



# Smart Energy Roadmap for Texas

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SPEER is an Austin, Texas based non-profit organization dedicated to increasing and accelerating the adoption of energy efficient products, technologies, and services. Much of SPEER's work focuses on finding the best market-based approaches to increase energy efficiency and overcoming persistent market barriers. The views expressed in this paper do not necessarily reflect the views of all of SPEER's members, funders, or supporters. For more information about SPEER, please visit:

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## Background and Summary

Texas has created a unique smart grid solution consisting of approximately seven million advanced meters with data storage and communications capabilities, together with a central data repository that stores customer usage data in fifteen-minute intervals and a website through which customers, retail electric providers (REPs), and third party service providers authorized by the customer may obtain access to that usage data and the customer's in-home devices. The website that provides access to the data and in-home devices is referred to as the Smart Meter Texas™ portal, or SMT. The deployment of advanced meters and the related communication networks has allowed utilities to operate more efficiently by reading meters remotely and carrying out other basic meter functions, such as remotely turning service on or off, at a nominal cost. The deployment has also enabled improvements in, and additions to, services offered by REPs and other third parties, such as time-differentiated rates, better pre-paid energy plans, On Demand Reads (ODR), remote energy audits, and email notifications of customers' weekly energy consumption and costs incurred.

These new services were predicted by the Brattle Group in 2012, when evaluating the State's resource adequacy. The report issued by the Brattle Group noted that: "The TDSPs will soon complete the deployment of the Advanced Metering Infrastructure (AMI) in all investor-owned utility territories, achieving capabilities beyond all other states. This AMI will enable REPs to offer time-varying and dynamic rate options to the mass market."<sup>1</sup> Brattle went on to speculate: "Perhaps some REPs will decide to offer equipment at a discount for a two-year plan, like a cell phone, or perhaps TDSPs could play a role in providing equipment and installation services paid for by participating customers via on-bill financing."<sup>2</sup>


While about half of the country is still measuring electricity consumption and transmitting it to customers using industrial-age technology, Texas policy makers and market participants have created an advanced information-age asset that gathers granular customer data and makes it available in innovative ways to benefit customers and the market generally. But the work is not complete, and the needs of the market, and customer expectations, will continue to evolve with technology and changes in product offerings over time. The recommendations in this report are intended to provide a roadmap to further improvements in SMT and uses of smart meter data that will benefit customers and all of Texas. Our research suggests that significant additional benefits will result if the SMT portal continues to evolve, and that the energy market will continue to evolve to take advantage of data available from smart meters. There should be a process for measuring and reporting on the usage of SMT, improving access to customer data (without impairing data security), improving customer understanding of the role of the portal, and facilitating the use of data from SMT to foster energy efficiency and demand response services.

A roadmap typically details routes to get from Point A to Point B. While the starting point is SMT and smart technologies as we find them today, there are many different possible destinations. Our aim is to

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<sup>1</sup> ERCOT Investment Incentives and Resource Adequacy, The Brattle Group, June 1, 2012, page 93

<sup>2</sup> Ibid., page 94.




allow customers who want to use data-driven applications to save energy and money, to be able to do so easily, with a wide selection of service providers. Part of the vision for retail competition in Texas was that an innovative energy services market would develop, outside of the utilities. Access to granular customer data (whether daily downloads of 15-minute consumption levels, or even more granular real-time data accessed through in-home devices) can foster new products, services, and competition in managing customers' energy use. The ready availability of data can also provide new opportunities for customer loads (or their representatives) and generators to participate symmetrically in the market, bring discipline to price formation, and improve the productivity of the economy generally.

