ercot

Your Power. Our Promise.

2015 State of the Grid Report

Your Power.
Our Promise.

The Electric Reliability Council of Texas (ERCOT) manages the flow of electric power to 24 million Texas customers — representing about 90 percent of the state's electric load. As the independent system operator for the region, ERCOT schedules power on an electric grid that connects more than 46,500 miles of transmission lines and more than 550 generation units. ERCOT also operates and performs financial settlement for the competitive wholesale bulk-power market and administers retail switching for more than 7 million premises in competitive choice areas. ERCOT is a membership-based 501(c)(4) nonprofit corporation, governed by a board of directors and subject to oversight by the Public Utility Commission of Texas and the Texas Legislature. ERCOT's members include consumers, cooperatives, generators, power marketers, retail electric providers, investor-owned electric utilities (transmission and distribution providers), and municipally owned electric utilities.

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Message from Leaders

Since wholesale and retail competition in this region of Texas began, ERCOT has evolved to improve efficiency and competitive opportunities in a reliable manner. Our unique market design, highly engaged stakeholders and diverse group of expert employees have been the keys to our success.

The ERCOT market benefits from some of the smartest people in the industry identifying future trends and developing innovative solutions to make them work.

In 2015, we saw one example of how well our market responds to system needs when we reached nearly 70,000 MW of peak demand, the first new all-time record since 2011, and maintained smooth operations. ERCOT also continues to integrate record amounts of wind generation and new utility-scale solar generation while exploring other emerging technologies. Looking forward, we know changes will continue, and our experts are ready to adapt. That is the promise we bring to this system, where quality infrastructure and good ideas go hand in hand to provide reliable, efficient electricity.

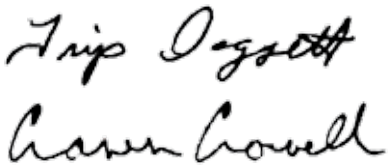
With the 2015 State of the Grid Report, we introduce the visual representation of that promise with our new logo. The image reflects the perfect flow of power on a high-demand summer day, and the words that accompany that image help tell our story: Your Power. Our Promise.

Our market participants bring the power to the system through hundreds of generation resources, thousands of miles of transmission facilities, and technology that enables those resources to connect and communicate with ERCOT. In turn, they rely on us to provide the right information so resources are dispatched efficiently, customers are connected to the providers they choose, and the appropriate payments occur between the companies that produce the energy and the companies that purchase it.

In the coming months and years, ERCOT will continue to build on its promise to you as we work each day to balance electricity supply and demand and put our world-class market to work to address tomorrow's challenges.

This year, we also welcome Bill Magness to his new role as ERCOT's president and chief executive officer. We have had the opportunity to work closely with Bill for several years in his previous role as general counsel, and we know he shares this promise and is the right person to carry ERCOT into the next generation.

Best wishes to you all for a successful 2016.



From left, Bill Magness, President and CEO of ERCOT as of Jan. 1, 2016, Craven Crowell, ERCOT Board Chair, and Trip Doggett, President and CEO of ERCOT through Dec. 31, 2015.

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ERCOT Board of Directors*

Craven Crowell
Chair
(Unaffiliated)

Judy Walsh
Vice Chair
(Unaffiliated)

Tonya Baer
Office of Public Utility Counsel, Ex Officio
(Residential Consumers)

Jorge Bermudez
(Unaffiliated)

Read Comstock
Direct Energy LP
(Independent Retail Electric Providers)

Peter Cramton
(Unaffiliated)

Jack Durland
Valero Services, Inc.
(Industrial Consumers)

Keith Emery
Tenaska Power Services
(Independent Power Marketers)

Nick Fehrenbach
City of Dallas
(Commercial Consumers)

Kevin Gresham
E.ON North America LLC
(Independent Generators)

Clifton Karnei
Brazos Electric Power Cooperative, Inc.
(Cooperatives)

Bill Magness
President and Chief Executive Officer,
ERCOT *(Ex-officio)*

Donna Nelson
Chair, Public Utility Commission of Texas
(Ex-officio, non-voting)

Karl Pfirrmann
(Unaffiliated)

Carolyn Shellman
CPS Energy
(Municipally Owned Utilities)

Wade Smith
American Electric Power Corporation
(Investor-Owned Utilities)

Segment Alternates

Seth Cochran
DC Energy Texas LLC
(Independent Power Marketers)

Sam Harper
Chapparal Steel Midlothian LP
(Industrial Consumers)

Mike Kezar
South Texas Electric Cooperative Inc.
(Electric Cooperatives)

Kenneth Mercado
CenterPoint Energy Inc.
(Investor-Owned Utilities)

Jennifer Richie
City of Waco
(Commercial Consumers)

Mark Soutter
Invenergy Energy Management LLC
(Independent Generators)

John Werner
Source Power & Gas LLC
(Independent Retail Electric Providers)

Phil Williams
Denton Municipal Electric
(Municipally Owned Utilities)

*as of January 1, 2016

ERCOT Executives

Bill Magness
President and Chief Executive Officer

Cheryl Mele
Senior Vice President and Chief Operating Officer

Jerry Dreyer
Senior Vice President and Chief Information Officer

Betty Day
Vice President of Governance, Risk and Compliance

Theresa Gage
Vice President of External Affairs and Corporate Communications

Kenan Ögelman
Vice President of Commercial Operations

Michael Petterson
Vice President and Chief Financial Officer

Woody Rickerson
Vice President of Grid Planning and Operations

Chad Seely
Vice President, General Counsel and Corporate Secretary

Jeyant Tamby
Chief of Staff

Diane Williams
Vice President of Human Resources

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Your Power. Our Promise...

It is ERCOT's mission to serve the public by ensuring a reliable grid, efficient electricity markets, open access and retail choice.

As the world changes and new technologies become available, we are working to ensure that we are using those tools to enhance reliability, efficiency and the effectiveness of our competitive markets. ERCOT is a world leader in operational reliability, market efficiency and data transparency. Working with stakeholders, market participants, regulators, policymakers and consumers, we continue to build upon that foundation.

Although ERCOT does not own the generation resources, transmission facilities or other equipment that delivers power to the homes and businesses in our region, we are at the center of the system that gets it there. From Houston to the Panhandle, Dallas to the Gulf Coast, and all points in between, ERCOT works to ensure electric power is where you need it, when you need it.

It's your power, and this is our promise.

Our Promise... **Accountability**

For ERCOT, accountability is the basis of everything we do.

Our goal and promise to the people of Texas is to take responsibility for doing the right things the right way. From analyzing and addressing new trends to developing market rules to protect reliability, sometimes doing things the right way can take a little extra time and effort. Our goal is to get it right and to keep it that way. The process to get there typically involves a broad range of stakeholders, from elected officials to consumers, market participants to regulators.

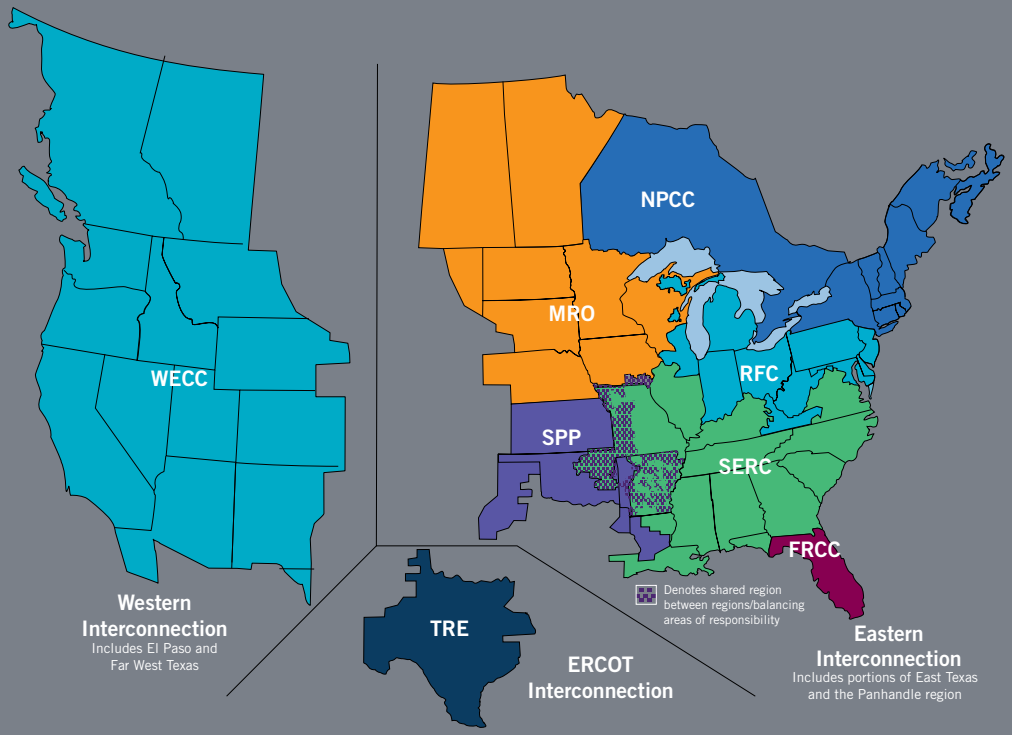
Our promise is to consider the impacts of every decision we make to help make sure we get it right — and to keep listening as conditions and needs change.

Cultivating a culture of compliance

The ERCOT region is one of three grid interconnections located in the North American Electric Reliability Corporation (NERC) area. Together with the Federal Energy Regulatory Commission and the Texas Reliability Entity, Inc. (Texas RE), NERC establishes the federal reliability standards associated with the bulk power system, including ERCOT.

