

# **ERCOT & Texas What is Next?**

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## **Outline**

- **Current Wholesale Market Design**
- **Success of Retail Market**
- **Issues with Current Wholesale Market**
- **Options for Future Wholesale Market**



## History of Restructuring

- 1995 – Passage of legislations introducing wholesale competition, open access transmission
- 1999 - passage of Senate Bill 7 authorizing retail competition
- 2001 – ERCOT assumes single control area operations, retail competition pilot project
- 2002 – full introduction of retail competition (competition delayed outside of ERCOT due to lack of wholesale market institutions)



## “Preconditions to Competitive Wholesale Markets”

- Regional Transmission Organizations with Non-Discriminatory Stakeholder Process
- Energy Only Commodity Markets
- Elimination of Entry Barriers to Price Responsive Loads
- Market Monitoring and Market Power Mitigation
- Adequate Transmission Infrastructure
- Federal-State Regulatory Partnership



## ERCOT as RTO

- RTO/ISO for ERCOT market
- Ensure open access to transmission grid
- Settlement/registration agent
- Transmission planning
- Governed by hybrid stakeholder/independent board



## Energy Only Market

- Market is primarily bilateral – more than 90%.
  - Leads to some concerns about liquidity/transparency of market.
  - No central day ahead market/unit commitment market.
  - Makes impacts of price spikes limited.
  - ERCOT operates balancing energy market and other market based ancillary services market.
  - Currently no mandated capacity market (ICAP).



## Price Responsive Load

- **Opportunities for loads to participate in ancillary services markets.**
  - Not perfect, but a start – customers getting more creative in looking for opportunities.
- **Also opportunities for “passive” load response – curtail load and receive balancing energy price for energy.**



## Market Power and Mitigation

- **Unbundling of generation, wires, retail services**
- **Power generation companies cannot own more than 20% of generation in ERCOT market.**
- **Incumbents required to auction off 15% of capacity through 2007.**
- **26,000 MW of new gas generation since 1995 has lead to incumbents mothballing older, less efficient generation.**
- **Transmission priced on postage stamp basis – currently no participant funding.**
- **Generators in locally constrained areas mitigated through cost-based payments.**



## Transmission Infrastructure

- ERCOT tasked with region-wide transmission planning.
- PUC approval of routing of new lines.
- Expedited capital cost recovery for TDUs
- Over X billion of new transmission investment since 1999 to facilitate new market. X billion in transmission projects currently being tracked by ERCOT.
- Market based congestion management (except for local constraints that typically do not have competitive conditions).
- Evaluation by ERCOT of "exit strategies" for Reliability Must-Run (RMR) units – usually transmission/other voltage solutions – limits RMR payments.

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## Federal State Regulatory Partnership



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## **Federal State Regulatory Partnership**

- **PUC of Texas role**
  - Sole regulatory authority for ERCOT
  - Market monitor
  - New legislation for independent market monitor at ERCOT, reports to PUC
- **Non-ERCOT areas continue to need further development before retail competition can succeed.**



## **“Preconditions to Competitive Wholesale Markets”**

- ✓ **Regional Transmission Organizations with Non-Discriminatory Stakeholder Process**
- ✓ **Energy Only Commodity Markets**
- ✓ **Elimination of Entry Barriers to Price Responsive Loads**
- ✓ **Market Monitoring and Market Power Mitigation**
- ✓ **Adequate Transmission Infrastructure**
- ✓ **Federal-State Regulatory Partnership**



## **Building Blocks for Texas Retail Competition – Retail Market**

- **Delivery company not in retail sales business**
- **Code of conduct between TDU and competitive affiliates**
- **No regulated rates for >1 MW customers after January 1, 2002. “Price to Beat” for customers <1 MW until January 2007**
- **Price to beat began as and has remained above market rate permitting new entry**
- **Standardized rules and business processes**



## **Texas Retail Market Performance**

- **Generally considered one of the most successful competitive retail markets in world.**
- **Large customers switched early and often.**
- **Smaller customers continue to switch in greater numbers.**
- **Large number of retailers, aggregators, brokers – relatively easy entry, low barriers to entry.**



## Switching Statistics

- 72% of large commercial and industrial load has switched away from incumbents
- 73% of small and medium commercial load has switched away
- 28% of residential load has switched away.



