained. Page 15 (third bullet) states that the block hourly scheduling option will keep the schedule at the same MW value for the duration of the hour or for multiple contiguous hours. In the current intertie Day Ahead Market, the CAISO awards a block schedule for contiguous hours if the *average* hourly price during the full block period meets the bid price. Under the Revised Proposal,	There is no change to how intertie block schedules can be submitted or how they clear the market.

	is the CAISO proposing to use the 15-minute price to determine the average price during the block period? SMUD requests the CAISO provide a sample settlement scenario in the next proposal to demonstrate how the new block scheduling will work, for both a single hourly block schedule and a contiguous hourly block schedule.	
SMUD	SMUD schedules against supporting resources (i.e., internal CAISO supply resources not already committed to support Resource Adequacy obligations inside the CAISO BA) in the CAISO to prioritize and firm our exports. These supporting resources are usually offered by the resource owner in the day ahead market timeframe and are matched against SMUD's self-scheduled export for a particular hour. SMUD assumes the Revised Proposal will not affect our ability to continue this practice or in any way diminish SMUD's ability to ensure the firmness of certain self-scheduled exports, but we seek confirmation from the CAISO that this is the case.	The proposed day-ahead market enhancements do not change SMUD's ability to ensure the firmness of certain self-scheduled export.
WAPA	WAPA supports the ISO move to fifteen-minute scheduling granularity, and the bid submission remain hourly for both the day-ahead and real-time markets. WAPA understands why the ISO proposes to allow bid-in load and variable energy resources to shape their economic bids based upon the relative forecast by 15-minute upper economic limits. WAPA would like to request that the ISO allow intertie bids to submit 15-minute upper economic limits for similar reasons. WAPA delivers CVP hydro power to meet its load in the ISO through imports. In order to meet WAPA's load in the ISO in 15-minute intervals, the CVP generation import to the ISO also needs to be in 15-minute intervals. Although CVP hydro generation cannot be dispatched by the ISO due to water delivery and environmental restrictions, it is perceivable that CVP hydro generation can voluntarily provide ramping energy in 15-minute intervals using 15-minute upper economic limits.	The ISO will allow imports that are sourced from variable energy resources to submit a forecast that will be used to shape their economic bids. For all other interties, the available options will be hourly block or 15-minute. If an intertie is scheduled in the day-ahead market using the 15-minute option, it is not required to be 15-minute dispatchable in the real-time market. The day-ahead schedule can be self-scheduled into the real-time market with different values for each 15-minute intervals that cleared the day-ahead market.

WAPA	WAPA would like to request the ISO clarify how existing transmission rights (ETC) and transmission ownership rights (TOR) will be handled. Under the current market rules, the sink and source of the ETC/TOR schedules must be balanced on hourly basis. Under the 15-minute DA market, are the ETC/TOR bids always expected to be hourly block self-schedules? Are the DA market awards of ETC/TOR self-schedules always hourly block awards? WAPA would like to request that the ISO design the market rules and systems so that ETC/TOR rights are fully honored.	No change to ETC/TOR scheduling rules are being proposed.
WPTF	WPTF respectfully disagrees that the Flexible Ramping Product (FRP) and Imbalance Reserve Product (IRP) are the same, except for how the CAISO is setting the requirement. In WPTF's mind these are two fairly different products. FRP is the CAISO buying insurance against the probability that the load forecast is wrong in the near-term. The IRP is needed (in part) in case the CAISO's forecast is right. Second, the CAISO is calculating resources' ability to provide the Imbalance Reserve Product (IRP) differently than resources' ability to provide the Flexible Ramping Product (FRP). The IRP is being calculated as the ramping capability difference between period t-1 and t in DA and then saying in period t in real-time, a resource can be awarded for that entire capacity.	The ISO is proposing to settle imbalance reserve deviations with FRP. WPTF argument that these are material different products does not recognize that similar arguments were made with enforcing FRP in FMM. In FMM, FRP covers 15-minute forecasted movement, granularity differences between FMM and RTD, and estimated uncertainty in RTD. Resources are awarded FRP based upon their 15-minute ramp capability in FMM. When FRP was developed there was discussion about include day-ahead FRP. This was not pursued because of the ramping differences between being awarded based on a resource's hourly ramp rate versus its 15-minute or 5-minute ramp rate. One of the reasons for moving to 15-minute intervals in the day-ahead market is to ensure we have sufficient 15-minute ramp capability in the cleared energy schedules. The imbalance reserve will procure additional 15-minute ramp capability to prepare for uncertainty that may materialize between day-ahead and FMM.

WPTF	WPTF asks that the CAISO more carefully consider the labels used on charts and descriptions of the market design during meetings as it may be causing unnecessary confusion. (see example illustrated on page 2 of their comments)	The purpose of the graphs is to highlight that uncertainty is measured based upon the ISO net load forecast. Depending upon where bid in load clears, will determine the quantity of imbalance reserves awarded in the upward and downward direction. In the event that bid in load clears lower than ISO net load forecast, there is a portion of the upward imbalance reserve awards that was previously address through RUC availability award. The ISO has provided additional illustration that may provide additional clarity.