The Texas Legislature assigned ERCOT these responsibilities:

- Ensuring reliability and adequacy of the regional electric network
- Ensuring nondiscriminatory access to transmission/ distribution systems for all buyers and sellers of electricity
- Facilitating retail registration and switching
- Ensuring accurate accounting for electricity production and delivery among the generators and wholesale buyers and sellers in the region



To accomplish these goals, ERCOT works closely with the Public Utility Commission of Texas (PUC), which oversees its operations and develops the substantive rules that guide the Texas electric market. As part of its mission, ERCOT serves as an information resource to the PUC, providing data and information that help regulators make informed decisions that guide market and grid operations.

ERCOT's 16-member board of directors includes five independent unaffiliated members, nine market sector representatives, the chairman of the PUC, and the president and CEO of ERCOT.

Our promise to the people of Texas is to follow the rules and fulfill the responsibilities that guide our important mission.

Creating the rules that guide ERCOT market activities

Accountability in ERCOT translates in part to its inclusive stakeholder process. ERCOT market participants provide input into ERCOT rules and operations through established committees and working groups before final consideration by the ERCOT Board of Directors.

Primary forums for stakeholder input include the Technical Advisory Committee, the Commercial Operations Subcommittee, the Protocol Revision Subcommittee, the Reliability and Operations Subcommittee, the Retail Market Subcommittee and the Wholesale Market Subcommittee. A Regional Planning Group and Long-Term Study Task Force work with staff to develop five-year and long-term transmission planning studies, and various working groups address specific topics as needed.

Our promise is to listen, share insights and move forward with consensus as the ERCOT market and grid evolve.

1 Registration

Registration and qualification requirements, which must be completed prior to participation in the market, are outlined in ERCOT Protocols. Resource entities also must register any generation and load resource assets they intend to operate in the market.

2 Network Modeling

The Network Operations Model provides ERCOT's systems with critical information on the complete physical network definition, characteristics, ratings and operational limits of all elements of the transmission grid. Network modeling includes both long- and short-term planning.

3 CRR Auction

Congestion Revenue Rights, or CRRs, are financial instruments that can be used as a hedge against congestion costs. ERCOT conducts annual and monthly CRR auctions to offer market participants the opportunity to buy and sell these financial instruments.

4 Day-ahead Market

The voluntary Day-Ahead Market enables market participants to submit bids to buy and sell energy at specific locations and prices on an hourly basis for the next operating day. ERCOT also may purchase ancillary services from Qualified Scheduling Entities, or QSEs, that submit resource offers in this voluntary market.

5 Reliability Unit Commitment

In the Reliability Unit Commitment, or RUC, process, ERCOT uses a security analysis to determine whether additional resource commitments are needed for reliable operations during the operating day. A RUC is the only market process that will physically commit a resource to come on-line.

6 Adjustment Period

After completion of the Day-Ahead Market, ERCOT and market participants prepare and make necessary adjustments prior to real-time operations. Market participants may submit or modify energy offers during real-time operations.

7 Real-time Operations

ERCOT analyzes the security of the grid continuously to serve system load and determine the most economic solution to resolve system security issues based on energy offers submitted by QSEs. The Security Constrained Economic Dispatch, or SCED, is executed at least every five minutes to determine the required operating levels of all resources for reliable operation of the grid.

8 Settlement

The settlement process reconciles financial credits and obligations from all the processes that were executed. Initial settlement occurs five days after the operating day. Final settlement occurs 55 days after the operating day, followed by a true-up period for outstanding disputes.

How the ERCOT Market Works

Operating 365 days a year, 7 days a week, 24 hours a day, the world-class ERCOT market serves the public by continuously matching generation to electric needs across the region.

Successful audit reflects accountable operations

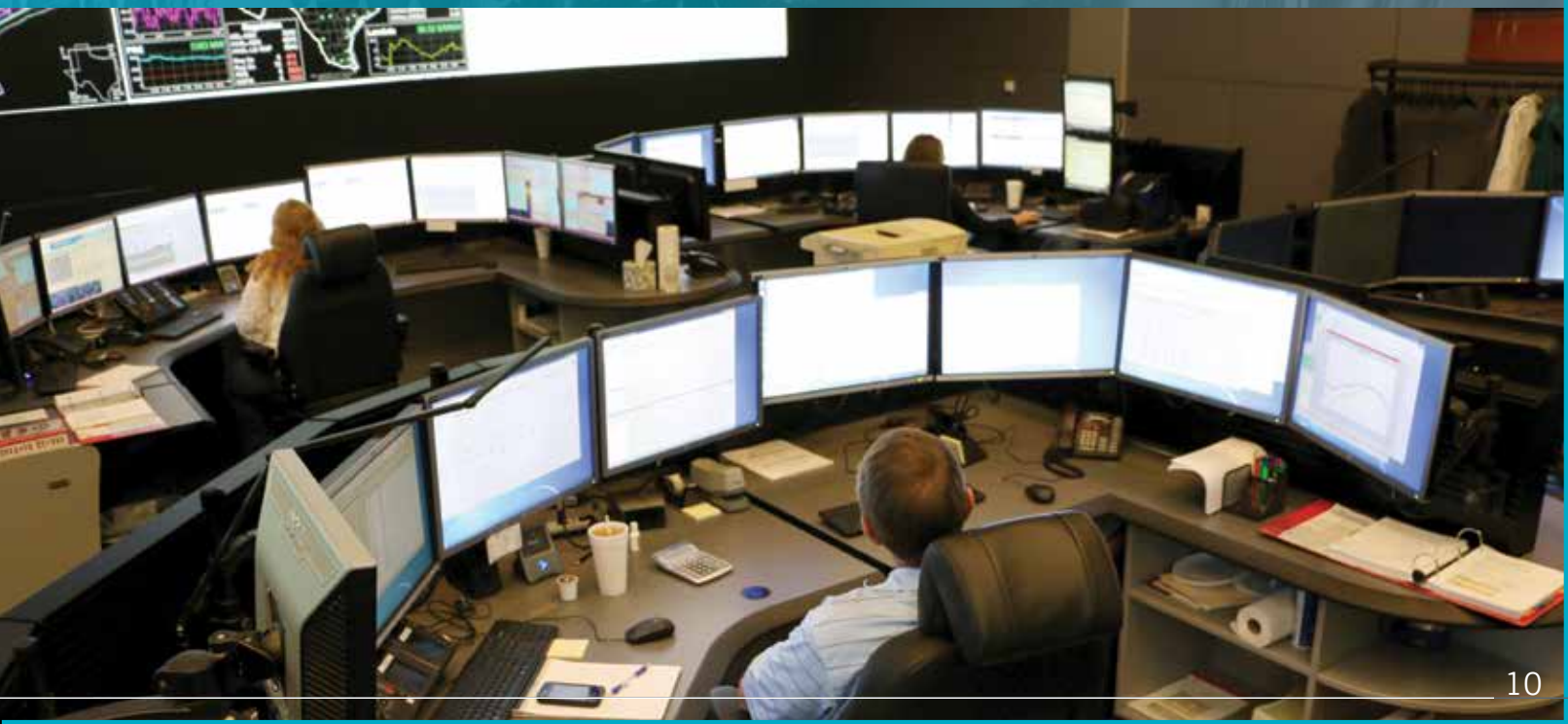
Reliability is the cornerstone of what we do and our primary mission each and every day. To help ensure we maintain the highest of standards, ERCOT works with auditors from NERC and Texas RE to achieve compliance and continue with this mission.

Over the course of two weeks in September, Texas RE auditors analyzed our operations, interviewed staff and toured ERCOT facilities, including the control rooms in both Taylor and Bastrop.

Auditors found that ERCOT had no violations, possible violations, areas of concern or recommendations for improvements. Additionally, auditors' comments spoke highly of ERCOT's procedures, the quality of evidence provided, and interactions with staff.

"ERCOT's procedures are excellent — it's obvious they are meant for staff to follow, not just for compliance."

- Texas RE Auditor



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Using dollars wisely — a budget for today that considers tomorrow

In setting its biennial budget, ERCOT is accountable to all the residents and businesses that use, and pay for, electricity in its region.

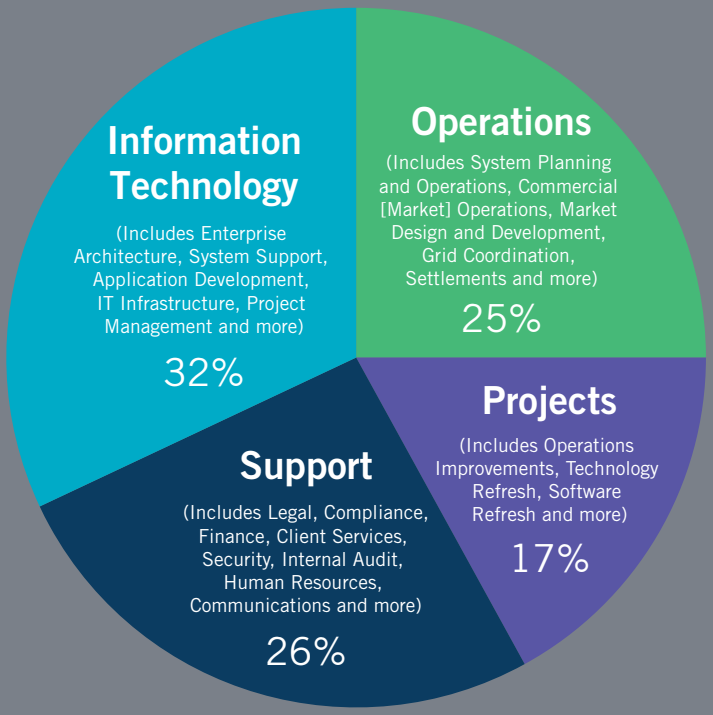
The PUC in October approved a 2016-2017 budget for ERCOT that focuses on providing the necessary, up-to-date technology, knowledgeable staff and other tools needed to manage, and prepare for, evolving operational needs and regulatory requirements to operate the electric grid and competitive electric market. The approved budget — $219.9 million for 2016 and $223.1 million for 2017 — includes investments needed to continue providing electric power reliably and efficiently to the consumers we serve.

