



## Comments of Pacific Gas & Electric Company

### Extended Day-Ahead Market – Workshop 1

Submitted by	Company	Date Submitted
Todd Ryan (415-973-7002)	Pacific Gas and Electric Company	Mar 4, 2020

Pacific Gas and Electric Company (PG&E) appreciated the California Independent System Operator’s (CAISO) effort to arrange the Extended Day-Ahead Market (E-DAM) Workshop 1. We realize the importance of the Day-Ahead market, the difficulty of trying to align the Open Access Transmission Tariff (OATT) world with that of an organized market, and the tremendous amount of thought and effort that the EIM Entities and CAISO have already invested in this initiative.

PG&E remains hopeful that E-DAM will improve market efficiency and more effectively integrate renewable resources by optimizing day-ahead unit commitment and scheduling across a larger footprint. While PG&E generally supports the goal of an extended day ahead market, we are concerned about unintended consequences of such an extensive overhaul of the Day-Ahead Market and informally blending of two distinct worlds.<sup>1</sup>

PG&E’s comments can be summarized as follows:

1. The CAISO should pause, carefully consider all stakeholder comments, and work with the CPUC on a compatible straw proposal.
2. The CAISO should revisit its E-DAM principles to ensure they align with the CAISO’s goals and ensure efficient operation of the grid, just and reasonable rates, and equity among all participating BAAs, including the CAISO BAA.
3. PG&E reiterates comments from the Issue Paper to address the issues of market power mitigation and defining the voluntary nature of E-DAM
4. PG&E has many technical comments and questions. We respectfully ask that the CAISO address them.

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<sup>1</sup> Specifically, we are referring to the unintended consequences of the blending of an organized market with the bilateral “OATT” world.

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- 1 The CAISO should pause, carefully consider all stakeholder comments, and work with the CPUC on a compatible straw proposal.

PG&E appreciates the level of complexity involved with merging the OATT world with the CAISO's markets and recognizes that it may take the CAISO longer than two weeks to digest all the nuance of the EIM Entities' proposal and stakeholder feedback, develop a proposal for Bundle 1, coordinate with the CPUC on the Bundle 1 straw proposal, and clearly write up the proposal. Rather than trying to stick to a specific schedule, the CAISO should take its time developing a Bundle 1 straw proposal.

The CAISO should coordinate with the CPUC's Energy Division on the Bundle 1 straw proposal. There is a very real risk that the CAISO creates E-DAM rules that supersede or conflict with the CPUC's Resource Adequacy (RA) rules. For example, the EIM Entities' proposal suggests that all imported energy to meet the Resource Sufficiency (RS) Test would need to be backed up by firm transmission. While a firm transmission requirement is still currently under consideration at the CPUC as part of their imports track of the RA proceeding, it does not appear to be the direction the CPUC is heading<sup>2</sup>. The CAISO should wait for resolution of this issue at the CPUC, which is currently scheduled to have a final decision in May. If the CPUC's May decision does not require firm transmission for imported RA and the CAISO were to require firm transmission for imports to meet the R test, it is possible that much of the imported RA may not qualify for the RS Test. CAISO BAA members would either have to procure firm transmission products, even though the CPUC rules don't require it or be deficient for their portion of the CAISO BAA's RS Test. Both are undesirable.

- 2 The CAISO should revisit its E-DAM principles to ensure they align with its own corporate goals and ensure efficient operation of the grid, just and reasonable rates, and equity among all participating BAAs, including the CAISO BAA.

The CAISO started each section of the workshop with their principles for the initiative and each of the main topics: Resource Sufficiency, Transmission, and Congestion Rent. After listening to the discussion and reviewing the CAISO principles, PG&E requests that the CAISO revisit its E-DAM principles to ensure they align with the CAISO's goals and ensure equity among all participating BAAs, including the CAISO BAA.

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<sup>2</sup> Given the CPUC Decision 19-10-021 (October 17, 2019) and the Energy Divisions proposal in R.19-11-009 (Track 1 of Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Forward Resource Adequacy Procurement Obligations.)

