

# EIM Design Issues

Scott M. Harvey

Member: California ISO Market Surveillance Committee

Folsom, California

July 2, 2013



Critical thinking at the critical time™

# TOPICS

---

- GHG Design Performance
- Adjusted Base Schedules and Revenue Adequacy.
- Proration Rules.
- Resource Adequacy.

# GHC DESIGN PERFORMANCE

---

The GHG conceptual design can work as intended.

- Bill Hogan has concluded: “The basic proposal is internally consistent and would not upset either incentives at the margin or treatment of related FTRs.”

[http://www.hks.harvard.edu/fs/whogan/Hogan\\_CAISO\\_EIM\\_Notes\\_062613.pdf](http://www.hks.harvard.edu/fs/whogan/Hogan_CAISO_EIM_Notes_062613.pdf)

## ADJUSTED BASE SCHEDULES

---

Adjusted base schedules are fundamentally financial.

- Adjusted base schedules define deviations for settlements;
- Infeasible adjusted base schedules will result in congestion rent shortfalls for someone.
- Transmission owners typically sell more firm transmission service than is simultaneously feasible, ie. it must be supported by counterflow provided by generation.

## ADJUSTED BASE SCHEDULES

---

Relaxing transmission constraints when adjusting base schedules will result in infeasible adjusted base schedules.

- Settling deviations against infeasible adjusted base schedules will result in congestion rent shortfalls which will have to be borne by someone.

# PRORATION RULES

---

Adjusting base schedules so they are feasible will reduce real-time congestion rent short-falls.

- Minimum shift rules are often seen as attractive proration rules, yielding a deterministic solution.
- There is nothing special about this solution from an efficiency or equity stand point.
- Its results are just as arbitrary as those produced by any other rule and will likely always impact the same entity.

## PRORATION RULES

---

Since adjusted base schedules are financial, there is no need to limit proration adjustments to dispatchable resources.

- Exempting fixed schedules from proration provides an incentive for EIM participants to submit fixed schedules for flows likely to be prorated.
- Not only would this result in cost shifting, it would remove from the economic dispatch precisely the resources that would need to be dispatched down.

## PRORATION RULES

---

Making all resources offered for dispatch eligible to receive an adjusted base schedule that establishes a financial obligation creates a disincentive to offer for dispatch high cost resources able to provide counterflow over constraints likely to bind.

- The economic benefits of the EIM will be greatest if dispatchable resources participate in the dispatch rather than following self-schedules.
- Willingness to participate in the economic dispatch should not be the basis for being exposed to adjustments to base schedules.

## PRORATION RULES

---

The rules used to define entitlements to use of the transmission system without paying congestion need to be workable from an implementation standpoint for the California ISO, equitable for the affected EIM participants, and approved by FERC.

- The rules do not necessarily need to be the same for every balancing authority area or even for every transmission customer within a balancing authority area (as long as they are workable for the California ISO).
- Different rules could be used to account for the impact of outages, loopflows and changes in schedules.
- The rules do not need to be applied prior to real-time.

## RESOURCE ADEQUACY

---

Load serving entities today are able to gamble on being able to purchase the power they need to meet their load.

- These purchases could be from the California ISO spot markets or elsewhere.
- The California ISO has rules for curtailing exports supported by RA resources when the California ISO would be short of reserves.
- Other balancing authority areas and load serving entities also manage their export sales to avoid reserve shortages.

## RESOURCE ADEQUACY

---

The resource plan is an important element of the EIM short-term resource adequacy design.

- This design is intended to identify inadequate resources before real-time, but may not always be able to.
- The EIM design needs to have resource adequacy rules to govern the real-time economic dispatch if some balancing authority areas lack adequate resources in real-time.
- The time to develop these rules is before they are needed.