



**Report to the 83<sup>rd</sup>  
Texas Legislature**

***Scope of Competition  
in Electric Markets  
in Texas***

***Public Utility Commission of Texas  
January 2013***

***ACKNOWLEDGEMENTS:***

**Public Utility Commission of Texas**  
**Donna L. Nelson, Chairman**  
**Kenneth W. Anderson, Jr., Commissioner**  
**Rolando Pablos, Commissioner**

**Brian H. Lloyd, Executive Director**

**Project Supervisors**

Pam Whittington, Division Director, Competitive Markets Division  
Shawnee Claiborn-Pinto, Director, Wholesale Markets

**Project Leader**

Diana Leese, Wholesale Market Analyst, Competitive Markets Division

***In addition, special thanks to other PUC staff members who contributed to the preparation of this report:***

Marshall Adair	Richard Greffe	Katie Rich
Julie Black	Terry Hadley	Temujin Roach
Mark Bryant	Therese Harris	Scott Smyth
Lori Cobos	Jacob Lawler	Jay Stone
Cliff Crouch	Jennifer Littlefield	Meena Thomas
Mike Field	Mick Long	JP Urban
Denise Foote	Patrick Peters	Joshua Walters
Kimberly Gilbertson	Shawnee Claiborn-Pinto	Pam Whittington
Grace Godines	Rebecca Reed	Christine Wright
Susan Goodson	Mike Renfro	

**Donna L. Nelson**  
Chairman

**Kenneth W. Anderson, Jr.**  
Commissioner

**Rolando Pablos**  
Commissioner

**Brian H. Lloyd**  
Executive Director



**Rick Perry**  
Governor

## *Public Utility Commission of Texas*

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January 15, 2013

Honorable Members of the 83<sup>rd</sup> Texas Legislature:

We are pleased to submit our 2013 Report on the Scope of Competition in Electric Markets, as required by Section 31.003 of the Public Utility Regulatory Act. This report provides an update on the status of electric competition in Texas, and reports on other electric industry matters for which the Commission has responsibility under State law. The report concludes with a discussion of recommendations that the Legislature may want to consider.

We look forward to continued collaboration with the Legislature as we work together to secure a bright energy future for electricity customers, commerce, and industry in Texas. If you need additional information about the issues addressed in this report or any other PUC issues, please contact us.

Sincerely,

Donna L. Nelson  
Chairman

Kenneth W. Anderson, Jr.  
Commissioner

Rolando Pablos  
Commissioner

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## I. INTRODUCTION AND EXECUTIVE SUMMARY

### A. Overview

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In the two years since the Commission's last report to the Legislature on the scope of competition in electric markets, the retail market in the Electric Reliability Council of Texas (ERCOT) has seen robust competition, resulting in a large number of competitive providers, diverse offerings, and low rates. Retail customers have benefited from available rates well below, on an inflation-adjusted basis, the last regulated rates charged by electric utilities prior to the implementation of retail choice in 2002. Well over 80% of the eligible residential customers have exercised choice in the market<sup>1</sup>.

During this period of favorable retail market conditions, the Commission has focused much of its attention on the wholesale market. In response to forecasts from ERCOT that the reserve margin in 2014 and beyond would fall below the target reserve margin of 13.75% set by the ERCOT Board of Directors, the Commission began to investigate and address the factors causing generation development to lag behind expected growth in electricity demand and designated the resource adequacy issue as the Commission's top priority. The Commission has taken a number of definitive steps to ensure that the competitive wholesale electric market is sending the signals necessary to attract generation investment to Texas. Those steps are addressed in more detail in this report. The Commission will take additional action to ensure that Texans living in the ERCOT region continue to have an adequate supply of competitively priced electricity.

### B. Wholesale Market

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The ERCOT-wide load weighted average real-time energy price was \$53.23 per MWh in 2011, a 35 percent increase from \$39.40 per MWh in 2010. The increase was largely due to the extreme weather that ERCOT experienced in February and August of the same year. The average price of natural gas was 9.2% lower in 2011 than in 2010, a decrease from \$4.34 per MMBtu in 2010 to \$3.94 per MMBtu in 2011. Total ERCOT load in 2011 was 5% higher than load in 2010. 2012 provides a sharp contrast to 2011, both in average temperatures and in the average real-time price. Although most areas of Texas were still in drought in 2012, the temperatures have been closer to normal. The average real-time energy price through the end of November reflects the change in weather: \$28.58.

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<sup>1</sup> 2012 ABACCUS: An Assessment of Restructured Electricity Markets; February 10, 2010 report of affiliated retail electric providers to the PUC.

The ERCOT Independent Market Monitor (IMM) provided information to the ERCOT Board comparing loads, reserves, and prices during 2011 and 2012. Summer loads in 2011 during a record-breaking heat wave were significantly higher than those in 2012. Loads exceeded 60,000 MW during 360 hours in 2011 but only 155 hours in 2012. Loads exceeded 65,000 MW for 74 hours in 2011 but only 23 hours in 2012. Physical responsive reserve capability dropped below 3,000 MW during 140 hours in 2011 but only 2.5 hours in 2012. Reflecting the lower demands on resources, prices were at the system-wide offer cap (SWOC) for only 1.5 hours during the first ten months of 2012 compared to 28.4 hours in 2011. Reflecting the temperature extremes that were experienced during these two months, prices were at the SWOC for six hours in February 2011 and 17.4 hours in August 2011.

The IMM also discussed data concerning the Peaker Net Margin (PNM), ERCOT's proxy for the value of new generation, for 2002 through 2012. The PNM is used to estimate the revenue from a new gas-fired peaking generator. Pursuant to P.U.C. SUBST. R. 25.505(g)(6)(C), the SWOC is automatically reduced if the PNM reaches a total of \$300,000 during a year. The IMM's PNM data revealed that the highest PNMs during the last ten years had been: 1) \$125,000 in 2011, 2) \$100,000 in 2008, and 3) \$80,000 in 2005.<sup>2</sup> The PNM for 2012 through the end of November was far below these amounts: \$32,837.85.

The peak demand of 66,489 MW on August 1, 2012 was greater than the mid-term forecast peak of 65,276 MW and less than the August 2011 actual peak demand of 68,379 MW. The instantaneous load on August 1, 2012 was 66,703 MW<sup>3</sup>.

Although market prices in 2011 would have been sufficient to allow a generator to recover the annualized fixed costs for a new natural gas combined-cycle or natural gas turbine generator, those prices are largely driven by the scarcity pricing caused by the extreme temperatures in February and August of 2011.

### **C. Texas Nodal Market**

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In September 2003, as part of Project 26376, the Commission ordered ERCOT to develop a Nodal wholesale market design to improve market and operating efficiencies by using more rapid and detailed pricing and scheduling. Nodal was launched in December 2010 creating over 4,000 nodes (an electrical bus where a resource's measured output is settled by ERCOT) across the ERCOT region. Nodal provides improved price signals with more granular pricing, improved transmission efficiencies by dispatching at the resource level, and a direct assignment of local congestion costs where settlement prices are based on locational marginal costs.

Several limitations existed with the zonal model including insufficient price transparency and indirect assignment of local congestion. Locational Marginal Pricing

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<sup>2</sup> Texas Electric Market Reporter, Vol. 15, No. 21, November 15, 2012

<sup>3</sup> Board of Directors Meeting, ERCOT Public, September 18, 2012

(LMP) is the offer-based marginal cost of serving the next increment of load at an electrical bus, which marginal cost is produced by the day-ahead market or by the Security-Constrained Economic Dispatch (SCED). The implementation of Nodal based on LMP has several benefits including market transparency, more detailed and transparent energy pricing, direct assignment of congestion costs, strong market signals, and provides more opportunities for load participation. Grid operators will be able to pinpoint exactly where electricity demand is highest and assign the cheapest generation units to meet that demand while reducing the costs to manage transmission line congestion. By transitioning to Nodal, generation will be more efficiently dispatched to serve demand and help reduce the overall need for new transmission line infrastructure investment.