In our vision, multiple REPs and other third-party service providers will access granular historical usage data in order to provide rate or service offerings that incent or assist consumers to use less energy on peak and overall. REPs will offer a more appropriate and competitive rate to a consumer by analyzing customer usage patterns. Aggregators, brokers and consultants (ABCs) are market participants that have been designated as "third parties." ABCs represent consumers and will use the data from SMT to assist them in choosing appropriate contracts with retail electric providers and taking other actions that mitigate their costs and optimize their operations, whether for comfort, efficiency, or both. Traditional service providers like insulation, lighting, window, or HVAC companies, will be able to access a customer's consumption data to provide more accurate estimates of energy savings and payback periods on energy-efficient equipment. Emerging energy management offerings will actually control consumer appliances, within bounds of comfort or budget set by customers, in order to save energy, optimize response to structured rates to save money, and transact in expanding data-enabled markets. This is beginning to happen now, but further developments can soon make these applications common place. With leadership and focus on improving access to the smart grid assets all customers have paid for, it will happen more quickly and more consumers will benefit.

So what steps do we take to get there? Each of the steps we suggest is described briefly below and in greater depth in the body of the paper.

- (1) Move SMT data repository and governance to ERCOT.** The Public Utility Commission of Texas (PUCT) has initiated a project to consider moving the smart meter data web portal and repository to the Electric Reliability Council of Texas (ERCOT). All parties that have filed comments agree it is a good idea, both to increase transparency and accountability and to assure a means of continuing improvement and evolution of this important element of the market.
- (2) Start tracking the number of customers benefiting from improved access to their usage data.** Over the last two years, ERCOT has begun to track the number of customers on time of use (TOU) rates or receiving peak rebates from REPs and has found the numbers are growing significantly. Similarly, ERCOT or the PUCT should ask REPs to provide data showing how many customers receive energy or information services which are at least in part based upon smart meter data. For example, many REPs offer weekly energy reports or updates to customers. Some send usage alerts. Others are providing time-differentiated rates or pre-paid services using smart meter information. Proprietary information concerning such services can be



protected while we gain valuable insights into how data is accessed and used and the extent of its use. ERCOT or the PUCT could also track the impact of third party energy management companies. We can't manage what we can't measure and currently no one knows how many customers are benefiting from access to the data from their smart meters.

- (3) Use smart meters to measure and verify savings of all kinds.** The information becoming available to consumers and third-party service providers from smart meters and the competitive Texas market may evolve into a significant new driver of efficiency. That is, if customers increase the efficiency of their homes and businesses we can use smart meter data to measure and verify the savings. Savings measurement software is enabling advanced data analytics to support a faster feedback loop for energy efficiency measurement, improving the delivery of demand-side management programs, and providing for cost effective and in-depth quantification of energy savings. This verification can be used to provide customers the assurance that the promised efficiency savings are being realized and facilitate their participation in ERCOT demand response programs. Similarly, the State can verify the savings resulting from energy efficiency and demand response programs to demonstrate compliance with environmental regulations.
- (4) Make it easier for customers to obtain or share their usage data.** Currently, a customer must log in to Smart Meter Texas™ to obtain energy consumption data or allow a third party to access the data. SMT accommodates direct customer inquiries, but the next step is allowing federated access to SMT: assuming proper security measures are implemented, customers should be able to approve data sharing on a qualified third party's website, without having to separately set up an SMT account. This is an aspect of one of the goals for 2015 of the Advanced Meter Working Group (AMWG) of ERCOT.
- (5) Inform customers of the potential savings from tapping third-party services using their smart meters and other devices.** Most customers still don't know much about emerging data-driven applications offered by third parties including REPs, much less about the contribution of their meters and SMT. The PUCT can expand on their past initiatives to better help customers find ways to benefit from their smart meters. For example, the *Power to Choose* or *Power to Save* websites and other venues could be used to promote the emerging availability of services and service providers using energy data to help customers reduce energy consumption and costs.
- (6) Create better opportunities for loads in the ERCOT energy markets.** The effort to allow participation of loads in ERCOT markets has begun, but will require significant policy leadership to achieve success, and take years to fully develop. It is only because of the capacity provided by smart meter data networks to validate load response that loads may be able to participate directly in ERCOT's energy market appropriately and contribute to resource adequacy and price formation.



