

TEXAS PUBLIC POLICY FOUNDATION

Competition in Texas Electric Markets

What Texas Did Right & What's Left to Do



By Robert J. Michaels | *March 2007*

CENTER FOR ECONOMIC FREEDOM
WWW.TEXASPOLICY.COM

TABLE OF CONTENTS

Executive Summary	3
Retail Market Performance	4
Wholesale Market Performance	13
Findings	18
Endnotes	24

ABOUT THE AUTHOR

Robert J. Michaels is a Professor of Economics at California State University, Fullerton and a Senior Fellow at the Texas Public Policy Foundation. His areas of qualification are industrial organization; antitrust analysis; regulation and deregulation; and competition in the electricity and gas industries.

Dr. Michaels has conducted significant research on electric markets, including areas such as market power in California, regulating competitive electricity, and FERC'S California market order. He has also testified before the U.S. House of Representatives Subcommittee on Energy and Power, the Federal Energy Regulatory Commission, the California Public Utilities Commission, the Illinois Commerce Commission, the California Energy Commission, and the Superior Court of California.

Dr. Michaels is a Resident Scholar at the Center for Advancement of Energy Markets; Co-Editor of *Contemporary Economic Policy*, a peer-reviewed journal of the Western Economic Association; an Adjunct Scholar with the National Center for Policy Analysis; and an Adjunct Scholar at the Institute for Energy Research.

He holds an A.B. from the University of Chicago and a Ph.D. from the University of California, Los Angeles, both in economics.

Competition in Texas Electric Markets: What Texas Did Right & What's Left to Do

by Robert J. Michaels

California State University, Fullerton

EXECUTIVE SUMMARY

Electricity has been the last and most difficult of the great deregulations, thanks to technology, economics and politics. With the complicated politics and physical characteristics of electricity markets, it is little wonder that deregulation has been remarkably successful in some jurisdictions and a near-total failure in others. Laws like Texas' SB 7 and California's AB 1890 were forged by the vagaries of politics and the efforts of many diametrically opposed interests. Unlike Texas' success, within two years California's largest utility was bankrupt and its second largest nearly so, and state government took over their power purchasing. Retail competition is largely a memory for all but a small fraction of industrial users. Pennsylvania was another state that originally looked like a genuine success, as customers of all types abandoned their utilities because the state's "shopping credit" made the move worthwhile. But one detail brought the success to a halt—the shopping credit was fixed in dollar terms and when fuel prices rose non-utility suppliers were unable to compete.

In contrast, Texas—or more specifically, the Electric Reliability Council of Texas (ERCOT) region—stands out among the states for the competitive performance of both its retail and wholesale markets. Although it appears redundant, the success was largely due to the willingness to let markets work and not manipulate prices or access policies. While the transformation of American electricity has been dominated by a largely political competition to "design" markets for it, Texas did not "design" a retail market in any meaningful sense—it instead set general rules for retail electric providers (REPs—both competitive providers, or CREPs, and affiliated providers, or AREPs) and allowed them to compete as they wished within those rules. The details of what would be sold and how it would be priced were left to the ingenuity of buyers and sellers. The only notable exception was the Price to Beat, which, though it was a uniquely successful transition tool, distorted prices and market behavior throughout 2006.

Compare this approach to California's. There, intricate and hitherto untried day-ahead and real-time energy markets dominated its restructuring because its enabling legislation specified that utilities would have no choice but to obtain all of their resources in those markets. The law also prohibited the utilities from hedging these prices, and forced them to divest generators whose bids would often set price in these markets. Unlike Texas, California decided in advance that a short-term energy price was the only price worth knowing, and that it could serve as the reference point for every sort of bilateral contract that market participants could conceivably want. California paid the price for its certainty. The southern half of the state may again soon begin paying that price in blackouts. The collapse of the markets and the unpredictable politicization of utility procurement have destroyed incentives for investment in new powerplants, including renewables.

There are three essential characteristics of a successful, competitive electric market:

- Efficient, competitive wholesale markets
- Benefits of retail markets available to all users
- Long term predictability of investment climate, freedom to contract

The results of this study indicate that the Texas electric market has all of these characteristics to a degree not seen in other states.

It is important to remember that real success will only be achieved as the state invests for future electric demand. We cannot use measures of regulation to measure success under competition. Short-term rate effects are not as important as long-run efficiency. Yet judged by the numbers of customers switched (both toward and away from default service), we can already say that Texas has the nation’s most successful retail choice program. And based on the current and planned investment in generation capacity, the same thing can be said about the Texas wholesale market.

As the restructuring of electricity has dragged on, we have often heard people who represent different interest groups say that they want to “let the market decide” prices or volumes of energy to be traded. And the market should decide these issues. What Texas has shown in ERCOT, and the lesson it provides for other electricity markets, is that the market must also decide what the market will look like. Its wholesale markets are bilaterally based and can produce any contract that a buyer and seller find agreeable. Those who resell this power at retail should also maintain the right to price it as they wish or to make it a component of a more complex package that consumers might value more highly. Things are not perfect, but those who live and work in ERCOT territory should consider themselves fortunate.

Texas is competitive electricity’s greatest success story in the United States, if not the world. The ERCOT area has enjoyed the most successful transition toward deregulation in the U.S. Competition has brought substantial benefits to Texas in only a few years, both in absolute terms and relative to other states. The ERCOT markets function well, innovations planned for 2009 will further improve investment choices and power pricing, and institutions put in place by the PUCT can sustain competitive markets into the future.

RETAIL MARKET PERFORMANCE

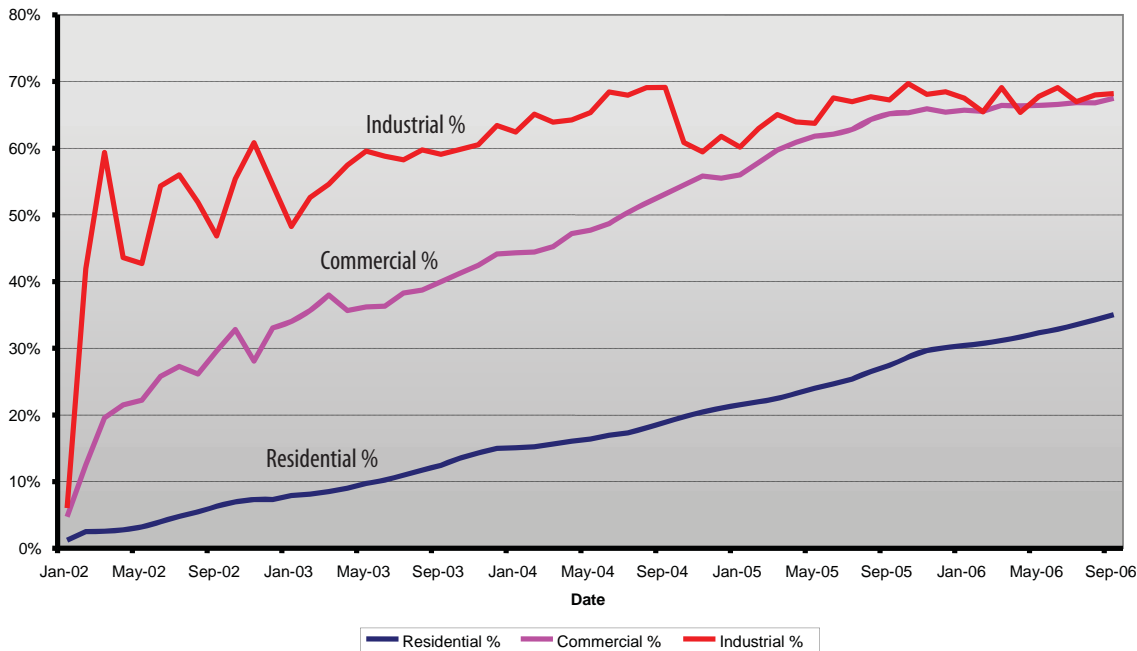
Switching Rates

Figure 3-1 shows the percentages of residential, commercial and industrial loads that have left their AREPs since competition began.¹ The general pattern is as expected. Industrial customers with loads above 1 MW were the quickest to switch. They had large power bills and either understood their new opportunities or soon learned about them from marketers and aggregators. Their business was a natural extension of wholesale marketing. Some had larger loads than municipal utilities that had previously obtained access to ERCOT’s transmission, and others were experienced at selling cogenerated power into the grid. After a three month frenzy the fraction of industrial load served by CREPs settled between 60 and 70 percent. AREPs served the remainder, but had to actively compete for them because the Price to Beat applied only to residential and small commercial users. Larger commercial customers with smaller loads than industrials were also quick to begin switching suppliers. Their changeovers also slowed after an opening burst, but unlike industrial users the percent-

RECOMMENDATIONS

- Maintain the current practice in Texas of providing a framework for competition without prescribing how market participants should compete with one another.
- Avoid unpredictable major alterations of the existing market structure that will dash expectations of future stability and ruin the climate for investment.
- Continue support for scheduled improvements to the wholesale market, including:
 - Market Monitor,
 - 2009 Day-Ahead Markets,
 - 2009 Nodal Pricing, and
 - Investment in Transmission Capacity.
- Introduce competition into non-ERCOT markets.
- Separate environmental and income concerns from questions of competition.

FIGURE 3-1
Percentage of Load Served by Non-Affiliated REPs, Jan. 2002-Sept. 2006



Source: Public Utility Commission of Texas, Report Cards on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.

age served by CREPs has grown slowly but steadily. Today approximately 68 percent of both commercial and industrial loads have switched. Residential loads were slower to depart after markets opened. Many only learned about their new choices with a delay, some were hesitant to experiment, and utilities' AREPs may have benefited from the service and reputations of their parent companies to keep customers loyal in the face of competitive discounts that they were not allowed to match. Residential departures to CREPs have risen persistently but slowly, totaling 35 percent of the megawatts they consumed in September 2006.

