

ERCOT'S CHALLENGES & OPPORTUNITIES

Trip Doggett President & CEO ERCOT

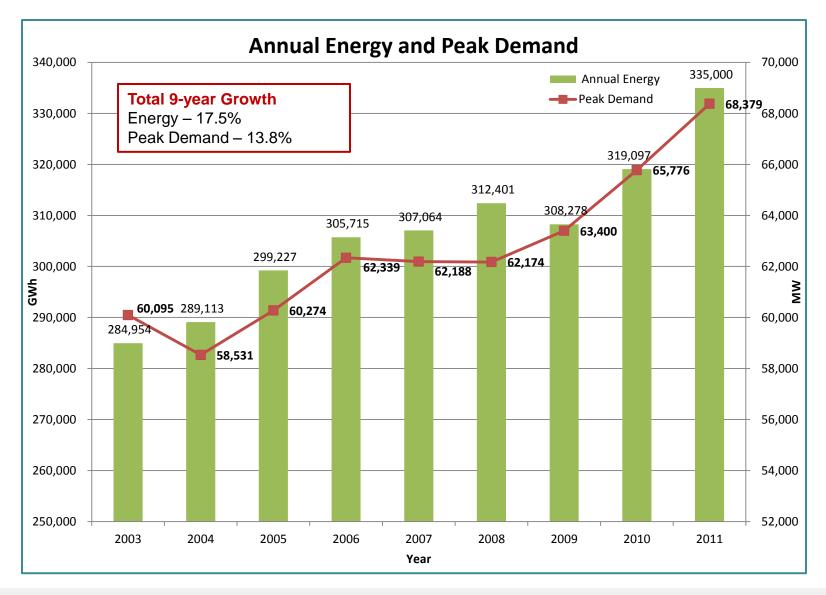
Association of Electric Companies of Texas May 17, 2012

- Resource Adequacy
- Wind Growth
- Demand Response
- Drought Update
- Transmission Projects



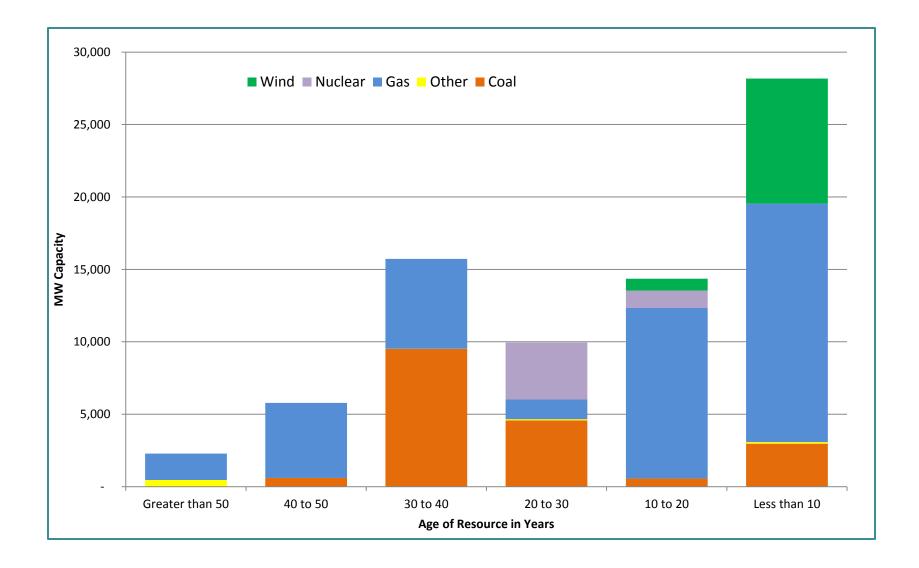
RESOURCE ADEQUACY

ANNUAL ENERGY & PEAK DEMAND (2003-2011)