## **D. 2011 Extreme Weather**

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2011 will be remembered as a year of extremes. In February of 2011, Texas experienced extreme cold weather across the entire region; on February 2, 2011, the ERCOT region experienced extreme cold weather conditions, record electricity demand levels, and the loss of numerous electric generating facilities.

In 2011, Texas also experienced the driest year seen since modern recordkeeping began in 1895.<sup>4</sup> Even after fall rains, as of January 3, 2012, nearly 67% of the state was still in an extreme or exceptional drought – the two most severe categories of a classification system maintained by the U.S. Department of Agriculture.<sup>5</sup> Droughts have the potential to affect the price and availability of electrical power in Texas, due both to the demand for summer air conditioning and the fact that most power plants must withdraw water for cooling purposes. ERCOT surveyed Texas generators to monitor the drought’s impact on generation availability.

In large part due to the drought, Texas experienced one of the hottest periods in ERCOT history with over 90 days of triple digit heat in Austin, 27 of them consecutive. Dallas had 71 days of record heat (40 consecutive) and Houston had a record number of days over 100 degrees as well.<sup>6</sup> The harsh conditions led to record high demand for electricity. There were 50 hours in 2011 with electricity demands that exceeded the highest hourly demand that occurred in 2010.

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<sup>4</sup> The Impact of the 2011 Drought and Beyond, Susan Combs, Texas Comptroller of Public Accounts, February 6, 2012

<sup>5</sup> National Drought Mitigation Center, “U.S. Drought Monitor: Texas,” December 13, 2011

<sup>6</sup> <http://stateimpact.npr.org/texas/2011/12/07/the-year-in-texas-weather-yes-it-was-awful/>

## **II. SUMMARY OF COMMISSION ACTIVITIES FROM 2011 TO 2013**

### **A. Introduction**

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The Commission develops and modifies rules, policies, and procedures for the competitive electric market in Texas, consistent with law and in response to changes in the industry. The Commission also maintains oversight for programs that were enacted to promote energy efficiency and renewable energy. Certain areas of Texas remain subject to Commission rate regulation, and the Commission continues to set rates and supervise the investor-owned utilities in these areas.

### **B. Rulemaking Activities**

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During 2011 and 2012, the Commission modified existing rules to facilitate the successful operation of the competitive market and in particular to improve the experience of retail customers in buying and using electricity.

The Commission, ERCOT, and stakeholders have worked through a number of extensive efforts to analyze resource adequacy challenges and implement market reforms. The Commission is committed to ensuring that there is enough energy to meet the needs of Texas now and in the years to come. The Commission seeks to provide the proper price signals in the ERCOT market to incent the construction of new generation; incent greater market participation by loads as load resources and through load reductions in response to price signals; and to help ensure that existing generation will remain available.

The Emergency Response Service (ERS) program underwent several changes during the past two years. The program changed its name from Emergency Interruptible Load Service (EILS) and was expanded to include generation that is not registered with ERCOT as a resource. In addition, the new rule promotes reliability through energy emergencies through increased ERCOT flexibility in the implementation and administration of the emergency service.

In 2011, the Commission repealed its original prepaid service customer protection rule and adopted a new rule to address the requirements for a Retail Electric Provider (REP) to offer electric service through advanced meters on a pre-paid basis. Amendments were also adopted by the Commission modifying existing rules to increase the benefits and functionality of the Advanced Metering System (AMS) being deployed by the Transmission and Distribution Utilities (TDU)s. The Commission evaluated the feasibility of instituting a smart meter opt-out program and held a public forum on the topic. Additionally, two petitions were filed both relating to advanced metering concerns.

As required by HB 2133 passed by the 82<sup>nd</sup> Legislature (2011), the Commission adopted amendments to its rules to expand the remedies available in wholesale electricity enforcement proceedings authorizing the Commission to identify and order disgorgement of excess revenues the Commission determines an electricity market participant received as a result of a violation of PURA, Commission rules, or market protocols. HB 2133

requires the Commission to establish, by rule, procedures to return excess revenues to affected wholesale electricity market participants.

In the past several years there has been an increased interest in energy storage technologies that have potential benefits for Texans. Because ERCOT's wholesale energy prices are still largely driven by the cost of natural gas, private investment in storage technologies was high when natural gas prices were high and interest diminished when prices declined. Private investment in energy storage in Texas seems again to be on the upswing. Energy storage could allow for the capture of energy during times of low demand and the use of the stored energy for ancillary services or during times of peak demand. Integrating this regulation ability and the ability to shift the time of dispatch could allow ERCOT to maximize the output potential of renewable generation and other low-cost resources, allow for a more diverse portfolio of resources, and provide an additional tool to provide reliability to the grid, potentially lowering costs to ratepayers. In recognition that storage resources have unique characteristics making them difficult to categorize as traditional load or generation, the Commission revised its rules especially with regard to the withdrawal of energy in a storage resource.

## **1. Resource Adequacy**

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The wholesale market is a competitive market in which most of the owners and developers of generating facilities respond to their perception of the market opportunities and risks, and deploy capital accordingly. Although Texas has an adequate and reliable supply of electricity available to meet its current demands, the Commission is tasked with ensuring a market design that balances the interests of a competitive wholesale market with the interests of end use industrial and residential customers who expect reliable energy at reasonable prices.

In an effort to maintain a competitive market and incent new generation, the Commission opened several projects to address a variety of issues. The Commission initiated Project Number 37897 in an effort to look at factors that may affect the ERCOT market resource and reserve adequacy and prices during periods of shortages. The project included several workshops where various stakeholders, including representatives from wholesale generators, ERCOT, financial entities, and consumer groups, expressed concerns and offered suggestions regarding resource adequacy in ERCOT. At the June 25, 2012 Open Meeting, the Commission voted to raise the system-wide offer cap (the amount generators would be allowed to bid into the market) from \$3,000 a MWh to \$4,500 MWh beginning August 1, 2012.

The Commission initiated another rulemaking under Project Number 40268 relating to resource adequacy in the ERCOT market with the purpose of establishing pricing mechanisms that would incent generation capacity over the long-term horizon. At the October 25, 2012 Open Meeting and subsequent Resource Adequacy Workshop, the commission increased the high and low system wide offer caps as well as a pricing mechanism called the peaker net margin. The peaker net margin is a measure of a standard peaking gas unit's cumulative profits over the course of an annual revenue cycle acting as a guardrail to keep overall generator profits in check. Also under this rulemaking, the

Commission raised the system wide offer cap to \$9,000 per megawatt hour by 2015 and raised the peaker net margin threshold to \$300,000.

The Commission and ERCOT have also taken the following steps to address the resource adequacy issue:

- Establish a process for recalling mothballed units for capacity
- Expanded Emergency Response Service (ERS) (formerly EILS)
- Launched 30-minute ERS pilot to enhance demand response
- Improved how certain ancillary services are priced and deployed to help ensure adequate resources in emergencies (i.e., Responsive Reserves, Non-Spin Reserves, Regulation Up services)
- Contracted with the Brattle Group for resource adequacy study
- Set System-wide Offer Cap as price for use of Reliability Unit Commitment (RUC) units called upon in scarcity conditions
- Increased consumer outreach efforts and information options during high-demand periods
- Evaluated extent of existing non-ERCOT load management activities in ERCOT region
- Began posting non-binding real-time wholesale prices for next hour to inform consumers who reduce demand in high prices
- Updated ERCOT Protocols

The critical question remains whether the recent and proposed reforms will be adequate and what other measures might be necessary to attract sufficient investment. ERCOT commissioned *The Brattle Group* to study and provide recommendations regarding how best to ensure resource adequacy in the ERCOT market. The Brattle Group provided several policy options with the overarching caveat that Texas regulators and policy makers need to determine what level of reserve margin they desire and then determine the steps they want to take to ensure that desired reserve margin. Additionally, *The Brattle Group* expressed to the Commission that regardless of which policy option the Commission chooses, the Commission should also consider ten separate recommendations to further ensure market reliability and efficiency. Through all of these efforts, the Commission hopes to arrive at resource adequacy policy options that best serve the generators and consumers of Texas.

