California ISO

Day-Ahead Market Enhancements Draft Final Proposal

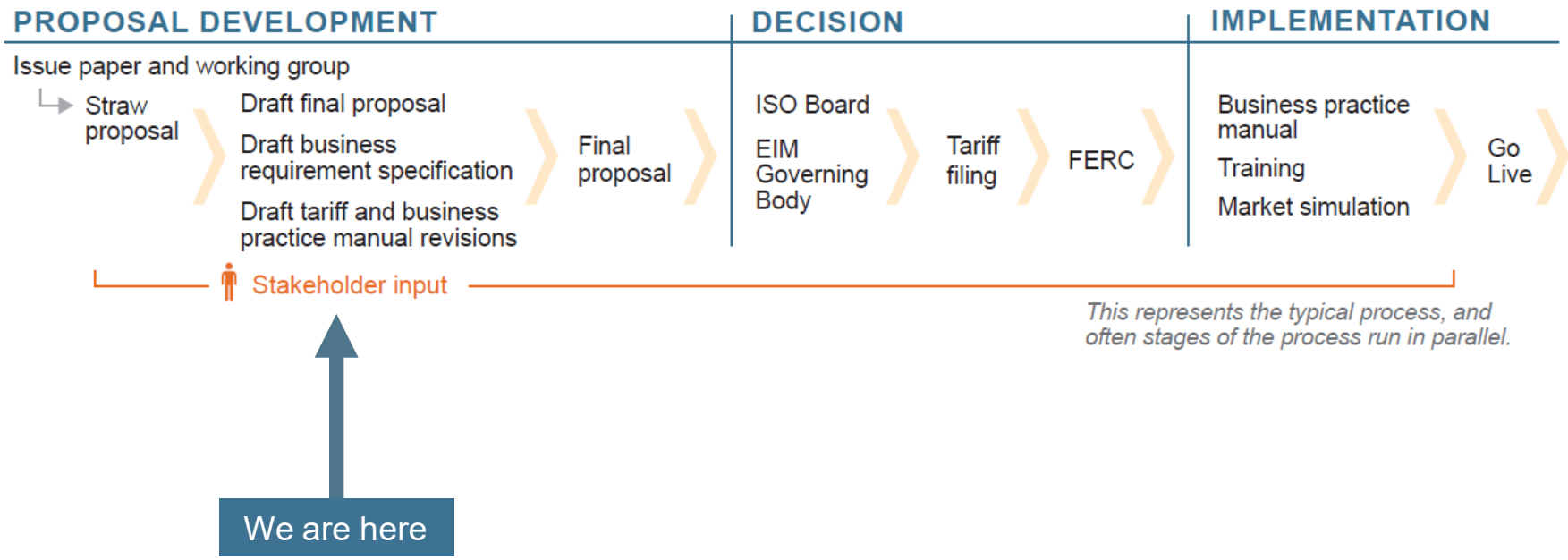
Stakeholder Meeting

December 7, 2022

Agenda

Time	Topic	Presenters
9:00 – 9:10AM	Welcome and Introductions	Isabella Nicosia
9:10 – 11:55AM	Changes from Revised Straw Proposal and Responses to Stakeholder Feedback	James Friedrich Katie Wikler George Angelidis
11:55AM – 12:00PM	Next Steps	Isabella Nicosia

Stakeholder Process



Day-Ahead Market Enhancements

CHANGES FROM REVISED STRAW PROPOSAL AND RESPONSES TO STAKEHOLDER FEEDBACK

Imbalance reserve benefits

- EDAM benefits study found EDAM benefit would be 60% lower without imbalance reserves
- Estimated benefit to California - $120M annually

Study Summary: Annualized Operational Savings
($M/year)

Scenario	California	Other Western States	TOTAL
West-wide EDAM	$214	$329	**$543**
No Imbalance Product	$86	$120	**$206**

CAISO RA day-ahead must-offer obligation for imbalance reserves

- RA capacity eligible to provide imbalance reserves (15-min dispatchable) would have a must-offer obligation for imbalance reserves for the portion of their energy bid that is not self-scheduled
- Applies to all Flex RA capacity during required bidding hours/days
- Does not prevent System RA capacity from self-scheduling

Local market power mitigation of imbalance reserves and reliability capacity

- Default bid price of $55/MWh for imbalance reserve up and reliability capacity up when mitigated, based on historical spinning reserve offers
  - Short term design acts as a mitigation “floor” until competitive costs of IRU/RCU can be assessed after DAME/EDAM implemented

