Real-Time Settlement Review Issue Paper/Straw Proposal

Stakeholder Meeting
August 24, 2020
## Agenda

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<tr>
<th>Time</th>
<th>Topic</th>
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<tr>
<td>10:00 – 10:10 AM</td>
<td>Welcome and Introductions</td>
<td>Kristina Osborne</td>
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<tr>
<td>10:10 – 10:20 AM</td>
<td>Proposal Overview</td>
<td>James Friedrich</td>
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<tr>
<td>10:50 – 11:50 AM</td>
<td>Proposed Changes</td>
<td>James Friedrich</td>
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<td>11:50 AM – 12:00 PM</td>
<td>Next Steps</td>
<td>Kristina Osborne</td>
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CAISO development process for RTSR

PROPOSAL DEVELOPMENT

Issue paper
Straw proposal
Draft proposal
Draft business requirement specification
Draft tariff

DECISION

ISO Board
EIM Governing Body
Tariff filing
FERC

IMPLEMENTATION

Business practice manual revisions
Market simulation
Go Live

We are here

Wheeling – Spring 2021
UFE – Fall 2021

This represents the typical process, and often stages of the process run in parallel.
## RTSR policy development schedule

<table>
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<tr>
<th>Item</th>
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<tr>
<td>Post Issue Paper/Straw Proposal</td>
<td>August 17, 2020</td>
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<td>Stakeholder Conference Call</td>
<td>August 24, 2020</td>
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<td>Stakeholder Comments Due</td>
<td>September 7, 2020</td>
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<td><strong>Post Draft Final Proposal and Draft Tariff Language</strong></td>
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<tr>
<td>Stakeholder Conference Call</td>
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*Dates are tentative and subject to change*
Real-Time Settlement Review

PROPOSAL OVERVIEW
Initiative Scope

• During the Real-Time Market Neutrality Settlement initiative, CAISO committed to conduct a comprehensive review of the real-time settlement charge codes associated with cost shifting between BAAs

• This initiative has two purposes
  1. Provide insight into some of the RT settlement metrics the CAISO uses
  2. Propose two changes to CAISO settlement calculations

• CAISO is open to addressing other issues identified either internally or by stakeholders if they adhere to scope and timeline

• Issues not considered in this initiative can be addressed in separate initiatives or added to the CAISO’s policy initiatives roadmap
Summary of Proposals

• Asymmetrical settlement for wheeling through EIM BAAs
  – Issue: CAISO has identified an asymmetrical settlement for energy wheeling through EIM area when one of the EIM BAAs has a power balance constraint violation
  – Proposal: (1) Remove election for EIM entities to settle base ETSR schedule deviations bilaterally (2) Require EIM entities to settle base ETSR schedule deviations at SP-Tie prices

• Unaccounted For Energy (UFE) Settlement
  – Proposal: Allow EIM entities who must derive their load through generation and intertie meters to choose not to have CAISO calculate their UFE settlement
Real-Time Settlement Review

REAL-TIME SETTLEMENT METRICS
RT Settlement Metrics

• CAISO uses metrics as part of its process to monitor settlement charge code results to ensure quality and transparent market settlements

• Metrics help identify inappropriate cost shift between BAAs
  – Helped identify asymmetrical settlement addressed in this stakeholder initiative

• When anomalies reveal a systemic problem, the CAISO will address it through appropriate process

• CAISO is committed to monitoring and reviewing these metrics on an ongoing basis and plans to present issues as they arise through various forum
Metric 1: Imbalance Energy and Financial Value Settlement

- Compares imbalance energy settlement against the ETSR financial value settlement