## **2. Emergency Response Service**

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Emergency Response Service (ERS), formerly known as EILS, is a mechanism available to ERCOT operators to forestall the need for firm load shed, or rolling blackouts, in conditions where demand exceeds available generation capacity. Under this program, large electricity customers, or aggregations of smaller customers, agree to have their electric service voluntarily reduced in conditions of energy scarcity in exchange for a payment tied to their availability for curtailment and their actual performance during a deployment event.

EILS was first approved by adoption of a Commission rule in April of 2007. When the service failed to attract sufficient bids to meet the initial requirement of 500 MW of capacity specified by the rule, the rule was amended in November of 2007 to eliminate the minimum capacity provision, and the service began operation in February of 2008. Since that time, EILS has successfully been deployed twice since its inception – during the cold-weather event of February 2011, and also during a peak demand event in August of 2011.

The initial version of the Commission’s EILS rule limited ERCOT’s flexibility to make modifications to the EILS program in response to experience gained in the operation of the program. During the February 2011 event, EILS resources were completely exhausted very early during a contract period leaving ERCOT unable to replenish EILS resources. In response to the February event, the Commission adopted an emergency rule in March 2011 under Project Number 39948 changing the rules governing the EILS program.

The rule adopted in March 2012 in Project Number 39948 renamed the EILS program to ERS and gave ERCOT additional flexibility in changing the design and operation of the program. Under the new rule, ERCOT can change the duration of contract periods as well as renew the contracts of ERS resources in cases where the resources’ obligation has been exhausted before the end of a contract period. ERCOT also now has the flexibility to adopt payment mechanisms other than the current pay-as-bid mechanism (such as a market-clearing price mechanism), and to design ERS services that have deployment criteria other than the current 10-minute deployment requirement (such as a 30-minute deployment criterion recently approved on a trial basis by the ERCOT board). In addition, the new rule provides for the participation of certain unregistered distributed generation resources (such as backup generators located on customer premises) in the ERS program.

### **3. Prepaid Electric Service**

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In 2011, the Commission repealed its original prepaid service customer protection rule and adopted a new §25.498, to address the requirements for a REP to offer electric service to individuals whose normal billing arrangement provides for payment before delivery of service. The new rule establishes greater protections for residential and small commercial customers, including a required Prepaid Disclosure Statement. Additionally, REPs providing prepaid service are now required to disclose that some assistance agencies may not provide assistance to a customer who chooses prepaid electric service. REPs are prohibited from knowingly providing prepaid service to critical care and chronic condition residential customers. The Commission has also added a filter for paid service options on the “Power to Choose” website allowing customers to shop for prepaid offerings. The new §25.498 requires the use of an advanced meter or a REP controlled meter to help ensure customers are billed for their actual consumption.

In July 2012, the Commission further amended §25.498 by providing testing mechanisms to determine if the residential prices charged by a REP for prepaid service are no higher than the price charged by the Provider of Last Resort (POLR) as required by PURA §39.107(g). The price for residential prepaid service must be at or below: 1) POLR rate shown on the Electricity Facts Label which is posted on the Commission’s

website; 2) actual POLR rate based on the formula outlined in §25.43(1) based on real-time clearing prices; or 3) the previous month's simple average POLR rate using real-time clearing prices for the load zone with the highest real-time clearing prices in the TDU service territory. Fixed-rate prepaid products must be equal to or lower than one of these prices at the time the REP makes the offer and provided that the customer accepts the offer within 30 days.

#### **4. Advanced Meters**

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In October 2011, the Commission adopted amendments that modify existing rules to increase the benefits and functionality of the AMS being deployed by the TDU. The rapid deployment of advanced meters in areas open to retail competition will allow large numbers of customers to receive faster, more flexible customer service that better accommodates their needs.

The increased level of service is made possible in part by the remote disconnect and reconnect capability of advanced meters which reduce the necessity to dispatch field personnel to manually complete service requests. Several retail market operations were modified by the approved revisions. During weather events advanced meters can help customers in several ways. At the distribution level, smart meter technology provides timely information to the utility as to where customers have lost power. Smart meters also provide more accurate information of where storm damage may have occurred so that repair crews can be dispatched more directly to that location. At the transmission level, sensors can help identify unstable conditions in high-voltage transmission lines so that cascading failures can be avoided. At the transmission level phasor measurement units provide a more granular way of measuring and managing loads so problems can be spotted and dealt with before a cascading failure causes a widespread blackout.<sup>7</sup>

Another change that was adopted was standardizing same day move in and move out ability for customers with a provisioned advanced meter<sup>8</sup> with remote disconnect/reconnect capability. This increased flexibility reduces the risk that customers will be without service when they need it while allowing them to save money by scheduling service much closer to the time they require it.

Reconnect After Disconnect for Non-Pay (DNP) is now available 24 hours a day, 7 days a week and is considered standard service for those customers with remote disconnect and reconnect capability. Finally, customers who would like to switch products that may have more favorable rates or may be better suited to their needs will be able to schedule switching services within the same day instead of having to wait for up to 45 days or pay an out-of-cycle meter read charge.

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<sup>7</sup> <http://gcn.com/Articles/2012/07/10/Smart-Grid-power-outages-severe-storms.aspx?Page=2>

<sup>8</sup> An advanced meter is considered to be "provisioned" when it is connected and joined to the TDU's communication network.

## 5. Advanced Meter Opt Out

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In 2012, three projects and one docket were opened relating to AMS. Project Number 40190 was opened in response to Chairman Nelson's request to evaluate the feasibility of instituting a smart meter opt-out program. Comments were received from approximately 350 private parties, local and state representatives, and electric utility companies. In August, the Commission held a public forum with an agenda that included representatives from various stakeholder groups, experts from around the state, as well as a public testimony period.

Following the public forum, staff filed a memo seeking direction whether to initiate a rulemaking allowing for an opt-out. At the December 13 Open Meeting, the Commission requested staff to proceed with a separate rulemaking allowing customers to choose an option that would result in non-communicating meters. Staff may also explore other options that address customer concerns.

Two petitions regarding advanced metering concerns were filed as well. Project Number 40199 was opened at the request of petitioners to initiate and conduct rulemaking procedures, both emergency and ordinary, relative to the current and continuing deployment of advanced meters. On April 19, 2012, the Commission issued an order denying the petition for initiation of rulemaking proceedings. This order was issued within the 60-day procedural deadline mandated by P.U.C. PROC. R. 22.281(a)(3).

Project Number 40404, Petition for Initiation of Rulemaking Proceedings Regarding Smart Meters, was also opened at the request of petitioners seeking to revise rule language. Petitioners were seeking an emergency rule that would place a moratorium on continued installation of smart meters until further study and evaluation permits adoption of rules governing smart meters. In addition, petitioners were seeking a rulemaking to mandate the permanent prohibition and removal of smart meters and other devices that emit Radio Frequencies (RF) or Electromagnetic Fields (EMF). At the July 13, 2012 Open Meeting the Commission denied the petition due to the other projects open that address concerns about smart meters.

## 6. Disgorgement

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As required by HB 2133 passed by the 82nd Legislature (2011), the Commission adopted amendments to its rules to establish procedures for the return of excess revenues to affected wholesale electricity market participants when the disgorgement of those excess revenues has been ordered in an enforcement proceeding<sup>9</sup>. P.U.C. PROC. R. §22.246, relating to Administrative Penalties, was amended to expand the Commission's procedures addressing enforcement actions to accommodate disgorgement recommendations and proceedings. One of the modified subsections grants the Commission broad flexibility to open a subsequent proceeding when it determines other wholesale electric market participants are affected or a non-standard distribution method is appropriate.

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<sup>9</sup> *Rulemaking to Implement HB 2133 by Amending PUC. SUBST. R. 25.503 and PUC PROC. R. 22.246*, Project No. 40073, Order Adopting Amendments to §§22.246, 25.503 (October 2012).

## 7. Energy Storage and ERCOT Pilot Program

In most utility networks, electricity cannot be stored and energy production must match energy demand. Electric energy storage allows the “warehousing” of electricity for later use. As the electric industry has developed renewable energy resources that are dependent on environmental forces like solar and wind energy, interest in energy storage has increased. Storage could provide the flexibility to adjust energy production or consumption to offset changes in wind and solar power production, allowing energy output and demand to be matched. Storage could also provide an economical means of relieving transmission constraints or meeting demand during peak periods.