Type	Spinning Reserve Bid Price ($/MWh)
50 Percentile	$1.90
60 Percentile	$5.00
70 Percentile	$21.70
80 Percentile	$50.00
90 Percentile	$100.00

- Will explore a negotiated option in final proposal

Imbalance reserve penalty prices

- Penalty price structure for imbalance reserves should strike appropriate balance between cost and reliability risk for EDAM

- More stakeholder feedback is needed on appropriate penalty price structure
  - At what cost should the imbalance reserve requirement start to relax (i.e., procure less than the full requirement)?
  - At what cost should the full imbalance reserve requirement relax (i.e., procure no imbalance reserves in favor of other market schedules)?

- Stakeholder comments will inform final proposal

RA contracting and new market products

- DFP removes following proposals:
  - Inter-SC trading of imbalance reserve
  - Reverse settlement of reliability capacity revenue for RA capacity
- CAISO will work with entities to understand information needed to facilitate contractual settlement provisions and provide this information in a regularly issued settlement report
- CAISO will facilitate on request a 3-year settlement transitional period for any contracting parties who mutually agree to a pre-determined split of imbalance reserve revenue

Incorporating energy costs in procurement of imbalance reserves

- Removes real-time bid cap proposal for resources awarded IRU/RCU
- Instead, proposes eligibility criteria to provide only imbalance reserve up based on the resource's day-ahead energy offers
- Resources with any portion of energy bid above calculated eligibility price cap would be excluded from providing IRU bids
- Meets policy objective to not routinely award imbalance reserves to resources rarely economic for dispatch of imbalance energy in the real-time market

Incorporating energy costs in procurement of imbalance reserves

- IRU eligibility price cap would be set using same methodology discussed for real-time bid cap

- Consider ways to incorporate cost changes between DA/RT and to ensure the cap does not introduce artificial scarcity to procurement of IRU
  - Apply the daily maximum calculated price to all hours, and/or
  - Add an additional buffer to the calculated IRU eligibility price

Companion report: executive summary and findings

- Natural gas commodity prices are a better variable (regressor) for an IRU eligibility price cap than net load data
- The 90th quantile provides a more stable cap than the 97.5th quantile
- Linear regressions performed better than quadratic regressions for the same set of regressors and input variables
- Incremental analysis performed for the summer 2022 months supports the findings derived from data from previous months
- Methodologies tested for summer 2022 months (particularly September 2022) yielded higher difference metrics when compared to previous months due to interplay between lower historical pricing and higher actual FMM LMPs

Tradeoffs between IRU eligibility offer cap calculation methodologies

- Hourly cap
  - Curve with 24 hourly caps (1 cap/hour)
  - Pros: more representative of hourly pricing dynamics
  - Cons: more complex to react to 24 different values when submitting bids