<table>
<thead>
<tr>
<th>Imbalance Energy</th>
<th>Financial Value</th>
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<tr>
<td>FMM Instructed Imbalance Energy</td>
<td>FMM ETSR Financial Value Settlement</td>
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<tr>
<td>Real Time Instructed Imbalance Energy Settlement</td>
<td>RTD ETSR Financial Value Settlement</td>
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<tr>
<td>Real Time Uninstructed Imbalance Energy Settlement</td>
<td>GHG ETSR Financial Value Settlement</td>
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<tr>
<td>Real Time Unaccounted for Energy Settlement</td>
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<tr>
<td>Greenhouse Gas Emission Cost Revenue</td>
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<tr>
<td>Real Time Convergence Energy Settlement</td>
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- Provides insight into cost drivers of real-time neutrality
Metric 2: Real-Time Congestion Comparison

- Compares each BAA’s marginal cost of congestion to the real-time congestion allocation

- Two purposes
  - Identifies intervals with significant congestion cost
  - Helps ensure congestion costs are allocated to the correct entity
Metric 3: Real-Time Offset Comparison

- Compares the settlement of real-time offsets across the all BAAs and EIM Area

- Identifies which components of LMP is driving neutrality imbalances for each BAA as well as EIM Area

- Evaluates effectiveness of changes made in Real-Time Market Neutrality initiative
  - As the past Trade Date are resettled, the new settlement results are compared against the expectations
QUESTIONS?
PROPOSED CHANGES

Real-Time Settlement Review
Asymmetrical Wheeling Settlement

- CAISO has identified a potential settlement issue when energy wheels through multiple EIM areas and there is a power balance constraint in one of the EIM BAAs.

- Can result in cost shifting both between EIM entities and in/out of EIM area.

- Cost shifting exacerbated when EIM entities choose not to settle base ETSR schedule deviations.
Proposal

- Base ETSR is a bilateral energy transaction that is flowing energy across a transfer location and is not optimized by the market

- Deviations occur when base ETSR schedules change between base schedule submission and FMM/RTD based upon pre-hour tag submission

- Currently two settlement options
  - Settle through market → settling at market-determined prices
  - Settle bilaterally → settling outside ISO market at an agreed-upon price

- Proposal makes two changes:
  1. Eliminate the option for EIM entities not to settle Base ETSRs schedule deviations
  2. Base ETSR schedule deviations must be settled through the CAISO market at SP-Tie prices. This is the same price that schedule deviations would settle at the intertie if the BAA at the other end were a non-EIM BAA
Assumption: no losses and no physical congestion

\( \lambda_j \): BAA\(_j\) PBC shadow price

\( \lambda \): SMEC

Non-EIM BAA 1

TID Import

@ \( \lambda + \lambda_4 \)

EIM BAA 2

ETSR Imp. @ \( \lambda + (\lambda_4 + \lambda_2) / 2 \)

ETSR Exp. @ \( \lambda + (\lambda_4 + \lambda_2) / 2 \)

ETSR Exp. @ \( \lambda + (\lambda_2 + \lambda_5) / 2 \)

ETSR Imp. @ \( \lambda + (\lambda_2 + \lambda_5) / 2 \)

Non-EIM BAA 3

TID Export

@ \( \lambda + \lambda_5 \)

Net settlement cost:

\( \lambda_5 - \lambda_4 \)

EIM BAA 4

EIM BAA 5
Assumption: 100 MW flow, no losses and no physical congestion

- \( \lambda: \) SMEC
- \( \lambda_j: \) BAA, PBC shadow price

Net settlement cost: $0

100 MW

**$30**
Non-EIM
BAA 1

TID Imp.
PMT $3,000

**$30**
EIM
BAA 4

ETSR Imp.
PMT $28,000
ETSR Exp.
CHG $28,000

**$530**
EIM
BAA 2

ETSR Imp.
PMT $28,000
ETSR Exp.
CHG $28,000

**$30**
Non-EIM
BAA 3

TID Exp.
CHG $3,000

**$30**
EIM
BAA 5

**$25,000**
cost shift

TID Imp. PMT $3,000
Assumption: 100 MW flow, no losses and no physical congestion