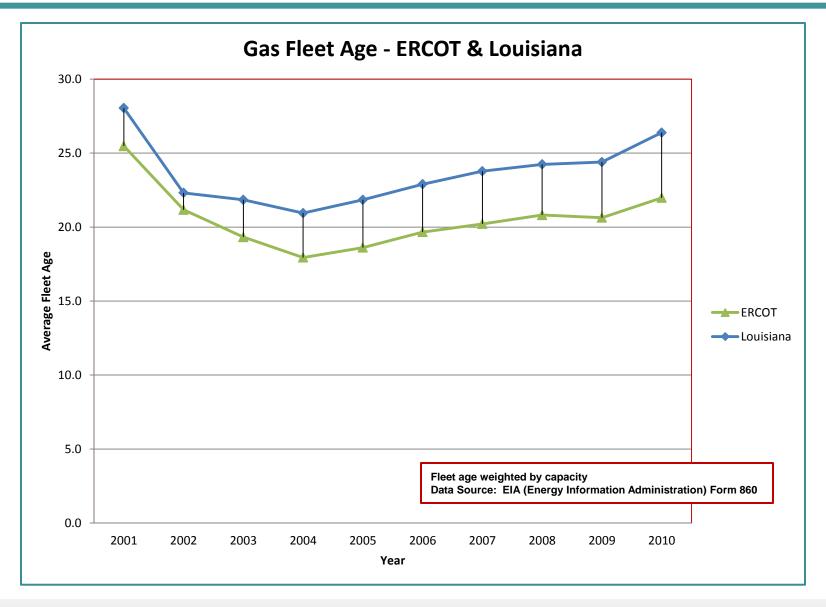


AGE OF GENERATION FLEET



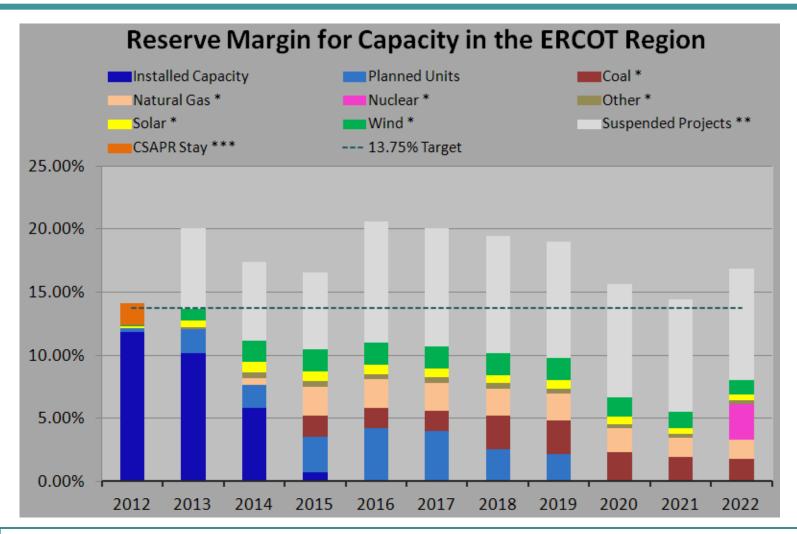


GAS GENERATION FLEET AGE COMPARISON – ERCOT & LOUISIANA





2012 CDR – RESERVE MARGIN, WITH POTENTIAL RESOURCES FROM QUEUE



• Fuel Composition of Projects Undergoing Full Interconnection Studies - these projects may be cancelled or delayed beyond the indicated commercial dates shown

• ***Monticello 1&2 – 1130MW (as a result of a federal court's order to stay EPA's CSAPR)



SARA SUMMER 2012 FINAL REPORT

ltem	Summer 2012	Base Case	Extreme Load & Typical Gen Outages	Extreme Load & Extreme Gen Outages
1	Total Resources	73,853		
2	Base Case Peak Demand	67,492		
3	Uses of Reserve Capacity	3,790	7,371	9,438
4	Capacity Available for Operating Reserves* (1-2-3)	2,571	-1,010	-3,077
5	Demand Adjustment during Scarcity**	750		
6	Adjusted Capacity Available for Operating Reserves (4+5)	3,321	-260	-2,327

*Less than 2300MW indicates risk of EEA1

**Represents effects of price responsive demand, conservation appeals, demand programs, etc.

based on summer 2011 experience; does not include Load Resource or Emergency Response Service (ERS) activation



Completed

- Online Non-Spin standing deployment & offer floor
- Offline Non-Spin offer floor
- Responsive Reserve & Regulation Up offer floor
- Institutionalize the process to recall units for capacity
- Pricing of energy for Reliability Unit Commitment (RUC) units deployed for capacity at System Wide Offer Cap
- Expansion of Responsive Reserve with a corresponding reduction in Non-Spin