The growing complexity of ERCOT grid operations will require additional, highly specialized staff to build on its operational capabilities. ERCOT grid and market operations also require extensive, well-functioning, and redundant computer systems. Some of these aging systems are becoming obsolete and require updates and expansions.

During 2015, ERCOT achieved about $10 million in cost savings through vendor management and other strategic activities.

Most of ERCOT's revenues come from a system administration fee, which is included in wholesale power bills and ultimately passed through to consumers. The approved budget includes a 9-cent-per-megawatt hour (MWh) increase in the system administration fee, from 46.5 cents per MWh to 55.5 cents per MWh. This cost to operate the electric grid and market for most of Texas averages about 50-60 cents per month, or about $7 per year, for the average residential household.

System Administration Fee Forecast Uses 2016-2019



Our promise is to continue using dollars wisely and, assuming ERCOT's role and system requirements do not change, to take steps to maintain the fee at this level until at least 2020.

Our Promise... **Leadership**

As the first independent system operator (ISO) in the nation, ERCOT has been an industry leader for more than 20 years.

During that time, especially under the recent leadership of President and CEO H.B. “Trip” Doggett and his executive team, ERCOT has led the way on numerous fronts. This includes developing a unique energy-only nodal market that leads the industry in efficiency and price transparency. With more than twice as much wind generation capacity as any other state, ERCOT also has led the way in developing tools and processes to integrate and forecast that intermittent resource more effectively over time. Today, the ERCOT culture has evolved to encourage employees to think creatively about solutions to all types of grid and market challenges and new opportunities before they occur.

Our promise is to continue leading the way to put smart solutions to work in a changing industry and growing economy.

Saying goodbye to longest-serving CEO

In June 2015, ERCOT President and CEO Trip Doggett announced plans to retire after a 37-year career in the electric power industry. Doggett has worked in the ERCOT market since 1998, when he was a consultant during development of market rules for the initial launch of the competitive market. Since joining the ERCOT staff in 2008 as chief operating officer and becoming president and CEO in 2010, he has led initiatives to adapt effectively to changing needs, encourage new technologies and improve market efficiency while creating a culture of accountability and compliance.

By the time he retired at the end of 2015, Doggett had become ERCOT's longest-serving CEO, and he has served with ERCOT's longest-serving general counsel, Bill Magness. In August, the ERCOT Board of Directors selected Magness to become the next president and CEO, citing his exceptional leadership skills and deep knowledge of the industry.

Leadership changes announced in 2015 include:

Cheryl Mele
Chief Operating Officer
January 2016

Chad Seely
General Counsel
January 2016

Bill Magness
Chief Executive Officer
January 2016

Kenan Ögelman
Vice President,
Commercial Operations
October 2015

Woody Rickerson
Vice President, Grid
Planning and Operations
October 2015

Leading culture: Best Places to Work

In 2015, ERCOT was named among the Best Places to Work in the Austin Business Journal's annual competition.

ERCOT's mission and culture together contribute to a work environment where employees work hard, play hard and hold themselves and each other to the highest standards. The combination of an engaging work environment, a competitive benefits package, numerous opportunities for personal and professional development, and a meaningful mission help ERCOT attract and retain top talent. ERCOT relies on its diverse workforce to bring a broad range of experience, expertise and technical skills to fulfill its mission.

Our promise is to continue attracting and retaining smart, dedicated people to help ERCOT remain the best at what we do.

BPtW

2015
BEST PLACES
TO WORK

Market design for reliability: The record-setting summer of 2015

Sometimes success brings fanfare, while at other times the truest sign of success is when nothing notable happens — at least to the untrained eye.

The summer of 2015 will be remembered as record-breaking on multiple fronts for the ERCOT system. Over the course of the summer months, the system set new records for all-time demand, July electric demand and weekend demand.

"As we saw these new records in 2015, our operators were prepared to maintain a reliable grid, and the market was ready and responded as it was designed to do," said Director of System Operations Dan Woodfin.

Demand in July hit four consecutive new monthly records (July 27, 28, 29 and 30). Systemwide demand on July 29 topped 67,000 MWh for the first time since 2011, with the monthly record ultimately settling at 67,650 MW on July 30.

Once the calendar turned to August, more new records followed. During the first week of August, the ERCOT system would see the all-time hourly demand record fall multiple times, including twice in one day on Aug. 6. Finally, on Aug. 10, the ERCOT region set its new all-time demand record of 69,877 MW, also marking the first time in ERCOT's history demand topped 69,000 MW.

69877

August 10, 2015

New All-Time Record for Peak Demand

Also succumbing to the August heat was the previous weekend record set in 2011, which increased from 65,159 MW, set on Aug. 28, 2011, to 66,587 MW on Aug. 8, 2015. As a reminder, one MW of electricity can power about 200 Texas homes during periods of peak demand.

The fact that these records were set without system disruptions is a testament to the experts who prepared for those critical conditions and who were in the Control Room at the time. Having the appropriate market signals in place after years of stakeholder and staff deliberations, having systems and tools in place that provide timely and accurate information to operators, and having the right people in key decision-making roles throughout that record-setting week all converged in successful operations during those critical intervals.

That is the promise ERCOT seeks to fulfill every hour of every day.

The top five all-time peak demand records all occurred in 2015:

- 69,877 MW — Aug. 10, 2015
- 69,775 MW — Aug. 11, 2015
- 68,979 MW — Aug. 6, 2015
- 68,731 MW — Aug. 7, 2015
- 68,683 MW — Aug. 5, 2015

"As we saw these new records in 2015, our operators were prepared to maintain a reliable grid, and the market was ready and responded as it was designed to do."

- Dan Woodfin,
Director of System Operations

Leading in market operations

For the eighth consecutive year, the ERCOT competitive retail market ranked #1 in the United States and Canada in the Annual Baseline Assessment of Choice in Canada and the United States (ABACCUS), from Distributed Energy Financial Group. This includes taking the top spot for both residential and commercial/industrial retail markets.

Top rankings for both residential and commercial/industrial retail markets in Texas

Most product offerings (300+) among states assessed

Eight years in a row (2008-2015)

ERCOT competitive retail market consistently ranked No. 1* in the United States and Canada

Annual Baseline Assessment of Choice in Canada and the United States (ABACCUS) from Distributed Energy Financial Group, LLC

90% of the eligible residential market in Texas had observably chosen a retail electricity provider.

100% of eligible residential customers were participating in the competitive retail market.

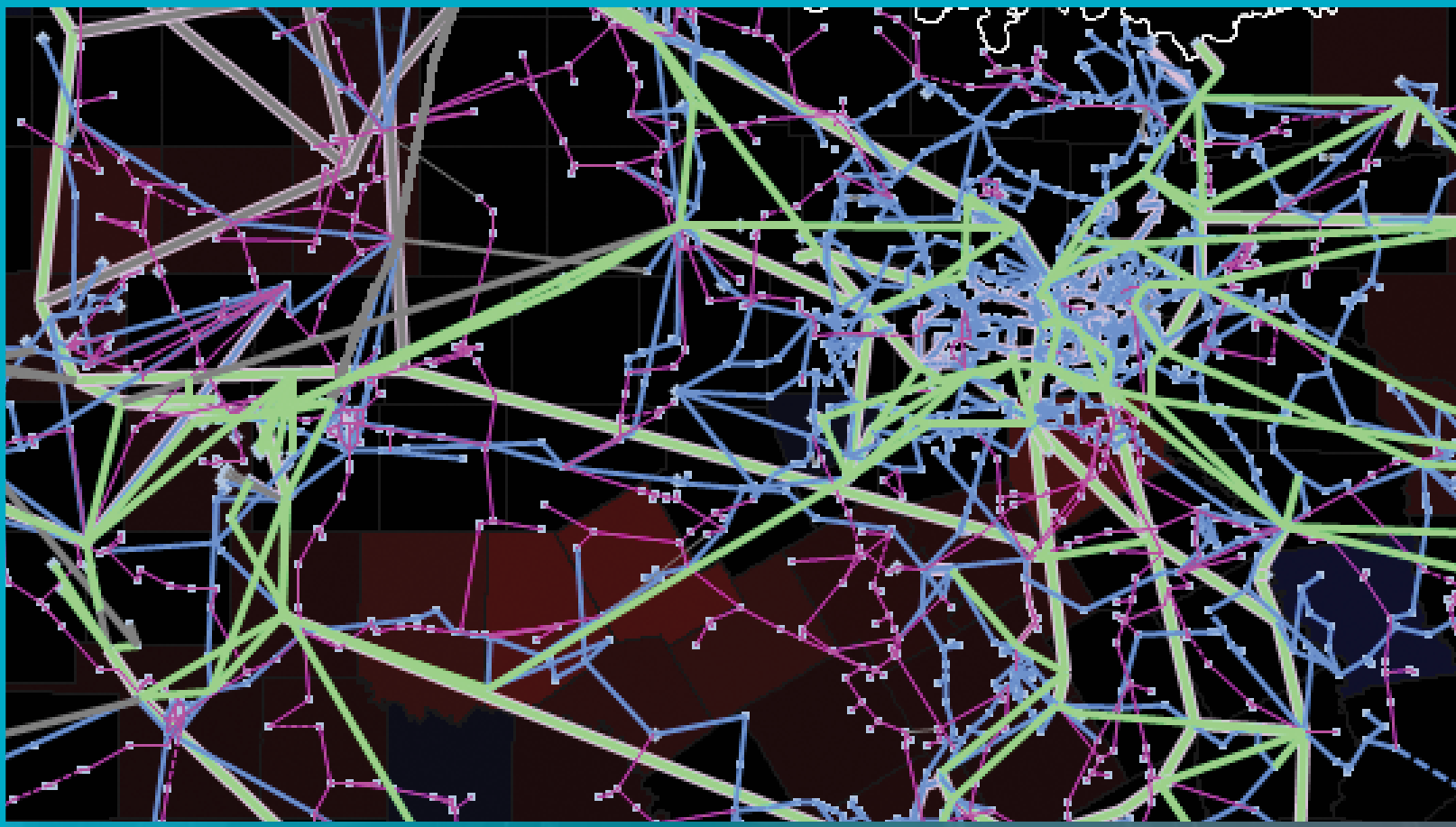
Our Promise... **Innovation**

ERCOT's challenge is identifying the best way to incorporate the mix of new technologies with proven methods of protecting reliability.