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### 2.1 CAISO Principles for Extending DAM

For the overall initiative, PG&E suggests these edits to the CAISO's principles<sup>3</sup>:

- No compromises to CAISO's existing principles, specifically these three:
  - Reliable and efficient operation of the grid
  - Provide fair and open transmission access
  - Facilitate effective markets and promote infrastructure development
- No compromises to CAISO's current responsibilities, e.g., just and reasonable rates
- Each balancing authority retains reliability responsibilities
- States maintain control over integrated resource planning
- Equitable treatment and participation of all BAAs
- Resource adequacy procurement decisions remain with local regulatory authority
- Transmission planning and investment decisions remain with each balancing authority and local regulatory authority
- Requirements for participation allow participants to reflect opportunity costs or regulatory requirements
- Cost allocation based on beneficiaries/causation

PG&E is specifically concerned that the EIM's proposal creates two classes of participants: non-CAISO BAAs and the CAISO BAA. It is unclear how the CAISO BAA will be able to be an active participant, equitably to the other BAAs, in the market that CAISO runs. PG&E elaborates on this point in later comments.

PG&E also recommends that rather than a blanket statement that participation is "voluntary", CAISO should clearly lay out the rationale and goals of making different options voluntary at different points in time. For example, instead of stating that offering transmission is voluntary, CAISO should clearly lay out the reasons as to why the transmission needs to be voluntary; how the process might work if this voluntary decision was one day, one month, six months, or one year before real-time; the benefits and trade-offs with these different time-lines, and let the participants can discuss the various methods and how these methods achieve the objectives.

### 2.2 CAISO Principles for EDAM resource sufficiency evaluation

For Resource Sufficiency, PG&E suggests these edits to the CAISO's principles<sup>3</sup>:

- Ensure all BAAs can individually meet their capacity, flexibility and transmission needs with equivalent quality of resources to share in diversity benefit
- Equal treatment and obligations for all resources used to meet EDAM reliability (e.g., bidding, recallability, exceptional dispatch, etc.)
- Market power for resource sufficiency capacity is adequately mitigated. Resource sufficiency evaluation requirements should not increase market power.

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<sup>3</sup> Proposed additions are reflected with underlining and deletions in strikethrough.

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- Incent making transmission and bid range available for optimal and efficient scheduling
- Enable forward trading of capacity and flexibility while accurately accounting for resources
- Apply transparent tests equally across CAISO, EDAM and EIM footprint. Resource sufficiency requirements should be comparable in timing and requirements between the three separate programs when feasible.
- Ensure feasible day-ahead schedules while each BAA remains responsible for its reliability and resource adequacy

### 2.3 CAISO Principles for E-DAM transmission design

For Transmission, PG&E suggests these edits to the CAISO's principles<sup>3</sup>:

- Maximize transmission system usage while respecting long term scheduling rights and other contractual arrangements
- Support efficient transmission investment while maintaining local control over transmission planning and investment decision
- Incent transmission availability while balancing potential needs to maintaining voluntary participation and the risk of market power manipulation through withdrawing previously offered transmission
- Maximize efficient scheduling of energy and reserves
- Complementary to bilateral trading and provide additional transparency to improve forward resource planning

### 2.4 CAISO Principles for congestion revenue distribution

For congestion revenues, PG&E suggests these edits to the CAISO's principles<sup>3</sup>:

- Allocation congestion revenues based on cost causation and beneficiaries pay principles.
- Allocation of congestion revenues should consider the incentive for participants to withhold generation or transmission. If such an incentive exists CAISO should consider rules to mitigate such gaming opportunities.
- Allocate revenues to those long-term exports and internal transmission customers who are paying for the long-term investment in transmission
- Distribute revenues equitably to support flexibility of meeting transmission customer needs with E-DAM transmission buckets
- Incent long term forward procurement of transmission for resource sufficiency evaluation
- Respect long term traditional bilateral scheduling rights
- Provide accurate accounting of congestion revenues between BAAs in the EDAM

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### 3 PG&E reiterates comments from the Issue Paper to address the issues of market power mitigation and defining the voluntary nature of E-DAM

