



The New Texas Wholesale/Retail Market

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What Is ERCOT?

The Electric Reliability Council Of Texas

- A single Control Area, intrastate Interconnect
- Public Utility Commission Of Texas (PUCT) jurisdictional
- 70,000 MW of generation
- 37,000 Miles of transmission
- 57,600 MW Peak Demand
- Stakeholder board with representatives from all sectors including large and small customers
- The ERCOT staff and operating functions are an independent, third party, not for profit organization



Basic Wholesale/Retail Model

How does it work?

- ERCOT became a single control area for wholesale operations
- Competitive Retailers sell to eligible retail customers
- Municipals and Coops may or may not opt into retail competition, but if not, they are still retail providers and must participate in the wholesale market
- All retailers schedule through a Qualified Scheduling Entity (QSE)
- QSEs must self provide all wholesale energy to serve their load and can self provide ancillary services – ERCOT does not operate an energy market
- ERCOT operates an ancillary service market for those QSEs that do not self provide and a balancing energy market for all participants
- ERCOT settles all wholesale energy accounting between QSEs
 - QSEs then settle with the Competitive Retailers



Single Control Area Operations

Why?

Fairness – Control Area entities have an unfair advantage over non Control Area entities in a competitive market

Simplicity – Single Control Area is much easier to settle than multi-competitors in a multi-Control Area environment.

Fits the model – ERCOT staff has a role in parts of the retail market mechanics – centralized retail customer switching



How?

ERCOT deploys Balancing Energy, Regulation and Spinning Reserve to control the frequency and the transmission line loading of the Interconnect

- QSEs representing Competitive Retailers submit day ahead 15 minute interval balanced schedules
- QSEs can adjust schedules up to one hour ahead of real time
- QSEs submit day ahead Ancillary Service bids or self provision notice
 - ERCOT market clears day ahead for all that is not self provided
- QSEs submit Balancing Energy bids hour ahead
 - Market clears every 15 minutes for 30 minute ahead
- ERCOT deploys zonal balancing and generating unit specific instructions to control transmission congestion
- ERCOT can issue verbal instructions to the QSEs, if needed, for reliability purposes



Transmission Service

- All transmission service in ERCOT is network, postage stamp, by law (SB7) – All Load Entities pay based on their load ratio share - energy out of ERCOT pays a fee
- All schedules submitted by QSEs “flow” – congestion is managed by ERCOT operations
- The cost of congestion will be direct assigned to the entities that cause it after 2/15/02 – currently uplifted to all
- Losses are calculated by ERCOT in advance and provided in real time by the QSEs – any errors are included in “unaccounted for energy” (UFE)
- Transmission providers are organizationally separated from the QSEs



Ancillary Services

- Regulation
- Responsive Spinning Reserve
- Non-Spinning Reserve
- Replacement Reserve

All Ancillary Service providers must be certified by ERCOT

Balancing energy is not an Ancillary Service

Black Start is an annually contracted function by selected
zones

Reliability Must Run generating units can be contracted for
annually if requested by ERCOT



Congestion Control

Inter-zonal congestion is managed by ERCOT operations staff using zonal specific balancing energy bids in 15 minute intervals

Intra-zonal congestion is managed in two ways

- A “market solution” consists of selecting the lowest of 3 or more bids from generators that can solve the congestion
- A unit specific, out of merit “OOM” instruction to individual generators that can solve the congestion with set pricing rules

ERCOT manages congestion at all times when needed to allow all schedules to flow



Retail Customer Mechanics

ERCOT operates a centralized retail customer registration and usage record (retail meter read) function for every customer eligible to choose their retail provider

- ERCOT performs all customer switching activities including a mail out notice to customers to ensure that they actually have requested to be switch retail providers
- ERCOT tracks and uses over 5 million retail meter reads to settle the wholesale market

Retail mechanics in the ERCOT Region is a very complex operation that must interface with the Retail Providers and the wires companies - It is a very visible activity



What Keeps It From Blowing Up?

- Adequate Resources – ERCOT has added generation as the demand grew - Texas has had high load growth – 5%/Yr
- ERCOT is building transmission – numerous projects are either complete or in the acquisition process
- ERCOT had over 4 ½ years of wholesale competition experience prior to opening the retail market
- ERCOT model allows 100% bilateral provision – hedging
- ERCOT operates only an Ancillary Service and balancing market – no power exchange
- The Balancing Energy market is only ~5% of the energy and each interval constitutes only 1% of the day, so price spikes affect only a small percentage of the energy



Experience To Date

- Originally expected a “big bang” startup – retail and wholesale – too much – ERCOT decided to phase in the startup to reduce problems
- Transitioned to single Control Area operations on 7/31/01
- Power flows shifted significantly when rules changed to market based scheduling – required significant congestion control by ERCOT
- Prices were reasonable during the summer peak period except for some intervals of heavy inter-zonal congestion management
- A major learning experience for ERCOT staff and the market participants has been ongoing as the seasons and conditions change
- ERCOT protocols did not anticipate everything that has occurred such as how do you settle the wholesale market when the computer systems freeze and operations convert to manual for brief periods
- Gaming has and will occur as experience is gained in any new market