

# **Demand Response in ERCOT – A Regulator’s Perspective**

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# Report on the Capacity, Demand, and Reserves in the ERCOT Region (CDR)

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- Issued twice annually (May and December).
- Shows factors involved in the development of ERCOT's predicted Reserve Margin for next 10 years.
- Reliability-based Demand Response (DR), DR that is dispatched by ERCOT, is deducted from ERCOT's Load Forecast in the CDR.
- Price-responsive DR (PR) gets into the CDR over the long-run. The problem: is PR underestimated in the near-term?

# ERCOT and Demand Response

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- June 2012, The Brattle Group identified PR as having great potential in ERCOT.
- September 2012, in the Project No. 40000, the PUCT's omnibus Resource Adequacy project, I identified several DR initiatives that had merit, regardless of the ultimate ERCOT market design.
- The PUCT has completed two DR-related projects and has another DR project in progress.
- ERCOT has multiple DR-related projects in progress or completed.

# Types of Reliability-Based DR Deducted from the CDR

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- **Load Resources (LR) Serving as Responsive Reserves or Non-Spinning Reserves:**
  - Commercial and Industrial Customers with interruptible loads.
    - ✦ Individually telemetered
  - Performance requirements.
  - Bids into the Day-Ahead Market (DAM) and receives a capacity payment, whether or not curtailed.
- **Emergency Response Service (ERS):**
  - Load(s) or aggregation of loads that qualify for deployment in an electric grid emergency.
  - Authorized by P.U.C. Subst. R. 25.507.
  - Up to 10 –minute ramp time.
  - Four-month contract periods apply, with 8 hour maximum deployment within a contract period.
  - Annual expenditure Cap of \$50Million.
    - ✦ 30-minute ERS pilot is subject to this same cap, represented about \$1.44M.
- **Energy Efficiency programs:**
  - Includes Load Management Programs operated by Transmission and Distribution Utilities.
  - Currently over 270MW.

# June 1, 2012 Brattle Report

## “ERCOT Investment Incentives and Resource Adequacy”

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- PR penetration at approximately 4% of peak load:
  - Estimated peak load reduction from DR in ERCOT to be approximately **1,600 MW, and**
  - Attributed about **1,000 MW** of ERCOT’s 2011 load forecasting error to customer responses to high prices and the 4CP rate structure.
- Estimated **total achievable potential of 8-15%** of peak load reductions.
- Wholesale market implications - according to Brattle:
  - Will higher Price Caps incent Retail Electric Providers (REPs) and customers to develop more DR to hedge exposure and reduce costs.
  - Pure energy-only market design is less conducive to development of DR than capacity markets because only paid during scarcity pricing events.
  - Removal of onerous requirements from ERS should increase participation. (an out-of-market product).
  - DR should be incorporated into the wholesale market:
    - ✦ **ERCOT should account for price-responsive demand in load forecasts.**

# Completed PUCT DR-Related Projects

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- Project No. 39948 – Rulemaking to Amend Subst. R. § 25.507, relating to Electric Reliability Council of Texas (ERCOT) Emergency Interruptible Load Service (EILS):
  - March 23, 2012 PUCT repealed old and adopted new Subst. R. 25.507.
  - Changed name from EILS to ERS because in addition to loads, distributed generation allowed to participate.
  - Removed:
    - ✦ Mandatory 3-4 month contracts with no automatic renewal if service not exhausted during the contract period,
    - ✦ Mandatory 10-minute ramp time requirement, and
    - ✦ Pay-as-you-bid requirement, instead allowing ERCOT to set pricing mechanism.
- 40150 – Rulemaking Proceeding Concerning An ERCOT Pilot Project:
  - May 24, 2012 PUCT adopted amendments to P.U.C. SUBST. R. 25.361.
  - Added subsection (k) – authorizing ERCOT to conduct pilot projects and grant temporary exceptions to ERCOT rules, as necessary, to effectuate the purposes of the project.
  - Current ERCOT pilot projects are all DR related, and include:
    - ✦ 30-minute Emergency Responsive Service (30-minute ramp period),
      - ERS currently clears at bid prices.
      - One objective of the pilot is to evaluate use of a clearing price mechanism.
    - ✦ Fast Responding Regulation Service (respond within 60 cycles of instruction or trigger), and
    - ✦ Weather Sensitive Emergency Response Service (capabilities vary based on weather conditions with 30-minute ramp period).