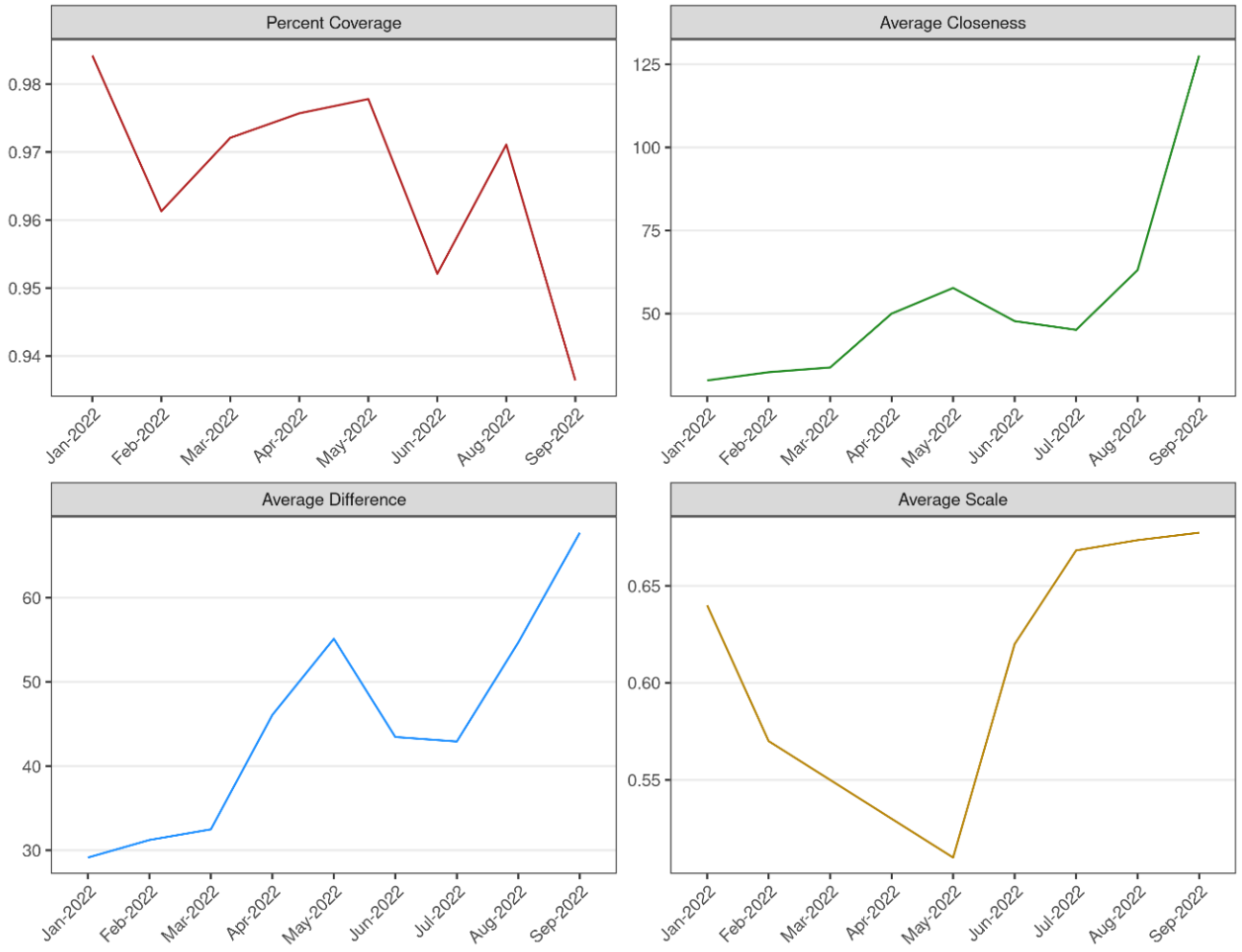
- Daily cap
  - One cap for the entire trading day, set as max of 24 hourly caps
  - Pros: more straightforward for SCs to react to a value when submitting bids, provides a more conservative estimate for most hours
  - Cons: potential for overestimating cap for non-peak hours

Recommended methodology for calculating IRU eligibility offer cap

- Methodology 11:
  - Hourly cap methodology
  - 60/60 lookback period for historical data
    - FMM LMPs
    - Gas prices
  - Predictor variable = average gas price
  - Linear quantile regression at 90th quantile
  - Scaling factor of 1.2 applied to calculated hourly caps

- Why this methodology?
  - Provided reasonable trade-off between coverage and scale compared to other methodologies while minimizing influence from historical data outliers

Methodology 11 yields reasonable results with some exceptions in summer months



Attenuation constraints for energy storage resources

- Plan to remove attenuation constraints for storage resources from DAME policy to allow for more stakeholder discussion

Governance

- CAISO management believes it would be appropriate for governance of this initiative to fall under joint authority, subject to Board approval

- If not approved by the Board, joint/advisory authority would only apply to a subset of changes under existing governance rules as described in the DFP

Updated DAME draft technical description document

- General changes in the introduction to align with current policy
- Clarification of VER treatment in IFM and RUC
- Clarification of unit commitment restrictions and MSG/PSH/LESR treatment in RUC
- New sections for MPM-IFM and MPM-RUC

Next Steps

Milestone	Date
Draft Final Proposal	December 1, 2022
Stakeholder Meeting	December 7, 2022
Comments Due	December 21, 2022
Joint ISO Board of Governors and WEIM Governing Body meeting (briefing)	December 14, 2022
Joint ISO Board of Governors and WEIM Governing Body meeting (decision)	February 1, 2023
Implementation	Fall 2023

Submit comments using the comment template linked on the initiative webpage https://stakeholdercenter.caiso.com/StakeholderInitiatives/Day-ahead-market-enhancements

Please contact isostakeholderaffairs@caiso.com