In our previous comments<sup>4</sup>, PG&E expressed concerns with the potential exercise of market power in the E-DAM. PG&E highlighted that overly accommodating rules for voluntary participation in the extended Day-Ahead Market further adds to this risk of market power being exercised. For example, a BAA might be able to receive more revenue by bi-laterally selling previously offered firm transmission, which might reduce the available transmission capability in E-DAM and result in higher congestion revenue. In this hypothetical, the BAA would recover the cost of the portion sold bi-laterally *via* its OATT and receive greater revenues on the portion offered into E-DAM. If BAAs were allowed to offer different amounts of transmission into E-DAM every day, they would have a very quick feedback loop from which to “optimize” their position and exert market power over transmission. The CAISO should be very careful in choosing the timeline for voluntary transmission participation to limit this potential for discriminatory behavior.

A key principal laid out by CAISO of the EIM and its extension to the Day-Ahead Market is that participation should be voluntary: voluntary to join, voluntary to exit, and voluntary in terms of which generation and transmission resources are offered into the market. PG&E understand the goal for this principle. However, any successful market design will have to balance this perceived necessity against the ability for market participants to profit-maximize through voluntary withholding and to ensure comparable requirements and benefits are obtained to the EDAM and existing CAISO footprints.

Allowing profit maximization to occur through withholding of resources represents the exercise of market power and would lead to inefficient dispatch and unreasonable costs to customers. This does not align with CAISO’s goal of operating the grid efficiently and does not align with CAISO’s responsibility to ensure just and reasonable rates.

These two topics are linked as the more flexible the voluntary arrangement, the more risk there is of market power.

PG&E reiterates our requests from the Issue Paper Comments. The CAISO should explicitly address Market Power Mitigation in the straw proposal and ensure that CAISO’s proposal meet the following criteria:

- Make market power mitigation inherent to the design of EDAM;
- Consider new means of exercising market power that may arise from the interaction of voluntary participation of generation and transmission assets; and
- Specify the exact timelines when transmission and generation resources are offered into the market and when those accepted offers become binding obligations.

With regards to the timelines for voluntary participation, PG&E would like to encourage CAISO to challenge every assumption and consider every option.

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<sup>4</sup> <http://www.caiso.com/InitiativeDocuments/PG-EComments-ExtendedDay-AheadMarket-IssuePaper.pdf>

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For example, one assumption the CAISO should consider is whether the transmission and generation voluntary decision points need to be at the same time? This is not the case for California; the participating transmission owners (PTO) in CAISO have effectively volunteered their transmission indefinitely and provide their resource adequacy capacity on annual and monthly showings. E-DAM participants could volunteer a portion of their transmission on one timeline (*e.g.*, an annual, semi-annual, or monthly basis), and volunteer their generation on another (*e.g.*, annual, semi-annual, monthly, daily).

Secondly, CAISO should consider whether all of the voluntary offers need to occur on the same timeline. For example, CAISO could require a minimum amount of “Bucket 1” and “Bucket 2” transmission in order to participate in the E-DAM on a long-term voluntary basis (*e.g.*, annually or semi-annually) and allow any additional transmission (from any bucket) to be offered shorter-timelines.

### 4 PG&E has many technical comments and questions. We respectfully ask that the CAISO address them through the Straw Proposal or direct written communication.

PG&E has many comments and questions about the details of the EIM Entities proposal. We have tried to catalog and organize these into one coherent list (see below). We respectfully ask that CAISO do its best to address these questions in its straw proposal or in a separate written response.

#### 4.1 Technical Questions

4.1.1 CAISO is both the market operator and the BAA for the majority of the California load.<sup>5</sup> How will the CAISO manage these two roles at the same time?

- Should the CAISO be doing all the economic and reliability trading (as a participating E-DAM BAA) to make these RS functions work?
- Can CAISO participate as a BAA and have equitable rights to other BAAs?
- Will CAISO segregate staff that perform BAA functions on behalf of California load customers from staff that operate EDAM? What code of conduct rules should exist to enforce any separation of roles?