Previous innovations — in technology, planning techniques, market design and other areas — came together to help prepare ERCOT to perform effectively during the summer of 2015, which brought with it the first new demand records since 2011. That work continued throughout the year as ERCOT connected and integrated record amounts of wind generation resources.

As more people move into the region and the world around us continues to change, the people of Texas are counting on ERCOT to get it right. Our future economy and quality of life depend on it.

Our promise is to keep looking ahead and putting innovations to work to serve you.



Putting innovation to work

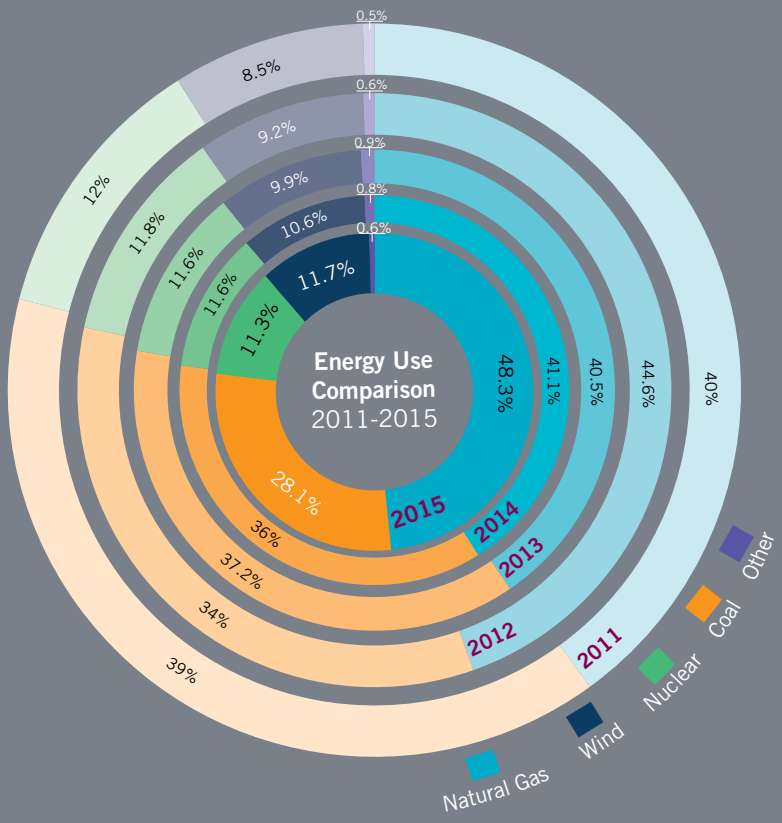
It's not just new resources that are adapting to the changing world. The people of ERCOT are using new technologies, techniques and problem-solving methods to increase productivity, improve operations and provide insight into how we can best serve you.

In 2015, ERCOT continued to collaborate nationwide on development, training, information sharing and research efforts, including ongoing improvements to the open-sourced Macomber Map. Innovative technology improved access to and presentation of real-time control room data for operators, analysts and other key staff. And, streamlined processes and automation helped reduce the time to certify a retail electric provider from six weeks to two and improved the quality and timeliness of day-ahead market solutions.

Adapting the market to changing system needs

The ERCOT market is designed to provide reliable electricity efficiently and securely. However, by its nature, the real-time energy market cannot supply every reliability need. For that reason, ERCOT also procures some additional reliability tools, called ancillary services, from the market. These include operating reserve capacity or demand response resources, which ERCOT reserves to respond to sudden changes in system frequency or other concerns.

The current framework for securing these services has been in place since the 1990s. Today, new developments, such as increasing distributed and utility-scale intermittent generation resources, fast-acting storage devices, and evolving sophisticated smart grid technologies, are changing how energy is dispatched and used in the ERCOT region. Some of these changes present new opportunities for the ancillary services market, including access to resources that can respond more efficiently to system disturbances than those used in the past.



In 2013, ERCOT staff and stakeholders began exploring concepts to improve this important part of the ERCOT market and grid operations. The Future Ancillary Services Team (FAST) has developed a proposal to unbundle the ancillary services based on characteristics of different resources. The goal of the proposal, currently in the market rules process as NPRR 667, is to provide a comprehensive suite of services that work together in a complementary, effective and cost-effective manner to support reliability.

Analysis that occurred during this process also helped ERCOT identify some opportunities for near-term improvements to the current program. Specifically, different levels of reserves are needed in different operating conditions because the likelihood and extent of frequency deviations vary. ERCOT implemented those efficiency improvements in 2014 and 2015.

Our promise is to continue ensuring what we do makes sense and to embrace opportunities to make our system and market work even better.

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13,883 MW

Instantaneous Wind Generation Output Record

December 20, 2015

11:07 a.m.

Non-coastal wind output = 12,193 MW
Coastal wind output = 1,690 MW
Supplying 41.3 percent of the load
Installed commercial wind capacity = 15,764 MW

Other wind records set in 2015:

December 19
13,029 MW

November 25
12,971 MW

November 16
12,641 MW

October 22
12,238 MW

ERCOT Wind Installations by Year (2000-2015):

44.7 percent

Instantaneous Wind Penetration Record

December 20, 2015

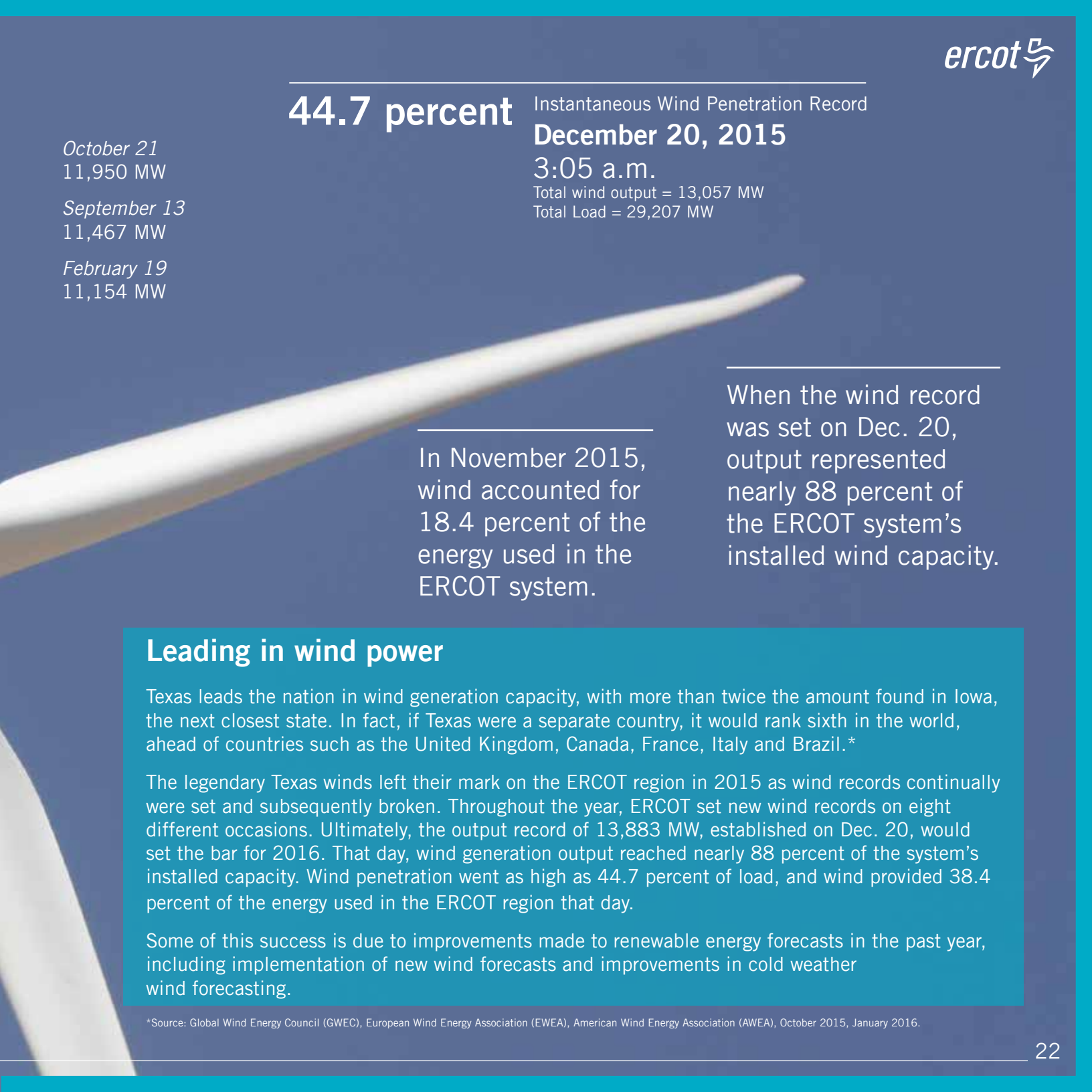
3:05 a.m.