### a. *Project Number 39764*

To address energy storage issues, the Commission opened Project Number 39764 to examine regulatory issues that the Commission may need to address and the actions that the Commission should take to facilitate the appropriate deployment and use of energy storage facilities and other emerging technologies in ERCOT. The Commission held a workshop on electric energy storage facilities in ERCOT in October 2011 where participants presented information on energy storage technologies and discussed policies and procedures that could facilitate the deployment and use of energy storage facilities in ERCOT.

### b. *Project Number 39657*

The Commission opened three rules to address issues related to storage. The first project, Project Number 39657, was a rulemaking to Implement SB 943 relating to Electric Energy Storage Equipment or Facilities. In November 2011, the Commission adopted amendments to §25.5. The amendments added references to energy storage equipment and facilities as required by SB 943 of the 82<sup>nd</sup> Legislature, Regular Session in 2011 (SB 943). This rule included electric energy storage equipment or facilities under the definition of a power generation company providing clarity regarding the interconnection of energy storage equipment and facilities.

### c. *Project Number 39917*

In the second project, Project Number 39917, the Commission opened a rulemaking on energy storage issues in response to issues raised in the October 2011 workshop. In March 2012 the Commission adopted amendments to §25.192 relating to transmission service rates, and §25.501, relating to wholesale market design for the ERCOT region. The Commission determined that energy used to charge a storage facility is a wholesale transaction. Certain ancillary services are for the benefit of retail load and their costs are allocated to entities serving retail load on a load-ratio-share or per megawatt-hour basis.

The ERCOT protocols provide that generators are compensated for energy on a nodal pricing basis while loads pay for energy on a zonal basis. The nodal price, or the price of energy for any specific location, will change based on grid congestion. The zonal price is the average price of the nodes within a particular zone. There are currently eight zones in ERCOT. While energy storage acts as a load when it withdraws energy, the

storage facility does not ultimately consume this energy, and uses it for regeneration at a later time. Therefore, the Commission sought to treat storage load at the nodal price instead of at the zonal price that is applied to end-use consumption. This difference between nodal and zonal pricing could have diminished the economic efficiency with regard to the location and operation of storage technologies. Applying the nodal price to storage load would offer a locational signal for the efficient siting and economical operation of storage facilities.

The Commission recognized that a distinction of wholesale electrical load for storage devices was reasonable where a storage device, regardless of the specific technology, takes power from the grid, converts it to potential energy, and at a more opportune time transforms this potential energy back into electric energy, which is returned to the grid (less conversion losses). Storage devices thus differ fundamentally from other loads because the power taken from the grid is not consumed in the manufacturing of goods or the provision of services. In this respect, there is a clear distinction between storage assets and other types of load when taking energy from the grid. During the rulemaking it became evident that the concept of an ERCOT pilot project should be investigated.

*d. Project Number 40150*

In May 2012, in Project No. 40150, the Commission adopted amendments to §25.361 which added a new subsection (k) that gave ERCOT the authority to conduct pilot projects and allow ERCOT to grant temporary exceptions from ERCOT rules, as necessary to effectuate the purposes of the pilot projects. The rule on pilot projects is intended to provide ERCOT with better knowledge, understanding, and experience with new technologies and services. ERCOT can use the results of the pilot projects to make changes to its protocols and rules to allow for new technologies and services in ERCOT.

## **8. Distributed Generation**

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Distributed Generation (DG) refers to power generation that is at or close to the end users of power. On May 18, 2012, the Commission adopted amendments to P.U.C. SUBST. R. 25.211, relating to Interconnection of On-Site DG and §25.217, relating to Distributed Renewable Generation (DRG). The amendments implemented statutory changes resulting from the passage of SBs 365 and 981 of the 82<sup>nd</sup> Legislature, Regular Session in 2011 (SB 365 and SB 981). Specifically, the amendments to § 25.211 added a definition for distributed natural gas generation facility; modified the definition of parallel operation to recognize third party DG ownership; limited the applicability of the section to cooperatives to a single subsection; and required the DG owner to report any changes in ownership or cessation of operations to the electric utility. The amendments to §25.217 amended the definition of Distributed Renewal Generation Owner (DRGO) to include retail electric customers that contract with third parties and clarified that this definition applies statewide and added a section that specifies which DRG owners are not required to register with or be certified by the Commission for purposes of DRG. The question of whether the rules applied statewide was the subject of much attention during the rulemaking proceeding.

The Commission included the following justification for its decision regarding certification or registration for DRG owners in the adoption order:

The purpose of SB 981 was the elimination of obstacles of use of DRG, with the bill enacted by the Legislature without any vote against it. SB 981 created a new exception to the definition of electric utility for an owner of DRG, so long as the DRG meets the requirements of PURA §39.916(k), which requires the amount of electricity produced by the DRG to be less than or equal to the retail electric customer's estimated annual electricity consumption. Subsection (k) exempts qualifying DRG from licensing requirements "for purposes of this title," meaning the entirety of PURA. The Legislature's manifest intent was to establish a statewide policy for DRG ownership. It is important to note that subsection (k) addresses customers and owners of DRG, not electric utilities. Because subsection (k) applies to customers and owners of DRG "for purposes of" PURA, it applies in all electric utility service areas. Subsection (k)'s application is not eliminated in an electric utility service area by other provisions of PURA that exempt certain electric utilities from PURA §39.916.

The Commission has initiated a separate project to make conforming changes to the interconnection agreement form resulting from changes to the rule.

### **C. Non-ERCOT Utilities: Market Development Activities**

Senate Bill 7, the law that introduced retail competition in electricity in Texas, permitted the Commission to delay retail competition in an area where deregulation in accordance with Chapter 39 of PURA would not result in fair competition and reliable service. SB 7 included provisions recognizing that it would be more difficult to implement retail competition in areas outside of ERCOT, based on the lack of an independent organization and the concentration of ownership in the generation sector in some of those areas.

In particular, PURA § 39.152 established competitive criteria that must be met for the Commission to certify a power region:

1. a sufficient number of interconnected utilities in the power region are under the operational control of an independent organization;
2. a generally applicable tariff guarantees open and nondiscriminatory access to transmission and distribution facilities in the region; and
3. no person owns and controls more than 20% of the installed generation capacity located in or capable of delivering electricity to the region.

The Commission has not certified that any area outside of ERCOT meets the criteria in PURA § 39.152. An important element in the success of a competitive energy Nodal market is an independent organization to manage transmission access and operate wholesale energy markets to maintain the reliability of the electric system. When competition was introduced in ERCOT, a regional transmission organization was operating in the Panhandle and Northeast Texas. This organization, Southwest Power Pool (SPP), was providing independent management of the transmission system in these areas. SPP

continues to operate in the Panhandle and Northeast Texas, and today it operates a short-term energy market, the Energy Imbalance Service, and it is planning to expand its market to include short-term capacity products. In Southeast Texas and the far West Texas area in and around El Paso, there was not an independent organization operating.

In Southeast and far West Texas, there is still not an independent organization performing the transmission management and market functions.

## **1. SPP**

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Southwest Power Pool (SPP) is an independent organization that manages transmission access, operates short-term energy, and maintains the reliability of the electric system. SPP is the Regional Transmission Organization (RTO) operating in the Panhandle and Northeast Texas that provides the independent management of the transmission system in these areas. SPP also operates in all or parts of Arkansas, Kansas, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, and Oklahoma. Today SPP operates a short-term energy market, the Energy Imbalance Service, and it is planning the implementation of a day 2 market in March 2014 that will provide an integrated marketplace similar to that in ERCOT.

The Commission is a voting member of the SPP Regional State Committee (RSC) which provides collective state regulatory agency input on matters of regional importance related to the development and operation of SPP. The SPP RSC is comprised of retail regulatory commissioners from each state in the SPP region, including Texas. Pursuant to the SPP bylaws, the RSC provides input on a variety of issues including the cost allocation methodologies for transmission upgrades, allocation of Financial Transmission Rights (FTR), and the approach used for resource adequacy across the SPP region. The RSC meets on a quarterly basis.

