Order 764 and Policy Issues with Convergence Bidding

CB Uplift is Material and Requires Redress

Fig. 3 RTCO cost and CB profits component
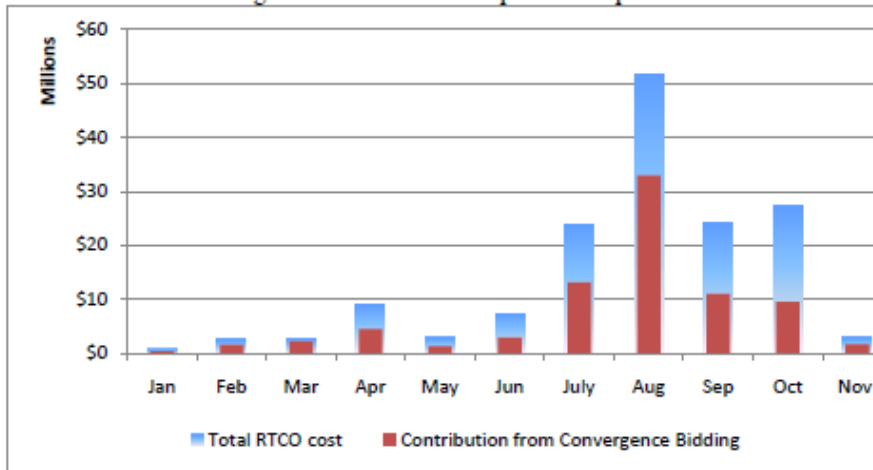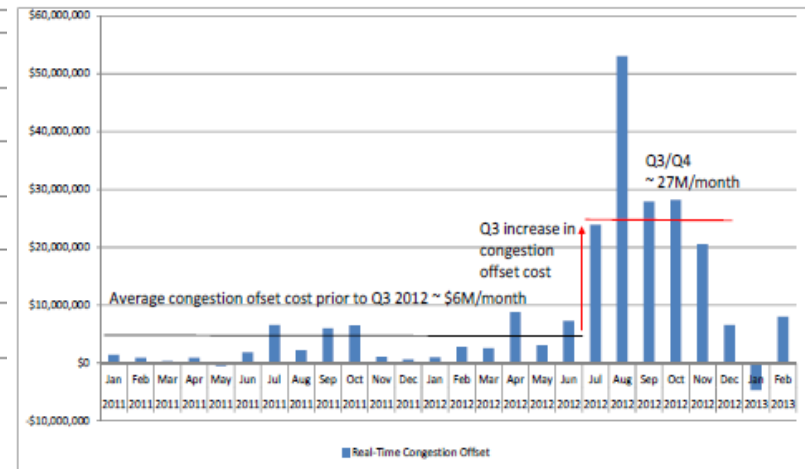
Legend: Total RTCO cost | Contribution from Convergence Bidding

Figure 1 – Real-Time Congestion Offset

- ◆ Total Uplift ≈ $159 million from Jan through Nov 2012

- ◆ Convergence Bidding payment ≈ $85 million or 53.5% of Total Uplift.

- ◆ Sources: Transmission Constraint Relaxation Parameter Revision Draft Final & FERC filing (Rothleder testimony)

Why the Uplift with Convergence Bidding?

- ◆ If parties exist on "opposite sides" of a CB transaction the ISO has revenue neutrality and profits are "self-funding" – No Uplift
  - ▪ Example 1: Load under-procures in DA (Short), CB Demand buys DA (Long)
    - Load funds the CB profits via RT deviation purchases without creating uplift
  - ▪ Example 2: A generator sells DA and trips in RT (Short), a CB Sells power DA (Long)
    - The generator funds the CB profits via real-time deviation purchases without creating uplift
  - ▪ We are fine with this setup