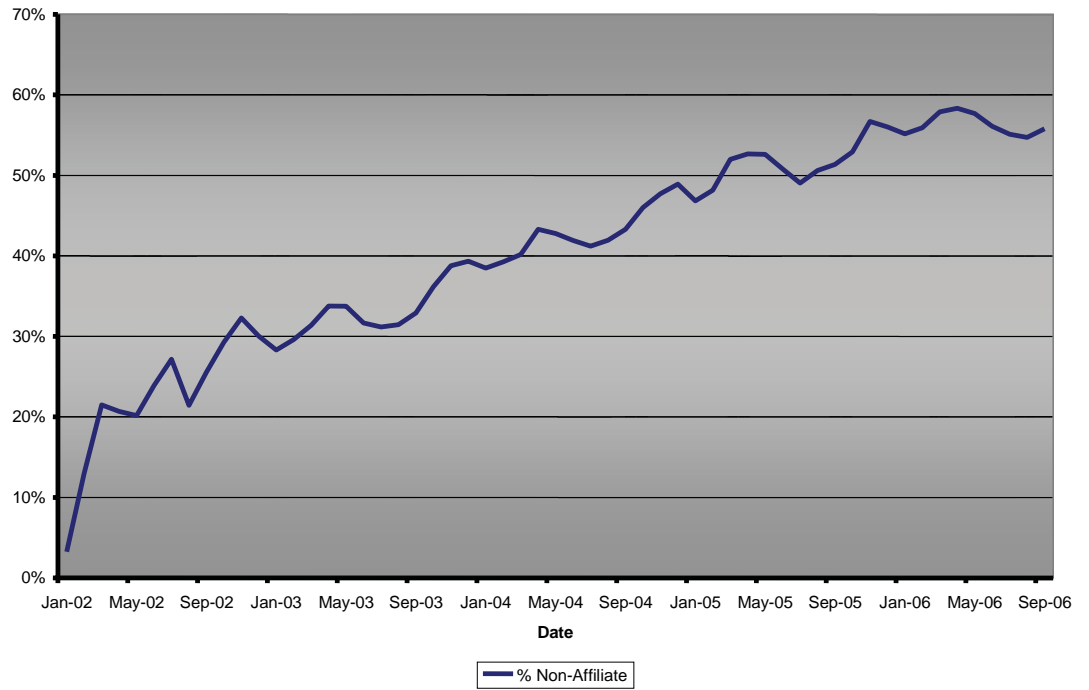
Other data illustrate the trend of competition and its growth throughout ERCOT's footprint. **Figure 3-2** shows how service by CREPs has grown, to approximately 55 percent ERCOT load since markets opened in 2002. **Figure 3-3** shows that competition has made inroads into all ERCOT territories, urban and rural. The percentages of customers choosing a CREP in September 2006 ranged from 32.6 (TNMP) to 42.1 (AEP North), and the percentage of megawatts served from 50.5 (CenterPoint) to 73.2 (AEP North).

Competition for Small Customers and the Price to Beat

Switching rates are not the only indicator of the growth of competition in the market. In the residential market, many small customers are served by AREPs yet still have made observable choices. As of December 2006, 76.7 percent of residential customers had made such a choice.² This includes 36 percent that switched to a CREP and 40.6 percent that are still served by AREPs but have chosen a different price plan, moved into an area and chose the AREP, or switched back to an AREP. The December figure was 21 points above March,

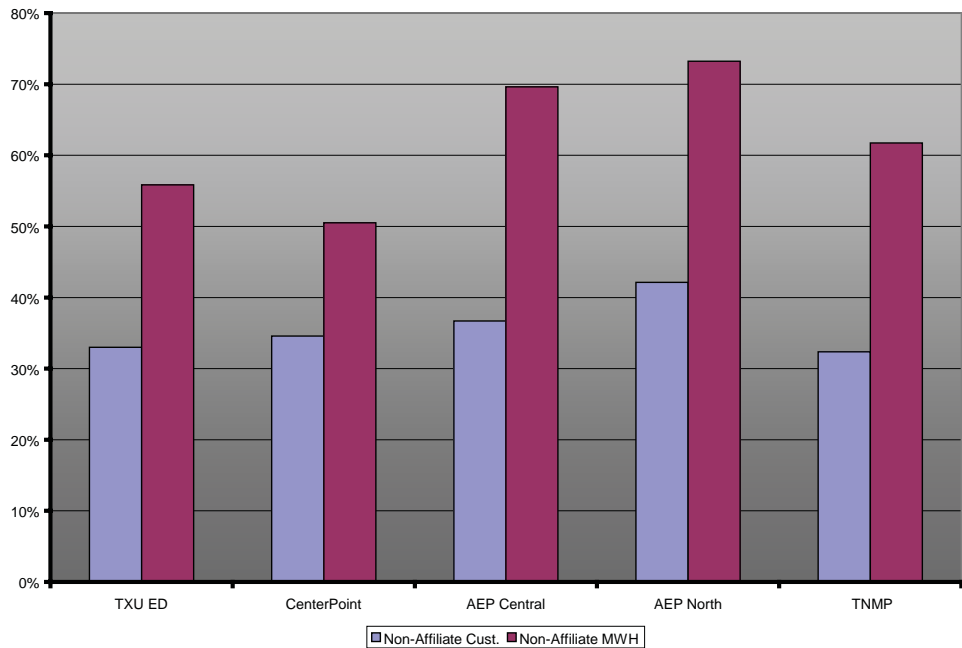
TalkingPoint:
 Over 76 percent of residential customers have made an observable choice of providers.

FIGURE 3-2
Percent of Total MWH Served by Non-Affiliate REPs, 2002-2006



Source: Public Utility Commission of Texas, Report Cards on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.

FIGURE 3-3
Percentage of Territorial Customers and MWH Served by Non-Affiliated REPs, Sept. 2006

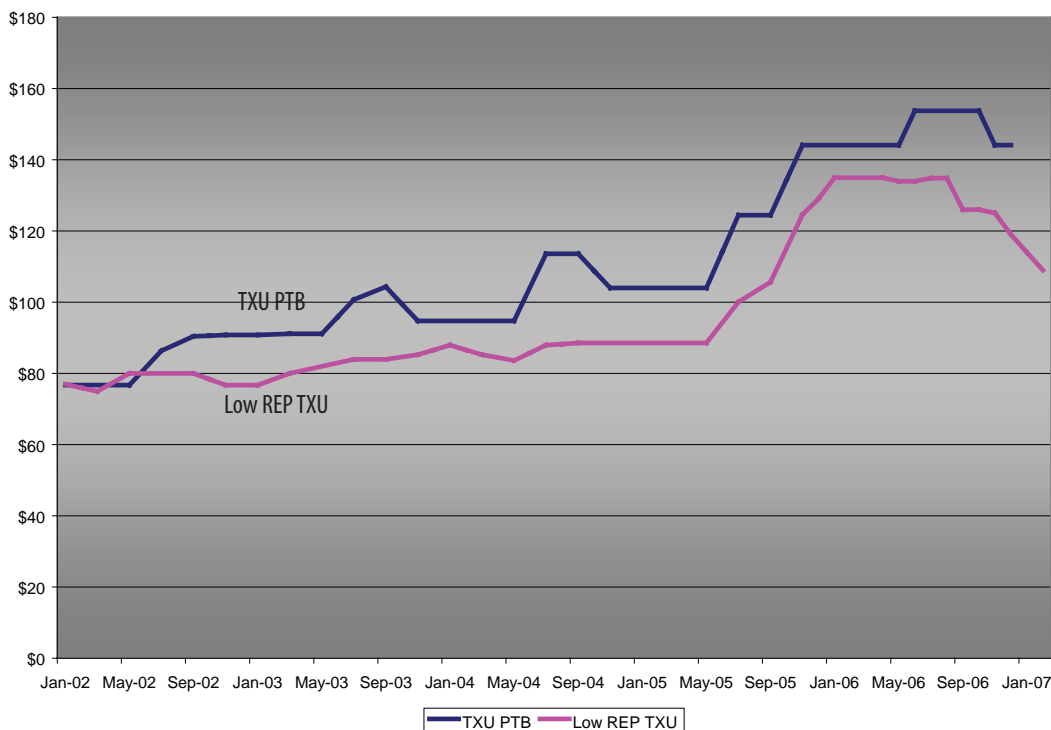


Source: Public Utility Commission of Texas, Report Cards on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.

when only 55 percent had made an observable choice. The growth came in two areas. First, customers served by CREPs increased from 29.6 percent to 36 percent of the market. Second, customers served by an AREP on a non-PTB product increased from 5 percent in March to 22.1 percent in December.³ These figures show growing competition and show that market participants in general, and AREPS in particular, have responded to competition with new competitive initiatives of their own.

Figures 3-4a and 3-4b illustrate how competitive REPs in CenterPoint and TXU territories consistently made offers more attractive than the Price to Beat when it was in effect.⁴ They show residential bills for 1,000 kwh per month purchased at the PTB and from the lowest-cost competitive provider in the territory.⁵ They are for generic service that can be terminated on request, rather than special plans subject to contract restrictions that are multiplying with the end of the PTB. Averages of CREP prices in each territory suggest that CREPs now operate in competitive markets that do not require the PTB to act as an implicit ceiling on their rates. If competition among CREPs did not exist, we would expect to see their prices only slightly below PTBs—the CREPs would be a small fringe whose members could price slightly below the AREP’s “umbrella,” with little interest in competing among themselves. Instead we see substantially lower CREP prices. Figures 3-4a and 3-4b show the consistent difference between Price to Beat and lowest price offered by CREP in TXU and Reliant territories, before the PTB lapsed at the end of 2006. The offer prices of competitive providers tended to bunch, with even the highest of those prices lower than the PTB.⁶ Low prices do not allow CREPs to “lock-in” consumers for future exploitation. A customer without a special contract can switch suppliers with a phone call, and one that has done so presumably understands the balance of risks and benefits.

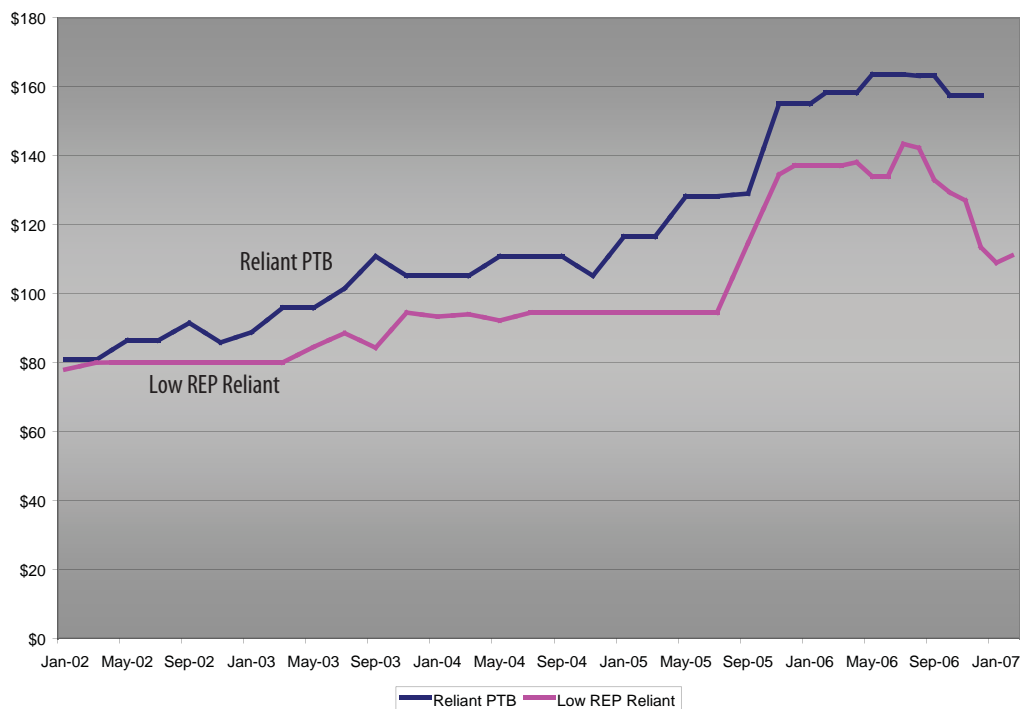
FIGURE 3-4A
TXU Price to Beat and Lowest Price, 1,000 kwh Residential Bills



Source: Public Utility Commission of Texas, Report Cards on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.