## Recommendations

### **(1) Move Smart Meter Texas™ to ERCOT.**

The Smart Meter Texas™ web portal and data repository was launched in the spring of 2010 following robust discussions among all stakeholders which started in 2008. It has been enhanced over the years under the ownership of a group of utilities: Oncor, CenterPoint, American Electric Power (AEP), and Texas New Mexico Power (TNMP). These transmission and distribution utilities (TDUs) filed comments regarding SMT in the PUCT project to consider a change in ownership of SMT:


“The Joint TDUs encourage a transfer of the ownership and/or operation of SMT to ERCOT, and, in fact, the JDOA [SMT Joint Development Operations Agreement] was designed with a possible transfer to ERCOT in mind. ... ERCOT is uniquely positioned to own and operate SMT for the benefit of the ERCOT retail market. As Independent Organization and Central Registration Agent, ERCOT owns and operates a portfolio of market-wide systems that facilitate the operation of the wholesale and retail markets. SMT is a natural fit with those systems. Potential efficiencies could be gained as SMT is integrated with ERCOT's other systems. For example, instead of sending duplicate sets of interval usage data to SMT and ERCOT, TDUs could potentially send just one set to ERCOT, to be used for settlement and to populate SMT.”

It is hoped that data consistency will increase with a change in SMT ownership to ERCOT as well, which would improve all data users' confidence in the data.

Further, because the Joint TDUs own the portal and data repository and must seek regulatory approval for recovery of related expenses, the utilities have final say over added or modified functionality and operations. This is in contrast to other key elements of the market, where there is a stakeholder driven decision-making process leading to a decision by the ERCOT Board of Directors, overseen by the PUCT. ERCOT management and governance of SMT would provide a logical decision-making process that is well understood by stakeholders. The REP Coalition, in its comments on the potential transfer pointed this out as well:

“In the REP Coalition's view, ERCOT is the most logical entity to own, operate, budget, and fund the common portal moving forward. ERCOT already is home to the stakeholder subcommittee and working group with market oversight responsibilities over the joint portal. The current processes used for managing SMT can be expanded to incorporate the fully established governance structure used by ERCOT for other matters within its authority. ERCOT is also in a unique position to achieve important market synergies by merging or otherwise synchronizing the SMT interval usage database with its own interval usage database used for settlement.”

PUCT Staff is continuing to evaluate the logistics of a change in SMT ownership from the TDUs to ERCOT. This move is an important step in improving the management of SMT and one that should take place as soon as is reasonably possible.



As the repository is transitioned to ERCOT, there is another issue that needs to be considered. For large customers with multiple meters, there is a functionality built into the system that should allow them to grant third party access to all of their accounts at once. But one third party registered with SMT wrote:

For businesses with multiple ESI IDs, the process is significantly more complicated. While the SMT functionality allows for a data authorization to apply to all ESI IDs owned by that business, this doesn't work in practice. In some cases, the utility may have a slightly different company name associated with the ESI ID which precludes it from being part of the set of data available to the third party. In other cases, it's unclear what prevents all ESI IDs from being part of the authorization.

In other words if a company named "Acme Brick" has multiple sites but one bill says ACME Brick, this account will not come up when they share their info. This problem should be addressed to allow large commercial property owners and institutional consumers (cities, universities, etc.) to share all of their accounts at one time as was intended when this functionality was built.

## **(2) Start counting the number of customers benefiting from their more granular usage data.**

In our last report, released in July 2014, we reported on numbers published by the utilities and ERCOT that showed that less than 1% of customers had accessed their data on SMT. We recognize that this number vastly understates the use of smart meter data: many REPs access their customers smart meter data through SMT to provide that usage data and data-driven services to the customer. In 2014, SMT access protocols were modified to permit third-party service providers who are authorized by the customer access to their usage data and in-home devices through an API (application program interface) connection. Yet, no one can say how many customers are benefiting from data usage through services provided by their REPs or other service providers, because the numbers are not tracked and made public, possibly because of resistance to providing information that market participants consider competitively sensitive.