Through the RSC, the Commission was actively involved in the development of the “Highway-Byway” mechanism which provides for regional cost allocation of high voltage transmission projects that benefit the entire SPP region.

## **2. MISO**

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Entergy Texas, Inc. (ETI) filed an application in April 2012 for approval to join the Midwest Independent Transmission System Operator (MISO) RTO. Pursuant to PURA Section 39.915 an electric utility must obtain approval of the Commission before closing any transaction in which the electric utility will be merged or consolidated with another electric utility. ETI requested approval from the Commission to transfer operational control of its system to MISO. ETI projects that there would be significant benefits to joining MISO including providing centralized commitment and dispatch for electric generating units and operating both day-ahead and real-time markets for energy and operating reserves. In addition, within the MISO region, the RTO ensures grid reliability, performs transmission planning, and conducts periodic auctions for FTR. The MISO region includes 11 states in the north central part of the U.S. and the province of Manitoba in Canada. The Commission approved ETI’s application with conditions at the end of October 2012.

The Commission is a voting member of the Entergy Regional State (E-RSC), which was founded in 2009 to provide collective state regulatory input into the operation of and upgrades to the Entergy transmission system. The E-RSC is comprised of retail regulatory commissioners from the four states, including Texas, in which an Entergy company provides retail electric service. Pursuant to Entergy's FERC-approved tariff, the E-RSC has authority relating to (1) cost allocation for transmission projects, (2) the time horizon for certain transmission planning activities, and (3) adding transmission projects to the Entergy Construction Plan. The E-RSC meets on a quarterly basis. In 2012, the E-RSC also met with state regulators in the MISO region in anticipation of Entergy's planned move to MISO.

### 3. Caprock/Sharyland

In July 2010, the Commission issued an order approving a unanimous stipulation that approved the acquisition of Cap Rock Energy Corporation by Sharyland Utilities, L.P. (Sharyland). The order required Sharyland to file a study and plan within six months concerning whether to move two of its divisions (Stanton and Colorado City) from SPP into the ERCOT region, and within one year, perform a study and plan concerning whether to transfer Sharyland's former Cap Rock customers located in ERCOT to retail competition.<sup>10</sup> Sharyland filed its initial study and plan to move the two divisions into ERCOT on January 13, 2011. The Commission issued an order approving an unopposed stipulation that approved Sharyland's plan to move the two divisions into the ERCOT region.<sup>11</sup> Sharyland is scheduled to transfer the load of the two divisions from SPP to ERCOT by January 1, 2014. On July 13, 2011, pursuant to the July 2010 order, Sharyland filed its study and plan to transfer the former Cap Rock customers to competition. On August 22, 2012, the Commission issued an order approving an unopposed non-unanimous stipulation to move the former divisions to competition. Sharyland is scheduled to file an application no later than May 31, 2013 to establish retail delivery rates. Implementation of retail competition for the four divisions will commence on May 1, 2014, or 90 days after Sharyland files its tariffs to implement the final Commission order approving the retail delivery rates, whichever is later.<sup>12</sup>

### D. Oversight and Enforcement Actions

The Commission protects consumers, the electric markets, the reliability of the electric grid, and promotes fair competition by enforcing statutes, rules, and orders applicable to entities under its jurisdiction. The Commission's enforcement efforts in the electric

<sup>10</sup> *Joint Report and Application of Sharyland Utilities, LP, Sharyland Distribution and Transmission Services, LLC, Hunt Transmission Services, LLC, Cap Rock Energy Corporation, and NewCorp Electric Cooperative, Inc. for Regulatory Approvals Pursuant to PURA §§ 14.101, 37.154, 39.262, and 39.915*, Docket No. 37990, Order (July 8, 2010).

<sup>11</sup> *Application of Sharyland Utilities, LP to Approve Study and Plan Pursuant to the Commission's Order in Docket No. 37990 Concerning the Movement of Sharyland's Stanton and Colorado City Divisions from the Southwest Power Pool to ERCOT Pursuant to PURA §§14.001, 14.101, 39.262, and 39.915*, Docket No. 39070, Order (July 8, 2011)

<sup>12</sup> *Application of Sharyland Utilities, LP, to Approve Retail Plan Pursuant to the Commission's Order In Docket No. 37990 for Customers in the Stanton, Colorado City, Brady, and Celeste Divisions*, Docket No. 39592.

industry focus on violations of PURA, the Commission's Substantive Rules and ERCOT protocols.

### Current Penalty Activities

During the period from January 2011 through August 2012, the Commission assessed over \$3,788,060 in penalties to electric market participants. The following table provides a summary of electric industry Notices of Violation since January 2011. During 2011 and 2012, Commission Staff opened 166 investigations for the electric industry and closed 104 investigations.

**Table 1 - Notices of Violations**

<b>Violation Type</b>	<b>Penalty Amount</b>
Retail Market Violations	\$2,350,200.00
Service Quality Violations	\$985,860.00
Wholesale Market Violations	\$452,000.00
<b>TOTAL</b>	<b>\$3,788,060.00</b>

In addition to the administrative penalties assessed, in 24 cases the Commission also revoked or suspended, or the REP relinquished its certificate to operate. Table 2 below provides a breakdown of the number of certificates revoked, relinquished, or suspended. Appendix C contains a complete list of all certificates revoked, relinquished, or suspended.

**Table 2 - Certificates Revoked, Relinquished, or Suspended**

<b>Type</b>	<b>Number</b>
Number of Certificates Revoked	8
Number of Certificates Relinquished	15
Number of Certificates Suspended	1

## **E. Low Income Discount: System Benefit Fund**

Originally created in 1999 as part of Texas' electric utility restructuring, the System Benefit Fund helps low-income Texans with their electricity bills through discounts, weatherization programs, and education outreach. The 82nd Legislature appropriated \$73,635,575 for fiscal year 2012, from which low-income discounts were provided in September 2011 and May through August 2012. It also appropriated \$78,539,470 for the fiscal year 2013, for low-income discounts in September 2012 and May through August 2013. Of the funds for FY 2011, 2,868,937 discounts were distributed to 915,281 separate households equating to \$66,930,507 in discounts given. Each household that is deemed eligible may receive up to five months of discounts depending on when they submit their application. The System Benefit Fund (SBF) discount is based on the POLR rate in effect, the FY 2011 POLR rate was \$0.149 per kWh and the FY 2012 was \$0.154 per kWh.

## F. Customer Education Activities

Since its inception in February of 2001, the goal for the “Texas Electric Choice” campaign has been to educate Texans about the changes and choices in the retail electric market. The Commission continued to educate Texans about electric choice, REPs, and plan options from September 1, 2010 through August 30, 2012. The education campaign uses a number of approaches, in both English and Spanish, to reach and inform the public. A summary of each of the methods used during the last two years is included below.

### 1. Outreach

The Commission conducted a number of activities to improve the public visibility of retail choice, largely designed to inform electric customers of the official electric choice website of the Commission, [www.PowerToChoose.org](http://www.PowerToChoose.org). The website allows customers to compare offers and shop for electricity providers; learn more about digital smart meters, generating and selling renewable power, discover various incentives for energy efficiency and renewables, and read numerous publications including fact sheets and Texas Electric Choice brochures.

The Texas Electric Choice campaign website, [www.PowerToChoose.org](http://www.PowerToChoose.org), and its Spanish-language counterpart, [www.PoderDeEscoger.org](http://www.PoderDeEscoger.org), are vital parts of the customer education process. Key statistics for these websites during the 2010-2012 bienniums are illustrated below:

Table 3 - Power to Choose Website Statistics

Unique Visitors	2,217,682
Visits	3,906,107
Downloads - (PUC Website Publications only – not PTC or PDE)	272,602

Table 4 - Poder De Escoger Website Statistics

Unique Visitors	32,361
Visits	92,652

The Commission continued its partnership with local police departments, faith-based organizations, and social service and community groups around the state of Texas during the 2010-2012 biennium. During National Night Out the Commission collaborated with seventeen groups and passed out nearly 42,000 pieces of campaign materials.

