

# Market Design for the 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 1. Northwest Power Pool Statistics for 1999.**

Resource Type	Capacity		Energy		Capacity Factor
	MW	Fraction	GWh	Fraction	
Hydro	46,604	64.4%	227,850	58.9%	55.8%
Coal	17,258	23.8%	127,312	32.9%	84.2%
Other Thermal	8,556	11.8%	31,587	8.2%	42.1%
Total	72,418	100.0%	386,749	100.0%	61.0%

- **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**

## 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

## 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.**

## 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

# Low Prices

## 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

## 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

## 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

# Catalog Transmission Rights

- **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?**