QuickFact:
 Data from the U.S. Energy Information Administration concluded that commercial customers saved \$420 million and industrial customers saved “at least \$225 million” when their August 2003 costs were compared with regulated rates that prevailed in 2001.

FIGURE 3-4B
CenterPoint Price to Beat and Lowest REP Price, 1,000 kwh Residential Bill



Source: Public Utility Commission of Texas, Report Cards on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.

Competition for Large Users

The publicly available data on prices and switchovers make it relatively easy to evaluate competition for residential users. Small commercial customers who are still eligible for PTB service have likewise been able to avail themselves of new CREPs whose prices are also substantially below PTBs. Most large users, however, sign contracts whose terms are confidential. In 2003-2004, the PUCT used customer surveys and data from the U.S. Energy Information Administration to conclude that commercial customers saved \$420 million and industrial customers saved “at least \$225 million” when their August 2003 costs were compared with regulated rates that prevailed in 2001.⁷ The study also estimated the average 2003 and 2004 rates they paid AREPs and CREPs, shown in Table 3-1.⁸ The PUCT’s report noted that the face value of those savings may be misleading. At the end of 2004 gas prices were substantially higher than in previous years, and renegotiation of earlier fixed-price fuel contracts might substantially reduce any reported savings.

Table 3-1 contains an apparent anomaly. Most commercial and industrial customers have substantial power costs, and at least the larger ones probably learned quickly about their alternatives. Smaller commercial customers had automatic access to their AREP’s Price to Beat, and in January 2004, all AREP’s were allowed to negotiate with commercial users, as they have done.⁹ The puzzle is why AREP prices were still so high when compared with CREPs. The average AREP commercial price per kwh in 2003 was 49 percent higher, and the gap was a bit larger in 2004 than 2003. The same holds for industrial customers, who never had a PTB backstop and whose large purchases may make them more sensitive than commercial users. In 2003 the average industrial user buying from an AREP paid 23 percent more per kwh than one buying from a CREP, a difference that increased to 34 percent in 2004. There

TABLE 3-1
Average Commercial and Industrial Rates, 2003-2004

	2003		2004 (through September)	
	Affiliated REPs	Non-affiliated REPs	Affiliated REPs	Non-affiliated REPs
Commercial	9.50	6.38	10.58	6.98
Industrial	5.75	4.69	6.52	4.85

Source: "2005 Scope of Competition Report," 58, derived from data supplied by the U.S. Energy Information Administration.

are no obvious services (including creative rate designs) AREPs can offer large customers that CREPs cannot. Small consumers may not find it worthwhile to incur the cost of learning about new alternatives, but large ones who consistently overpay for an important input risk extinction at the hands of competitors. For now, these differences must remain largely unexplained.

The Rate of Residential Customer Departures

Somewhat over 30 percent of residential load has abandoned AREPs for CREPs, and there have been concerns that the existence of "sticky" customers who refuse to leave their AREPs or even go shopping, confer advantages on their AREPs. Figures 3-4a and 3-4b show the size and persistence of discounts below the PTB that were available in TXU and CenterPoint territories when it was in existence. There are no public studies of consumers' reasons for staying on AREP service. The steady growth of switched residential load and the small numbers of departed customers returning to their AREPs, however, suggests that they can be split into price sensitive ("elastic demand") and insensitive ("inelastic demand") users. Elasticity increases with time as buyers learn about competition and the minimal risk of switching to new suppliers, as shown by the steady exodus to CREPs. During the days of the PTB, however, AREPs may have been able to profit from PTB adjustments that allowed them over-recover fuel cost increases. As noted in a previous paper, SB 7 allowed utilities to petition the PUCT for PTB increases proportional to increases in gas prices, even if they owned generation whose fuel costs had not risen by as much.

An example of such a PTB adjustment occurred in January 2003. Having seen a 23.4 percent gas price increase since its last adjustment docket, Reliant Energy (now CenterPoint) applied for a 23.4 percent rate increase.¹⁰ The PUCT's Office of Public Utility Counsel (its small-consumer advocate) testified that only 42 percent of Reliant's power came from gas, with the rest produced in coal and nuclear units whose costs had risen by less.¹¹ The PUCT nevertheless ruled that SB 7's plain language required it to reprice all of Reliant's power by the gas cost factor. Its "sticky" customers would pay more than if rates had been regulated on the basis of actual costs as in the past. The legal idiosyncrasies of PTB adjustment explain some research findings that showed residential rates rising more quickly in ERCOT than in regulated territories.¹²

Recent events provide evidence that residential stickiness is weakening and will continue to do so with the PTB gone. When it was in existence, utilities could petition the PUCT for PTB increases that over-recovered gas prices, but the law did not require a lower PTB be lowered if they fell. Other utilities had yet to do so, but in June 2006 the AREPs (units of

QuickFact:

Elasticity increases with time as buyers learn about competition and the minimal risk of switching to new suppliers, as shown by the steady exodus to CREPs.

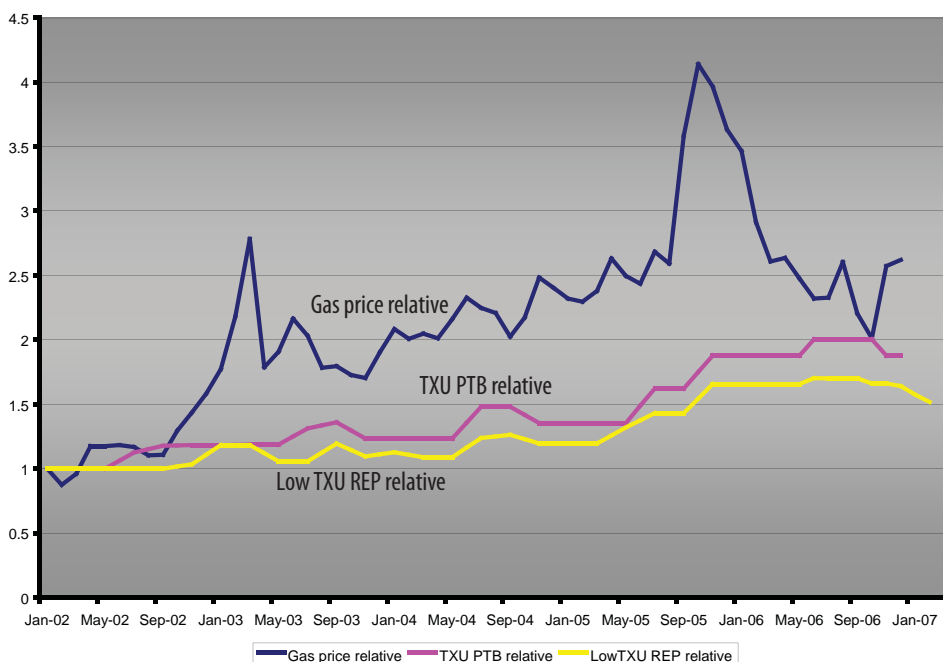
Direct Energy) in AEP Central and AEP North were the first to petition for a PTB decrease due to falling fuel costs. After it was granted the companies announced that they were passing their savings on to customers, an indication of the competitive pressures they faced. As measures of that pressure, by March 2006 AEP North had lost more of its residential load to CREPs than any other AREP, and AEP Central was second.¹³ The reduced Price to Beat would only affect competition for residential loads, but the companies had other competitive problems. Figure 3-3 shows that AEP North had also lost the largest percentage of its total load and AEP Central was again second. Both were well ahead of TNMP (lost 61.4 percent), TXU ED (55.7) and CenterPoint (50.1). AEP North has had the highest PTB of the five AREPs and AEP Central the second highest for all but a handful of the months since competition began.¹⁴ Low cost load servers face competition as well. In October 2006 TNMP's AREP, First Choice Power, petitioned the PUCT for a reduction in its PTB, despite the fact that at the time it was the lowest of all the AREPs.¹⁵

TalkingPoint:

Even if AREPs have some efficient coal and nuclear resources that CREPs do not, at least some CREPs have still managed to succeed competitively in the face of these barriers.

Texas depends primarily on gas-fired generation, but its two largest AREPs have attempted to diversify their generation mixes. As noted above, over one recent period only 42 percent of Reliant's power was generated in gas-fired units. CREP contracts with generators are confidential, but they are probably more dependent on gas than the large AREPs. Power markets are actively adjusting to higher gas prices. **Figure 3-5** shows that between January 2002 and December 2006 TXU increased its price to beat by 87 percent, while the lowest CREP offer in its territory increased by only 64 percent. Over this same period, the price of natural gas increased by 126 percent. Gas accounts for about 80 percent of the production cost of a kwh. Its price more than doubled, but the cost of buying a kwh from the best CREP in TXU territory increased by only half that amount. Both AREP and CREP rates increased smoothly while gas prices boomed and busted during 2005 and 2006. Even if AREPs have some efficient coal and nuclear resources that CREPs do not, at least some CREPs have still managed to succeed competitively in the face of these barriers.

FIGURE 3-5
TXU Price to Beat, Lowest Competitive REP Price, and Natural Gas Price Relative Changes [Jan. 2002 = 1}




Entry of CREPs

There were two great uncertainties at the start of retail choice. First, would the new suppliers materialize? Second, could they pry customers, particularly residential users, away from their still-familiar AREPs? These uncertainties rationalized the institution of the Price to Beat and other incentive mechanisms.¹⁶ As quickly as the market opened, new CREPs entered it. They came from a variety of backgrounds. First were affiliates of existing ERCOT companies selling outside of their home territories, where they were free to discount the PTB. Second were affiliates of utility holding companies such as Sempra Energy of San Diego (parent of San Diego Gas & Electric) and Constellation Energy of Baltimore (parent of Baltimore Gas & Electric). Third were established independent energy producers such as Dynegy and Calpine who had long sold their output in wholesale markets, and fourth were retailers with non-Texas operations such as renewable power specialist Green Mountain Energy. Finally, there were companies such as GEXA and Texas Commercial Energy, which were specifically created to retail in Texas.

