



California ISO
Shaping a Renewed Future

Energy Imbalance Market Year 1 Enhancements

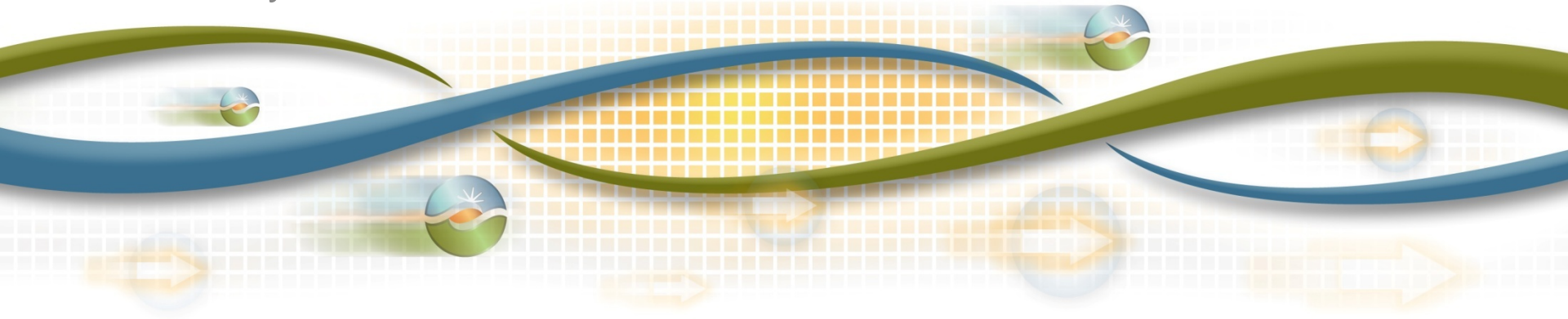
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Lead Market Design and Regulatory Policy Developer

