XIII Seminario Repsol YPF - Harvard


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U.S. Federal Energy Regulatory Commission

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WHAT IS THE FERC?

- U.S. Government Agency
  - Independent Executive Branch Agency
  - Decisions subject to review by U.S. Courts

- 5 Voting Commissioners
  - Appointed by the President
  - Confirmed by the Senate
  - Five Year Terms

- 1250 Employees
  - Engineers, Technical Specialists
  - Lawyers
  - Economists
ROLE OF THE FERC

• Regulation of Natural Gas Transportation
  (130 Pipelines Subject to FERC Jurisdiction)
  – rates and services of interstate pipelines
  – licensing of pipeline construction

• Regulation of Electric Industry
  – Wholesale Sales of Electricity
  – Interstate Electric Transmission (174 jurisdictional transmission
    owning electric utilities and independent system operators)

• Hydroelectric Licensing (over 1700 hydroelectric projects)

• Regulation of Interstate Oil Pipelines
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<tr>
<td>• FERC</td>
<td>• 50 State Regulatory Commissions</td>
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<td>• Wholesale Transactions</td>
<td>• Retail Transactions</td>
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<td>• Rates, terms and conditions of interstate transmission service</td>
<td>• Rates, terms and conditions of local distribution</td>
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FERC POLICIES IN THE 1990s

• Market based pricing for generation service
• Third party access to the transmission grid (1996)
  – Unbundling: transmission service separated from generation service
  – Contract path based
  – Congestion costs socialized
GRID MANAGEMENT PROBLEMS UNDER THIRD-PARTY ACCESS

• Vertically integrated grid operators
  – Conflict of interest in providing access; discrimination

• Grid management fractured among more than 100 operators
  – Markets are regional but grid management sub-regional
  – Multiple transmission rates keep markets too small

• No locational price signals in most markets
REGIONAL TRANSMISSION ORGANIZATIONS (RTOs) (2000)

- Grid manager for large region that is independent of merchant generation interests

- Benefits
  - Large regional trading hub
  - Eliminate conflicting incentives
  - Enlarge markets through improved transmission pricing and congestion management

- Voluntary, design elements not prescribed
MARKET DESIGN: CALIFORNIA PROBLEMS

• Over-reliance on spot market
• No hedging instruments allowed
• No assurance of adequate generation capacity
• No market power mitigation
• Insufficient demand response
• Poor congestion management
PROPOSED STANDARD MARKET DESIGN (2002)

- Mandatory
- Similar to PJM market design
- Transmission system and spot market run by independent entity
- Standard tariff for all transmission service
STANDARD MARKET DESIGN FEATURES

• Spot market: bid-based security constrained economic dispatch that uses locational marginal prices (LMP)

• Day ahead market – allows time to adjust production and consumption
STANDARD MARKET DESIGN FEATURES

• Transmission service
  – Basic access fee gives scheduling rights
  – Firm transmission rights hedge congestion costs
  – Grid expansion creates new transmission rights
  – Applies to wholesale and retail uses
STANDARD MARKET DESIGN FEATURES

• Regional planning – generation, transmission or demand solutions
• Market monitoring and market power mitigation
  – Monitor staff must be independent of RTO
  – Ex ante mitigation measures (bid caps, bid limitations, maintenance coordination)
• Regional generation adequacy requirements
CRITICISM OF STANDARD MARKET DESIGN

• Interferes with state jurisdiction (rates, resource adequacy, planning)
• No respect for regional differences
• Too prescriptive and detailed
MODIFICATIONS TO STANDARD MARKET DESIGN (April 2003)

- Retain core principles
- RTO design elements more flexible
- Respect for regional differences (timing, benefits vs. costs)
- Greater role for states
  - Planning
  - Resource adequacy
  - Access charge
  - Allocating firm transmission rights
LESSONS

• Electricity network flows do not follow political boundaries

• Insist on fundamental design elements
  – Spot market with locational pricing signals
  – Independent grid and market operation
  – Consistent rules over entire market region
  – Firm transmission rights to hedge congestion costs
  – Market monitoring and mitigation

• Accommodate regional differences while eliminating seams between regions
U.S. AND EUROPE: COMMON GOALS

- Consistent tariffs among trading regions
- Enlarging markets – reduces supplier market power
- Market transparency
- Independent operation of grid/power markets
- Consistent congestion rules among trading regions