Campaign materials were also distributed to numerous community events and civic town hall events during 2011 and 2012 including Hurst-Euless-Bedford School District’s Back2School day, Texas Black Expo’s Juneteenth Celebration, Dallas Earth Day Weekend, and IBM’s Earth Day Celebration. Website information was also provided at community service organizations including Rotary Clubs, legislative offices, senior activity centers, Home Owner

Associations, Chambers of Commerce, religious groups, and other state agencies, such as the Texas Commission on Environmental Quality.

## 2. Call Center

Beginning on March 1, 2010, a call center became available to answer Texas Electric Choice questions for the public. The Customer Protection Division (CPD) offers trained staff, both in English and Spanish, and are available to answer calls, along with assembling and mailing fulfillment packets requested by customers including brochures, a list of REPs in their area along with the REP contact phone numbers.

Table 5 - Contracted Call Center Activity September 2010 - August 30, 2012

Total Calls	54,023
Total Representative-Assisted Calls	45,529
Total Spanish-Language Calls	5,419

Table 6 - Number of Fulfillment Packets September 2010 - August 30, 2012

September 2010	124
October 2010	214
November 2010	121
December 2010	56
January 2011	93
February 2011	153
March 2011	156
April 2011	90
May 2011	102
June 2011	114
July 2011	97
August 2011	124
September 2011	85
October 2011	73
November 2011	57
December 2011	58
January 2012	46
February 2012	65
March 2012	47
April 2012	57
May 2012	35
June 2012	34
July 2012	29
August 2012	57
<b>TOTAL</b>	<b>2,087</b>

### **3. Educational Literature**

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Brochures, fact sheets, and other educational materials were distributed by mail, e-mail, at campaign events, through a network of community organizations, requested through the campaign's websites, and through requests to the call center. Fact sheets, which can be found on the Commission's website, as well as accessed through both [powertochoose.org](http://powertochoose.org) and [poderdeescojer.org](http://poderdeescojer.org), are routinely created and updated for distribution as part of the campaign's outreach efforts. The fact sheets provide information on a number of current industry and consumer topics. The Commission distributed nearly 835,000 informational products during 2010 and 2012.

### **4. Low-Income/Elderly Education Outreach**

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In the summer of 2012, the Commission enhanced its efforts to reach low income and elderly populations. Staff worked with legislative offices, community based organizations, and faith based groups to offer educational materials and training events to any organization seeking a better understanding of the deregulated electric market and the Commission's website.

### **5. Website Usability**

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In 2012 the Commission contracted with Sherry Matthews Advocacy Marketing to evaluate the Commission website. The marketing firm will assist with the evaluation of the current site, provide redesign options, create a new website, and perform a usability study focusing on the tool that compares electric choice offers. In July 2012, the Commission finalized negotiations with Sherry Matthews Advocacy Marketing to assist with the evaluation of the current site, provide redesign options, create a new site, and perform a usability study for [Powertochoose.org](http://Powertochoose.org) specifically focusing on the 'compare offers' tool.

### **6. Energy Conservation Awareness**

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In April 2012, the Commission awarded Sherry Matthews Advocacy Marketing a 16-month contract to raise public awareness on energy conservation. The campaign elements will include research, branding, messaging, television and radio public service announcements, websites, media tours, video news releases and public outreach. The micro website, [powertosavetexas.com](http://powertosavetexas.com), launched on July 1, 2012, and the main website launched on September 1, 2012. The revised websites earned media attention on radio news features, media tours in Dallas and Houston, and outreach programs including businesses, community based organizations, and middle schools.

### III. EFFECTS OR COMPETITION ON RATES AND SERVICE

In the last two years, the competitive retail electric market in Texas has been thriving. Customers in every competitive area of Texas have enjoyed many choices in electric providers and products. Customers have been able to choose from a variety of fixed, variable, prepaid or postpaid products and around 60 renewable products with 100% renewable content. Additionally, the lowest price product in each competitive area is well below the national average.

#### A. Effect of Competition on Rates

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##### 1. ERCOT Wholesale Market

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The Commission directed ERCOT in 2003 to design a nodal wholesale market to improve market and operating efficiencies through more granular pricing and scheduling of energy services. The nodal market has led to lower overall electricity costs in the long term through:

- Improved use of generation resources through unit-specific dispatch – selecting individual units based on lowest price rather than on generation portfolios;
- More efficient management of transmission congestion through market-based mechanisms;
- More accurate price signals that better indicate where new generation and transmission is most needed (and where it is not) for managing congestion and maintaining reliability;
- Improved ability to efficiently and reliably integrate the increasing quantities of intermittent resources, such as wind and solar generating facilities.

In the former zonal market design, ERCOT managed transmission congestion through four price zones and energy schedules grouped in portfolios, rather than by individual unit. In the nodal market design, ERCOT is capturing prices at more than 8,000 nodes or points where energy is added or taken out of the grid, including transmission lines, generators, electrical busses, breakers, switches and other similar devices defined in the network model. Another significant change in Nodal is that ERCOT determines the most economic dispatch of individual generation resources every five minutes instead of 15 minutes.<sup>13</sup>

The percentage of real-time load hedged in the day-ahead market rose from 103.04% in August 2011 to 116.96% in August 2012. The average ‘ERCOT Hub Average 345 kV Hub’ Settlement Point price in the day-ahead market (\$/MWh) in August 2011 was \$185.50 and \$44.54 in August 2012. The average ‘ERCOT Hub Average 345 kV Hub’

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<sup>13</sup> [http://www.ercot.com/news/press\\_releases/show/349](http://www.ercot.com/news/press_releases/show/349)

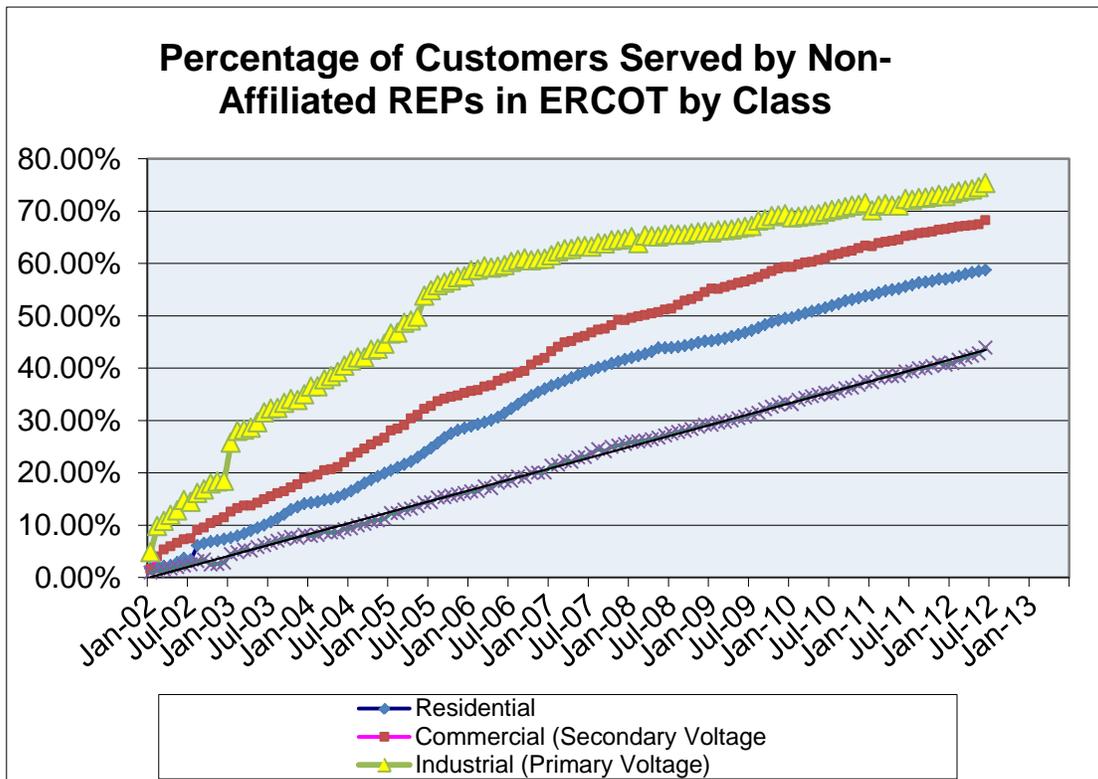
Settlement Point price in the real-time market (\$/MWh) in August 2011 was \$153.83 and \$30.64 in August 2012.<sup>14</sup>

## 2. Retail Market Development and Prices

### a. Available Choices for Customers

An important gauge of retail market competitiveness is the number of providers competing for customers. Today, a wide variety of products and service offers are available for Texans. By August of 2012 there were 114 REPs providing service to customers. The number of REPs and competitive offers has continued to grow steadily since 2002. Texas continues to be recognized as the most successful competitive retail market in North America as demonstrated by its number one rank for the past 5 years in the Annual Baseline Assessment of Choice in Canada and the United States.<sup>15</sup> According to ERCOT, the percentage of ESI-IDs that are not served by the former affiliated REP is 59% for residential load and 65% for small commercial load.