# Current PUCT DR Project

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- Project No. 41061 – Rulemaking Regarding Demand Response in the ERCOT Market.
- Intended to evaluate:
  - Role of “passive” DR (price-responsive demand),
  - Participation of loads in real-time market,
  - Removal of disincentives necessary to encourage DR participation, and
  - Ensure market-based solutions to DR participation that aid in price formation.
- **Current hot issue:** REPs are asking the commission to revise the customer deposit rule to accommodate DR products, specifically:
  - Allow deposits sufficient to cover the costs of any device that facilitates DR, and
  - Permit re-stocking fees for customers enrolled in DR products that vacate a premise at which DR equipment has been installed prior to expiration of the contract.

# DR Issues:

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- What should the scope of DR programs be?
- How do we measure PR? How should ERCOT capture this?
- Would expansion of DR as a capacity-paid ancillary service inhibit or adversely affect the development of PR?
- Is that the easiest way to get more DR, to just let ERCOT expand ERS?
- What are the problems or impediments to price responsive DR?
  - MW that might have been developed as PR might be instead used by Load Serving Entities (LSE) to pay for their load-ratio share of ancillary services.
- What mechanisms should be established to avoid price reversal?
- Does an hour-ahead market for loads make sense?
- Should loads participate in SCED? Are the costs to ERCOT and hence to the market necessary?
- What types or penalties should apply? Clawbacks?
- Should ERS be moved into the Day-Ahead Market?
- Compensation for DR/PR? Avoid Over-Payment Problem.

# ERCOT Proceedings:

- **Feb. 5, 2013 – Notice to LSEs Requesting Data related to Dynamic Pricing and Demand Response Capabilities for their Customers:**
  - Requires a June 15, 2013 snapshot of the data to be filed on August 1, 2013.
  - Also required a Feb. 28, 2013 report by the LSEs regarding whether they currently have or expect to have relevant retail products to report for the June 15, 2013 snapshot.
  - February report indicates that the August report is likely to show a greater than expected increase in DR capabilities among LSEs in ERCOT.
  - ERCOT will analyze the behavior of these Loads during price events, beginning summer 2013.
- **Nodal Protocol Revision Request (NPRR) 444: Supplemental Reliability Deployments (Morgan Stanley) and NPRR 508: Setting of Real-Time LMPs During EEA ERS/LR Deployments (GDF Suez):**
  - Both NPRRs address the issue of potential price reversal during reliability DR deployments.
  - Provide for price supports during such deployments and generator make-whole payments for un-served energy.
  - Both NPRRs were voted down narrowly at the March 2013 Protocol Revision Subcommittee (PRS) meeting.
  - NPRR 508 was modified to exclude the generator make-whole provisions and was endorsed by the PRS on April 18, 2013; this NPRR now goes to the May 2013 Technical Advisory Committee (TAC) meeting.
- **NPRR 491 (Edison Mission): Updated Distributed Generation (DG) and DR Information for ERCOT:**
  - Seeks information on amount and location of ERS, DG and non-modeled generators in region (registered resources)
  - Requires ERCOT to provide additional reporting on these resources: i.e. locations and aggregations.
  - Endorsed by PRS on April 18, 2013.

# ERCOT Proceedings:

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- **NPRR 505 (ERCOT): Weather-Sensitive ERS Loads:**
  - Tabled in the ERCOT stakeholder process in favor of piloting the concept.
  - To date, ERS Resources are held to a pass/fail metric on a static MW obligation over a 4-month period.
  - Because weather varies, this has not been friendly to DR that is provided by HVAC controls, even though 54% of summer peak is weather-sensitive.
  - Weather-sensitive ERS Loads will be tested regularly and paid for DR delivered (not held to static obligation).
  - Will be procured with ERS-10 and ERS-30 for June – September 2013 Contract Term.
- **NPRR 519 (ERCOT): Exemption of ERS-Only QSEs from Collateral and Capitalization Requirements:**
  - Would exempt ERS-only QSEs from need to post collateral, because they are never “short” in the market
  - Pending at PRS.
- **NPRR 522 (DSWG): Adjustment of DR Performance for T&D Losses:**
  - Unlike generation, demand response value to the grid is not affected by line loss.
  - This NPRR would adjust compensation formulas for LRs and ERS to account for the added value.
  - Endorsed by PRS on April 18, 2013.
- **NPRR 532 (DSWG): Performance Measurement & Verification and Telemetry Requirements for LRs Providing Non-Spin:**
  - Would allow LR performance to be evaluated against a baseline (estimate of where Loads would have been in absence of the deployment) instead of against a static value.
  - A step toward enabling participation in Ancillary Services by Loads other than high load factor industrials, particularly weather-sensitive Loads.
  - PRS sent this NPRR back for consideration by the Wholesale Market Subcommittee (WMS) and Reliability and Operations Subcommittee (ROS).

# IDEALLY

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- DR would be treated the same as generation.

# Contact Information

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