Work In Progress

- The proper magnitude and slope of the Power Balance Penalty Curve
- Raising the System Wide Offer Cap
- Low Sustainable Limit problem for units RUC'ed online for capacity
- Compensation for Reliability Unit Commitments made to provide local reliability and transmission relief and address the issue of whether and how RUC claw-back should be adjusted
- Review Peaker Net Margin Cap
- Demand Response & Load Management Initiatives
- Posting non-binding near real-time forward prices
- Brattle Group Study



BRATTLE GROUP STUDY – CURRENT STATUS

- Completed 4 sector group interviews and 33 individual interviews from the full spectrum of stakeholders
- Characterized investor types and their investment criteria
- Completing simulation analysis of current and proposed rules for scarcity operations and pricing, expected generator revenues, potential investment, and resulting reliability
- Report will include Brattle's evaluation of the pros and cons of a range of market design options for meeting a range of resource adequacy objectives

Report to be released June 1

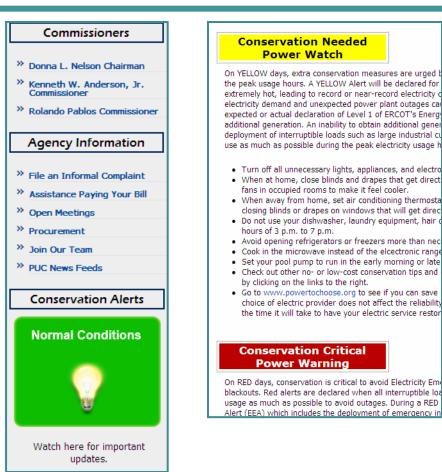


CONSERVATION MESSAGES – ERCOT & PUCT

ERCOT			News Careers Feeds FAQ			
About ERCOT Services Co	mmittees and Groups	Market Rules	Marke	et Informati	on Grid Infor	
	y Council of Texas ensure d and efficient electricity n		V			
DAY'S OUTLOOK	MARKET CONDITIONS					
Forecast Peak: 34,808 MW	Current System Con	Current System Conditions 🗗		Find ER	COTOuick	
Current System Load: 32,179 MW	Select One			F III G E	(valley viero	
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.500	Select One		v			
.000	Day-Ahead Market 🗗	1		FIND A MEET	ING	
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500	CRR Information 🗗			Wed 02/01	Texas Data Trans	
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₩ ₩				Fri 02/03	Critical Infrastruct	
04:00. 08:00. 22:00. 26:00. 20:00.	VIEW MARKET RULES			Mon 02/06	QMWG Special Me	
۶ ۵ ۵ ۶ ۶ ۵ Feb 01. 2012 - 10:25	Protocols and Marke	t Guides		Wed 02/08	Qualified Scheduli	
,	Select One		*	Thu 02/09	System Protection	
CONDITIONS	Revision Requests				RMS Workshop: D	
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Conservation Encouraged	Compliance Informa	tion 🗗			MarkeTrak TF Rele	
Lincouraged	Select One		~	Tue 02/14	Commercial Opera	





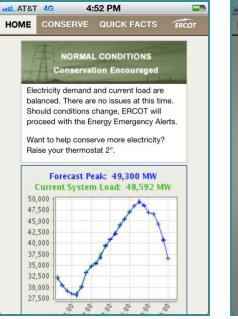


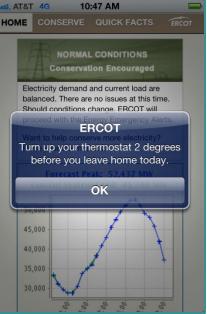
PLUS

- News release
- Automated emergency notification message to major media



AND INTRODUCING ... ERCOT MOBILE APP





AT&T 4G 4:52 PM

Weatherizing Your Home

Air Conditioners

- Check your air conditioning ducts for any leaks and seal them with mastic tape if needed. Caulk and weather-strip doors, windows and pipe clearances to save as much as 10% on cooling costs.
- Check air conditioner filters every month and replace them every three months. Dirty filters make your system run and work harder.
- Have a licensed contractor inspect and maintain your air-conditioner in the spring or fall to make sure it is running efficiently.
- If your air conditioner is more than 15 years old, consider replacing it with a newer, more efficient model that can use up to 40% less energy than older models. Ensure any new unit is properly sized and correctly installed. Bigger is not always better.