Figure 1 - Percentage of Customers Served by Non-Affiliated REPs in ERCOT by Class



<sup>14</sup> Board of Directors Meeting, September 19, 2012

<sup>15</sup> *Annual Baseline Assessment of Choice in Canada and the United States*. Available online at: <http://www.defgllc.com/content/defg/abaccus.asp>.

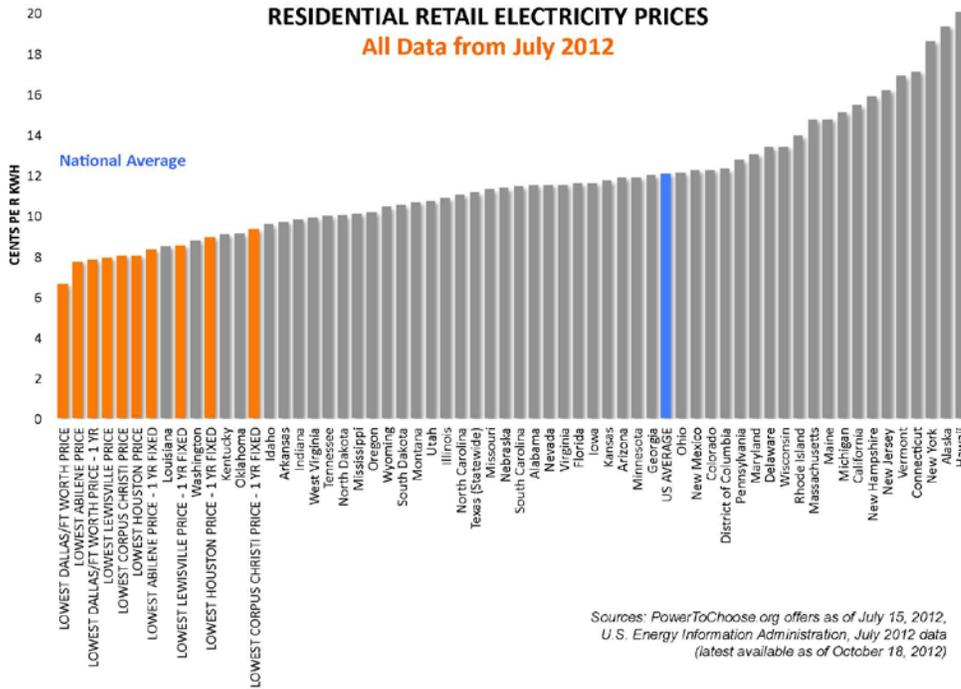
Table 7 - Number of REPs Serving Residential Customers by Service Territory

Transmission and Distribution Utility	Number of REPs Serving Residential Customers (Incl. affiliated REPs)	Number of Residential Products	Number of Products with 100 % Renewable Content
Oncor	45	258	62
CenterPoint	47	275	63
AEP TCC	44	251	62
AEP TNC	40	234	58
TNMP	40	237	63
Sharyland	10	41	10

*b. Residential Rates*

Retail competition started January 1, 2002, when all residential customers in the competitive areas of ERCOT were moved from fully regulated service to price to beat rates that were established at a discount of six percent off the then existing residential rates. As demonstrated in the following figure, every competitive area in Texas has variable and one-year fixed rates that are up to three cents per kWh below the national average.

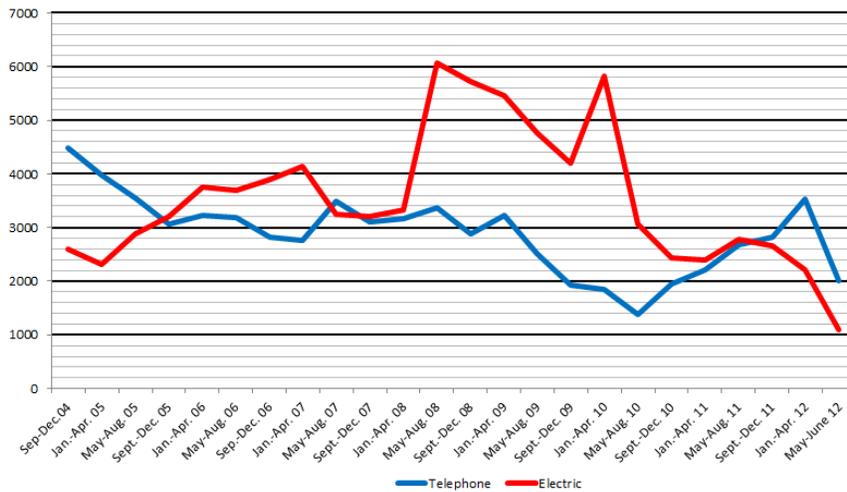
Figure 2- Residential Retail Electricity Prices



## B. Complaints

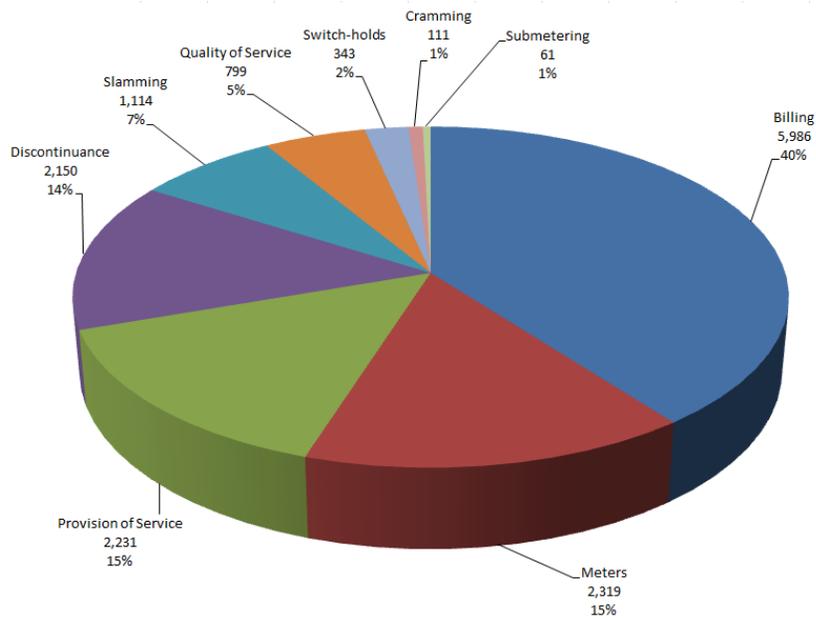
Commission rules permit customers to file complaints to the Commission about their electric and telephone service, and the Commission is required to keep records of such complaints. Complaint statistics serve as a barometer for analyzing company behavior and its effect on customers. The statistics also enable Commission management to identify company-specific trends that may lead to enforcement action or meetings with companies to address issues. The average number of days to resolve a utility complaint during this report period was 15.26 days.

Figure 3 - Total Complaints Received September 2010-June 2012



A total of 15,114 electric complaints were received from September 2010 through August 2012. Billing complaints and issues accounted for 40% of all electric complaints and continued to be the leading cause of customer issues. The installation of advanced meters was the second leading cause of complaints; however, this category has declined by over 50% over the present two-year cycle. Customer service and refusal of service was the next leading cause of complaints at 15%, but was down 65% from the last two-year period of 2008 to 2010.

