

# RESTRUCTURING IN THE ELECTRICITY SECTOR

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# Overview

- Some Universal Considerations
- Traditional vertically-integrated utilities
- Wholesale electricity markets
- Retail electricity markets
- Current status in the U.S.
- Significant Issues Facing Regulators

# Some Universal Considerations

- Electricity cannot be stored
- Flow is difficult to control
- Disturbances travel very quickly
- Disturbances are hard to control
- Customers do not tolerate outages and fluctuations

# Vertically-Integrated Utilities

- Traditional model
- Generation
- Transmission
- Distribution
- End-use customers

# Generation

- Types of fuel
- Baseload
- Intermediate
- Peaking
- Ownership

# Transmission

- Ownership
- Level: federal and state regulation
- Planning
- Operation
- Construction
- Costs

# Distribution

- Type of system: radial, loop, network
- Ownership
- Planning
- Operation
- Construction
- Costs

# Customers by Utility Type

Type	Number	Customer Share
Investor-Owned Utilities (IOU)	230	74%
Municipals (Munis)	2000	14%
Cooperatives (Co-ops)	900	12%



# Participants in Vertically Integrated Industry

- Investor-Owned Utilities (IOUs)
- Municipal and Publicly-Owned Utilities (Munis)
- Cooperatives (Co-ops)
- Federal Power Authorities (FPAs)
- Power pools
- Energy Service Companies (ESCOs)
- Independent Power Producers (IPPs)

# Participants in Competitive Open Access Industry

- Electric Distribution Companies (EDCs)
- Transmission Companies (Transcos)
- Merchant Generators (Genco)
- Independent System Operator (ISO)
- Regional Transmission Organization (RTO)
- Load Serving Entities (LSEs)
- ESCOs, Financial Services Companies
- Wholesale and retail suppliers

# Key Events in Open Access

- PURPA of 1978
- EPAct of 1992
- FERC Orders 888 and 889 (1996)
- FERC Order 2000 (1999)
- Individual state restructuring laws
- California
- Enron and other market abuses
- FERC Standard Market Design

# PURPA of 1978

- Energy crises of the 1970s
- Required electric utilities to buy energy and capacity from Qualifying Facilities (QFs, e.g., cogen or renewable)
- Pay for purchased power at the utility's avoided cost

# EPAct of 1992

- Created Exempt Wholesale Generators (EWGs)
- EWGs not restricted by size or fuel type
- EWGs not subject to state jurisdiction
- EWGs not guaranteed sale at avoided cost
- EWGs could not sell directly to customers
- FERC prohibited from ordering or approving retail access/choice programs

# FERC Orders 888 and 889

- Provide transmission service to all under same terms and conditions (non-discriminatory)
- Utilities functionally separate generation, transmission, distribution, and power control
- Encouraged ISOs
- **Open Access Same-time Information System**

# FERC Order 2000

- Encouraged formation of RTOs
- Required jurisdictional utilities to make filings to join RTOs
- Unclear about its authority to do so
- Several RTOs formed: PJM, NY, New England, Southwest, Midwest
- Some states fear loss of control

# Individual State Laws

- Began in late 1990s
- Currently in 18 states and DC
- Reaction to California and Enron led some states to suspend or reject retail access
- Fear of low cost power being sold in high cost states
- Industrial and large commercial customers benefited from retail choice programs



# Current Regional Markets

- Northeast: New England and New York
- Mid-Atlantic: States in PJM
- Midwest: States in MISO
- Success in industrial and large commercial sectors
- Small commercial and residential is slow growth

# Some Significant Issues

- Provider of Last Resort
- Renewable Portfolio Standards
- High cost of natural gas and environmental concerns for coal
- Load pockets and “Must Run” for reliability
- Transmission upgrades; cost causation
- Signals for new generation (LMP, RPM)
- Market monitoring
- Regional coordination; federal-state relationship