ERCOT, per PUC Subst. Rule 25.505(e)(5),<sup>3</sup> has conducted surveys recently to obtain information on the number of customers that have some kind of time-of-use rate or receive peak rebates from their REP. The results were eye-opening: in 2014, 700,000 Texas residential customers had signed up for a time varying rate of some kind. The ERCOT figures indicate that about 400,000 customers were eligible to earn peak time rebates<sup>4</sup>, and nearly 300,000 were on time-of-use price offerings, presumably most of which were free nights or weekend programs. These customers may not be using SMT directly to obtain

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<sup>3</sup> "Load serving entities (LSEs) shall provide ERCOT with complete information on load response capabilities that are self-arranged or pursuant to bilateral agreements between LSEs and their customers."

<sup>4</sup> ERCOT notes that only a small percentage of these customers were actually notified with a request to reduce peak demand in the summer of 2014, and ERCOT has yet to evaluate the performance of those who were notified.





consumption data, but REPs use the granular consumption information provided by advanced meters to bill customers on these programs.

Just as ERCOT has begun to track aggregate numbers of customers choosing TOU rates in a way that protects proprietary information, ERCOT or the PUCT should begin to track the number of customers benefiting from data-enabled services from REPs and other service providers. The information tracked should include service providers that obtain customer data through the SMT, or directly from digital meters, through equipment provisioned through SMT. Without this information, it would be impossible to evaluate benefits of the advanced meter network or set goals for it and track progress toward achieving them. ERCOT should consider doing a survey of third parties using SMT as well, to further determine the extent to which data from meters is being used to drive efficiency and/or demand response in the market.

**(3) Use smart meters to measure and verify savings of all kinds.**


The advanced meters in operation in Texas can be used to verify energy and cost savings and demand reductions, whether to confirm the validity of projected energy savings resulting from the installation of more efficient equipment, or to permit a customer to participate in an ERCOT-administered demand response program or REP-based dynamic price offering or other DR incentive. Advanced meters could also be a part of a system to track the achievements of energy efficiency as an environmental tool, and get credit for energy efficiency in a state implementation plan (SIP) to address various requirements to reduce air emissions. States can receive emissions credit for energy efficiency and demand response<sup>5</sup> in state implementation plans to demonstrate compliance with federal air regulations. Energy efficiency and demand response can be low-cost measures to meet air emission standards, but the ability to verify the impact of these measures is a key to obtaining credit for them in a SIP.

According to EPA regulations, the reductions will have to be “quantifiable, enforceable, permanent, and surplus.” This standard is challenging, but it can be met and quantified with advanced data analytics. Market ready savings measurement software is allowing energy efficiency to be quickly and affordably measured at the meter. These data analytics software tools meter energy efficiency savings comprehensively and ensure a thorough approach to the measurement and verification of energy efficiency.

While Texas was an early leader in applying for and receiving credit for energy efficiency, the State has backed away from the effort in recent years. More stringent emission standards are on the horizon, and Texas should include energy efficiency as a measure in its plans to meet the new standards. The advanced meter data is an important tool to capture the value of energy efficiency. To the extent that

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<sup>5</sup> Part of the counting would have to include a method to determine that the DR delivered was cleaner than the source displaced (e.g., reduction of energy usage at peak or low or zero emitting distributed generation vs. diesel generators).



the State fails to include energy efficiency and demand response as allowable measures to meet air emissions standards, or fails to maintain the ability to validate the savings resulting from these programs, other higher-cost measures will have to be developed to meet the air emission standards.

State leaders are increasingly concerned with tightening environmental standards and their impact on the electric industry. ERCOT recently released a report on the costs of compliance resulting from the possible closing of existing power plants and their replacement by cleaner technologies. However, ERCOT's analysis did not adequately factor in the opportunity for reducing the costs of compliance by using non-generation measures, such as energy efficiency and demand response.<sup>6</sup>

Energy efficiency and demand response can play a role in meeting tighter environmental standards cost effectively, and the meter-data network we have created, well ahead of most states, enables us to validate this cost effective contribution. Texas has already created a system for quantifying the emission reductions resulting from a variety of state-mandated energy efficiency programs and the state's renewable energy standard. Using information reported by the TDUs, the State Energy Conservation Office, and ERCOT, the Energy Systems Laboratory (ESL) at Texas A&M University calculates the emission reductions resulting from these programs. The state should continue to support ESL's work but also expand the work to develop a system to quantify the emission reductions obtained through REPs and third-party energy saving products and services that are enabled by the advanced metering infrastructure already deployed, and report the data through the Texas Commission on Environmental Quality. All Texans would benefit from lower cost of compliance and cleaner air and better appreciate the efficiency and innovation premium of our uniquely competitive Texas market.