Total wind output = 13,057 MW
Total Load = 29,207 MW

October 21
11,950 MW

September 13
11,467 MW

February 19
11,154 MW



In November 2015, wind accounted for 18.4 percent of the energy used in the ERCOT system.

When the wind record was set on Dec. 20, output represented nearly 88 percent of the ERCOT system's installed wind capacity.

Leading in wind power

Texas leads the nation in wind generation capacity, with more than twice the amount found in Iowa, the next closest state. In fact, if Texas were a separate country, it would rank sixth in the world, ahead of countries such as the United Kingdom, Canada, France, Italy and Brazil.*

The legendary Texas winds left their mark on the ERCOT region in 2015 as wind records continually were set and subsequently broken. Throughout the year, ERCOT set new wind records on eight different occasions. Ultimately, the output record of 13,883 MW, established on Dec. 20, would set the bar for 2016. That day, wind generation output reached nearly 88 percent of the system's installed capacity. Wind penetration went as high as 44.7 percent of load, and wind provided 38.4 percent of the energy used in the ERCOT region that day.

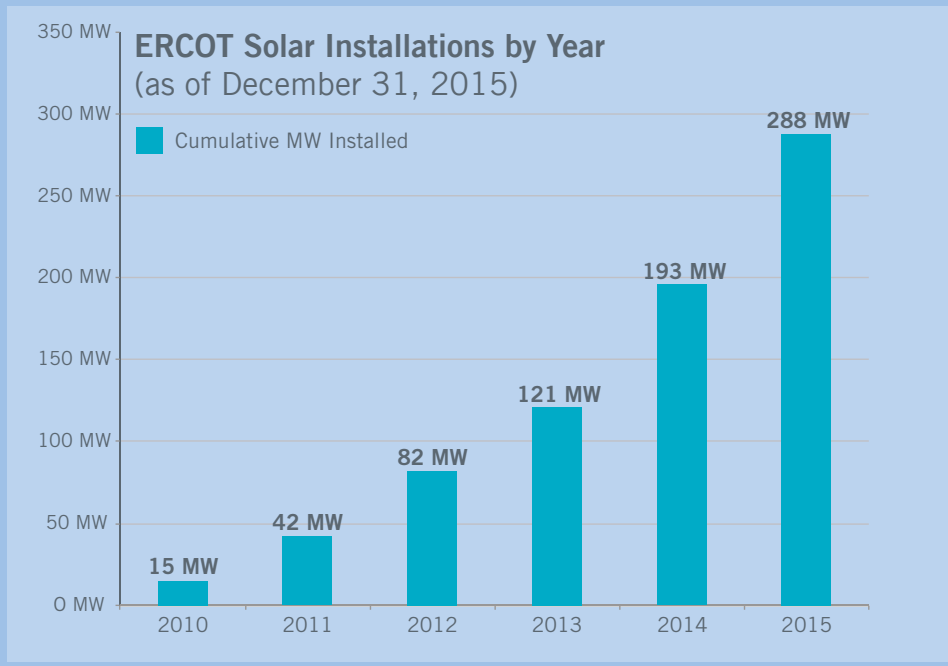
Some of this success is due to improvements made to renewable energy forecasts in the past year, including implementation of new wind forecasts and improvements in cold weather wind forecasting.

*Source: Global Wind Energy Council (GWEC), European Wind Energy Association (EWEA), American Wind Energy Association (AWEA), October 2015, January 2016.

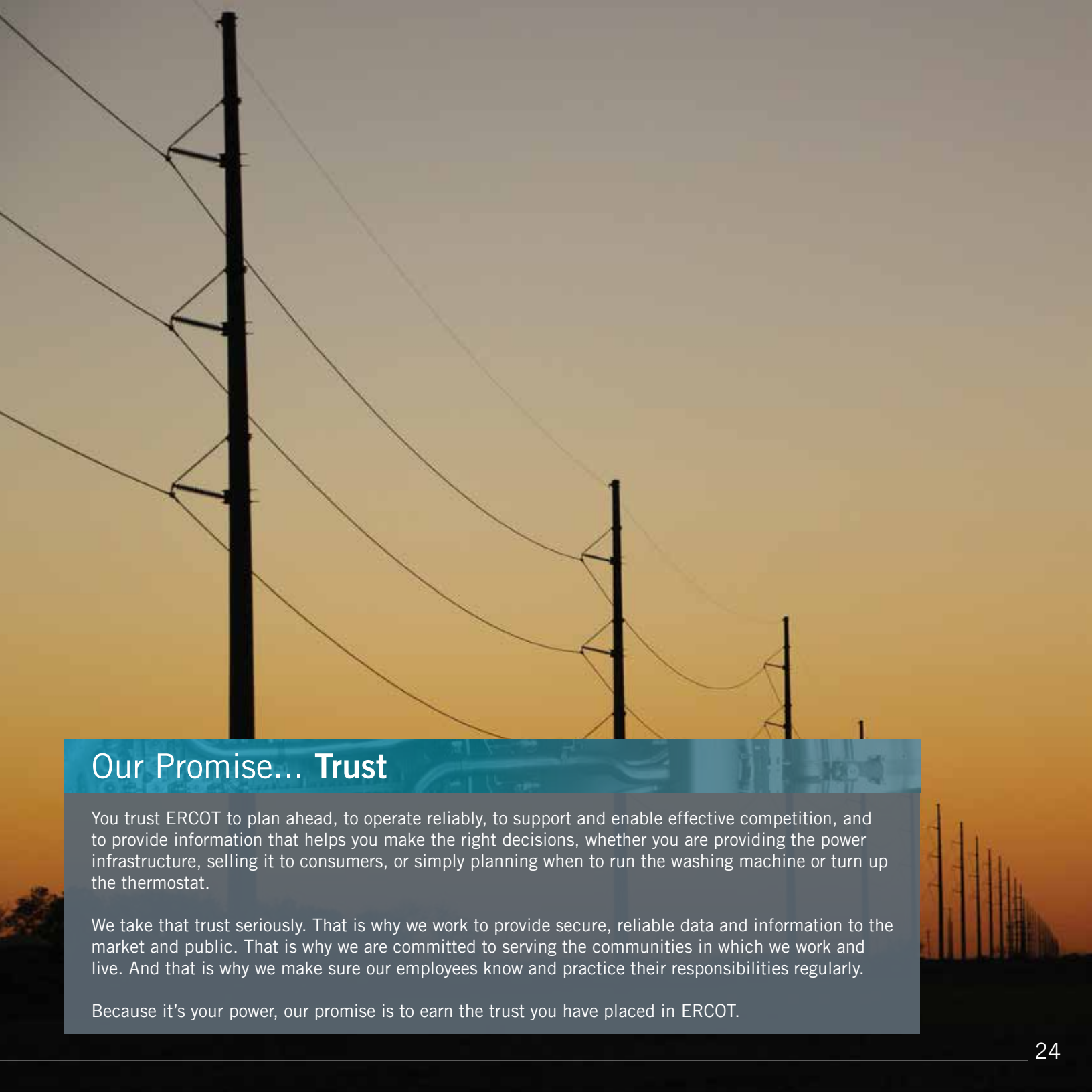
Putting the Texas sunshine to work

Although utility-scale solar power generation has played a very small role in the ERCOT system so far, reduced costs and access to the recently improved transmission system in some very sunny areas of the ERCOT region have positioned this resource to play a growing role in the coming years.

In 2015, installed solar capacity in ERCOT grew by nearly half, from 193 MW to 288 MW, still a small part of the overall fuel mix. Current projections in the 10-year outlook anticipate this resource to grow to more than 1,000 MW by summer 2016. Meanwhile, more than 6,700 MW of new solar capacity is under study for possible addition in the future. In fact, solar projects at year's end accounted for about 14 percent of new projects being developed, planned or studied in the ERCOT system.



ERCOT will continue to work with its market participants to ensure we are ready to integrate these growing resources into the grid effectively and efficiently.



Our Promise... **Trust**

You trust ERCOT to plan ahead, to operate reliably, to support and enable effective competition, and to provide information that helps you make the right decisions, whether you are providing the power infrastructure, selling it to consumers, or simply planning when to run the washing machine or turn up the thermostat.

We take that trust seriously. That is why we work to provide secure, reliable data and information to the market and public. That is why we are committed to serving the communities in which we work and live. And that is why we make sure our employees know and practice their responsibilities regularly.

Because it's your power, our promise is to earn the trust you have placed in ERCOT.

Securing the grid

A number of factors — from severe weather to a deliberate physical or cyber attack — could create a significant disturbance on the grid. Because electricity is vital to the region, ERCOT is committed to the task of securing not only its facilities but also the data and information that are critical to grid and market operations. ERCOT's physical and cyber security programs focus on preparedness, prevention and recovery.

ERCOT complies with the federal cyber security and critical infrastructure protection standards enforced by NERC. These standards require bulk power system users, owners and operators in the United States to identify cyber risks and vulnerabilities, establish controls to secure critical assets from physical and cyber sabotage, report security incidents, and establish plans for recovery in the event of an emergency.

A highly skilled cyber security team continuously monitors the ERCOT systems for signs of intrusion and takes proactive steps to fight back when they occur. ERCOT is part of an information-sharing network that includes local, regional and federal law enforcement, as well as industry peers and market participants.