- \( \lambda_s \): SMEC
- \( \lambda_j \): BAA, PBC shadow price

**Net settlement cost:** $0

- **$30** Non-EIM BAA 1
- **$530** EIM BAA 2
- **$30** Non-EIM BAA 3
- **$30** EIM BAA 4
- **$30** EIM BAA 5

- TID Imp. PMT $3,000
- TID Exp. CHG $3,000
- ETSR Imp. PMT $28,000
- ETSR Exp. CHG $28,000

**$25,000 cost shift**

- $3,000 RTIEO charge
- $3,000 RTIEO charge

**ETSR Exp. CHG $28,000**

**ETSR Imp. PMT $28,000**
Assumption: no losses and no physical congestion

$\lambda$: SMEC

$\lambda_2$: BAA2 PBC shadow price

Diagram:
- Non-EIM BAA 1
- EIM BAA 2
- Non-EIM BAA 3
- EIM BAA 4
- EIM BAA 5

- TID Import @ $\lambda + \lambda_4$
- ETSR Imp. @ $\lambda + \lambda_2$
- ETSR Exp. @ $\lambda + \lambda_4$
- ETSR Exp. @ $\lambda + \lambda_2$
- ETSR Imp. @ $\lambda + \lambda_5$
- TID Export @ $\lambda + \lambda_5$
Assumption: 100 MW flow, no losses and no physical congestion

\( \lambda : \text{SMEC} \quad \lambda_j : \text{BAA}_j \text{ PBC shadow price} \)

Net settlement cost: $0

100 MW

$30
Non-EIM BAA 1

$30
Non-EIM BAA 3

$30
EIM BAA 2

$30
EIM BAA 4

$30
EIM BAA 5

TID Imp. PMT $3,000

TID Exp. CHG $3,000

ETSR Imp. PMT $53,000

ETSR Exp. CHG $3,000

ETSR Imp. PMT $3,000

ETSR Exp. CHG $53,000

$30

$530

$30
QUESTIONS?
Unaccounted for Energy Settlement

• Two approaches to calculate load:
  – “Load aggregation” approach
  – “Load derivation” approach

• CAISO proposes to allow EIM entities using a load derivation approach to choose whether to settle unaccounted for energy
Optional Settlement of UFE

• **Elect to settle Unaccounted for Energy**
  – UFE settlement will remain unchanged from its current status
  – CAISO will apply the OATT loss factor when calculating hourly load base schedule and EIM entity will apply same OATT loss factor in load derivation approach calculation.
  – CAISO will calculate UFE settlement quantity as the product of the RTM hourly LAP price and the sum of the generation + imports less the sum of exports + metered load + RTM losses

• **Elect not to settle Unaccounted for Energy**
  – EIM entity will account for base schedule losses outside of the ISO market
  – EIM entity and CAISO settlements will assume OATT loss factor of zero
  – CAISO will not incorporate losses when calculating the hourly load base schedule and EIM entity will not incorporate losses in the load derivation meter calculation.
  – CAISO will then exclude the EIM BAA from calculation of UFE amount.
QUESTIONS?
Real-Time Settlement Review

NEXT STEPS
The CAISO proposes the EIM Governing Body have primary authority in the approval of the Real-Time Settlement Review initiative.

Stakeholders are encouraged to submit responses to the EIM classification in written comments.
Next steps

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**Important—Please review new process for submitting comments**

- Provide comments using the new stakeholder commenting tool; the template is located on the initiative webpage at [https://stakeholdercenter.caiso.com/StakeholderInitiatives/Real-time-settlement-review](https://stakeholdercenter.caiso.com/StakeholderInitiatives/Real-time-settlement-review)
- First-time users must register using their email address in order to submit comments on initiatives
- To register and see all open comments, go to the Stakeholder Initiatives landing page (click on the “commenting tool” icon): [https://stakeholdercenter.caiso.com/StakeholderInitiatives](https://stakeholdercenter.caiso.com/StakeholderInitiatives).