Customer Incentives and Potential Energy Savings in Retail Electric Markets: A Texas Case Study

Unlike other states with retail electric choice, Texas' residential retail market is highly active and profitable, with retail offerings that are highly customer-centric. By tapping into the innovation the market has spurred and the high levels of customer participation, market players can push the market to embrace the new technological advancements and the technological investments already made in the state.

Amanda Levin

Amanda Levin *is a MAP Energy fellow with the Natural Resources Defense Council. Her work primarily concerns alternative rate designs and mechanisms, utility and customer energy efficiency incentives, and the integration of distributed energy resources on the grid. Prior to joining the NRDC, she worked as a research associate at the Congressional Research Service, where she was responsible for handling congressional requests related to ecosystem restoration, environmental health, and western and trans-boundary water issues. Ms. Levin holds a B.A. in Public Policy and an M.A. in Public Policy, with a concentration in Energy & Natural Resources, from Stanford University.*

I. The State of Texas Energy

Texas is the largest generator and consumer of energy in the country. Texas power producers generated enough electricity to power 39.5 million households or 32.6 percent of U.S. households in 2012.[1] Texas has enough generation capacity to power 85.2 million U.S. households.[2] Matching its colossal generation capabilities, Texas also has the highest level of energy consumption in the country. Electricity consumption in Texas accounts for 10.2 percent of the entire nation's consumption, though the state represents 8.3 percent of the U.S. population.[3] The industrial sector in Texas accounts for 20.2 percent of the nation's total industrial energy

1040-6190/ http://dx.doi.org/10.1016/j.tej.2015.03.005

consumption.[4] The average Texas household also uses 30 percent more electricity than average, despite the typical Texas house being 10 percent smaller than the national average.[5] While Texas has lower energy prices than many states, this does not translate to bills. The average residential electric bill was the fourth-highest in the nation in 2012, with the average Texan spending $1,540 annually.[6] Residents in neighboring states paid $366 less a year on average for energy.[7]

A. Texas retail electricity competition

Texas is one of 15 states (and the District of Columbia) to offer electric choice to its residents. Senate Bill 7, which passed in 1999, required a retail electric market be created and open to customers by 2002.[8] Instead of the traditional regulated market, where a single utility controls all aspects of electricity – generation, transmission, and distribution – each of these services in Texas are now provided by separate entities: power generation companies (PGCs), transmission & distribution service providers (TDSPs), and retail electric providers (REPs), respectively. However, the TDSPs remain regulated even in a competitive market.

Not all of Texas is open to retail electricity competition. Electricity in Texas flows on two separate power grids: the Eastern Interconnection and the Texas Interconnection. The Eastern interconnection covers most of the South, Midwest, and Eastern states, and is subject to federal oversight. This grid in Texas is overseen by the Southwest Power Pool (SPP). The SPP is responsible for moving electricity across the grid, coordinating and monitoring the generation and transmission of electricity to meet demand cost-effectively. The Texas Interconnection operates only within Texas and thus exempt from federal oversight. The Electric Reliability Council of Texas (ERCOT) oversees the movement of electricity on this grid.[9] Only utilities in ERCOT territory are deregulated. Utilities and generators in SPP territory are regulated by the Public Utilities Commission of Texas (PUCT).[10] In addition, municipal and electric cooperatives in ERCOT are exempt from deregulation, but are able to opt in to the market. So far, no municipal utilities and only one electric co-op (Nueces) have opted in.[11]

Unlike other competitive electricity markets in the country, Texas has few regulatory mechanisms to ensure adequate reserves margins.

Simplistically, the retail electricity market in Texas operates as follows[12]: PGCs generate electricity and send the power onto the ERCOT grid. This power is purchased by REPs through either advanced purchase power agreements or on the wholesale spot market. REPs then pay TDSPs – a cost passed through to customers – to deliver this power to customers. TDSPs handle meter reading, load control operations, and grid maintenance; REPs provide billing and customer service. The PUCT maintains oversight of ERCOT to ensure that there is no market power abuse, manipulation, or other anticompetitive practices. The PUCT also handles customer complaints and approves REP applications, which it can rescind if a REP fails to provide adequate service.

B. ERCOT and resource adequacy concerns

Unlike other competitive electricity markets in the country, Texas has few regulatory mechanisms to ensure adequate reserves margins, such as minimum reserve requirements or a forward capacity market.[13] These are used to incentivize PGCs to make necessary, but expensive and long-term, investments in new generation to meet future demand. In Texas, these decisions are based solely on prices in the spot market.[14] The lack of a minimum reserve

  http://dx.doi.org/10.1016/j.tej.2015.03.005