In 2015, ERCOT brought its physical security team in-house, helping to ensure that we can maintain the highest of standards, provide a consistent work environment for key security personnel and implement industry-leading training to protect not only physical and cyber assets, but also ERCOT's most important resource: people.

Putting the plan to a test

ERCOT conducts in-house preparedness drills regularly and, in 2015, joined other system operators, market participants and emergency responders for GridEx III, a nationwide exercise sponsored by NERC. This two-day exercise focused on responding to a variety of potentially devastating situations at one time, including a range of cyber and physical threats and attacks.

More than 70 ERCOT employees, including teams from Security, Information Technology, Operations and Communications, participated in the exercise, along with partners such as the FBI, Texas Department of Public Safety and local emergency responders. Numerous market participants in the ERCOT region also participated. The exercise provided an opportunity to exercise crisis response and recovery plans and identify opportunities for improvement.

With an emphasis on collaboration, ERCOT's GridEx III participants built on lessons learned in past exercises by engaging in strong information sharing and by taking quick, decisive actions to respond to the simulated scenarios.

ERCOT in the community

ERCOT also wants to be trusted by its neighbors and the communities in which it operates. A Community Involvement Committee (CIC) provides employees with opportunities to support various non-profit organizations in the surrounding communities through volunteering and fundraising activities. The CIC supports 10 local organizations that are selected and supported by employees.

United Way of Williamson County
- Provided about 20 volunteers for the annual Day of Service
- Worked on Day of Caring projects, with 48 volunteers joining others from across Williamson County
- Raised and donated $9,918 through a payroll deduction program

Central Texas SPCA
- Donated $667 in cash and supplies for animal shelters

Shepherd's Heart Food Pantry
- Donated 3,306 cans of food and $4,321 in monetary donations during the 2015 Holiday Can Food Drive

Blood Center of Central Texas
- Donated 69 pints of blood during four blood drives

Meals on Wheels
- Delivered 208 meals to homebound residents, with 48 ERCOT volunteers covering four routes once weekly

Court Appointed Special Advocates (CASA)
- Participated in the CASA SuperHero 5k Run, raising $580 in donations
- Donated more than $4,000 in 2015, including sponsoring 85 children during the Holiday Gift Card Drive

March of Dimes

- Donated $9,360 and participated in the March for Babies walk at Old Settlers Park in Round Rock

American Cancer Society

- Raised and donated $3,500 for Relay for Life during four fundraisers in April, June, October and December

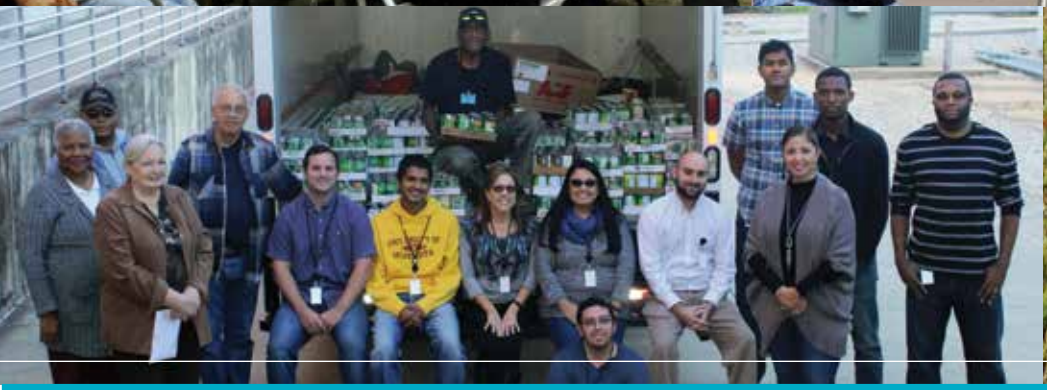
Military and Veterans Services Team

- Honored veterans during Military Appreciation Month with displays of the 6,822 service members fallen since Sept. 11, 2001; recognized 2,968 victims of the 9/11 attacks with a photo display for Patriot Day; and hosted a breakfast for more than 50 ERCOT employee veterans on Veterans Day
- Collected and delivered 175 Christmas cards to Fisher House for wounded veterans and their families

Taylor, Texas Schools

- BLADE: Sponsored a weekly after-school club to encourage student interest in engineering/technology fields; mentored 12 students from two high schools as they worked to build renewable energy projects
- MUNCH: Mentored about 35 children throughout the school year
- MAPS (Mentoring a Pasemann Student): Provided mentors for 30 minutes weekly to help students with reading, spelling and vocabulary




Our Promise... **Expertise**

Although ERCOT relies on a system of generators, wires and other infrastructure — along with an established set of market rules — to accomplish its mission, our real success relies on the expertise of the people who make those systems work.

The talented individuals who make up the ERCOT team, as well as our stakeholder committees, are among the smartest people working in the industry. Whether they are developing system applications, analyzing data or developing new rules to improve market efficiency, the people of ERCOT put their talents and skills to work each day in a variety of ways to support continued improvements to our markets and grid operations.

At ERCOT, we promise to put the right people in the right jobs and give them the training and tools they need to fulfill our promise to the people and the economy of this region.

Expertise at every step, from strategy to settlement

As the operator of the electric grid and competitive market serving most of Texas, ERCOT's success relies on numerous experts, from long-term planning to real-time operations.

Electric grid and market experts from all over the world visit ERCOT to understand how our world-class market operates and how our experts have tackled some of the industry's toughest challenges, from operating independently from neighboring power grids to integrating record amounts of intermittent wind generation and supporting an award-winning retail market.

Our experts routinely present scholarly papers, sharing the lessons they have learned to support and encourage shared industry expertise. Notably, ERCOT employees were selected in 2015 to provide 20 different presentations at the annual meeting of the Institute of Electrical and Electronics Engineers (IEEE) Power and Energy Society. Sarma Nuthalapati, an ERCOT Grid Operations Support principal, also was named a Distinguished IEEE Lecturer.

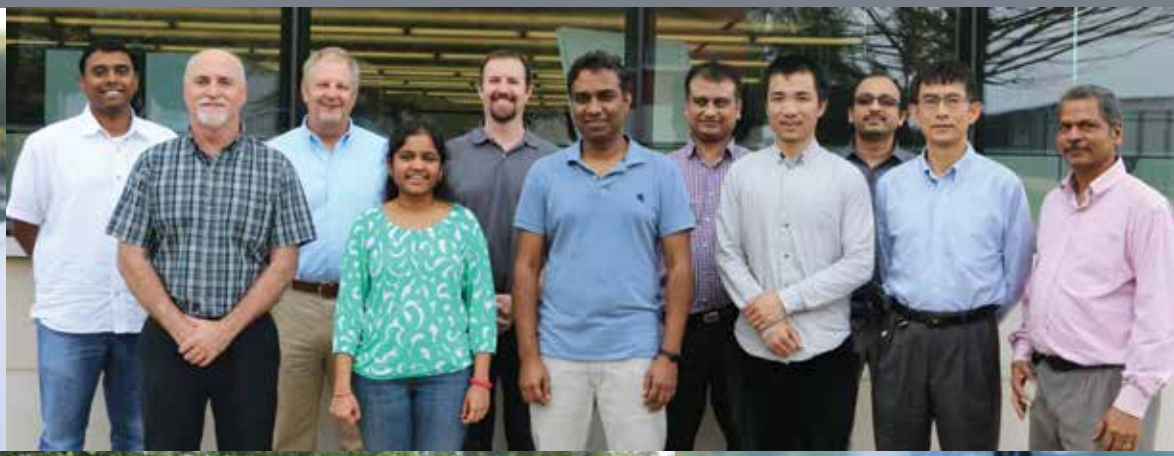
It all starts with careful and deliberate long-term planning. Staff works closely with market participants to identify and explore future scenarios that enable ERCOT to understand and prepare for future transmission needs and assess the generation resource adequacy outlook. Load forecasting experts also monitor changing conditions and trends to provide the best possible look at future demand and energy use.

ERCOT experts also evaluate regulatory changes, such as the Clean Power Plan, and their potential impact on resource availability and grid reliability. Market design experts continually look ahead to the next opportunity and work with stakeholders to determine how best to incorporate evolving technologies in the competitive market.

In the shift from planning to operations, ERCOT experts apply similar skills to prepare for successful real-time operations, assessing resource availability, weather impacts and other factors to prepare for more near-term challenges as conditions change.

As the balancing act shifts to financial transactions, market experts help market participants translate operational data to financial transactions through the market settlement process.

All of these processes rely on systems that work. ERCOT relies on a wide variety of technical expertise to design and use energy and market management systems that work effectively and reliably to create, move, present and store this vital data.



The rise of distributed generation

Among many ongoing changes to electric systems and markets worldwide is the growth of distributed energy resources (DERs), which can include batteries and other evolving storage technology, clusters of rooftop solar arrays, small fossil fuel generators, or combinations of the above.

By definition, DERs are connected to the distribution system at lower voltages than the bulk power grid operated and managed by ERCOT. As their costs decline and adoption rates increase, DERs are expected to have an increasing effect on grid operations, while bringing potentially valuable new resources to the wholesale markets.

As the ISO for its region, ERCOT currently has limited visibility into the distribution system, and the market structure needed to integrate these resources is largely undeveloped. Improved access to DER data, combined with increased opportunities for DERs to participate in the ERCOT wholesale markets, will be key to successful integration of these growing resources in the future.

