Regional Transmission Organizations: Successes and Challenges

Andrew Ott
Executive Vice President, Markets
Harvard Electricity Policy Group
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21% of U.S. GDP produced in PJM

KEY STATISTICS

- Member companies: 800+
- Millions of people served: 60
- Peak load in megawatts: 163,848
- MWs of generating capacity: 185,600
- Miles of transmission lines: 59,750
- GWh of annual energy: 832,331
- Generation sources: 1,365
- Square miles of territory: 214,000
- States served: 13 + DC

As of 7/2012
PJM – Focus on Just 3 Things

1. Market Operation
   - Energy
   - Capacity
   - Ancillary Services

2. Reliability
   - Grid Operations
   - Supply/Demand Balance
   - Transmission monitoring

3. Regional Planning
   - 15-Year Outlook
Market Evolution

- Day-Ahead Energy Market
- Real-Time Energy Market
- Capacity Market
- Financial Transmission Rights Auctions
- Gas/Electric Market Coordination

Ancillary Services Markets
- Regulation
- Synchronized Reserves
- Day-Ahead Scheduling Reserves
- Black Start Services
- Reactive Services
Success
• Wholesale Competition
• Operational Efficiency
• Transparency
• Reduced Barriers
• Innovation
• Product Development
• Economy of Scale
• Regional planning

Challenges
• Governance
• Design Compromises
• Regional Differences
• Seams Issues
• Complexity
• Excessive regulation/mitigation
Advanced Market Systems

- Industry Leadership
- Customer Focused
  - eLoad Response
- Technology
  - Resource Control Application
  - Time-coupled Optimization
- Business Resiliency
  - Security
  - Dual Control Centers
Key Study Conclusions:

- Bilateral Trading could only achieve 40% of the efficiency gains of LMP-based market.
- Incremental benefit of LMP Market Integration = $180 Million annually, Net Present Value over 20 yrs is $1.5 Billion.

Referenced with Permission: Source: Erin T. Mansur and Matthew W. White, “Market Organization and Efficiency in Electricity Markets,” March 31, 2009, Figure 2, pg 50, discussion draft, (available at http://bpp.wharton.upenn.edu/mawhite/).
Dominion Integration Benefits

Projected Benefit to Dominion Zone customers was $291 to $542 Million for Ten year period (2005-2014)
Actual Benefit
- $750 Million in avoided fuel costs for the four year period from May 2005 through May 2009
- In 2008, measured benefit of $240 Million in energy cost savings and $90 Million in net FTR revenue

1. Dominion Study, Reported result in filing before VA State Corporation Commission, 2004
2. Greg Morgan, Dominion Executive, Testimony @ VA State Corporation Commission, June 2009

Prior to Integration

ECAR to DVP Transfer Capability = 2750 MW

PJM to DVP Transfer Capability = 2800 MW

After Integration

Northern Market Area to DVP Proxy for Transfer Capability = 4000 MW

Western Market Area to DVP Proxy for Transfer Capability = 3950 MW

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