## Prices

- Prices have generally increased since market opening due to persistent natural gas price increase
- Prices very competitive when adjusted for fuel costs
- Large customers have many options for service.
  - Pass-through of balancing energy prices/heat rate products/fixed price
  - Heat rate products
  - Combinations of fixed price/variable price offers.
  - Market valuing of demand response



**Everything is Working Well.....**

**So it's clearly time to change it  
all.....**



## **Why Consider a New Wholesale Market Design?**

- **Concerns about local congestion costs**
  - Costs are uplifted to load, potentially creating gaming opportunities, poor incentives for scheduling behavior
- **Operational issues for ERCOT**
- **Claimed inability of new, efficient generators to run in market while older units were remaining on-line**
- **Concerns about adequate price signals, market transparency for new investment**



## Congestion Management

- Inter-zonal congestion cost allocated to those entities scheduling across congested lines
- Intra-zonal congestion uplifted to all load
  - Attempts to have market solutions to local congestion
  - Local congestion predominately solved through cost-based payments due to lack of competitive solutions.
- RMR payments uplifted to all load
  - Cost based contracts entered into by ERCOT
  - ERCOT required to explore exit strategies (i.e. new transmission, etc.) to minimize use of RMR



## Congestion Costs

	2002	2003	2004
Local Congestion	\$174 million	\$266 million	\$151 million
RMR	\$32 million	\$139 million	\$120 million

**Total Retail Market Size Approximately \$25 billion**



## Operational Issues – Portfolio Bidding, Dispatch & Deployment

- **Currently portfolio scheduling and dispatch.**
  - Makes it difficult for ERCOT to know precisely what generation is running and the impact on the grid.
  - ERCOT must guess at which units will actually be deployed when an instruction is given.
- **Use of portfolio ramp rates means actual deployments may not occur when expected, leading to deployments of reserves to maintain reliability.**
- **Assumption that all generation within a zone has same impact on constraints.**
  - Uncertainty about actual flows makes ERCOT conservative when estimate available transfer capability.



## Operational Issues - Schedules

- **ERCOT control system premised upon scheduling entities following schedules and deployment orders.**
- **Physical nature of market leads to large amount of block energy schedules (5X16).**
  - Frequency issues at 7 AM and 11 PM, large ancillary services needs to balance grid
- **15 minute dispatch may make congestion management more difficult than it would be with 5 minute dispatch.**
  - Unit trips or load changes from ERCOT study of needs to actual deployments



## Operational Issues – Ancillary Services & Day-Ahead Commitment

- Ancillary services may be procured, but can't be delivered due to local congestion.
- ERCOT uses Out-Of-Merit Capacity service on day-ahead basis to commit additional units if it believes they will be needed.
  - Command and control – currently no market mechanism to ensure this is being done at lowest cost.



## Other Issues

- Claimed inability of new, efficient generators to run in market while older units were remaining on-line.
  - Mothballing of new CCGT when older generation in area continued to run
  - But, lowest cost does not always equate to lowest price
- Concerns about adequate price signals, market transparency for new investment.
  - Generation pockets: Biggest problem is West Texas wind power
  - Persistent load pockets in DFW area that cannot be easily solved by adding new generation or additional transmission



## PUC Evaluation

- Started rulemaking in 2003 to re-evaluation wholesale market design.
- Adopted a rule requiring direct assignment of local congestion, voluntary day-ahead market, (what else), but not requiring a nodal market per se.
- Later clear that the Staff's intent was a nodal market.
- PUC ordered cost-benefit analysis – largely useless exercise.
- Recent workshops to discuss nodal market vs. improved zonal market.
- Workshops on possible implementation of a “generation resource adequacy” mechanism.

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## Advantages of a move to a nodal market

- **Better operational tools for ERCOT**
  - Unit specific bidding, dispatch, settlement
  - May lower ancillary services costs, uplifts
  - Direct assignment of all congestion costs may change some scheduling behavior and lower overall costs
- **Efficiency gains by better utilization of new CCGTs.**
- **Maybe better price signals for new investment – prevent new generation pockets.**

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## Dangers of Moving to a Nodal Market

- Destruction of bilateral market
- Increased market power concerns
- ICAP seems to inevitably grow out of LMP markets.
- Transition and implementation risk
  - ERCOT is still a somewhat troubled organization, and there is wariness in increasing the ERCOT fee to fund a whole new market
  - Impact on customers and REPs who may have or want to do long term contracts – already affecting pricing.



## So Where Does That Leave Us?

- Clear need for better operational tools for ERCOT
  - Is that a full LMP market, or is ERCOT's list of more limited changes sufficient?
  - Unit specific dispatch, scheduling, and settlement is essentially a nodal market anyway.
- Skepticism about price signal argument.
- \$\$\$\$\$ - especially if ICAP hitches a ride
- Implementation risk.
- Transition issues for customers, retail electric providers.
  - Fundamental change in market to a primarily financial market vs. a physical market. Contracts will have to deal with potential changes in cost allocation, pricing, etc.



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