During 2015, a special ERCOT stakeholder engagement group — the Distributed Resource Energy and Ancillaries Market, or DREAM, task force — explored many policy and technical issues associated with introducing this next generation of resources to the ERCOT competitive wholesale market. In 2016, stakeholders and ERCOT staff will continue to explore the issues and possibilities those discussions identified.

ERCOT will continue looking to the future to make sure our market is prepared to keep the grid reliable while also tapping the market potential for these emerging resources.

Practice prepares operators for real-time success

To ensure they are prepared for any scenario, ERCOT's control room operators and shift engineers train constantly to maintain and enhance their skills.

Each of ERCOT's 44 operators and seven shift engineers, along with other NERC-certified staff, undergo 32 hours of training every six weeks. That means each of those 51 ERCOT employees went through 224 hours of training in 2015, for a total of 11,424 training hours in 2015. NERC requires operators to complete 200 hours of continuing education every three years to maintain their certification, and the additional training hours help ERCOT operators and shift engineers learn and incorporate additional industry best practices.

Operator training includes classroom work, demonstrations, field trips and hands-on exercises using the ERCOT Operator Training Simulator. ERCOT continues to enhance the capabilities of its simulation environment, which also is used to train market participants in drills through the year. These improvements take into account the human factors that affect operator performance. They have helped reduce errors during training exercises, in turn preparing these teams for continued success in the real-time market.

To create a realistic environment, the simulator includes actual data from previous operations as well as simulated scenarios of abnormal conditions. This allows the operators to practice managing events that the ERCOT system has encountered while also preparing for worst-case scenarios, up to and including black-start restoration.

In a real emergency, ERCOT operators must make fast, accurate decisions to keep the power flowing. On a daily basis, these operators refine their skills and put them to work to fulfill ERCOT's promise of a secure, reliable grid.

Forecasting weather's impact on ERCOT

If you've ever found yourself saying, "If you don't like the weather in Texas, wait five minutes," you know how varied and unpredictable the weather in the Lone Star State can be.

This ever-changing weather can play a major role in everything ERCOT does. From the heat in the summer to the cold in winter, from the mighty winds blowing in West Texas to hurricane season along the Gulf Coast, ERCOT has to be ready for whatever Mother Nature throws at our system.

Since becoming ERCOT's first and only meteorologist in 2012, Chris Coleman has helped ERCOT prepare for these ever-changing weather conditions.

A Nebraska native who holds a B.S. in Meteorology and Climatology from the University of Nebraska, Coleman's expertise is vital on a day-to-day basis as well as in long-term forecasting. With a strong El Niño developing over the course of the year and showing its effects in the latter portion of the year, Coleman has helped provide insight by regularly posting weather forecasts to the ERCOT websites, appearing in videos to provide weather outlooks, and contributing to planning efforts via such reports as the Seasonal Assessment of Resource Adequacy (SARA). Coleman's forecast is a significant component of the SARA reports. The media and others also look to him to explain the role weather and his forecasting plays within the ERCOT region.

Overall, 2015, which included a record-wet period from January through June, will go down as the wettest year in Texas history. Although summer began with unusually mild temperatures, hotter temperatures in July and August helped push ERCOT demand to new all-time records. (See page 16 for more.)

As the ERCOT system continues to change and grow, Coleman's knowledge and skills will continue to be of great importance in ensuring that ERCOT delivers on our promise to you.

Developing future experts

Ensuring the region has a reliable transmission system and adequate generation resources is not the only way ERCOT works to protect the future of the Texas electric grid. ERCOT is committed to encouraging bright young minds and developing tomorrow's workforce. Working with emerging talent, the ERCOT team is invested in training the next generation of leaders.

Engineer Development Program (EDP): This 12-month program provides entry-level engineers with the skills necessary to quickly become productive and successful power engineers.

Some highlights of the EDP program during the past year include:
- Graduated six engineers
- Held a Career Day workshop for 45 college engineering students
- Hosted an Engineering Day for 45 area high school students

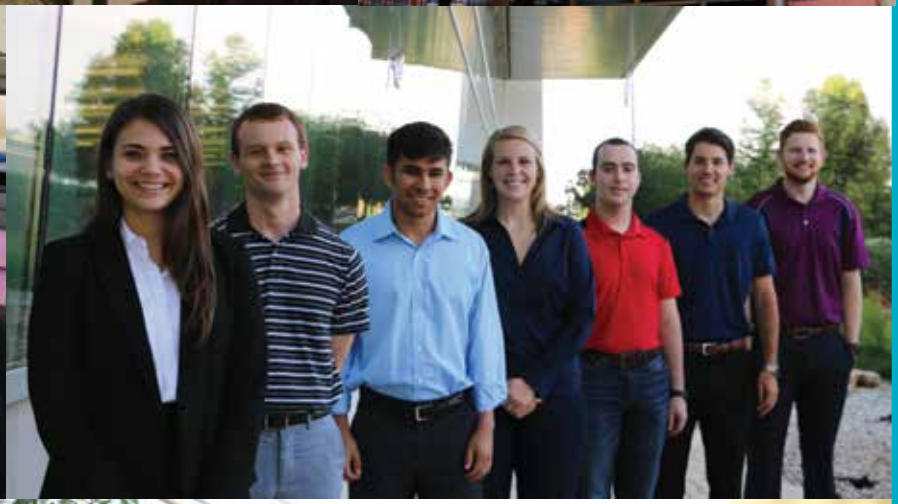
Building Information Technology Staff (BITS) Program: The BITS Program offers a unique opportunity to rotate through various Information Technology departments to gain a diverse range of experience and skills.

Some highlights of the BITS program during the past year include:
- Began the first BITS Program series for two BITS Application Developers, who will graduate in February 2016
- Recruited two BITS Application Developers for a second series, which began in December 2015

Internship Program: ERCOT's internship program provides opportunities to complete complex projects designed and managed by ERCOT staff. Participants gain valuable experience while working in a variety of departments, including Planning, Operations, Electric Vehicles, Network Modeling, Information Technology, Human Resources, Physical and Cyber Security, and Internal Audit.

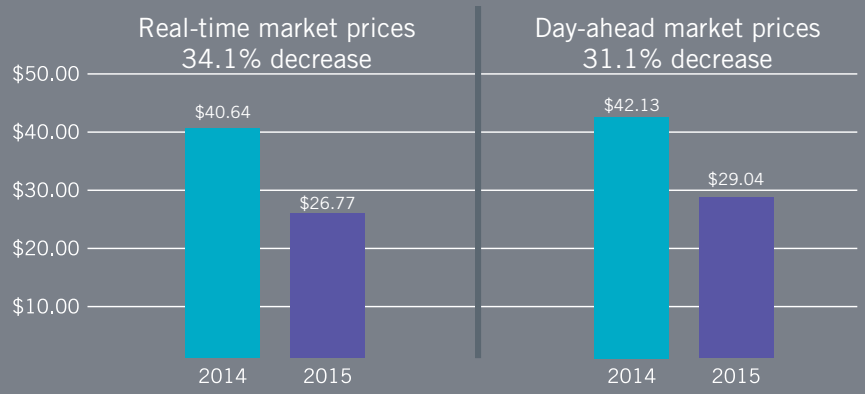
Some highlights of the internship program over the past year include:
- Brought on four previous interns as full-time employees and identified three others to start in 2016
- Had 21 summer and 12 year-round participants
- Presented final projects to ERCOT executives


Engineer Development Program
Graduates
ERCOT



2015 wholesale prices

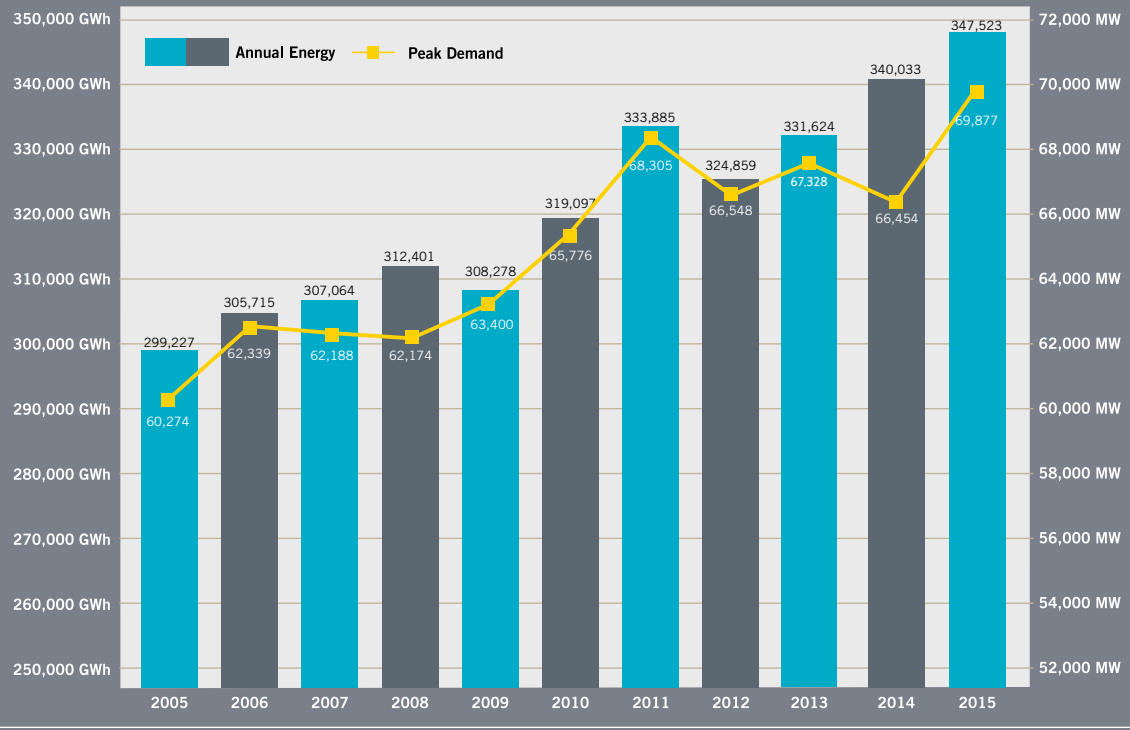
With natural gas prices remaining low and wind generation increasing in 2015, wholesale power prices per MWh in the ERCOT day-ahead and real-time markets decreased by about a third.