The CREPs were of different sizes, concentrated on different customers, and some held themselves out to serve only in certain utilities' territories.¹⁷ Not all of them stayed in Texas, or even survived. The PUCT instituted capital requirements as a preliminary screen and requires regular reports, but competitively sensitive data on customer loads are unavailable to the public. Their financial situations are also hard to determine because some are closely held and some are units of much larger companies whose accounting is not broken out separately.

Table 3-2 shows the increases in CREPs in individual utility territories. The small numbers available at the start of choice have all more than doubled, and in some cases more than quadrupled. As of February 2007, each territory contained 17 or 18 REPs, offering from 52 to 55 different plans.¹⁸ Each territory currently has at least five plans that offer power from environmentally favored resources.¹⁹ ERCOT-wide, 20 REPs are selling to residential users and 42 (some also selling to residences) are available to industrial and commercial customers.²⁰ Some, such as Texas Commercial Energy, have vanished, but failures can be expected as markets develop and some seemingly innovative strategies prove to be inappropriate.²¹ Potentially weaker competitors are forming alliances, as has happened between Public Service of New Mexico (parent of Texas-New Mexico Power) and Cascade Investments, a private equity firm controlled by Microsoft's Bill Gates.²²

TalkingPoint:



Companies such as GEXA and Texas Commercial Energy were specifically created to retail in Texas.

TABLE 3-2
Numbers of Providers and Plans By Territory, Various Dates

TERRITORY	Jan '02		Dec. '02		Oct. '04		May '06		Sept. '06		Feb. '07	
	Provs.	Plans	Provs.	Plans	Provs.	Plans	Provs.	Plans	Provs.	Plans	Provs.	Plans
AEP Central	2	5	6	7	9	12	15	24	18	35	18	52
AEP North	2	5	2	2	6	8	13	22	16	33	17	52
CenterPoint	8	12	9	10	10	11	14	26	17	39	17	53
TNMP	3	4	4	5	9	10	12	23	17	31	18	55
TXU	8	14	9	10	11	13	14	29	16	40	17	55

Sources: Jan. 2002: <http://www.puc.state.tx.us/electric/rates/RESbill02/Jan02bill.pdf>[Jan.2002]. Dec. 2002: 2003 Scope of Competition Report, 82. Oct. 2004: 2005 Scope of Competition Report, 56. May and Sept. 2006, Feb. 2007: PUCT consumer web site, various pages, <http://www.powertochoose.org/electricchoice/compareresults.asp>.

Prices, Service Plans and Marketing

As markets grow and customers become more knowledgeable, price remains an important element of competition. New service packages are adding to choices, and competition now also takes the form of designing them.²³ Every territory offers several plans (Houston has six) that supply power from sources approved by environmental organizations. Different plans require different commitments from customers. Of the 39 plans available in Houston in September 2006, 21 had a term of one month, 16 had a one-year signup requirement, and two had 36-month requirements. Some sell power at fixed prices and others allow it to vary with market conditions. First Choice Power (TNMP's retail arm) allows a one-year discounted price lock-in and TXU Energy allows customers to do the same for 24 months, both with exit fees if the user wishes to leave before the contract expires.²⁴ Other REP plans carry price adjustments. One from TXU Energy is fully linked to gas prices. A Reliant plan available in TXU Electric Delivery territory promises a guaranteed saving of 3 percent below the price of a comparable TXU plan. Another Reliant plan contained an embedded weather derivative—if the heat goes above a certain threshold during a summer month, the customer pays the billed amount but gets a \$50 rebate.²⁵

TalkingPoint:

As markets grow and customers become more knowledgeable, price remains an important element of competition.

With decreases in the cost of metering, some retail providers may begin offering “time-of-use” rates that depend on actual production costs for segments of the day.²⁶ One startup, REPower, is offering apartment dwellers a prepaid plan that uses the customer's smart card. It comes with a special meter that allows customers to see their actual consumption, and preliminary programs have demonstrated decreases averaging 15 percent.²⁷ Others offer services that enable customers to use energy more efficiently such as HVAC “tune-ups,” or Cirro Energy's portal to the Energy Federation's catalog of conservation devices.²⁸ Green Mountain Energy offers contributions to charities of the customer's choice, and will handle crediting, carbon sequestration, and related activities for commercial and industrial buyers of its power from environmentally benign sources.²⁹

The diversity of offerings available at the close of 2006 suggested that most REPs expected competition to become even more rigorous after the end of the PTB.³⁰ There are differences of opinion about how the absence of a PTB will affect mergers and consolidations of CREPs.³¹ Survival of a CREP may depend on its ability to lower the cost of acquiring new customers, whose current level is estimated at between \$100 and \$400. Possible strategies include new marketing channels to replace mail and telephone solicitations. Cirro Energy is opening free-standing stores akin to cellular phone outlets that offer customer-friendliness and may help impart a sense of the company's permanence.³² Other CREPs intend to simplify the process buyers use to evaluate alternative offers, sometimes by offering web portals allowing a fast signup with one of several sellers and sometimes by recommending that the buyer go with a particular seller.³³ Stream Energy intends to reduce these costs by offering its customers the choice of becoming marketers to their neighbors like Amway.³⁴

Alternatives to the REP

With retail choice has come a new industry known as ABC that offers an alternative to dealing directly with REPs.³⁵ The As are aggregators, who sign up small customers and negotiate group supply contracts with REPs. The Bs are brokers used by large customers to negotiate with REPs. Cs are consultants whose services are rising in value as service options proliferate. In July 2006, the PUCT listed 73 aggregators of business customers and 42 of residences.³⁶ Some are profit-seeking businesses and others are non-profit associations. Among the latter is the South Texas Aggregation Project, consisting of 40 mid-size city governments whose

load characteristics make them desirable customers, most importantly because street lighting adds to off-peak power use. STAP recently renewed its contract with Constellation New Energy for 130 MW of service.³⁷

Customers whose retailers go out of business are assigned to their area's Provider of Last Resort (POLR). Customers can also choose to receive POLR service if desired. Multiple POLRs now exist in each service area because a REP bankruptcy might affect too many customers for a single POLR to accommodate. The PUCT sets a POLR's allowable rates using a formula based on the hourly Balancing Market price.³⁸

Monitoring and Enforcement

As retail competition arrived, the PUCT set up an Enforcement Division with the power to bring actions against REPS found in violation of its regulations, market rules and ERCOT protocols.³⁹ In 2002 its only major actions were to pursue a REP that violated its rules on bill formats, and to seek \$250,000 in total from 19 different parties for violation of commission standards for complaint processing. In 2003 and 2004 the PUCT issued only eight notices of retail rule violations, none directly connected with the possible exercise of market power. The responsible parties paid administrative penalties totaling \$1.5 million, in a market that retailed eight percent of the nation's power over those years.⁴⁰ Enforcement during 2005-2006 was equally uneventful, with the PUCT ordering \$520,000 in administrative penalties, an estimated \$2.5 million in refunds, and an estimated \$435,000 in penalties in unresolved dockets. An additional \$385,000 was assessed for failure to meet service quality and reliability standards in effect between 2001 and 2004.⁴¹

WHOLESALE MARKET PERFORMANCE

ERCOT's wholesale markets render it unique among RTOs. The most important difference is the absence of a day-ahead energy market found in all of the others. Buyers in markets like those of the Pennsylvania-New Jersey-Maryland Interconnection (PJM) sometimes purchase as much as 40 percent of their energy day-ahead when prices appear favorable and resort to long-term contracts for most of the rest. By contrast, at most times 95 percent of the energy in ERCOT is bilaterally contracted. ERCOT's only day-ahead market is the rather small one for Ancillary Services, which supplements those that are self-supplied under bilateral contracts. Balancing energy is the only other centralized market in ERCOT, and it too plays a smaller role there than the nearest-term markets do in other RTOs.

Convergence of Prices to Costs

At most times only a small percentage of energy in ERCOT is traded in its Balancing and Ancillary Services markets. If the Balancing market is functioning well, however, its prices can be useful indicators of the overall market's performance. First, generators will bid into the market at competitive prices that just cover their marginal costs of producing an extra megawatt-hour (MWh) of energy. If so, the Balancing Energy price should closely track gas prices, since gas is almost always the fuel burned by the marginal generator. If generators are exercising market power or scarcity pricing prevails when the system is stressed, the market-clearing price will exceed the price of natural gas by more than the remaining costs of a MWh. Second, there is now a 10 percent limit on the fraction of its power supply that a Qualified Scheduling Entity (QSE) responsible for loads may purchase in the Balancing

TalkingPoint:

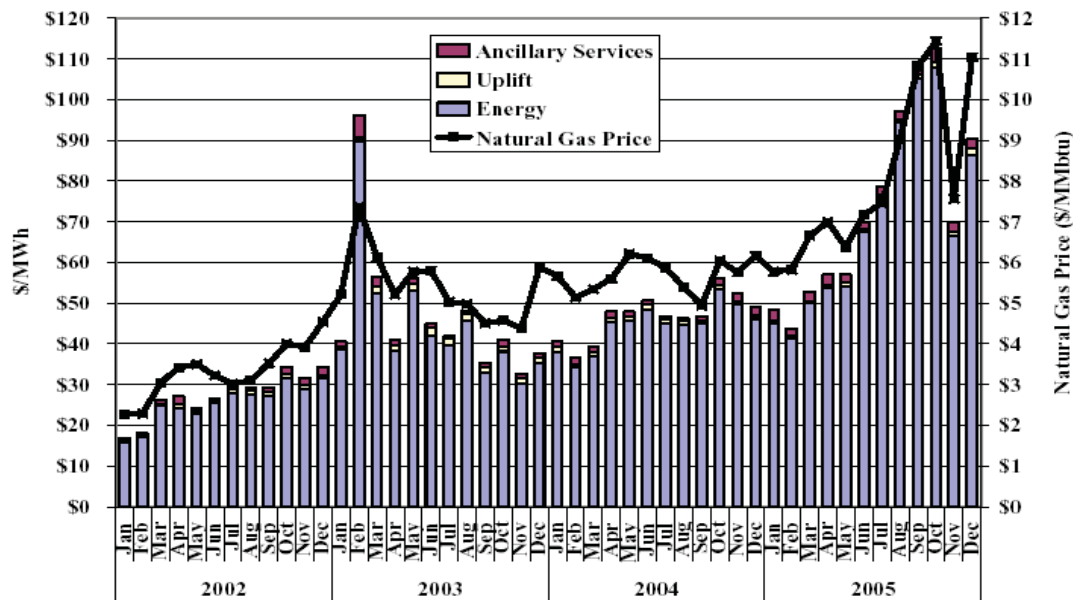
The most important difference between ERCOT and other RTOs is the absence of a day-ahead energy market.

