



California ISO

# Market Enhancements for Summer 2021 Readiness

## Final Proposal and Draft Tariff Language

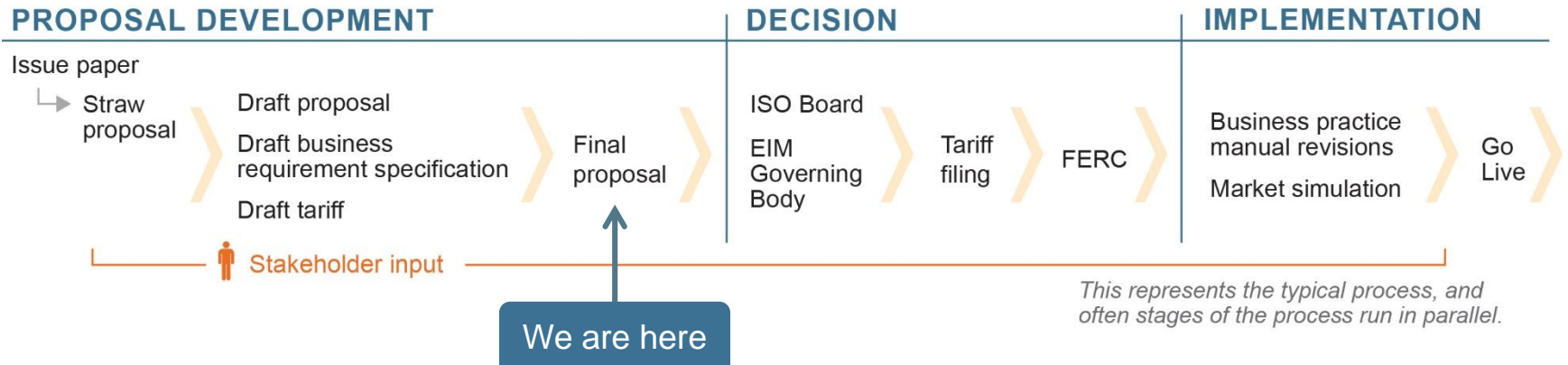
Stakeholder Meeting

March 26, 2021

# Agenda

Time	Topic	Presenter
9:00 – 9:05	Welcome and Introduction	Kristina Osborne
9:05 – 11:00	Export, Load, and Wheeling Priorities Proposal	James Friedrich
11:00 – 11:55	Export, Load, and Wheeling Priorities Draft Tariff Language	Anthony Ivancovich Jordan Pinjuv
11:55 – 12:00	Next Steps	Kristina Osborne

# CAISO Policy Initiative Stakeholder Process



# SUMMARY OF CHANGES

# Summary of Changes

- Load, Export, and Wheeling Priorities
  - Differentiate between high priority and low priority wheels
  - Create a new process after HASP to equitably allocate import and internal transmission to high priority wheels and native load
  - Allow variable energy resources to be designated to support a PT export
- Documented clarifications to materials approved by ISO Board of Governors on March 24

# LOAD, EXPORT, AND WHEELING PRIORITIES PROPOSAL

# Two levels of wheel through self-schedules

- **PT Wheel**
  - Import leg equal to import self-schedule penalty price
  - Export leg equal to PT export and load penalty price
  - Conditions to receive PT wheel status
    - Signed contract to serve load in another BAA prior to FERC filing date of these proposed changes
    - Procured monthly firm transmission externally to reach boundary of CAISO BAA for the hours of delivery in signed contract
    - Must notify CAISO 45 days prior to the month of the MW quantity and verify transmission purchase
    - Will register export system resource in market prior to start of month
- **LPT Wheel**
  - Import leg is set equal to \$0
  - Export leg equal to LPT export penalty price
- Import leg cannot bid less than \$0 for economic wheel

## Integrated forward market penalty parameters\*

- The penalty price for self-scheduled load, PT exports, and the export leg of PT wheel is \$1450
- The penalty price for LPT exports and the export leg of LPT wheel is \$1150
- The penalty price for import leg of a LPT wheel is \$0
- The penalty price for a self-scheduled import and import leg of PT wheel is (\$400)

\* The penalty prices listed are illustrative when using \$1000 offer cap



# Residual unit commitment penalty parameters

- The penalty price for the CAISO load forecast, PT export, and the export leg of PT wheel from IFM is \$1600
- The penalty price for the LPT export and the export leg of LPT wheel from IFM is \$1350
- The penalty price for an economically bid export from IFM is the IFM bid price plus \$300
- The penalty price for self-scheduled imports and import leg of a PT wheel from IFM is (\$650)
- RA imports must submit RUC availability bid of \$0/MWh
- The penalty price for import leg of LPT wheel from IFM is \$0
- The penalty price for economically bid imports from IFM is the minimum (energy bid price -\$250, or \$0)
- If RUC has uneconomic adjustments, all RA imports will be given a RUC schedule up to their RA capacity even if didn't clear RUC optimization

# Hour-ahead scheduling process penalty parameters

- The penalty price for RUC PT export, RT PT exports, and the export leg of PT wheel is \$1450
- The penalty price for the power balance constraint above 300MW of regulation is \$1450
- The penalty price for RUC LPT exports and the export leg of RUC LPT wheel is \$1150
- The penalty price for the power balance constraint between 0MW and 300MW of regulation is \$1100
- The penalty price for RT LPT exports and the export leg of RT LPT wheel is \$1050
- The penalty price for the import leg of LPT wheel is \$0
- The penalty price for a real-time self-schedule import and real-time import leg PT wheel is (\$400)
- The penalty price for a RUC self-schedule import and import leg of RUC PT wheel (\$750)

