Market Design for the West

RTO West

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In many respects our design is much like SMD

But, our region has some Special Characteristics:

- Hydro
- Distance
- Low Prices
- Political Resistance

So, we employed some Design Features that differ from SMD:

- Balanced Schedules
- Cataloged Transmission Rights
- Options vs. Obligations

Connect the dots – How the characteristics lead to the features
Regional Characteristics
We have a lot of it

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Capacity</th>
<th>Energy</th>
<th>Capacity Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MW</td>
<td>GWh</td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td>46,604</td>
<td>227,850</td>
<td>55.8%</td>
</tr>
<tr>
<td>Coal</td>
<td>17,258</td>
<td>127,312</td>
<td>84.2%</td>
</tr>
<tr>
<td>Other Thermal</td>
<td>8,556</td>
<td>31,587</td>
<td>42.1%</td>
</tr>
<tr>
<td>Total</td>
<td>72,418</td>
<td>386,749</td>
<td>61.0%</td>
</tr>
</tbody>
</table>

Table 1. Northwest Power Pool Statistics for 1999.

- System is energy constrained – not capacity constrained
- Highest NWPP actual peak load in January 2000 was 55,986 MW
- “Other Thermal” includes nuclear and combined cycle
Hydro

Consequences:

- There is high value in coordinated operation
  - Hydro-thermal coordination creates firm power and displaces capital

- Cannot coordinate simply on short term price signals
  - Hydro projects are interdependent resources
  - River coordination spans multiple plants and long time periods
  - Long-term system thinking dominates operational strategy

- Unplanned obligations can disrupt coordination
  - Many non-power constraints affect hydro production
  - Hydro not necessarily responsive to ST price or “must run” orders
  - Concern about how market mitigation will work
  - ST cost is opportunity cost relative to LT use

- Hydro/Thermal coordination causes transmission flow reversals
  - Base loading coal allows using and recharging hydro storage
  - Requires broad, flexible transmission rights
Distance

We have a lot of it

- Examples:

  All of PJM could fit entirely within a single Western state.

  The Idaho Power system serves about 3000 Mw of peak retail load. Physically, it spans a distance equivalent to that between Washington DC and Lansing, Michigan.
Distance

Consequences:

- **Historic transmission development has been rather stingy**
  - Long distances and not much load to pay for expensive lines
  - Capacity is Leveraged with remedial actions, etc.

- **Highly committed**
  - Basic operating requirements use much of the capacity
  - Preserving rights seen as critical to reliability

- **High congestion risk**
  - Highly utilized
  - Customers fear losing transmission rights will raise costs
We have a lot of it

- Retail prices are among the lowest in the nation.

- Creates a Perception and an Attitude
  - Fear of losing coordinated system benefits and raising NW costs.
  - “Ain’t broke, don’t fix it”

- Stakeholder focus on Benefit / Cost
  - “Show me the benefits”
  - Little to gain, Much to lose
Consequence:

- Necessary to Preserve elements of the past
  - People understand how basic responsibilities are carried today
  - Markets should not shift load responsibilities
  - Transmission rights should not be taken away or put at risk
  - Avoiding cost shifts is a major driver
Political Resistance

We have a lot of it

- Opposition in NW is Organized
  - Strong Opposition in many forums
  - Paid Advertising Opposing RTO West and SMD
  - Regular Congressional Delegation Visits

- Driven by the low prices and fear of the unknown
  - Reinforcing “Ain’t broke, don’t fix it”

- May be softening
  - Emerging recognition that status-quo can be improved
Political Resistance

Consequences:

- **May stop the show**
  - Challenging FERC action
  - Challenging BPA participation

- **Need to preserve what we have**
  - Preserving transmission rights is important
  - Preserving load responsibility is important

- **Need to Shift Debate to Facts, not Fears**
  - Recent dialog on understanding regional differences is helping
  - Further development of RTO West market design proposal is helping
  - Need time to sift and winnow ideas
  - This is not an easy problem to solve
Design Features
Balanced Schedules (a.k.a. Day Ahead Market)

- RTO West requires Balanced DA Schedules

- Addresses resource adequacy in the DA market
  - Maintains LSE responsibility for having adequate resources
  - Preserves these existing obligations in a manner like today
  - Preserves existing bilateral market – coordination is not relying on ST prices

- Avoids impacting hydro with unexpected obligations
  - A large draw by short parties may disrupt hydro coordination
  - Hydro-thermal coordination often requires energy to be stored rather than used short term

- Other factors supporting balanced schedules
  - Surplus Capacity under most circumstances
  - Demand Response
  - Want to encourage forward markets

- Heard arguments against balanced schedules
  - Thin DA Market & Incentive to bias load forecast
RTO West preserves existing rights as CTRs

- Preserving existing rights is critical
  - Most stakeholders see too little to gain to justify much cost or risk

- Existing rights have considerable flexibility
  - Needed for hydro/thermal coordination over wide conditions
  - Reflected in historic contracts

- Physical capacity insufficient
  - Over-committed if full historic flexibility is granted
  - Couldn’t simply allocate system into new form of rights

- But, the lights stay on
  - Existing uses fit when diversity and displacement are considered

- Existing rights preserved in a non-tradable “pool”
  - Maintains benefits of diversity and displacement
RTO West has options rather than obligations

Preserves nature of existing rights
- Today’s physical rights allow customers to use their rights to accommodate their schedules and pay no congestion costs. They are not exposed to paying if congestion appears in the opposite direction.

Stakeholders unwilling to accept paying for flow reversal
- Flow reversal is a common occurrence in hydro-thermal coordination. Major lines like the Pacific Intertie reverse loading daily as energy is returned for storage during the night.

Options are “Use or Lose”
- No value to holder if not used to cover a schedule
- Promotes liquidity
- Precludes hoarding
Why can’t this work as a starting point?