Market. Even with this limit, we would usually expect to see convergence between bilateral and Balancing Market prices. Lack of convergence would mean that systematically profitable arbitrage opportunities were going unexploited, whether by purchases shifting their demands or producers shifting their supplies between the markets.

Gas-fired units make up 73 percent of ERCOT’s total capacity and 86 percent of capacity in its Houston zone.⁴² There are 20,000 MW of coal and nuclear generation in the region, but very seldom does ERCOT load fall below that level. The latter produce almost half of the power in ERCOT, but at nearly all hours gas units are “on the margin.” Average gas prices rose by 65 percent during 2003, 5 percent in 2004 and 41 percent in 2005. **Figure 3-6** shows the relatively close tracking between the average monthly “all-in” price of a kwh with average gas prices.⁴³ The all-in cost equals energy cost, ancillary services costs and uplift charges for congestion relief (see below). **Figure 3-7** shows that ERCOT’s average all-in prices have generally been comparable with those in other RTOs. The largest increases in prices between 2004 and 2005 occurred in those three RTOs (ERCOT, New York, and New England) where gas units are most likely to be on the margin. Smaller increases appeared in California, where hydroelectric power is more likely on the margin, and in the Pennsylvania-New Jersey-Maryland [PJM] Interconnection, where coal is more important.

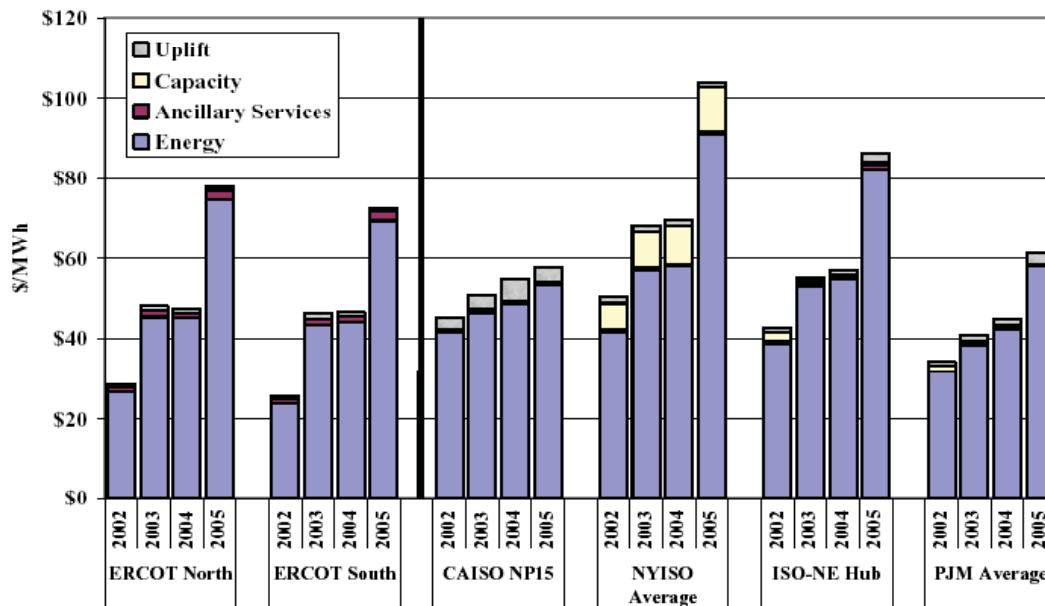
TalkingPoint:
 The largest increases in prices between 2004 and 2005 occurred in those three RTOs (ERCOT, New York, and New England) where gas units are most likely to be on the margin.

FIGURE 3-6
 Average All-in ERCOT Price, 2002-2005



Source: Potomac Economics, 2005 State of the Market (SOM) Report, Executive Summary at x.

FIGURE 3-7
Comparison of All-in Prices Across Markets, 2002-2005



Source: 2005 State of the Market Report (SOM) at 11.

Bilateral and Balancing Prices

Another test for competitive behavior looks at the convergence of Balancing Market and bilateral contract prices. There is general agreement that bilateral markets are competitive since both buyers and sellers have numerous potential counterparties, time to negotiate and freedom to memorialize the most suitable contract terms. With rare exceptions, contract prices for energy will be adjustable to vary with gas prices or market factors such as the balancing price. Contract provisions are generally non-public but trade newspapers such as Megawatt Daily provide survey information on forward (i.e. for future delivery) energy prices in them. **Figure 3-8** shows convergence between contract and balancing prices persisting until summer of 2005. The average difference in 2002 (not shown on the figure) was 9 percent, in 2003 it was 6 percent, and in early 2004 it was 1 percent. Since summer of 2005 the convergence has become significantly weaker, which ERCOT’s market monitor attributes to an increasing frequency of unpredictable spikes indicative of sporadic shortages in the Balancing Market.⁴⁴ These will probably become less important after ERCOT introduces its day-ahead market in 2009.

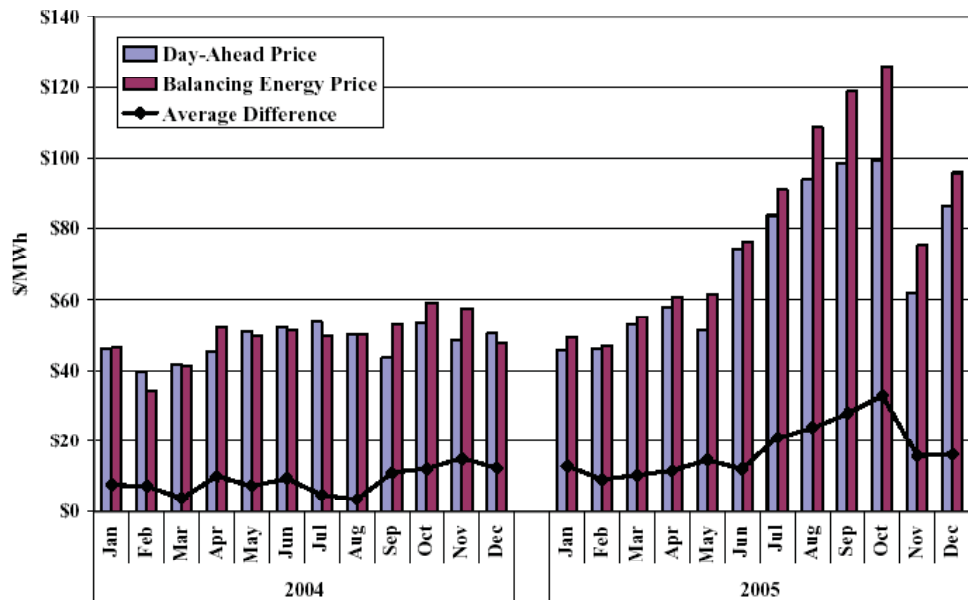
TalkingPoint:

There is general agreement that bilateral markets are competitive.

QuickFact:

If all publicly announced thermal generation is built, ERCOT will enjoy a comfortable 24.9 percent reserve margin in 2010, but if not, it will be a potentially critical 7.2 percent.

FIGURE 3-8
Convergence of Balancing and Bilateral Energy Prices, 2004-2005



Source: Potomac Economics, 2005 State of the Market (SOM) Report, Executive Summary at 14.

Investment and Resource Adequacy

Reliable electricity requires adequate investment in new generation capacity. An investment decision is made on a comparison of revenues and costs, discounted to account for the time cost of funds. A generator will only be built if it can recover revenue sufficient to cover its capital costs, its fuel and operating costs and a competitive risk-adjusted return for its owner. Expected revenue depends on the market price of power and other sources of revenue (e.g. ancillary services). While there is great uncertainty about future values, it is possible to project revenue and cost based on today’s balancing and fuel prices. ERCOT’s Market Monitor has shown that prior to 2005, investment in new gas-fired combined-cycle plants and combustion turbines was likely to be unprofitable. New coal and nuclear facilities, however, have not seen such fuel cost increases, and they are profitable even after considering their far higher capital costs.⁴⁵

The Texas generation market has until recently been quite robust. Between 1995 and May 2006, 31,604 MW of new gas-fired capacity was completed, the great majority in ERCOT. As of May 2006, 2,627 MW are under construction (860 are coal, 410 wind and the rest gas).⁴⁶ There have been public announcements of 16,223 MW in new fossil and wind units, only 2,330 MW of which are gas-fired. These include TXU’s planned 9,000 MW of coal-fired plants, now highly uncertain due to public reaction and the company’s possible going private. On June 21 NRG announced its plans for a 2,700 MW expansion of the South Texas Nuclear facility. Actual reserve margins will also depend on abandonments or “mothballings” that leave plants capable of reopening with delays. **Table 3-3** shows how differing assumptions about future construction can matter. If all publicly announced thermal generation is built, ERCOT will enjoy a comfortable 24.9 percent reserve margin in 2010, but if not, it will be a potentially critical 7.2 percent.⁴⁷

TABLE 3-3
ERCOT Reserve Margin Projection Through 2011

Year	2007	2008	2009	2010	2011
Firm Load (MW)	62,110	63,206	64,838	66,436	67,922
Capacity Resources (MW)	71,577	70,693	70,632	71,208	71,245
Projected Reserve Margin	15.2%	11.88%	8.9%	7.2%	4.9%
Reserve Margin with publicly announced thermal units	15.4%	12.0%	20.0%	24.9%	23.9%

Source: 2007 PUCT Report to the Legislature at 57.

Market Mitigation and Enforcement

ERCOT’s Balancing Market does not allow bids over \$1,000 per MWh under any circumstances. Even at very high gas prices, this figure is probably triple the marginal cost of the most inefficient generator available. ERCOT has two basic procedures in place to control market power. The first is intended to mitigate the effects of “hockey stick” bidding, when a generator bids most of its power into the market at low prices to ensure that it will be taken, but bids the last increment at a very high price.⁴⁸ If its bid is the highest accepted, it clears the Balancing Market and applies to every megawatt traded. If its highest bid is not taken, the generator still earns a modest return at a lower market price. Since it is impossible to set numerical criteria for a hockey stick (how sharp a rise at the far end defines the cutoff?), ERCOT invokes its “Competitive Solution Method” (CSM) when it must take all available offers. It determines the price at which 95 percent of the offers were accepted, and multiplies it by 150 percent. If this “mitigated” price is below the unmitigated clearing price, that price is adjusted downward, and if it is higher the old price remains in effect.