# Administrative process before HASP solution go out

- If HASP uneconomic adjustment and intertie binding,
  - Any LPT wheels that made it through HASP will be curtailed
  - Perform a pro-rata allocation of the import capability between PT wheels and imports to serve CAISO load
  - Schedule the imports based on merit order
  - Similar approach will be employed for Path 26 congestion which will also include internal RA resources
- Pro-rata allocation and adjustment of schedule will be done in non-market tool and presented to the operator in the instruction review period

# Overview of Operating Procedure when HASP is Infeasible

- System operators will not automatically curtail PT wheels/export and shed load if HASP results in uneconomic adjustments
- System operators can first take actions to ensure load and PT wheels/exports can be maintained
  - System operators will evaluate current load and forecasted load, available generation capacity, import capability, and ability to meet contingency reserve obligations
  - If operators determine that PT wheels/exports HASP schedules can be supported for that hour without shedding load then schedules will be released regardless what was scheduled in HASP
  - If system operators can take actions that enable a PT wheel to be supported, the PT wheel bid quantity will be released as the final schedule. If system operators have exhausted all actions and are unable to support a PT wheel, the post-HASP pro-rata schedule will be released as the schedule
  - Any necessary actions to maintain reliability after this time will be performed by the system operators through emergency assistance

# Example with allocation based on total RA Import and PT Wheel – Example 1

- Import limit: 300MW
- Total RA Import Bid: 150MW
- PT Wheel 200MW
- HASP Solution, but is uneconomic: Import: 100MW, PT Wheel: 200 MW
- Total Import MW = 150MW
- Pro-rata allocation of 300MW will distribute between Import and PT wheel
  - Import allocation =  $300 * [150 / (200 + 150)] = 128.6\text{MW}$
  - PT Wheel allocation =  $300 - \text{Import allocation} = 300 - 128.6 = 171.4\text{MW}$

# New Example with correct allocation based on RA Import and PT Wheel - Example 2

- Import limit: **250MW**
- **Total Import RUC Schedule: 100MW (this includes RA and non-RA imports from RUC optimization solution)**
- Total RA Import Bid: **90MW**
- PT Wheel: 200MW
- HASP Solution, but is uneconomic: Import: 50MW, PT Wheel: 200 MW
- Total Import MW = MAX(RA Import, RUC Import schedule) = MAX(90,100) = 100MW
- Pro-rata allocation of 250MW will distribute between Import and PT wheel
  - Import allocation =  $250 * [100 / (200 + 100)] = 83\text{MW}$
  - PT Wheel allocation =  $250 - \text{Import allocation} = 250 - 83 = 167\text{MW}$

## New example with correct allocation based on RA Import and PT Wheel - Example 3

- Import limit: 250MW
- Total Import RUC Schedule: 100MW
- Total RA Import Bid: **300 MW**
- PT Wheel: 200MW
- HASP Solution, but is uneconomic: Import: 50MW, PT Wheel: 200 MW
- Total Import MW =  $\text{MIN}(\text{Import limit}, \text{MAX}(300, 100)) = 250\text{MW}$
- Pro-rata allocation of 250MW will distribute between total Import and PT wheel
  - Import allocation =  $250 \cdot [250 / (200 + 250)] = 139\text{MW}$
  - PT Wheel allocation =  $250 - \text{Import allocation} = 250 - 139 = 111\text{MW}$

## Variable energy resources can be a designated resource for a PT export

- A non-RA variable energy resource can meet the attestation to provide four 15-minute intervals at the same output level if the export is set at the lowest of the four 15-minute forecasts at the time of bid submission.
- For example, assume the forecast for interval 1 is 50MW, interval 2 is 45MW, interval 3 is 55MW and interval 4 is 60MW, this resource could support a 45MW PT export.
- CAISO will review longer term solutions as part of the Maximum import capability enhancements initiative recently commenced.
  - Proposed changes related to wheel through self-schedules will be temporary tariff changes that will be replaced by a process developed under this initiative



# LOAD, EXPORT, AND WHEELING PRIORITIES DRAFT TARIFF LANGUAGE

# NEXT STEPS

# 2021 Schedule

Milestone	Date
Comments due - final proposal and draft tariff language	April 2
Post revised draft tariff language	April 8
Comments due – draft tariff language	April 15
Market Surveillance Committee meeting	April 16
Stakeholder meeting – draft tariff language	April 19
EIM Governing Body Meeting	April 14
CAISO Board of Governors Meeting	April 21
Anticipated FERC Filing**	April 23
Implementation*	June 1
Implementation**	July 1

\*Related topics: Market incentives for imports; real-time scarcity pricing enhancements; reliability demand response dispatch and real-time price impacts; and independent study interconnection enhancements

\*\*Related topic: Load, export and wheeling priorities

# Comments

- Submit comments on the final proposal and draft tariff language related to the load, export and wheeling priorities proposal by April 2 using the comment template available on the initiative webpage at <https://stakeholdercenter.caiso.com/StakeholderInitiatives/Market-enhancements-for-summer-2021-readiness>.