Source: Potomac Economics (Independent Market Monitor)
Prices reflect load-weighted average settlement point load zone prices in ERCOT real-time and day-ahead markets. Load zone prices include 15-minute wholesale energy prices, including the effects of transmission congestion in affected load zones.

2015 demand and energy

Consumers in the ERCOT region used 347.5 million MWh of energy in 2015, up 2.2 percent from the previous year. Peak demand reached 69,877 MW, up 5.2 percent from the 2014 hourly peak and 2.3 percent from the previous record set in 2011.



At a glance

- About 90% of Texas load
- 24 million consumers
- Competitive-choice customers: 75% of load
    - More than 7 million electric-service IDs (premises)
- More than 46,500 circuit miles of high-voltage transmission
- More than 550 generating units
- More than 77,000 megawatts (MW) of expected available generation capacity for summer peak demand
    - *One megawatt of electricity can power about 200 Texas homes during periods of peak demand.*
- Record peak demand: 69,877 MW (Aug. 10, 2015)
- Energy used in 2015: 347 billion kilowatt-hours
    - Up 2.2 percent compared to 2014
- Market participants: More than 1,400 active entities that generate, move, buy, sell or use wholesale electricity

Transmission Investment and Development

- In 2015, $1.1 billion in transmission added
- 1,093 circuit miles of transmission improvements completed
- 1,514 circuit miles of transmission planned
- $5.6 billion under development over the next five years

Generation Development

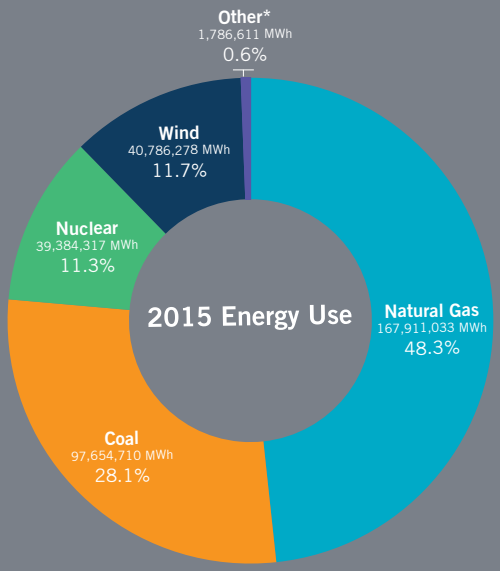
- 54,710 MW of summer-rated generation capacity added since 1999
    - 148 older units decommissioned
- 16,189 MW generation committed for the future (with transmission contract and air permit)
- 61,144 MW of active generation requests under review, including more than 24,000 MW of wind (January 2016)

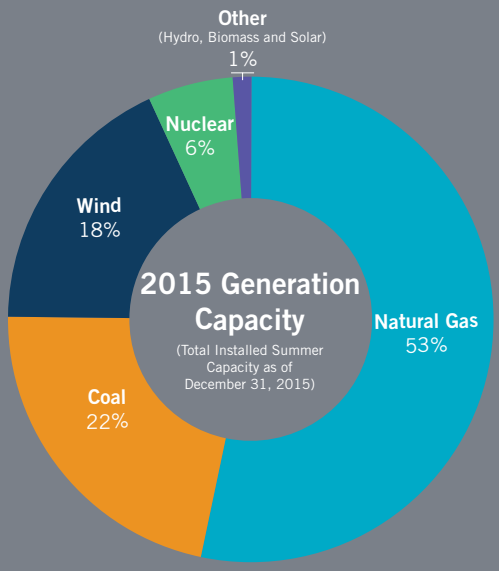
Solar and Wind Generation

- Nearly 16,000 MW of installed wind capacity
- Wind generation record: 13,883 MW (December 20, 2015)
- Wind penetration record: 44.7 percent (December 20, 2015)
- 288 MW of installed solar capacity

Retail Service Switches

- 91% of residential customers (August 2015)
- 92% of small non-residential customers (August 2015)
- 98% of large non-residential customers (August 2015)
- 200 certified competitive retail electric providers





*Includes solar, hydro, petroleum coke, biomass, landfill gas, and DC Ties

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www.ercot.com

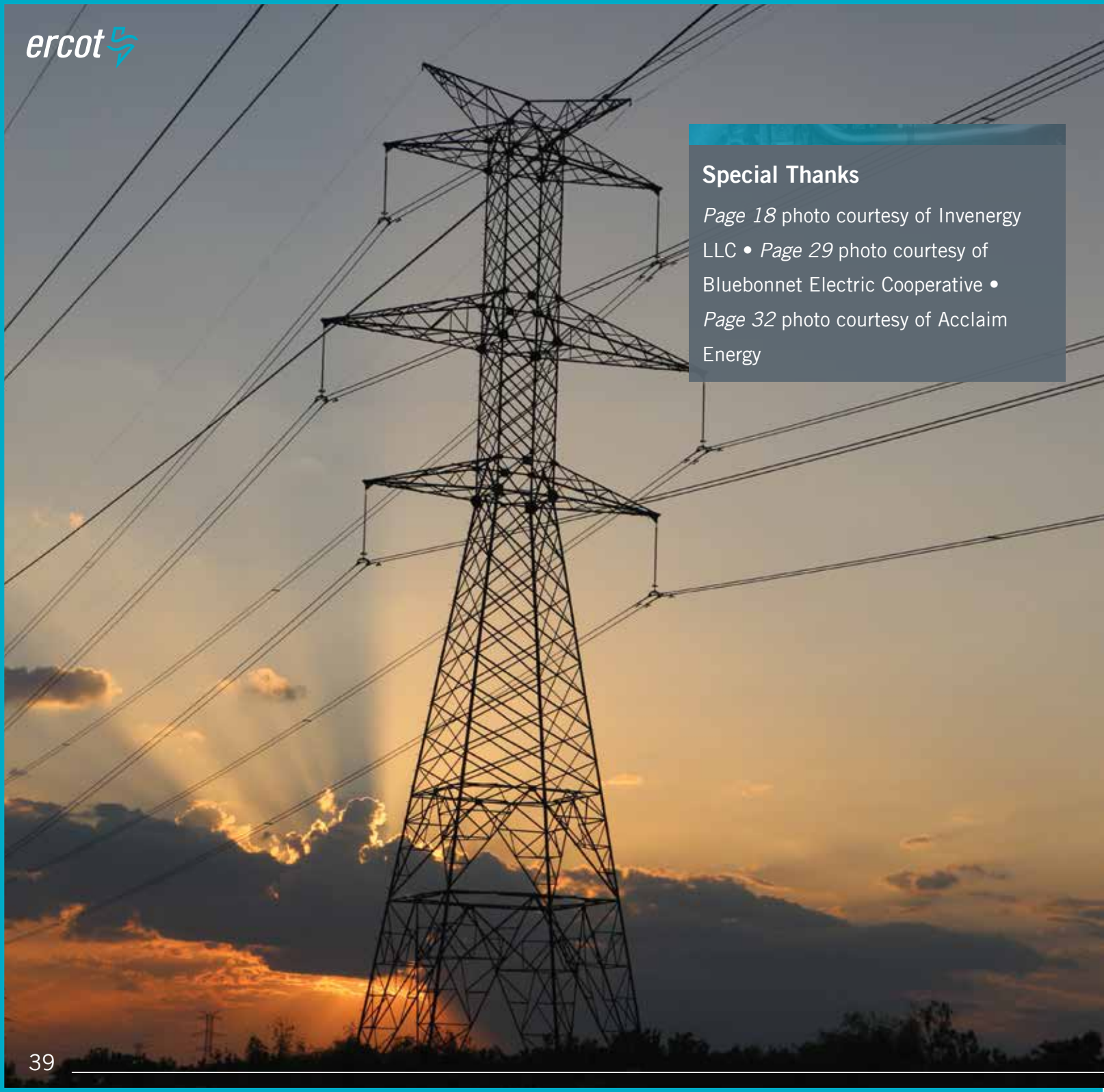
ERCOT_ISO

Electric Reliability Council of Texas

ERCOT Energy Saver App

ANDROID APP ON Google play

Available on the App Store



Special Thanks

Page 18 photo courtesy of Invenergy LLC • *Page 29* photo courtesy of Bluebonnet Electric Cooperative • *Page 32* photo courtesy of Acclaim Energy

Farewell my ERCOT friends.

From my early work in the stakeholder process through my role as CEO, I've watched ERCOT become what I believe is the best ISO in the world. With leadership from our state Legislature and PUC, together with our collaborative stakeholder process and the expertise of our talented employees, we have built a reliable competitive market. This world-class market is yielding great benefits to the electricity consumers in the ERCOT region of Texas.

As I travel the world in retirement, I will continue to compare electric rates to those in ERCOT. For now, you have almost everyone beat.

Thank you for all your hard work and friendship.

Our Vision:

Lead with independent insight on the future of electricity reliability, markets and technology in Texas in order to facilitate grid and market change for the benefit of all stakeholders.

Our Mission:

We serve the public by ensuring a reliable grid, efficient electricity markets, open access and retail choice.

ercot
Your Power. Our Promise.

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