4.1.2 What is the *Diversity Credit* formula?

- What are the units (MW peak, MW, MWh, or \$USD,...)?
- How will the allocation occur amongst BAAs and within the day?
- How will the allocation occur within BAAs to ensure fair and equitable treatment of LSEs?

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<sup>5</sup> CAISO is the BAA for PG&E, SCE, and SDG&E and is also the BAA for Valley Electric and Gridliance in Nevada

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- 4.1.3 How will the CAISO monitor and mitigate the exercise of market power?
- 4.1.4 What is the time-line for the decision to voluntarily dedicate transmission resources into E-DAM and what mechanism make this voluntary offer binding? How is the CAISO ensuring comparability between the CAISO and EDAM areas?
- 4.1.5 Will the CAISO consider making annual, semi-annual, or monthly minimum transmission and RS criteria to participate? This could be a binding obligation once an E-DAM participant volunteers to participate for a given period.
- 4.1.6 It seems like there could be reasons to withhold transmission, but where a voluntarily participating BAAs can't demonstrate one of those reasons, transmission dedication should be required.
- 4.1.7 For EDAM entities that are FERC jurisdictional (and may be vertically integrated with generation), could the "voluntary" non-dedication to EDAM of some portion of available transmission constitute a form of discriminatory withholding?
- That is, could you create artificial scarcity by withholding certain transmission in the day ahead and then making that same transmission available in real time, in order to drive a higher LMP for an affiliated resource?
- 4.1.8 Does the EDAM support "exports" from the market? If you're not a part of the EDAM could you buy and sell from the market? If you fail the RS test could you purchase exports?
- 4.1.9 Does CAISO have a plan for integrating physical transmission rights into the SCED environment?
- PG&E is concerned that the CAISO is going to run into significant problems trying to mix physical transmission rights and SCED enforcement of transmission constraints.<sup>6</sup>

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<sup>6</sup> *Example of why CRRs solve the physical transmission rights in SCED.* Suppose that I own a physical transmission right from a generator to my load. By scheduling the generator and transmission rights I can serve my load at the cost of my generation. However, another party may have a less expensive generator that could be dispatched and replace the energy from my generator at lower cost. If I have a CRR for the transmission right, I can benefit by allowing the more efficient solution be used. If I don't, I would not benefit, and I would want to physically schedule my generation. CRRs are necessary to give an owner of a physical transmission right the incentive to let another party use the transmission.

Even worse, the physical rights are given based on an assumed transmission state and generation/load profile. If the conditions change, a process is used to curtail all physical flows on the system to satisfy limits. This may not be the most economic solution. With CRRs, parties have an incentive to let the ISO's SCED redispatch to enforce transmission constraints in the most efficient way.

*It seems that EDAM is going to run into significant problems trying to mix physical transmission rights and SCED enforcement of transmission constraints.*

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### 4.2 Resource Sufficiency

#### 4.2.1 What is the leaning risk?

- If a BAA shows up with insufficient generation, could another entity's load be curtailed or would the deficient BAA be curtailed?
- Stakeholders seem concern that a BAA will be incentivized not to invest in generation. However, setting RS test standards stringently enough to deter some level of economic leaning would might come in conflict with the CAISO goal of not infringing on the BAA's integrated resource planning.
- Has the CAISO considered when and how much leaning would be allowable and whether financial incentives could better address excessive leaning?

#### 4.2.2 Can the CAISO provide examples of how they would real-time (or near real-time) operational challenges (*e.g.*, outages and contingencies)?

- How will CAISO coordinate re-dispatch of resources? What rights would CAISO have the authority to issue exceptional dispatch to?
- How would the CAISO determine loads to curtail if the combined footprint was inadequate in real-time due to contingencies?
- How would the non-recallability contractual provisions (being considered by the CAISO in RA Enhancements initiative) affect real-time operations and/or the resource sufficiency test?