Figure 4 - Electric Complaints Received September 2010 - August 2012



## V. LEGISLATIVE RECOMMENDATIONS

### A. Authority to do background checks and recover costs for REP and other licenses

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Currently, PURA and the Government Code do not expressly authorize the Commission to perform background checks on applicants seeking to become retail electric providers. The Commission currently performs a review of such applicants but does not perform formal background checks on them prior to authorizing them to become retail electric providers. Because there are important public interest considerations in ensuring that a retail electric provider is capable of providing the requisite service in times of stress on the electric grid, the Commission seeks the authority to perform background checks on such applicants, and the authority to assess a fee on such applicants to recover the cost of such background checks.

The PUC recommends that the Legislature authorize the Commission to obtain background checks, and to assess fees on applicants seeking to become retail electric providers in Texas for the cost of performing background checks on such applicants. The PUC also recommends that the amount of such fees be appropriated to the Commission for the sole purpose of conducting such background checks.

### B. System Benefit Fund fee calculation

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PURA § 39.903(b) specifies that the System Benefit Fund (SBF) fee cannot exceed 65 cents per megawatt hour. However, the Texas Administrative Code § 25.451(d)(3) specifies that the average SBF fee may not exceed 65 cents per megawatt hour.

In the Commission's well-established rate-setting process, transmission and distribution utilities are allowed to charge a range of SBF fees to different customer classes to adjust for various voltage level losses applicable to each customer class. As a result, some customer classes are charged an SBF fee that is slightly below the statutory maximum of 65 cents per megawatt hour, while other customer classes are charged slightly above. While no party challenged the Commission's rules or orders implementing the fee in this manner, the State Auditor's office expressed concerns in their recent audit of the fund.

The Commission believes that its rules and orders implementing the System Benefit Fund are appropriate and valid. However, should the Legislature desire a flat fee for all customer classes, the Commission recommends that the Legislature amend PURA to explicitly direct the Commission to implement the SBF fee in that manner.

### **C. Repeal of natural gas and renewable energy mandates**

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- Natural Gas

PURA § 39.9044 establishes natural gas as "the preferential fuel" in Texas for electricity generation and requires the Commission to adopt rules to establish a system of natural gas energy trading credits. The majority of all new, non-renewable electricity generation constructed since 2000 for Texas has used natural gas as a primary fuel and this trend is expected to continue for the foreseeable future. The thresholds used to trigger the natural gas energy trading credit system in PURA § 39.9044 have not been reached and they are not expected to be reached in the foreseeable future.

Because natural gas has been the most commonly built new generation for Texas for many years and it is expected to continue to be, there is no need to establish incentives for natural gas generation. The PUC recommends that the Legislature consider repealing PURA § 39.9044 because it is no longer necessary.

- Renewable Energy

PURA § 39.904 establishes goals for renewable energy. Subsection (a) mandates the installation of 5,880 megawatts of renewable energy by 2015, and Subsection (b) establishes a renewable energy credits trading program to implement the mandate. The 5,880 megawatts mandate in Subsection (a) was met in 2008. While the Commission believes the renewable energy credits trading program is needed for retail electric providers to validate renewable energy marketing claims, the Commission believes the 5,880 megawatts mandate in Subsection (a) is no longer necessary.

### **D. Outside counsel for federal proceedings**

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PURA § 39.4525 provides that the Commission may hire outside assistance "in a proceeding before the Federal Energy Regulatory Commission [FERC], or before a court reviewing proceedings of that federal commission." However, it is not uncommon for a proceeding at the PUC to be connected in some way to a proceeding at FERC or that proceedings at FERC involve an issue that will be considered by the PUC. The PUC recommends that the Legislature expand the language in this statute to include the ability to hire outside assistance for proceedings before FERC or before a court reviewing proceedings of a federal commission related to any issues that will be considered by the PUC. Furthermore, the PUC recommends that the Legislature duplicate the expanded language in corollary sections to also apply to public utilities located within the Southwest Power Pool and ERCOT.

### **E. GEMSS Information Mapping – exclude from Open Records Act**

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Under Annex U to the State Emergency Management Plan, state agencies that regulate privately-owned critical infrastructure are required to maintain descriptive location data on that infrastructure and turn it over to the Department of Public Safety (DPS) upon request. DPS has the statutory authority to impose a fine for noncompliance

with Annex U, although it is not currently employing the mechanism to do so. The PUC recommends that the Legislature clarify the Commission's authority to collect the requisite data, in the appropriate format and with the appropriate safeguards for confidentiality, from the utilities that it regulates.

## **VI. APPENDICES**

## Appendix A – Acronyms

AMS	Advanced Metering System
CenterPoint	CenterPoint Energy Houston Electric, LLC
CPD	Customer Protection Division
DG	Distributed Generation
DNP	Disconnect for Non-Pay
DRG	Distributed Renewable Generation
DRGO	Distributed Renewal Generation Owner
DPS	Department of Public Safety
EILS	Emergency Interruptible Load Service
EMF	Electromagnetic Fields
ERCOT	Electric Reliability Council of Texas
E-RSC	Entergy Regional State
ERS	Emergency Response Service
ETI	Entergy Texas, Inc.
FTR	Financial Transmission Rights
IMM	ERCOT Independent Market Monitor
kWh	Kilowatt-hour
LMP	Locational Marginal Pricing
MISO	Midwest Independent System Operator
MMBtu	One million British Thermal Unit (BTU)
MW	Megawatt
MWh	Megawatt-hour
Nodal	Texas Nodal Market Design
POLR	Provider of Last Resort
PURA	Public Utility Regulatory Act
REP	Retail Electric Provider
RF	Radio Frequency
RSC	Regional State Committee

RTO	Regional Transmission Organization
RUC	Reliability Unit Commitment
SCED	Security Constrained Economic Dispatch
Sharyland	Sharyland Utilities, L.P.
SBF	System Benefit Fund
SPP	Southwest Power Pool
SWOC	System Wide Offer Curve
TDU	Transmission and Distribution Utility
TNMP	Texas-New Mexico Power Company

**Appendix B – Energy Storage Capabilities**

Technologies	Advantages	Disadvantages	Major Applications	Power*	Energy**
Pumped Storage	High Capacity, Low Cost	Special Site Requirement	Energy Time Shift, Frequency regulation, Ancillary Services		Fully Capable
Compressed Air Storage (CAES)	High Capacity, Low Cost	Special Site Requirement Need Gas Fuel	Energy Time Shift, Frequency Regulation, Ancillary Services		Fully Capable
Flow Batteries: VRB, ZnBr	High Capacity, Independent Power/Energy Ratings	Low Energy Density	Peak Shaving for T &D upgrade deferral, Load Leveling, Backup Power	Reasonable for this Application	Fully Capable
NaS	High Power & Energy Densities, High Efficiency	Production Cost, Safety Concerns	Peak Shaving for T &D upgrade deferral, energy time shift, load leveling , voltage control, reactive power	Fully Capable	Fully Capable
Li-ion	High Power & Energy Densities, High Efficiency	High Production Cost, Special Charging Circuit	Consumer Electronics, PEV, PHEV, Utility Applications	Fully Capable	Feasible but not yet economical
Ni-Cd	High Power & Energy Densities, Efficiency		Utility/Telecom backup, Consumer Electronics	Fully Capable	Reasonable for this Application
Lead-Acid	Low Capital Cost	Limited Life Cycle	Automobile, UPS Telecom, Substation Reserve Power	Fully Capable	Feasible but not yet economical
Flywheels	High Power	Low Energy Density	Frequency Regulation, Power Quality, Emergency Bridging Power, Fluctuation	Fully Capable	Feasible but not yet economical
SMES	High Power	Low Energy Density, High Production Cost	Power Quality, Emergency Bridging Power	Fully Capable	
Electrochemical (EC) Capacitors	Long Life Cycle, High Efficiency	Low Energy Density	Power Quality, Emergency Bridging Power, Fluctuation	Fully Capable	Reasonable for this Application

\* Stored energy suitable for short duration, high precision power quality and continuity of service when switching from one energy source to another.

\*\* Stored energy suitable for decoupling the timing of generation and consumption of energy.