#### **(4) Make it easier for customers to obtain or share their usage data.**

Today, REPs and other third-party service providers are offering a growing array of data-driven energy efficiency applications and services that depend on access to the customer's usage data. For example, an energy service provider may use historical information to evaluate the economic value of a more efficient air conditioner, more insulation, or better air infiltration control. Ongoing access to usage patterns may assist in the real-time management of a home or building's temperature for efficiency and comfort, and enable participation in demand response programs and associated payments.

Currently, in order for customers to respond to such requests for their private usage data they must separately set up an account on SMT, and enable the service provider to either access the data through this portal, or provision in-home equipment to read the meter directly at the home or business. Stakeholders we interviewed felt that the customer enrollment and authorization process is cumbersome. One third party reported that they would no longer use SMT at all because of the

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<sup>6</sup> For more information, see "The Clean Power Plan and ERCOT: A Quick Look at ERCOT's Treatment of Energy Efficiency in its Recent Analysis." <https://eepartnership.files.wordpress.com/2014/03/the-clean-power-plan-and-ercot.pdf>




customer sign up process. The process begins when a customer responds to an email request from a service provider to access the customer's usage data. Either prior to or after agreeing to accept an offered service, the customer must separately go to SMT and register, creating an account with a password. In order to register, the customer must provide its Electric Service Identifier (ESI ID), meter number, and REP. To find their ESI ID, they need to look on their electric bill. To find their meter number, they need to go out to the meter, write down the number, and then enter it during the registration process, unless the customer's REP provides it on the bill. According to third parties trying to work with customers, this was the biggest barrier to sign ups and the reason the SMT portal has low usage.

It is important to ensure that the security of consumer usage data is maintained, but it is possible to implement an easier enrollment/authorization process for customers that maintains data security. One way to make access easier is through the Letter of Authorization (LOA) process widely used by REPs, aggregators, and brokers today. Currently the LOA only grants authorization for historical usage information but the forms could be amended to allow access to smart meter data, too.

Another way to ease the enrollment process would be to allow a service provider to obtain the needed registration information as part of its own sales interaction with the consumer, and then complete the registration process on SMT separately on behalf of the consumer. Today, many third-party energy management service companies either avoid the use of smart meters or work around SMT by simply logging in using a customer's information, given to them by the customer. This informal process should give way to a more formal process which would better protect customers and increase security. Ideally, there would be a process whereby consumers could approve access to their usage data on a third-party website, or in writing, and have that permission automatically recognized by SMT. Currently, that can only take place within the SMT website and leads to many companies working around the website.

A best practice in web services today is to enroll in a new service through a process often called "federation" or "federated identity management." When a customer is asked to enroll in a new service, there is often an option to use a Google, Facebook, Amazon, or other account login instead of creating a new account, or to transfer the data needed from an existing account to the new account. This allows customers to bypass the process of entering email and password (or in the case of SMT, ESI ID, meter number, and REP) many times. This process is another example of how SMT access could be made more customer-friendly. There appears to be market support for this approach and it has been added as a part of one of the AMWG goals for consideration in 2015.

There are two main methods to allow federated access: First, the customer goes to the third party's website, fills out a form including their account number and other information, and the third party takes that information and demonstrates to SMT that the customer authorization is genuine. The second method is where the customer has an SMT account already. In this case, the customer begins at the third party's website, creates an account, is redirected to SMT to log in, and, once authenticated, is returned to the third party's website, with the authorization completed. This second process is similar to how LinkedIn, Facebook, and Twitter today operate with third-party websites.



Enhancing access in this way would create step-changes in the rate of adoption in the market.