ERCOT’s second method is captivating in its simplicity, which need not indicate desirability. It is the only RTO with a “Shame Cap,” most recently set at \$300 by the PUCT. If the Balancing Market clears above \$300, ERCOT makes public the names of all those who bid more than that price. (PUCT jurisdiction over ERCOT allows it to compel disclosure of the bidders’ identities.) To discourage bids just below \$300, the PUCT may also at its discretion request that the names of those bidders also be disclosed. This odd system appears somewhat effective. During many hours TXU plays the role of a pivotal supplier and could if it wished set the market price at \$1000.⁴⁹ Only very rarely, however, does it do so. Like Balancing Market spikes, those in Ancillary Services reflect thinness that makes their markets sensitive to events that would have little effect in less concentrated and more liquid markets.

Congestion Management

On the surface, congestion in ERCOT might appear to be a minor problem. The most recent available calculation puts the value of interzonal congestion in 2005 at \$119 million, up from \$40 million in 2004.⁵⁰ Unfortunately, congestion within zones substantially exceeds congestion on the links between them. Even in the simplest two-region model of trade, each region implicitly contains an internal transmission network with additional constraints and generators necessary to maintain reliability. Within a zone there is currently no market in which to determine the cost of congestion, such as can be seen in the energy price difference between two zones. Instead, the cost appears when ERCOT redispatches generators out of

QuickFact:

Congestion within zones substantially exceeds congestion on the links between them.

merit-order (“OOM”), i.e. in violation of the efficiency rule that lower marginal cost units are dispatched before higher cost ones. It pays the owners of OOM units for energy (OOME) and capacity (OOMC). In addition, when congestion breaks ERCOT into regions each of them must have sufficient reserves available to maintain local reliability. If resources are insufficient, otherwise uneconomic generators will operate under Reliability Must-Run (RMR) contracts between their owners and ERCOT. An RMR contract specifies cost-based energy and capacity payments that the generator must receive.

Intrazonal congestion costs as measured by OOM and RMR payments totalled \$398 million in 2003, \$276 million in 2004 and \$265 million in 2005, i.e. about six times greater than interzonal costs.⁵¹ The 2003-2004 drop reflects the addition of the Northeast zone and the revision of the Houston area to include a southern zone, both of which make it possible to price congestion explicitly and allocate its costs to users.⁵² ERCOT’s intrazonal congestion costs are high because their costs are socialized, while interzonal costs are low because they are borne by the entities directly responsible for them. Under ERCOT’s current system a QSE that produces congestion inside its zone only pays a small part of the cost. Instead the OOM and RMR payments come from uplift charges imposed on all QSEs even if they have no operations in the congested zone. ERCOT’s current operating systems do not allow it to measure and bill individual QSEs for the contribution to congestion inside zones. The Nodal pricing system scheduled for operation in 2009 will greatly reduce inefficiencies that stem from existing methods of allocating the costs of congestion.

TalkingPoint:

With the complicated politics of electricity regulation, it is little wonder that deregulation has been remarkably successful in some jurisdictions and a near-total failure in others.

FINDINGS

Electricity has been the last and most difficult of the great deregulations, thanks to technology, economics and politics. Whatever their details, power markets must respect the physics of the grid. Electricity cannot be stored and demand must equal supply at every instant. Keeping them equal requires the presence of an operator that can order generators to operate or not operate, allocate and utilize reserves to maintain reliability, and sometimes take emergency measures that may adversely impact generation owners, transmitting utilities, and retail customers. Still, in this complex operating environment markets have arisen for both short-term power sales and longer-term contracts. To be successful, markets must give rise to prices that allocate transmission and generation to their most valuable uses in the short run, and that provide long-run signals for the location of new lines, generators or demand-limiting measures.

With the complicated politics of electricity regulation, it is little wonder that deregulation has been remarkably successful in some jurisdictions and a near-total failure in others. Laws like Texas’ SB 7 and California’s AB 1890 were forged by the vagaries of politics and the efforts of many diametrically opposed interests. One observer characterized California’s as less of a law than a settlement agreement. As part of that agreement, the state’s three large corporate utilities bet their systems on prices staying low in the short-term markets where they would obtain all of their resources. Prices had to stay low because others part of the agreement froze retail rates and let utilities recover their stranded costs in the difference between them and energy prices. Within two years California’s largest utility was bankrupt and its second largest nearly so, and state government took over their power purchasing. Retail competition is largely a memory for all but a small fraction of industrial users. Pennsylvania originally looked like a genuine success, as customers of all types abandoned their utilities because the state’s “shopping credit” and frozen rates made the move worthwhile. One detail brought

the success to a halt—the amounts were fixed in dollars and when fuel prices rose non-utility suppliers were unable to compete.

Competition

Judging Success. In both the retail and wholesale markets, Texas (ERCOT) is the greatest success story in the United States, if not the world. Competition has brought substantial benefits to Texas in only a few years, both in absolute terms and relative to other states. Many observers agree that the ERCOT area has enjoyed the most successful transition in the U.S., and that institutions put in place by the PUCT can sustain competitive markets into the future.⁵³

In making this determination, there are three essential characteristics to look for in markets:

- Efficient, competitive wholesale markets
- Benefits of retail markets available to all users
- Long term predictability of investment climate, freedom to contract

The results of this study indicate that the Texas electric market has all of these characteristics to a degree not seen in other states.

It is important to remember that real success will only be known as the state invests for future electric demand. We cannot use measures of regulation to measure success under competition. Short-term rate effects are not as important as long-run efficiency. Yet judged by the numbers of customers switched (both toward and away from AREP service), we can already say that Texas has the nation's most successful retail choice program. Based on the current and planned investment in generation capacity, the same thing can probably be said about the Texas wholesale market.

Consumer Benefits. By a standard of consumer savings, retail competition has already provided substantial benefits. Consumer savings, however, cannot simply be estimated by comparing competitive supplier prices against the Price to Beat.

Responding to a legislative inquiry, in January 2006 the PUCT staff attempted to quantify those savings relative to regulation. They made the comparison by simulating efficient generation dispatch under conditions that had actually prevailed since the start of retail choice, on the assumption that incumbent utilities would serve all customers and fully recover their costs. If a Houston residential customer who used 1,000 kwh per month had switched annually to the lowest-price REP, it would have saved \$1,450 (in after-tax income) in the four years since the inception of retail choice. The corresponding figure for Dallas was \$800.⁵⁴

Prices. The previous two years' movements in power and gas prices has led some to question the competitiveness of retail markets and the longer-term ability of markets to benefit consumers. Specifically, the complaint is that electric prices did not decline as rapidly as did prices for natural gas, after having previously followed them up.

Before looking at specific price data, it is worth noting that only in textbook models of "perfect competition" do we expect to see all customers being charged the same price by all sellers, who are just recovering their costs from day to day. Instead, Texas' proliferation of rate plans tells us that consumers value more than just low prices, depending on their risk aversion, environmental awareness, desire for electricity-related services, and economic expectations. Generators and AREPs face unstable fuel prices, but can hedge them in markets and enter

TalkingPoint:

In both the retail and wholesale markets, Texas (ERCOT) is the greatest success story in the United States, if not the world.

into contracts whose pricing provisions and duration allow them to share risks in ways that were formerly impossible. As electricity becomes a differentiated service rather than a commodity and new risk management techniques develop, we probably will see prices tracking fuel costs less closely. No one suggests that competition has “failed” in the market for bread because loaves do not vary in price from week to week with the spot price of wheat.

The numbers bear this out. Figure 3-5 shows that power prices did not move downward as rapidly as natural gas prices through June of 2006, but also shows that they did not previously move upward by nearly the degree that gas prices did when they were rising. If markets really were uncompetitive, the failure of power prices to fall with gas prices should have been preceded by a rise that more closely matched the spectacular 2005 upswing in gas prices. There are, of course other possible explanations for a failure of prices to fall—as Texas’ capacity situation becomes tighter, we should expect to see that energy prices contain an increasing scarcity component that signals the economic value of new generation. It will take time and research to unravel the exact reasons behind the observed behavior of power and gas prices. Their failure to match a textbook outcome is only the starting point for an investigation of competition, rather than a “proof” that competition does not exist or fails to function well.

Nor does the complaint about the lack of correlation in natural gas and electric prices take into account the usual summer increase in electric prices. From 2001 through 2004, the average June price of electricity in Texas averaged 13.87 percent higher than December prices. In line with this trend, the average June 2006 price of electricity was only 17.16 percent higher than that of December 2005, which is equal to or less than the price differentials of 2001 and 2003. With summer temperatures in Texas lasting well into September, the summer peaks tend not to significantly decline until October or November. And the latest Energy Information Agency data indicates that 2006 average prices are following the same pattern as in previous years, beginning their decline from summer peaks in October.

Retail Market Policies

The Residential Set-Aside. Concern about a lack of interest in residential customers led the authors of SB 7 to require any REP with a load of over 400 MW to sell at least 5 percent of its power to them or pay a penalty for not doing so. As events have unfolded, those serving only nonresidential customers have easily survived after paying the penalties. Experience with competition indicates that residential customers do not need what little protection this provision might give them, and in reality it does no more than impose a small and discriminatory tax on REPs that serve only industrial users.

The Capacity Set-Aside. SB 7 required each of the ERCOT utilities to auction 15 percent of rights to its capacity to CREPs operating in its territory and to continue doing so until they served 40 percent of the load.⁵⁵ Divestiture of generation to an affiliate would not alter this obligation. Events have also overtaken this provision. Since the passage of SB 7 a boom in generation investment has left CREPs with an abundance of choices they did not previously have. All owners of generation must compete for energy contracts, and the owners of capacity affected by these provisions cannot profitably attempt to withhold it from the market. The provision attacks a problem that no longer exists, and it too need no longer exist.

Introducing Choice to Non-ERCOT areas. The PUCT has consistently expressed a desire to open utility territories outside of ERCOT to competition, but as of today its introduction has been postponed in all of them. Entergy Texas (formerly Entergy Gulf States) and El Paso Electric do not belong to RTOs, and the commission believes that ERCOT membership

TalkingPoint:

No one suggests that competition has “failed” in the market for bread because loaves do not vary in price from week to week with the spot price of wheat.

is necessary if the full potential of competition is to be realized. Under a 2001 agreement Entergy's base rates could not change until the opening of retail choice in its area. This was expected in 2004 or 2005, but the demise of the SEtrans RTO postponed it indefinitely.⁵⁶ More than one RTO has been proposed that would include El Paso as a member, but none has actually opened. In one of the areas covered by the Southwest Power Pool (See Figure 2-1), SWEPCO and AEP have told the PUCT that they do not have the necessary balancing and ancillary services markets for competition, and its introduction has been postponed, probably until 2011.⁵⁷ In the remaining SPP area served by Southwestern Public Service the PUCT in 2003 postponed retail choice until 2007, when it expected that the pool markets would be functioning.⁵⁸ These two areas are thinly populated and served by utilities with much low-cost coal-fired generation, but the PUCT remains interested in opening them to the extent possible. It should continue pressing for competition here and in the other non-ERCOT territories.