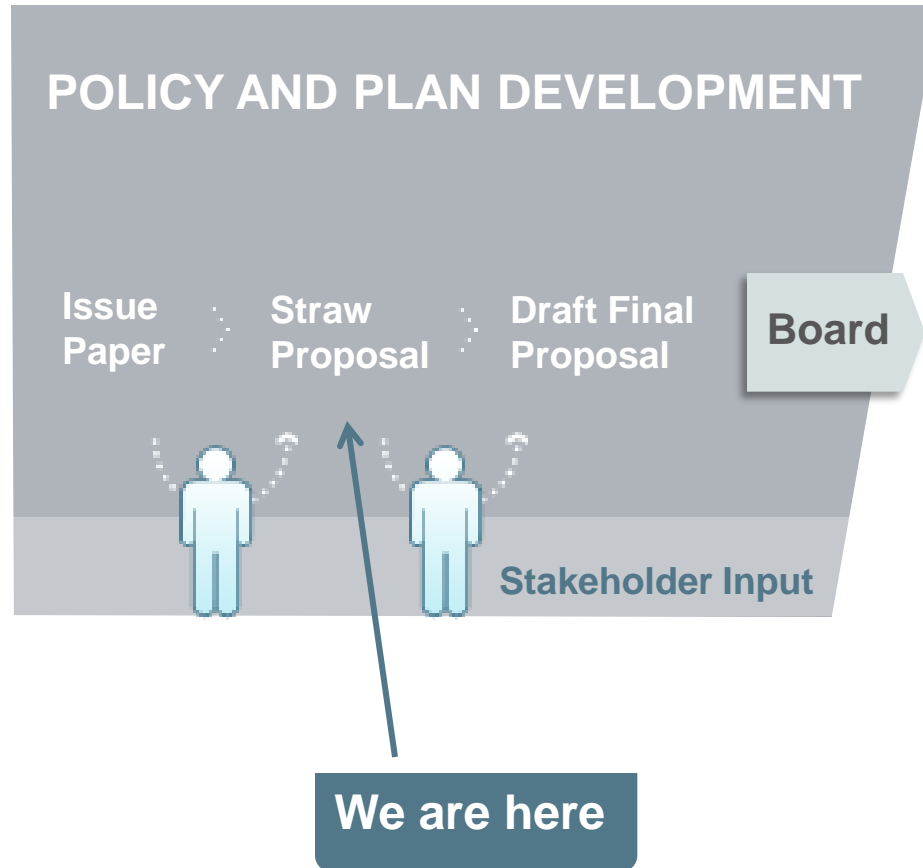
January 30, 2015



Agenda

Time	Topic	Presenter
10:00 – 10:05	Introduction	Kristina Osborne
10:05 – 11:25	EIM Transfer Limit Technical Workshop	George Angelidis
11:25 – 11:55	Changes Planned for Draft Final Proposal	Don Tretheway
11:55 – 12:00	Wrap-up and Next Steps	Kristina Osborne

ISO Policy Initiative Stakeholder Process



Phase 1 items planned for BOG decision in March 2015

- Settlement of non-participating resources
- Administrative pricing rules
- GHG flag and cost based bid adder
- Add base schedule import/export decline to resource sufficiency evaluation
- Resources sufficiency evaluation applied to ISO BAA
- Modification of EIM transfer limit constraints
 - Establishment of EIM transfer limits using ATC
- EIM administrative charge redesign
- *NEW* – Reduce flexible ramping constraint combinations

Phase 2 items informed by six month of operational experience or need additional discussion

- EIM transmission charge
- Additional sub-allocation of RTCO (Flow Entitlements)
- Dynamic market power mitigation
- 15-minute bidding on intertie scheduling points
- Additional transition period measures
- Long term changes to GHG design
- Other items identified during implementation

Settlement of Non-Participating Resources

- Consistent treatment for both ISO real-time self schedules and EIM non-participating resources
- BCR to non-participating resource is not unique to EIM
- Need to remove limitations in tariffs that impact ability to resolve settlement issues
 - Remove exclusion of EIM non-participating resources receive BCR from ISO tariff
 - OATT must recognize that UIE and IIE in all markets will be settled with non-participating resources

Administrative pricing rule

- If ISO must use day-ahead price for ISO, then in each EIM BAA use the price the EIM entity establishes through its OATT for market suspension

Updated GHG proposal provides more flexibility and maintains the “flag” concept

- On an hourly basis, submit the MW quantity by resource that can receive GHG award
 - MW quantity is independent of bid range
- The “flag” is equivalent to bidding 0 MW.
 - If a SC does not submit a GHG MW bid, the default will be zero
- EIM transfers into ISO from all EIM BAAs can be no greater than total MW of GHG bids
 - If EIM transfers are limited by GHG bids will consider long term design change in Phase 2

Enhance capacity test to cover potential imports and exports not tagging to base schedules

- Separate monthly calculation for imports & exports
 - No netting of imports and exports
 - Regardless of reason not tagged
 - For each hour, compare T-40 base schedules with actual tagged value at T-20
 - Will use percentile not average
 - Calculate prior 15th to 15th, effective 1st day of month
 - Notification period to EIM Entity of increased bid range needed to pass test
 - Minimum threshold of 1%
 - Aligned with load scheduling accuracy

Objective of the EIM administrative charge design is to recover ISO operational costs

- Similar charge for similar real-time market services between ISO market participants and EIM market participants
- Minimum charge to cover ongoing operational costs independent of imbalance volumes

Redesign of EIM administrative charge needed to align billing determinants with two ISO GMC real-time market rates

- Market services rate is \$0.0562 per MWh of ...
 - FMM IIE = Gross FMM Instructed Imbalance Energy excluding FMM manual dispatch energy
 - RTD IIE = Gross RTD Instructed Imbalance Energy excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments.
- System operations rate is \$0.1303 per MWh of ...
 - Gross real time energy flow which is the absolute difference between the meter and the base schedules.