### **(5) Inform customers of the potential savings from use of smart meters and other devices.**

In the first four years of the smart meter deployment, the utilities spent significant amounts of money to educate customers about the benefits of smart meters. Last year, neither the utilities nor the PUCT spent anything on education campaigns about the rapidly evolving smart energy related opportunities enabled by smart meters, as they determined that it was the REPs' ongoing obligation to provide such education. With the implementation of third party service provider access to SMT, it is particularly important to educate customers about the capabilities created by the meter-data network and SMT.


We are not necessarily advocating large expenditures for education campaigns. Rather, we think education and information can be provided cheaply and through existing channels or even free/earned media approaches. For example:

- Include smart energy offerings on the *Power to Choose* or the companion *Power to Save* website. Millions of customers use the *Power to Choose* site to see competitive retail electric offerings. The PUCT could highlight REP or third-party offerings that provide incentives for reducing peak demand or provide information-driven services to customers, such as usage alerts, benchmarking or customized advice on how to reduce their usage. The site already provides information on time of use rates. Usage of the *Power to Save* portal may be less robust, but it would be improved by providing more actionable information about services and service providers.
- ERCOT and the PUCT make conservation appeals on high usage days that are broadcast by local TV and radio. ERCOT and the PUCT could make customers aware of rate plans that emphasize energy efficiency and demand response, or highlight the availability of connected devices to manage customers' usage. Market alerts should help drive traffic to the listings on the *Power to Choose*, or the *Power to Save* web portals that provide energy saving opportunities.

Consumer support for smart grid investments will be improved if they understand what savings opportunities are available to them as the result of the smart meters they have paid for. Customer education will give consumers better information about the capabilities of the advanced meter network and their opportunities to reduce energy consumption and energy costs.

### **(6) Create better opportunities for loads in the ERCOT energy markets.**

The original design of the ERCOT market was based on the technology and resources making up the utility industry at the time. Since the opening of the market in 2002, the ERCOT market design has undergone significant changes in a process of continuous improvement led by the stakeholders



themselves, and overseen by the PUCT. Because customer loads (other than large industrial loads) are more dispersed than generating plants, and because load participation and the technologies and service providers that enable it are newer on the scene, the participation of loads in the market is still relatively restricted and cumbersome. The availability of granular customer consumption information from advanced meters creates new possibilities for customers to participate in the ERCOT energy market, and several projects are under way that would enhance the opportunities for customers to participate in the market by offering to reduce their consumption.


### **Loads in SCED**

ERCOT's real-time energy market is based on a software platform called Security Constrained Economic Dispatch (SCED). SCED is designed to dispatch the lowest-cost resources and set prices for power efficiently, recognizing the changing level of demand and managing congestion within the transmission system. To date, however, there have been significant limitations on how much, or how effectively loads (consumer demand) can participate in the energy market and compete with generation (electric supply), except through their Retail Electric Provider of Record. Enhancing the opportunities for loads to participate in the energy market presents technical and conceptual challenges, as well as costs. For example, customer participation in the energy market through a third party curtailment services provider may require the creation of a new designation for Load Aggregator (or Demand Response Provider) of Record, which would potentially impact the entire market system. Attempts to allow loads to offer into the energy market directly and compete "head to head" with generation were initiated and abandoned in the past. New efforts are underway now to permit more loads, including aggregations of loads, to participate in the energy market.

Aggregations of residential and small commercial loads, which are collectively responsible for nearly 70% of peak consumption, could have a tremendous benefit to resource adequacy and serve as additional "supply" that would help constrain the wholesale price of power. Whether this can be made to work, or to attract substantial load participation given the limitations of the energy-only market, remains to be seen, and a number of challenges remain in place. Making this work will require that ERCOT and the PUCT devote the time and resources necessary to address the challenges posed in modifying the current market design.

### **Multi-interval SCED**

ERCOT sends dispatch instructions and sets new prices every five minutes, and generators operating in the energy market are expected to follow these dispatch instructions. Customers have shown a willingness to respond to calls for voluntary action, price signals, and/or incentives, by modifying their behavior or employing technology to alter their consumption. However, most customers do not have the capability to respond to incremental dispatch instructions every five minutes by modifying the level of their consumption. Most load response requires some amount of advanced notice that it will be needed, and may have the ability to reduce load only for a limited time. Loads also typically require time to restore consumption to the pre-dispatch level. For example, an industrial process may be



suspended for a limited time without causing significant harm, although restoring operations following the load reduction may require several hours to be restored.