Wholesale Market Policies

Balancing Energy. The primary purpose of ERCOT's Balancing Market is to provide energy required to equate supply and demand. A QSE can also obtain up to 10 percent of its power supply there. QSEs supply most of their own balancing services, at least in part because the market is so thin that prices are often unreliable indicators of scarcity. The Market Monitor's annual State of the Market Reports contain detailed descriptions and explanations of anomalous phenomena that occur in this market. Some are connected with its thinness (why spikes are more frequent in winter than summer) and others with its institutions (generator startup costs and ramping behaviors that discourage bidding).

Because ERCOT's existing Balancing Market attracts relatively few bids its prices often spike and fail to track marginal costs with accuracy. Factors like generator startup costs and ramping rates that currently constrain the Balancing Market will be of less relevance in the Day-Ahead Market (DAM) that will begin operation concurrently with nodal pricing. On a given day, the DAM will calculate market-clearing prices for each hour of the next day on the basis of bids to supply power and reduce demand in each of them. The added price certainty is expected to attract more generators bids because their owners will be better able to calculate whether or not they will recover their startup and ramping costs. The new DAM will exist alongside a shorter-term balancing market that will produce five-minute prices on the basis of supply and demand deviations in the DAM. It is expected that "virtual bids" to arbitrage the DAM and the balancing market will be allowed, and that these will make prices more accurate indicators of underlying scarcity.

Nodal Pricing. ERCOT's existing zonal system generates prices that reflect the value of transmission capacity over a small number of interzonal interfaces, known as Commercially Significant Constraints. If congestion only exists at these CSCs and not within zones, price differences across them will allocate transmission efficiently to minimize power costs for the entire region. The costs of mitigating intrazonal congestion, however, dwarf those of interzonal congestion. The high volume of intrazonal congestion at least in part reflects the distribution of its costs and benefits. Unlike interzonal congestion, redispatch to mitigate intrazonal congestion is paid by contributions to "uplift" made by all QSEs, many of whom will have had no role in causing the congestion or benefiting from it. ERCOT's existing market institutions and software are incapable of accurately attributing responsibility for intrazonal congestion and charging perpetrators appropriately.

TalkingPoint:

The upcoming Day-Ahead Market will attract more generator bids in the Balancing Market.

Perhaps the best case of all for nodal pricing is the case against uplifted intrazonal congestion. PUCT Commissioner Barry Smitherman quoted ERCOT market monitor Potomac Economics:

The fact that most congestion costs are recovered through uplift charges that are socialized across the ERCOT region means that:

- Resources valuable for relieving network constraints will not receive compensation reflecting their value to the system, which will limit investment that would otherwise occur in congested zones;
- Resources that contribute to local congestion are effectively overcompensated because the zonal price they receive does not reflect the costs they impose;
- Loads that have an ability to respond to price signals will not receive accurate economic signals relating to their effects on local transmission constraints; and
- Loads and other market participants have a limited ability to hedge the costs of congestion that they face.⁵⁹

The current system of interzonal congestion relief is insufficient, and in practice the of power sources within zones makes the approximations underlying the current system model quite inaccurate. Localized prices will produce more accurate estimates of congestion costs and put them on the parties who cause them.⁶⁰

The Future: Energy-Only Markets

The engineering requirement that load always equal generation creates a difficulty for electricity markets. Base-load generation with low operating costs will generally run whenever it is available, but powerplants needed to equate demand and supply at the system peak will only run for a few hours in a year. A peaking plant must receive prices that cover both its operating and capital costs.

Other regions are introducing administered capacity markets to ensure adequate payments to seldom-used generators, but Texas has chosen to encourage investment in them by allowing on-peak energy prices to reach extremely high levels. Such “energy-only” systems currently exist in Alberta and Australia.⁶¹ In its deliberations on capacity vs. energy-only markets, PUCT staff noted that prices were higher in RTOs with capacity requirements, and they received few if any concrete benefits in return for the larger bills. To facilitate ERCOT’s energy-only market, the PUCT has enacted a new Substantive Rule that will raise its bid ceiling over time from the current \$1,000 per MWh to \$3,000 after the new markets open in 2009. The new rule also requires release of more data on loads and resources in order to facilitate better investment decisions.⁶²

In an energy-only market, new capacity will be built when investors believe that the risk-adjusted returns on it are high enough. There are risks in any energy market and many potential ways to hedge them. They range from provisions in fuel procurement contracts to financial derivatives to geographic diversification. It is far harder to cope with the uncertainty of capricious regulatory policies made for political reasons that confound investor expectations. The predictability of Texas policy may explain why the ERCOT territory has seen investment in volumes and announcements of new projects that will probably maintain adequate reserve

TalkingPoint:

Nodal prices will produce more accurate estimates of congestion costs and put them on the parties who cause them.

margins.⁶³ By contrast, states like California continue to operate in highly uncertain political and regulatory environments. A clear and present dearth of generation has not been enough to motivate construction of even those plants that have received siting permits. There are currently a total of two plants under construction in California, one of which was originally expected to be on line in December of 2005.⁶⁴

What Texas Did Right

Texas stands out among the states for the competitive performance of both its retail and wholesale markets. That success was largely due to its willingness to let markets work and not manipulate prices or other policies for political reasons. The only notable exception was the Price to Beat, which was a uniquely successful transition tool but distorted prices and market behavior throughout 2006. It is important to note that competition did not succeed in Texas because ERCOT was “exempt” from federal regulation that complicated many other restructurings. The only important aspect of federal regulation absent from ERCOT is jurisdiction over rates to be charged for wholesale power and transmission. The same institutional choices that succeeded in Texas could have been made elsewhere.

The transformation of American electricity has been dominated by a largely political competition to “design” markets for it. Electricity’s technology and regulation do impose important constraints on the range of permissible transactions and the identities of those allowed to make decisions about it. Texas did not “design” a retail market in any meaningful sense—it instead set general rules for CREPs and AREPs and allowed them to compete. The details of what would be sold and how it would be priced were left to the ingenuity of buyers and sellers. Compare this approach to California’s. Day-ahead and real-time markets dominated its restructuring because the enabling legislation required utilities to obtain all of their energy in them. Unlike Texas, California decided in advance that a short-term energy price was the only price worth knowing, and that it could serve as the reference point for every sort of bilateral contract that market participants could conceivably want. California paid the price for its certainty.


As the restructuring of electricity continues, we often hear representatives of various interest groups saying that they want to “let the market decide” prices or volumes of energy to be traded. And the market should decide these issues. What Texas has shown in ERCOT, and the lesson it provides for other electricity markets, is that the market must also decide what the market will look like. Its wholesale markets are bilaterally based and can produce any contract that a buyer and seller find agreeable. Those who resell this power at retail can price it as they choose or bundle it into more complex packages to attract customers. Nothing is perfect, but those who live and work in ERCOT territory should consider themselves fortunate. The ERCOT markets already function well, and innovations like a day-ahead market and nodal pricing will further improve their performance.

RECOMMENDATIONS

- Maintain the current practice in Texas of providing a framework for competition without prescribing how market participants should compete with one another.
- Avoid unpredictable major alterations of the existing market structure that will dash expectations of future stability and ruin the climate for investment.

TalkingPoint:

Texas stands out among the states for the competitive performance of both its retail and wholesale markets.

- Continue support for scheduled improvements to the wholesale market, including:
 - Market Monitor,
 - 2009 Day-Ahead Markets,
 - 2009 Nodal Pricing, and
 - Investment in Transmission Capacity.
- Introduce competition into non-ERCOT markets.
- Separate environmental and income concerns from questions of competition. 