#### 4.2.3 What are the current processes in the EIM area to ensure transmission schedules are simultaneously feasible?

- What are the processes to curtail schedules if transactions are simultaneously overloading a transmission path?
- How much loop flow can be flowed across another BAA and what are the procedures to mitigate the economic and reliability impacts of such flows?
- How would the CAISO need to incorporate such transmission curtailment procedures to correctly assign congestion revenues or ensure the resources scheduled can be simultaneously relied on?

#### 4.2.4 Firmness of exports from CAISO are protected through "supporting resources" but firmness of imports (*i.e.*, from other BAAs) are not. The CAISO should consider making reciprocal non-recallability a criterion for E-DAM participation.



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4.2.5 How would the CAISO act as a participating BAA in E-DAM with respect to Resource Sufficiency?

- Would [California] load servicing entities need to procure Buckets 1, 2, and 3 transmission to meet all RS needs? Seems like it could be a risk to our costs for California Resource Adequacy.
- Would CAISO “procure this” on behalf of California as the California BAA if additional import transmission capability was needed?
- Does the CAISO BAA already have enough firm transmission rights to cover the historic Resource Adequacy imports?
- Would CAISO sell excess capacity in its BA to a neighboring area to meet the sufficiency test?

4.2.6 The CAISO BA RA resources have a MOO, while EDAM resource participation is voluntary. How does this ensure the design principle of equity when one set of resources are encumbered with an obligation that others do not have to meet?

4.2.7 Can CAISO Operators ever Exceptionally Dispatch an E-DAM unit?

- Would CAISO call on a CAISO BAA RA unit *first* before other units even if a deficiency where in another BAA?
- Can the non-CAISO E-DAM BAAs bi-laterally sell units that were decommitted by EDAM (even if included in the RS evaluation)?
- Would there be a way for the CAISO to call on a resource that was used to meet an RS test, was not committed in E-DAM, was sold bilaterally, and then subsequently needed in real-time to meet reliability needs in the BAA?

4.2.8 CAISO RS principle 4 -- equality across the E-DAM and EIM footprints. Does this mean that non-CAISO BAAs should be treated equally to the CAISO BAA? Or is there an alternative interpretation?

4.2.9 Is the CAISO resource sufficiency evaluation going to apply CAISO’s deliverability criteria to EDAM resources to test for deliverability to serve load elsewhere in EDAM? It seems like the CAISO is using the word “deliverability” in these contexts to mean two different things:

- Deliverability in CAISO assumes a generator has gone through the queue and received deliverability rights per the LGIP or SGIP
- Deliverability in the E-DAM space appears to mean an operational ATC feasibility.

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4.2.10 PG&E would like clarification on the timing at which an E-DAM resource ceases to be “voluntary”.

- Is it still able to withdraw from EDAM between a BAA’s IRP showing to CAISO and the RS test?
- if a BAA passes the E-DAM RS test and a resource in that BAA is decommitted, can that BAA commit the unit elsewhere in bilateral transaction?
- Is there any obligation that carries through to real-time for a unit that is offered but not committed?
- Is there an obligation on a resource to be available after it is shown for the RS test or just a financial penalty to non-performance if the resource is dispatched by the EDAM or EIM?
- What prevents virtual/speculative supply?

4.2.11 How do you prevent “just enough” leaning to eat up the “diversity credit” such that there’s a capture of all the efficiency gain from EDAM by those willing to provide the least surplus above the minimum (to pass the RS test) and voluntarily withhold the rest for resale?

4.2.12 Minimum generation offer into EDAM – PG&E recommends that the minimum should be bigger than the “flex” portion of RS test. The entire RS requirement should be the minimum offer. Some of this could be self-scheduled and therefore binding; the rest of it can be optimized by EDAM (*i.e.*, CAISO then can de-commit units that are not-economic).

4.2.13 *Bid Range Product* - What is this exactly?

- How does this fit into the RS test?
- Is it a new product that CAISO would make available for the EIM and EDAM entities?

4.2.14 It seems that the 24-HR Op Plan needs to indicate which resources are being offered into the E-DAM for optimization and which wouldn’t be (*i.e.*, self-scheduled). Or more specifically, this plan should essentially seamlessly flow into the bids or be packaged with the bids.

