Cost Allocation Proposal

The CAISO is proposing the following settlements charges be allocated to SCs engaged in virtual bidding:

- A portion of IFM Tier 1 (Virtual Demand) and RUC Tier 1 Uplift (Virtual Supply)
- Administrative Fees (GMC)
  - CAISO may create a separate GMC charge for virtual transactions or
  - Allocate some existing GMC charges to virtual transactions
IFM and RUC Tier 1 Cost Allocation

- Allocation to virtual bidders based on total net virtual transactions system wide
- If system wide net results in a positive net virtual supply SCs with a net virtual supply obligation will pay RUC Tier 1 Uplift. Obligation for IFM Tier 1 would be zero.
- If system wide net results in positive net virtual demand SCs with a net virtual demand will pay IFM Tier 1 Uplift. Obligation for RUC Tier 1 in that hour would be zero
IFM Tier 1 Basics

- Obligation for physical load based on SCs Day-Ahead scheduled demand – Self-Scheduled Generation and Imports +/- Inter-SC Trades of IFM uplift
- Obligation for virtual demand = SCs net virtual demand system-wide +/- Inter-SC Trades of IFM Uplift
- Obligation is multiplied by rate to get total $ of uplift allocated to each SC
- Rate is calculated based on total dollars of uplift that must be recovered/max (Physical Load obligation + Virtual Demand), total Scheduled DAM Gen + Upward A/S)
- Portion of dollars out of total dollars to be recovered allocated to virtual demand is based on MW of net virtual demand system wide * user rate
Assumptions for Example:
- Four Market Participants with cleared virtual transactions in the Day-Ahead Market
- Total IFM Bid Costs that need to be recovered = $50,000
- Physical Load IFM Tier 1 Obligation (based on Scheduled Day-Ahead load minus Self-Scheduled Generation and imports) = 36,000 MW
- Virtual Demand IFM Tier 1 Obligation (based on system net of virtual demand and virtual supply) = 2,000 MW
- Sum of all CAISO Generation schedules in DAM + Upward A/S Awards = 20,000 MW
### Step 2 - Determine SC Obligation

<table>
<thead>
<tr>
<th></th>
<th>Virtual Demand</th>
<th>Virtual Supply</th>
<th>Net VD</th>
<th>Net VS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1</td>
<td>2,000</td>
<td>1,000</td>
<td>1,000</td>
<td>0</td>
</tr>
<tr>
<td>SC2</td>
<td>500</td>
<td>1,600</td>
<td>0</td>
<td>1,100</td>
</tr>
<tr>
<td>SC3</td>
<td>2,200</td>
<td>400</td>
<td>1,800</td>
<td>0</td>
</tr>
<tr>
<td>SC4</td>
<td>1,800</td>
<td>1,500</td>
<td>300</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,500</strong></td>
<td><strong>4,500</strong></td>
<td><strong>3,100</strong></td>
<td><strong>1,100</strong></td>
</tr>
</tbody>
</table>
Step 3 - Calculate IFM Tier 1 Rate

Divide the dollars to be recovered $50,000 by the MAX of the sum of the net virtual demand obligation (3100MW) plus the Physical Load obligation (36,000 MW) or the total DAM generation plus upward A/S (20,000 MW)

IFM Tier 1 Rate = $50,000/ max (3,100 MW + 36,000 MW), 20,000 = 1.28 $/MW
Step 4 - Determine $ Allocation to Virtual Demand

The dollars to be allocated to SCs with net virtual demand = Total system net virtual demand (2000 MW) * the IFM Tier 1 Rate (1.28 $/MW) = $2,557.54

This means that out of the $50,000 total IFM bid costs that must be recovered $2,557.54 will be allocated to virtual demand.
Step 5 - Allocate Costs to Each SC with Virtual Demand Obligation

The CAISO will allocate IFM costs for virtual demand determined in Step 4 ($2,557.54) to each SC that has a net virtual demand obligation system wide based on the ratio of each SC’s net virtual demand obligation system wide to the total net virtual demand obligation for all SCs system wide.
### Allocation to each SC for IFM Tier 1 Uplift

<table>
<thead>
<tr>
<th></th>
<th>Net Virtual Demand (MW)</th>
<th>Net Virtual Supply (MW)</th>
<th>IFM Uplift Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1</td>
<td>1,000</td>
<td>0</td>
<td>$825</td>
</tr>
<tr>
<td>SC2</td>
<td>0</td>
<td>1,100</td>
<td>$0</td>
</tr>
<tr>
<td>SC3</td>
<td>1,800</td>
<td>0</td>
<td>$1,485</td>
</tr>
<tr>
<td>SC4</td>
<td>300</td>
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<td>$248</td>
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<tr>
<td>Total</td>
<td>3,100</td>
<td>1,100</td>
<td>$588</td>
</tr>
</tbody>
</table>

SC 1 was allocated IFM Tier 1 Uplift based on $2,557.54 \times (1,000/6,500) = $825
RUC Tier 1 Uplift

- Obligation for Physical Load = Net Negative CAISO Demand Deviation (load that deviated from the Day-Ahead schedule)
- Obligation for virtual supply = SCs net virtual supply
- Obligation is multiplied by rate to get total $ of uplift allocated to each SC
- Rate is calculated based on total dollars of uplift that must be recovered/max (Physical Load obligation + Virtual Supply Obligation), Total CAISO RUC Capacity
- Portion of dollars out of total dollars to be recovered allocated to virtual demand is based on MW of net virtual supply system wide * user rate