ERCOT staff has, in response to calls to address the barriers to load participation in the energy market, published a concept paper about how the market might be modified to allow offers to be made for multiple five-minute intervals up to 30 minutes. This approach would address, to some extent, the need for notice, limited duration and flexibility of dispatch, and other impediments to allow loads and energy storage to participate in the energy market more fully. The concept paper has initiated a stakeholder discussion of market changes that could result in a much more diverse set of resources participating in the real-time energy market.

### **Future Ancillary Services**

ERCOT has also initiated a review of the future system needs and resource capabilities for ancillary services. Data from the advanced meter network will be important for monitoring the status of load resources and validating their response to deployment orders from ERCOT. Ancillary services are essentially reliability services (operating reserves) that are needed to keep supply and demand in balance, maintain system frequency, and respond to significant events on the electric network, such as the outage of a generating plant or transmission line. The review has resulted in the development of a proposal to modify the ERCOT rules defining ancillary services and how they are procured, operated, and paid. One of the objectives of this initiative is to allow greater contributions from non-traditional technologies such as energy storage and load resources. The staff proposal, developed over the course of a year, is now being vetted through the ISO stakeholder process. With a few additional changes, this could also provide additional opportunities for aggregations of small loads to provide ancillary services, although this will depend in part on the rate of adoption of load automation technologies, the development of low-cost real-time communications methodologies, and more sophisticated market platforms. The state's electric utility efficiency incentive programs could be used to help accelerate the market penetration of more advanced customer controls and associated innovative services.

### **Energy Efficiency as a Resource**

The Texas leadership and ERCOT stakeholders have not begun to contemplate how energy efficiency might be compensated through our unique energy-only market. Efficiency, as opposed to demand response, includes the investment in equipment or building components or materials that have continuous or regular impacts on a load's energy profile, resulting in predictable reductions in peak load or total energy consumption in different but predictable ways throughout the day and year. Adding more ceiling insulation is the ultimate in "set-it-and-forget-it" solutions for consumers, and will absolutely deliver savings, particularly during summer and winter peaks.

In other regions where organized wholesale markets have been introduced, stakeholders have found ways to allow commitments for energy efficiency investments and improvements to compete against generation in forward capacity markets. Because Texas is an energy-only market, that option is not available. SPEER has determined through discussions with a wide variety of stakeholders that crediting



the interval-to-interval energy savings of an energy efficiency measure, or aggregation of measures, might be verified and compensated in theory.<sup>7</sup> This, however, would be very complex to achieve in practice. Investigation of the possibility of including efficiency in the competitive market should be undertaken with the support of ERCOT and PUCT leadership.

**Conclusion**

Texas has taken major steps to enable more intelligent usage of energy. The implications of the potential are hard to overstate: cost savings, system efficiency through reduced peak, emissions reductions, and a more competitive market all flow from usage of the capabilities available to Texans through smart meters and the common data portal.

The recommendations laid out in this Roadmap would further enable these benefits to accrue to consumers and to the market. The data repository and governance functions of Smart Meter Texas need to go to ERCOT but customer access to data needs to remain in place and be improved. Customer sign up needs to be simplified and enabling federated access is the most promising approach. With that in place, education efforts will largely be done by third parties working to earn customers’ attention and business. Still, the state, through its websites like PowerToChoose.com and PowerToSave.com can inform customers of the possibilities to save money and energy by partnering with REPs and/or third parties.

Data can drive efficiency and Texas is helping to lead the way. By making it easier for innovative companies to work with Texans to save money, we’ll bring more competition into our market. If the recommendations in this Roadmap are advanced, it will be easier for Texans to take advantage of valuable opportunities to save money and energy.

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<sup>7</sup> For more information, see: [Toward a More Efficient Electric Market, SPEER, June 2013](#)



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