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4.2.15 Would it make sense for the CAISO to make some amount of the compliance to the RS test binding?

- *E.g.*, the data submitted for the RS test, or a portion of it, should align with submitted bids. If not, it may call into question the validity / purpose of the RS test.
- In a non-binding environment, we're just not sure what a "firm" resource commitment even means...
- Can I count on that resource for reliability planning or not?
- Who's on the hook if it doesn't show up (submit a bid) or if it consistently bids at the cap or we'll above cost to avoid being dispatched?

4.2.16 EIM proposes to exempt EDAM participants from RT RS test if they pass the DA RS test. Is that appropriate?

- What  $p$  - value of net-load forecast would be acceptable to do this?  $P90$ ?
- What is the trigger for cancelling that exemption, *e.g.*, selling 500 MW?
- Would this be voluntary? As in the BAA would have to admit to triggering a real-time RS test?
- There does not seem to be a valid reason for exemption.

4.2.17 RS Test -- do you fail one hour? Or do you fail by the day? Are there different levels of failure? Is there a grading system. For example, would an EDAM entity face a severe penalty for falling short by 1 MW for 1 hour? What if it was consistently short 100 MWs in every hour?

4.2.18 It sounded like APS was asking for a Max Gas Burn Constraint (*a la* Aliso Canyon) for their area Day 1.

- Does the CAISO believe this is feasible?
- Given PG&E's concerns with the current implementation of the Southern California Max Gas Burn constraints, it raises concerns for doing this for APS on Day 1.

## 4.3 Transmission

4.3.1 How is the E-DAM transmission going to bridge between DAM and RT? *e.g.*, How are buckets 1, 2, and 3 transmission going to be treated in real-time?

4.3.2 Is it necessary to have firm transmission in E-DAM? Could this all be resolved with a fair allocation of the RTCO costs associated with the congestion reduction?

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- 4.3.3 Has CAISO considered a dynamic bucket 3 TX Access Charge instead of hurdle rates?
- If so, what are the benefits of such an approach?
  - If so, what are the down-sides to such an approach?
- 4.3.4 California ETC's and TORs – can they be put in bucket 2 or 3?
- Who would make that decision? The owner of the ETC and TOR or the CAISO as a BAA?
  - CAISO, could you please elaborate on how you, a BAA, plan to act as an E-DAM participant with respect to transmission rights dedication?
  - How would CAISO determine bucket 3?
- 4.3.5 When and how would transmission providers have to release or sell as non-firm valuable transmission capacity? If say there is a \$50 price difference between say BA 1 and BA 2, could a transmission provider hold the rights to that path and not make it available to the market at a fixed transmission rate? The timing for having to release unused as non-firm will likely be key.
- 4.3.6 Who is making the TX available? *e.g.*, Day 2 CAISO Slides, Example 4 - the 50 MW Z (bucket 3) being made available from BAA #2 <--> BAA #3. Is that made available by BAA 2, BAA3, or both?
- 4.3.7 CA IOUs are prohibited from new ETC / TOR - what was the rationale behind that? How does that same rationale apply to E-DAM?

## 4.4 Congestion Revenue Rights

- 4.4.1 Why are CRRs allocated to bucket 1 & 2 when they are already paid for?
- 4.4.2 Should a principle of the CRR allocation be that EDAM participants don't have the incentive/ability to withhold transmission in order to get extra CRR revenue?
- 4.4.3 Why are CRRs allocated to buck 3 in addition to the hurdle rate?
- 4.4.4 Day 2 CAISO slides Example 4: why Z isn't congesting at 11\$ instead of \$8 usage fee plus a extra \$3 that needs to be reallocated?

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4.4.5 The EIM entities have proposed a new method of distributing congestion rents on interfaces *e.g.*, Malin 500. CAISO could you please clarify your understanding of the EIM proposal?

- Just this one path? Or all Interface paths?
- How exactly does this allocation work?
- What is CAISO's best estimate for how this would have changed rent allocations from prior years?
- How would this affect the prices when one or multiple constraints bind on one side or the other?