Remove rate certainty and minimum charge while EIM entity is in EIM

- ISO market services and system operations rates updated as needed on quarterly basis
 - Greater of 2% or \$1 million annual cost/revenue
 - Apply the cost of service % of ISO rate to update EIM rates
 - This percentage is valid for three years and updated by a new cost of service study
 - EIM rates go to four decimal points, same as ISO rates
- Minimum charge of 5% Load + Exports and 5% Generation + Imports applied only during period when EIM entity is withdrawing from EIM
 - Both market services rate and system operations rate

Reduce the number of flexible ramping constraint combinations

- Currently 7 combinations for PACE, PACW, ISO
- Adding NVE would result in 15 combinations
- Adding another EIM entity would result in 31 combinations

- Propose to enforce system wide constraint and each BAA
 - PACE + PACW + ISO + NVE
 - PACE
 - PACW
 - ISO
 - NVE

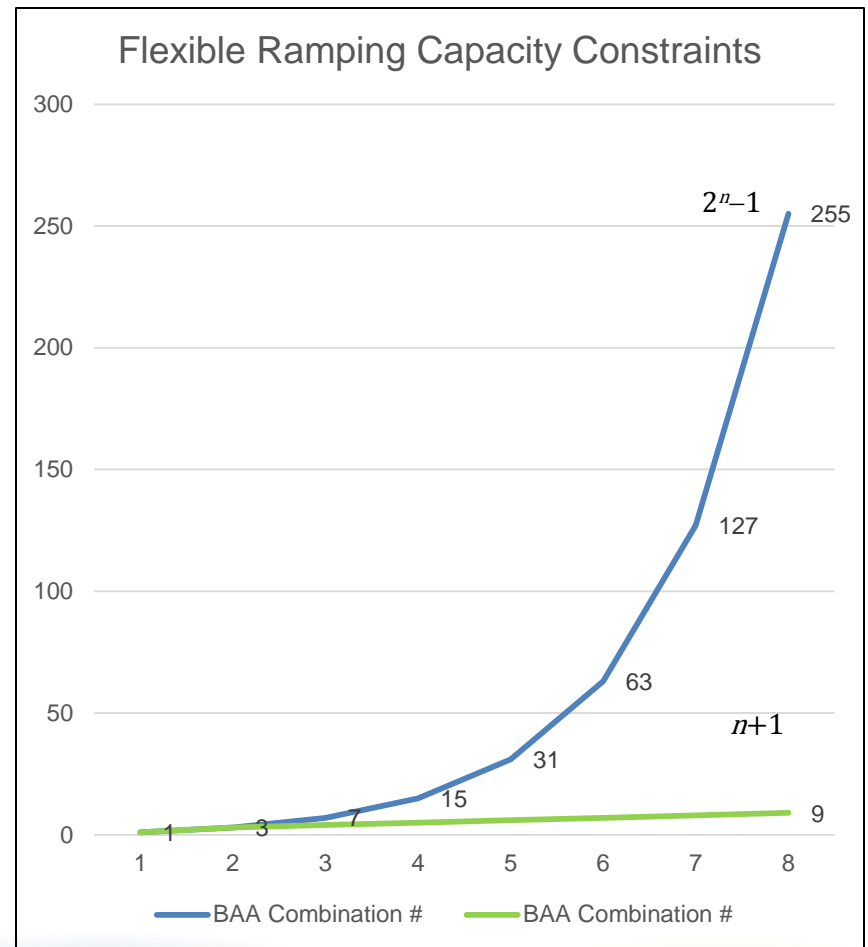
Flexible Ramping Capacity Constraints

- Currently, all BAA combinations:

$$\sum_{1 \leq k \leq n} \binom{n}{k} = \sum_{1 \leq k \leq n} \frac{n!}{k!(n-k)!} = 2^n - 1$$

- Impractical as more EIM Entities join
- Instead: Use a constraint for each BAA and one for all:

$$\binom{n}{1} + \binom{n}{n} = n + 1 \text{ for } n > 1$$



Next steps

Item	Date
Post EIM Transfer Limit Technical Paper	January 23, 2015
Technical Workshop	January 30, 2015
Stakeholder Comments	February 6, 2015
Post Draft Final Proposal	February 11, 2015
Stakeholder Meeting (Las Vegas)	February 18, 2015
Stakeholder Comments Due	February 25, 2015
Board of Governors Decision	March 26-27, 2015
Phase 2 Items	TBD

Please submit written comments to EIM@caiso.com by February 6