Extended short-term unit commitment issue/straw proposal

Stakeholder Conference Call
May 22, 2018

Megan Poage & Brittany Dean
Market Design Policy
# Agenda

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<td>9:00 – 9:15</td>
<td>Welcome</td>
<td>Jody Cross</td>
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<td>9:15 – 9:45</td>
<td>Introduction and purpose</td>
<td>Brittany Dean</td>
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<td>9:45 – 10:30</td>
<td>Proposal</td>
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<td>10:30 – 11:00</td>
<td>EIM classification &amp; next steps</td>
<td>Jody Cross</td>
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Extended STUC

INTRODUCTION AND PURPOSE
Commitment and dispatch processes of the real-time market

• The security constrained unit commitment (SCUC) is the algorithm used to determine commitments
  – Short-Term Unit Commitment (STUC) = runs 52.5 minutes prior to the operating hour and has a 4.5 hour horizon
  – Real-Time Unit Commitment (RTUC) = runs 15 minutes prior to the operating hour and has a 105 minute horizon

• The security constrained economic dispatch (SCED) clears supply against demand to determine dispatch instructions and financially binding schedules
  – Fifteen Minute Market (FMM) = 15 minute dispatch
  – Rea-Time Dispatch (RTD) = 5 minute dispatch
The CAISO markets make commitment decisions based on resource types

- **Short-Start** = start-up time $< 2$ hours
- **Medium-Start** = start-up time between 2 and 5 hours
- **Long-Start** = start-up time between 5 and 18 hours
- **Extremely Long-Start** = start-up time greater than 18 hours
Short term unit commitment process (STUC) is part of the real-time market

• Uses available resources to optimally meet system needs
  – Commits and optimizes short- and medium-start resources
  – May recognize the commitment of one resource is more economic than another and change commitments accordingly

• Currently, STUC uses a rolling 4.5 hour time horizon
Limitations to current short-term unit commitment process horizon

- Unable to make informed commitment and optimization decisions
  - Only considers short- or medium-start resources
  - Limited resource pool for real-time market
Example: day-ahead forecast is significantly less than actual demand during evening peak

- Even if the real-time market forecasted the shortage, STUC could only commit short and medium units to address shortage
CAISO 2018 Summer Loads and Resources Assessment

• Identified below average hydro supply and reduced generation for 2018 summer
  – 50% chance of declaring “State 2 Emergency” for at least one hour this summer

• To better address concerns the market and operators need to:
  – Reliably view daily load peaks
  – Economically optimize resources to meet system needs

• Management prioritized initiative and plans to implement proposed policy changes by fall 2018
Extended STUC

PROPOSAL AND DISCUSSION
CAISO proposes the following:

1. Expand STUC time horizon from 4.5 hours to 18 hours
2. Allow the real-time market to commit long-start units while still preserving long-start day-ahead commitments
3. Revise real-time market bid cost recovery rules for long-start units
4. Extend EIM non-financially binding base schedule and bid submission requirement from 6 hours to 20 hours
Extended STUC horizon from 4.5 hours to 18 hours

• Ensures market and operators can view all peaks and meet operational needs
• Resources will have advance notice of real-time market commitment(s)
Allow the real-time market to commit additional resources while still preserving day-ahead commitments

- Real-time market will have a larger resource pool to meet system needs
- Resources that do not receive day-ahead awards may bid in the real-time market
- Day-ahead start-up instructions remain “binding” for resources with start-up time + minimum up time greater than or equal to 270 minutes
  - STUC will not shutdown any resource with a start-up time + minimum up time greater than or equal to 270 minutes
  - Minimum online capacity (MOC) constraints enforced in the day-ahead market
Revise bid cost recovery (BCR) rules for long-start units

• Short- and medium-start resources can receive start-up instructions in the day-ahead and real-time market
  – Start-up costs used in bid cost recovery depend on which market started the resources
  – Extend existing bid cost recovery rules to long-start units

DAM Award

RTM Award

Resource not online
Extend EIM base schedule and bid submission requirement from 6 hours to 20 hours

- EIM base schedules and bids are needed for real-time market optimization
  - Accurate base schedules and bids inform valid commitments through STUC
- Requirement should not affect EIM entities’ OATT
  - Require submission of 20 hours of non-financially binding base schedules and bids
No changes proposed to resource adequacy or extremely long-start process

• Resource adequacy (RA) must offer obligation (MOO) and resource adequacy availability incentive mechanism (RAAIM) changes are not proposed with this initiative
  – Middle of contract year
  – Changes with day-ahead market enhancements (DAME)

• Extremely long-start process will not be changed
  – Resources with start-up times greater than 18 hours are committed by the extremely long-start commitment (ELC) process or 72-hour residual unit commitment (RUC)
Extended STUC

EIM CLASSIFICATION & NEXT STEPS
EIM Classification – hybrid, non-EIM specific

• The EIM Governing Body will have **primary authority** in approving the policy resulting from the following EIM functionality:
  – Extend EIM base schedule and bid submission requirement from 6 hours to 20 hours

• The EIM Governing Body will have **advisory authority** over the remainder of the proposal

ISO Policy Initiative Stakeholder Process

POLICY AND PLAN DEVELOPMENT

We are here

Issue Paper → Straw Proposal → Draft Final Proposal → July '18 Board

We are here
## Initiative Schedule

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