- ◆ However, if a CB "bets" against the CAISO (instead of against a load or a generator) and wins → Measured Demand (Load) funds the profits via uplift
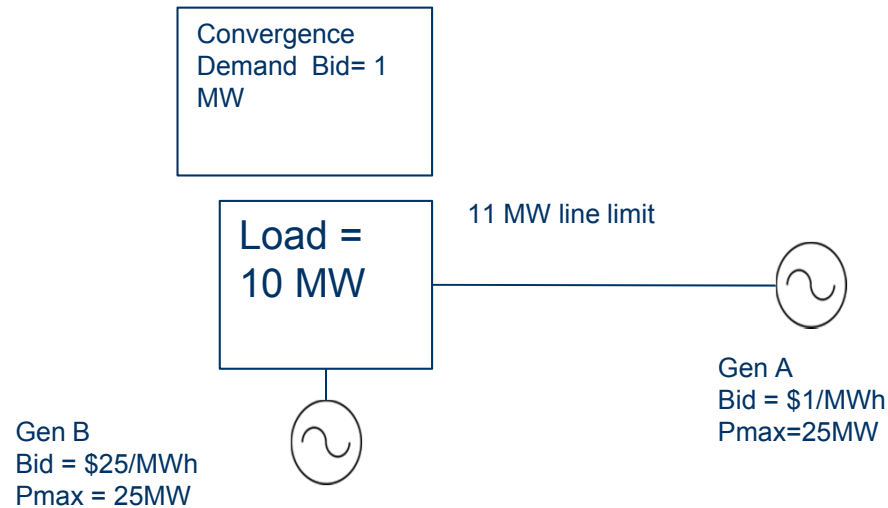 - ▪ We conclude this is neither just nor reasonable

What does it mean to "Bet against the CAISO"?

- A bidder "bets against the CAISO" when CB profits are realized (or increased) because the CAISO changed the market model between DA and RT
  - Transmission deratings
  - Loop flow modeling/Compensating injections
  - Nomogram changes
  - RT model changes to comply with conditions in other Balancing Authorities
  - Exceptional dispatches
  - **Note:** Generation outages/deviations and Load deviations do not cause uplift

- Load has no control over such CAISO model changes, yet the current process requires Load to fund such CB bets
  - Load and generation could perform precisely to schedule, but if the CAISO changes the market model, the CB could be profitable
  - Thus, the "bet is against the CAISO", not against a market participant, and must be funded via uplift
  - The CAISO should adopt a policy where such bets are not paid off

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Example 1: No RT model change and perfect performance (No uplifts)

Convergence Demand Bid= 1 MW

Load = 10 MW

11 MW line limit

Gen A
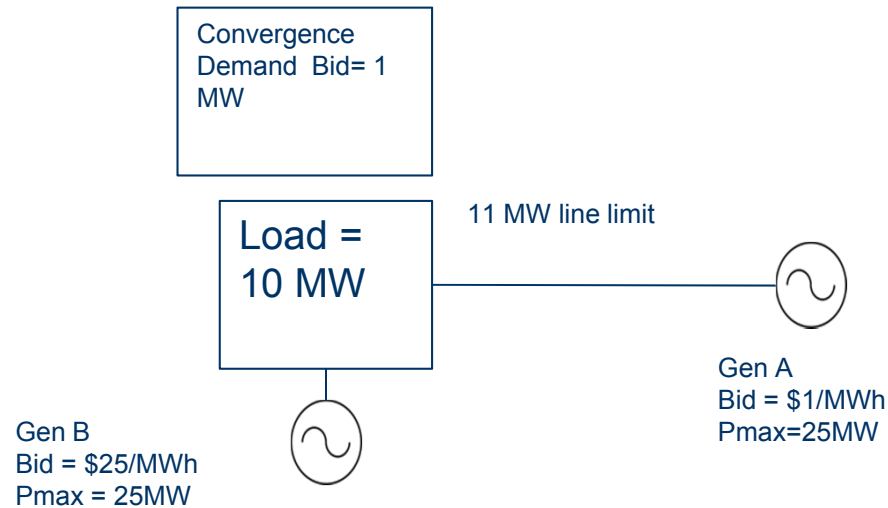Bid = $1/MWh
Pmax=25MW

Gen B
Bid = $25/MWh
Pmax = 25MW

◆ Generation charges $1/MWh
  ■ With no transmission problem DA price = RT price = $1/MWh

◆ Settlement

Entity	DA Settlement	RT Settlement	DA+RT Settlement
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-1MW@$1 = -$1	$10
Convergence bid	-1MW@$1 = -$1	1MW@$1 = $1	$0

◆ No uplifts
  ■ Total money collected from load ($10) fully funds the payments owed to the generation ($10)

Example 2: No model change but Generation trips in RT (No uplifts)

Convergence Demand Bid= 1 MW

11 MW line limit

Load = 10 MW

Gen A
Bid = $1/MWh
Pmax=25MW

Gen B
Bid = $25/MWh
Pmax = 25MW

- ◆ Gen A trips offline. CAISO must secure 10 MWh from Gen B. RT price = $25/MWh

  - ◆ LMP = $25/MWh for Gen A, Gen B, and Load.