ENDNOTES

- 1 All data for Figs. 3-1 through 3-3 are from PUCT, Report Card on Retail Competition, http://www.puc.state.tx.us/electric/reports/RptCard/Market_Share_Data.xls.
- 2 Bret J. Slocum, "Fourth Quarter Data Concerning Customers Exercising Choice," in a letter to the Texas Public Utility Commission, January 16, 2007.
- 3 Slocum letter.
- 4 This is also the case for the other three utilities in ERCOT, at least through 2004. See PUCT, Scope of Competition in Electric Markets in Texas, Report to the 79th Texas Legislature, Jan. 2005 at 54. http://www.puc.state.tx.us/electric/reports/scope/2005/2005scope_elec.pdf.
- 5 Data are from "Monthly Retail Electric Bill Comparison for Residential Electric Service," <http://www.puc.state.tx.us/electric/rates/RESbill.cfm>.
- 6 See PUCT, Scope of Competition in Electric Markets in Texas, Report to the 78th Texas Legislature, Jan. 2003 at 53-56. http://www.puc.state.tx.us/electric/reports/scope/2005/2005scope_elec.pdf.
- 7 *Ibid*, 58.
- 8 No comparable data are available for later years, and the source does not provide information sufficient to calculate them from the sources.
- 9 2005 Scope of Competition Report, 63.
- 10 PUCT Docket No. 27320 (2003), summarized at http://www.puc.state.tx.us/electric/rates/PTB/PTB_TCRF_Summary.pdf
- 11 Testimony and Exhibits of Randall J. Falkenberg, PUCT Docket No. 27320 (Feb. 10, 2003) 12.
- 12 Jay Zarnikau and Doug Whitworth, "Has Electric Utility Restructuring Led to Lower Electricity Prices for Residential Customers in Texas, Energy Policy 34 (Oct. 2006) 2191-2200.
- 13 See PUCT, Report Card on Retail Competition *Supra* Note 1.
- 14 A graphic appears in 2005 Scope of Competition Report, 53. In June 2006 the AEP PTBs were 10.2 and 23.6 percent above CenterPoint Energy's, the highest of the others. <http://www.puc.state.tx.us/electric/rates/RESbill/bill06/June06bill.pdf>.
- 15 "Editorial: Overcharged," Cox News Service, Oct. 6, 2006.
- 16 For example, one regulation specified that any REP with a load over 400 MW had to sell at least 5 percent of them to residential customers or pay a penalty. In practice, REPs whose clienteles were entirely industrial could easily pay the penalties. Zarnikau, Energy Policy 33 (2005) 19.
- 17 An REP had to make itself available to serve any qualifying customer and could not restrict its operations to only a subset of a utility's area.
- 18 Data are from <http://www.puc.state.tx.us/electric/rates/RESbill/bill02/Jan02bill.pdf> [Jan. 2002]; 2003 Scope of Competition Report at 82 [Dec. 2002]; 2005 Scope of Competition Report at 56 [Oct. 2004], and the PUCT's consumer web site <http://www.powertochoose.org/electricchoice/compareresults.asp> [May and Sept. 2006, Feb. 2007] The later figures are counts, and show an average of 10 more service plans in each territory than are shown in the PUCT's 2007 Report to the 80th Texas Legislature, 59.
- 19 PUCT, 2007 Report to the 80th Texas Legislature, 59.
- 20 ERCOT's 2005 Annual Report says [at 9] that there were 74 active REPs in business at the end of that year. No lists available from the PUCT can be combined to arrive at this figure.
- 21 As noted in Chapter 2, TCE did not fail because of poor retail service quality, but rather because its strategy of depending on the balancing market for a large fraction of its power turned out to be a poor one in a period of high and unstable prices.
- 22 "Gates' Equity Firm Enters Fight for Texas Power Users," *Houston Chronicle*, Nov. 4, 2006.
- 23 Data are from the PUCT's information site on retail choice <http://www.powertochoose.org/electricchoice/compareresults.asp?zip=75015> [Dallas]. <http://www.powertochoose.org/electricchoice/compareresults.asp?zip=77015> [Houston].
- 24 "New TXU Plan Locks in Power Prices for 24 Months," *Power Market Today*, Sept. 20, 2006.
- 25 See https://www.reliant.com/en/residential/owe/newenroll/0,2569,TAGOWE_P2,00.html.
- 26 "Texas Retail Competition—Like Hand to Hand Combat?" *Restructuring Today* (Dec. 12, 2005) 1.
- 27 "What is REPower and How Does It Work?" *Restructuring Today* (Sept. 20, 2006) 1, <http://www.repowerenergy.com/>.
- 28 <http://www.energyfederation.org/cirroenergy/default.php>.
- 29 "Green Mountain Eager for Jan. 1 in Texas," *Restructuring Today* (Aug. 21, 2006) 1.
- 30 "TXU Lets Customers Lock in Power Price for 24 Months," *Restructuring Today* (Dec. 6, 2005) 1.
- 31 "End of Price to Beat in Texas Will Bring Marketer Mergers?" *Restructuring Today* (Dec. 14, 2005) 1. PUCT Commissioner Barry Smitherman expects consolidation, while TXU Energy CEO James Burke believes that entry will remain possible for smaller sellers. For an example of a small survivor, see Hino Electric, a Hispanic firm that serves only south Texas. <http://www.hinoelectric.com/>. Its CEO attributes survival to an ability to schedule its own power, something he first learned in the gas business. "South Texas Marketer Finds Niche for Smaller Firm," *Restructuring Today* (Jan. 27, 2006).
- 32 "Buying Texas Power as Easy as Buying Stamps," *Restructuring Today* (Oct. 28 2005) 1. Cirro has also teamed itself with
- 33 See, for example, the web sites of www.saveenergy.com and [chooseenergy.com](http://www.chooseenergy.com). The owner of [saveenergy.com](http://www.saveenergy.com) explicitly rejected using "electricity" in his site's name, since he intends to sell demand management services as they become feasible.
- 34 "KEMA's Tschamler Points to Great Success of Stream in Texas," *Restructuring Today* (July 20, 2006) 1.

- ³⁵ "More Regulation Urged for Texas ABCs," *Restructuring Today* (Aug. 31, 2006) 1.
- ³⁶ See <http://www.powertochoose.org/yourchoice/aggregators.asp> http://www.powertochoose.org/publications/aggregation_brochure.pdf Aggregators do not take title to the power they resell.
- ³⁷ <http://www.newenergy.com/portal/site/cne/menuitem.7485e1732aa1ff5e18a805e4da6176a0?title=021706>.
- ³⁸ "Texas POLR Prices to Stay a Percent of Market-Clearing Price," *Restructuring Today* (July 12, 2006) 1.
- ³⁹ 2003 Scope at 53.
- ⁴⁰ 2005 Scope at 28-31.
- ⁴¹ 2007 Scope of Competition Report to the 80th Texas Legislature, 32-34.
- ⁴² Robert J. Michaels, "Electricity in Texas," Texas Public Policy Foundation (Mar. 2007).
- ⁴³ The graph is from Potomac Economics, 2005 State of the Market Report for the ERCOT Wholesale Electricity Markets (July 2005) at 97-98. [Subsequently cited as 2005 SOM Report]. Potomac is ERCOT's external market monitor, operating under a consulting agreement.
- ⁴⁴ 2005 SOM Report, 13-15.
- ⁴⁵ 2005 SOM Report, 47-53.
- ⁴⁶ PUCT, New Electric Generation Plants in Texas Since 1995 (May 12, 2006) <http://www.puc.state.tx.us/electric/maps/gentable.pdf> and Barry T. Smitherman, "The Need for New Electric Generating Capacity in the Texas Electric Market, Presentation Graphics (July 13, 2006) http://www.puc.state.tx.us/about/commissioners/smitherman/present/pp/BTS_SCNR_071306.pdf.
- ⁴⁷ PUCT, Scope of Competition in Electricity Markets in Texas, Report to the 79th Texas Legislature (Jan. 2005) 50. Figures on the table do not reflect announcements made in the later months of 2005 and 2006.
- ⁴⁸ David Hurlbut, Keith Rogas and Shmuel Oren, "Protecting the Market from 'Hockey Stick' pricing: How the Public Utility Commission of Texas is Dealing with Gouging," *The Electricity Journal* 17 (April 2004) 26-33.
- ⁴⁹ Ramteen Sioshansi and Shmuel Oren, "How Good Are Supply Function Equilibrium Models? An Empirical Analysis of the ERCOT Balancing Market," Working Paper, Center for Study of Energy Markets, University of California, Berkeley. <http://www.ieor.berkeley.edu/~ramteen/papers/sfe.pdf>.
- ⁵⁰ 2005 SOM Report Exec. Sum., xx, 2004 Assessment of the Operation of the ERCOT Wholesale Electricity Markets, 77. (Cited below as 2004 SOM Report.)
- ⁵¹ 2005 SOM Report, Exec. Sum., xxiv.
- ⁵² Adding new zones and links between them creates its own problems. The resulting fragmentation of markets lowers liquidity and adds to operational difficulties.
- ⁵³ Center for Advancement of Energy Markets, Retail Energy Deregulation Index, at www.caem.org. CAEM is a nonprofit organization that monitors the competitive climate in state and national power and gas markets.
- ⁵⁴ PUCT, Legislative Report, Project No. 32198 (Feb. 3, 2006) at 1. http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/32198_5_502558.PDF
- ⁵⁵ There are also ambiguities in the stated criteria to end the capacity auction. TXU and the PUCT staff have disagreed as to whether enough switching has occurred in its territory to end the auctions. See "When Can Incumbents End Capacity Auctions in Texas," *Restructuring Today*, Oct. 20, 2005.
- ⁵⁶ "Entergy Denied Rate Relief in Texas Because it Lacks RTO, Retail Competition," *Power Markets Week*, Oct. 4, 2004, 15. A 2005 legislative bargain allowed Entergy to seek rate relief in connection with its preparation for retail competition.
- ⁵⁷ Texas PUC Suggests Delaying Customer Choice in Northeast TX until 2011," *Power Market Today*, June 15, 2006, 4; "Freedom Blocked? Let's Throw a Big Party," *Restructuring Today*, Sept. 15, 2006, 1.
- ⁵⁸ "Texas Regulators Delay Retail Competition in SPP Areas," *Southeast Power Report*, May 26, 2003, 2.
- ⁵⁹ Memo to PUCT Commissioners by Commissioner Barry T. Smitherman, July 28, 2005 at 2. The quote is from 2004 SOM Report at 1. Smitherman 7/28/05 memo http://interchange.puc.state.tx.us/WebApp/Interchange/Documents/28500_168_485317.PDF
- ⁶⁰ The most important reason is that the existing system must assume that all generation in a zone is located at a single point, but the actual contribution of generators to interface congestion and intrazonal congestion varies substantially, both with regard to their locations and the configuration of operating generators and loads prevailing at the time. See Ross Baldick, "Shift Factors in ERCOT Congestion Pricing," Working Paper (Mar. 5, 2003) <http://www.ece.utexas.edu/~baldick/papers/shiftfactors.pdf> Other modeling inadequacies that impact efficiency are detailed in SOM IVII.
- ⁶¹ A number of factors apparently led Texas in this direction, most importantly a lack of consensus on capacity market design and strong objections by competitive retailers and others. PUCT Commissioners have viewed capacity payments as "subsidies, which once established are very hard to remove." Eric Schubert, "An Energy-Only Resource Adequacy Mechanism in ERCOT," Presentation, May 9, 2006 at 8.
- ⁶² PUCT Substantive Rules §25.505, <http://www.puc.state.tx.us/rules/subrules/electric/25.505/25.505.doc>.
- ⁶³ There are currently concerns about community opposition to some investments, most importantly TXUs plans to build substantial new coal-fired capacity. See "Is Texas Getting Ready for Generation Short-ages?," *Restructuring Today* (Sept. 19, 2006) 1.
- ⁶⁴ California Energy Commission, Energy Facility Status (Updated Sept. 18, 2006). http://www.energy.ca.gov/sitingcases/all_projects.html#construction

About this Report

Electricity has been the last and most difficult of the great deregulations, thanks to technology, economics and politics. With the complicated politics and physical characteristics of electricity markets, it is little wonder that deregulation has been remarkably successful in some jurisdictions and a near-total failure in others. Texas is one of the success stories. In fact, this study finds that Texas is electricity deregulation's greatest success story in the United States, if not the world, and that competition has brought substantial benefits to Texans in only a few years, both in absolute terms and relative to other states. The study examines the retail and wholesale markets in detail, and makes recommendations for building on Texas' successful transition to deregulation.

About the Texas Public Policy Foundation

The Texas Public Policy Foundation is a 501(c)3 non-profit, non-partisan research institute guided by the core principles of individual liberty, personal responsibility, private property rights, free markets, and limited government.

The Foundation's mission is to lead the nation in public policy issues by using Texas as a model for reform. We seek to improve Texas by generating academically sound research and data on state issues, and recommending the findings to policymakers, opinion leaders, the media, and general public.

The work of the Foundation is primarily conducted by staff analysts under the auspices of issue-based policy centers. Their work is supplemented by academics from across Texas and the nation.

Funded by hundreds of individuals, foundations, and corporations, the Foundation does not accept government funds or contributions to influence the outcomes of its research.

The public is demanding a different direction for their government, and the Texas Public Policy Foundation is providing the ideas that enable policymakers to chart that new course.

