Uplift Issues in New England

Issues, causes and solutions

Ron Coutu

STRATEGIC MARKET ADVISOR | RCOUTU@ISO-NE.COM
UPLIFT IN NEW ENGLAND
Terminology – New England

• Uplift Terminology
  – Net Commitment Period Compensation (NCPC) = equal to PJM “Operating Reserves”
  – Local Second Contingency Protection (LSCPR)
  – Special Case Resource uplift (SCR) – resources committed for distribution system support
  – Voltage Support (VAR)
Uplift Costs – 2014

DA and RT NCPC Charges

JUL-14 Total = $7.56 M

Day-Ahead  Real-Time

Last 13 Months

Millions

Day-Ahead  Real-Time
UPLIFT ALLOCATION ISSUES
Allocation is Similar to PJM

- DA – “Economic” or “First Contingency” Uplift is charged to Day-Ahead Cleared Demand (system-wide)
- RT – “Economic” or “First Contingency” Uplift is charged to Deviations (system-wide)
  - Except for ISO dispatched generator deviations
- DA and RT other Uplift is charged to Real-Time Load locationally
  - Second Contingency
Problem with Allocating Uplift to Virtuals

Figure 6: Virtual Transaction Volumes and Profitability
By Month and By Location, 2012 – 2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Virtual Load</th>
<th>Virtual Supply</th>
<th>RT NCPC Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avg MW</td>
<td>Avg Profit</td>
<td>Avg MW</td>
</tr>
<tr>
<td>2012</td>
<td>-259</td>
<td>$0.77</td>
<td>260</td>
</tr>
<tr>
<td>2013</td>
<td>-230</td>
<td>$3.59</td>
<td>206</td>
</tr>
</tbody>
</table>

Virtual Load
Virtual Supply
VL Profit
VS Profit

$37
Allocation Issues

• **Virtuals**
  – ISO’s External Market Monitor identified an issue with allocating NCPC costs to Virtual Transactions
  – These costs in 2011 exceeded the profits from virtual transactions
    • Profits = $14 Million
    • Uplift Charges to Virtuals = $15 Million
  – The ISO External and Internal Market Monitor have identified that this needs to change

• As part of the above and other issues with allocation of NCPC the ISO will be going through a complete redesign of allocation looking at concepts such as:
  – Cost Causation
  – Beneficiary Pays
PRICE FORMATION: WHAT’S THE PROBLEM?
Price Formation Issues in New England

• Pricing issues have been discussed in different arenas in New England since the advent of LMPs (2003)

• ISO New England begin a series of Price Formation Technical Seminars in February 2014 to create an open discussion with 3 main goals:
  1) Identify the issues
  2) Identify our objectives of energy market pricing
  3) Identify alternatives to current energy market pricing
What is the “problem”? 

1. Many perceived pricing “problems” in organized markets boil down to a small number of fundamental root causes. 
   - *E.g.*: Non-convexities; Demand-side flaws, Generator minimums 
   - These problems are handled differently when they arise in markets elsewhere in the economy. 

2. Making significant progress on these root causes probably requires major changes to electricity markets 

3. Trying to separate the true root cause of the pricing problem from other problems (i.e. commitment issues) is necessary
RT Pricing: Much interest, much work ahead

• “Price formation” is a popular concern

• Little clarity on what this means among stakeholders
  – RT LMPs are too low, or (for others) too high?
  – “Too much” uplift?
  – Some price concerns are symptoms of uneconomic decisions, modeling limitations, etc., not problems with pricing methods per se.

• There are substantive RT pricing research questions:
  – What are the (precise) objectives of RT pricing, and why?
  – Do current pricing methods achieve these objectives?
  – What are the root causes when pricing methods do not?
Three Central Objectives of Real-Time Prices

(E) **Efficiency.** Real-time prices should **support** an efficient allocation of production and consumption.

- Pricing should be *incentive compatible*: induce dispatch-following behavior.

(T) **Transparency.** All market participants know what price(s) *(total compensation rates)* are paid to everyone.

(S) **Simplicity.** *(a)* Prices should have a clear interpretation; *(b)* There should be as few prices as possible *(for each time and location).*
Challenges: Several root-cause reasons prices may not satisfy the E+T+S objectives

1. **Indivisibilities** (‘lumpiness’) of generation offers
   - Non-convex production possibility set. Units at $P_{\text{min}}$ (efficiently).

2. **Fixed (startup) costs** and 3-part bid format issues
   - Different form of non-convexity. FC are common to markets generally.

3. **Inter-temporal constraints** (over multi-hour horizons)
Schedule of future Price Formation Technical Seminars

• Sept 22\textsuperscript{nd} – Restarting Seminars after break for summer
• Others dates TBD, if necessary
OTHER CHANGES THAT WILL HAVE AN IMPACT ON NCPC
Major impacts to NCPC

• Offer Flexibility – Scheduled for December 3rd, 2014
  – Hourly Offer granularity for DA
  – Hourly Offer/reoffer flexibility in RT
  – Updates to Fixed Costs in RT
  – Negative Offers

• Sub-hourly settlements – Planned for 2015+
  – Five-minute is the goal