  - ◆ Gen A must replace its full 11 MW schedule at $25/MWh.

- ◆ Settlement

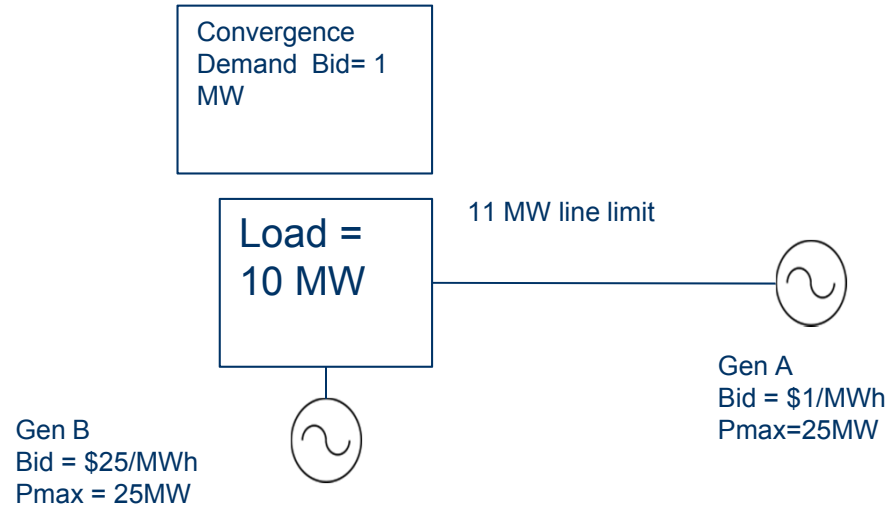| Entity	DA Settlement	RT Settlement	DA+RT Settlement
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-11MW@$25 = -$275	-$264
Gen B	$0	10MW@$25 = $250	$250
Convergence bid	-1MW@$1 = -$1	1MW@$25 = $25	$24

- ◆ No uplifts
  - ▪ Total money collected from Load and Gen A ($274) fully funds the payments owed to Gen B ($250) and the Convergence bid transaction ($24).

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Example 3: RT model change and perfect performance (Uplift created)
This case highlights SCE's major concern with the CAISO's implementation

```
┌─────────────────┐
│ Convergence     │
│ Demand  Bid= 1  │
│ MW              │
│                 │
└─────────────────┘

┌───────────┐    11 MW line limit
│           │
│ Load =    │────────────────────────────⊙
│ 10 MW     │                          Gen A
│           │                          Bid = $1/MWh
└───────────┘                          Pmax=25MW
      │
Gen B │
Bid = $25/MWh  ⊙
Pmax = 25MW
```

◆ Gen A instructed to 0 MW, Gen B instructed to 10 MW and charges $25/MWh
- Transmission derated to 0 MW in RT and CAISO must secure 10 MWh from Gen B.
- RT LMP for Load and Gen B = $25/MWh.
- RT LMP for Gen A = $1/MWh due to system separation.

◆ Settlement

Entity	DA Settlement	RT Settlement	DA+RT Settlement
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-11MW@$1 = -$11	$0
Gen B	$0	10MW@$25 = $250	$250
Convergence bid	-1MW@$1 = -$1	1MW@$25 = $25	$24

◆ Uplifts created
- CAISO pays total of $274 ($250 to Gen B + $24 to Convergence bid)
- With only $10 collected from load, this results in $264 of uplift to be paid by load

Two forms of uplifts

◆ Power balance uplift: Load has no objection

- Need to keep lights on
- No objection to procuring replacement for MW of physical supply and socializing uplift

◆ Non-market uplift: Load objects

- Created by CB
- No willing counterparty with long or short position makes this a non-market uplift
- Load is forced to pay such non-market uplift

Proposed Solution

- ◆ Immediately address this issue and do NOT expand convergence bidding until it is resolved

- ◆ Adopt the following Policy: The CAISO will not honor CB bets against the CAISO

- ◆ Uplifts should only exist to meet physical reliability needs, not to fund CB transactions
  - Any non-market uplifts created that do not "keep the lights on" will be nullified at settlement
  - SCE doesn't object to paying uplifts to keep lights on
  - SCE objects to funding non-market bets via uplift

- ◆ CB would get their DA money back for zero profit
  - There may be some residual uplift from such a policy and if done properly we could tolerate that uplift