III. AT&T	atil AT&T 4G 4:52 PM		
HOME	CONSERVE	QUICK FACTS	ERCOT

ERCOT Quick Facts

- 85% of Texas electric load
- 40,530 circuit miles of high-voltage (138 kV/345 kV) transmission
- 550 generation units
- 73,600 MW peak capacity
- 68,379 MW record peak demand
- 335 billion kWh energy produced (2011)

Primary responsibilities (from Texas Legislature)

- System reliability (planning and operations)
- Open access to transmission
- Retail switching process for customer choice
- Wholesale market settlement for electricity production and delivery

Wind power leader

- 9,600 MW capacity (most in nation)
- 2,000 MW coastal wind power (on-peak availability)

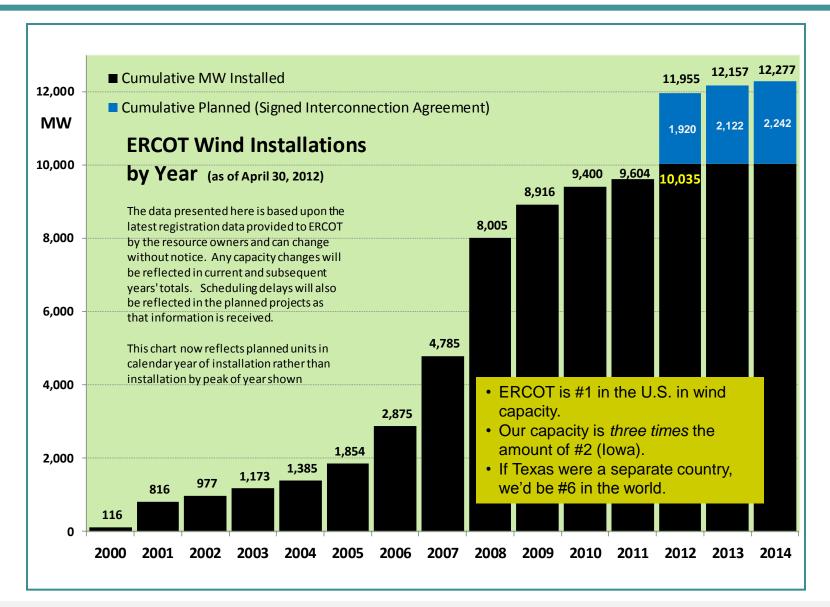
ERCOT Mobile App

- First release (Android & Apple) scheduled for June 2012
- Pop up notifications
- · Applications for first release
 - Conservation Spotlight
 - Load Forecast versus Actual graph
 - ERCOT Conservation Tips
 - ERCOT Quick Facts



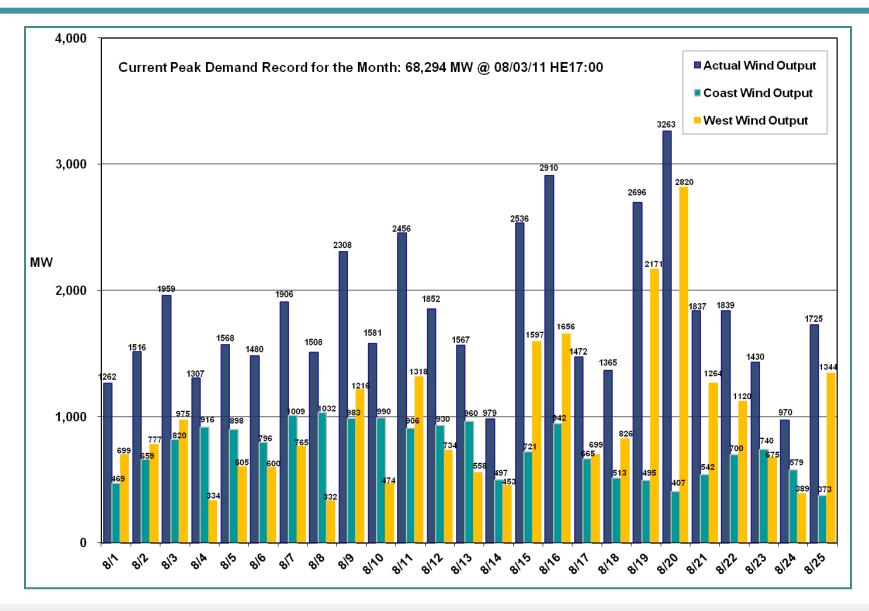
WIND GROWTH

WIND GENERATION – APRIL 2012





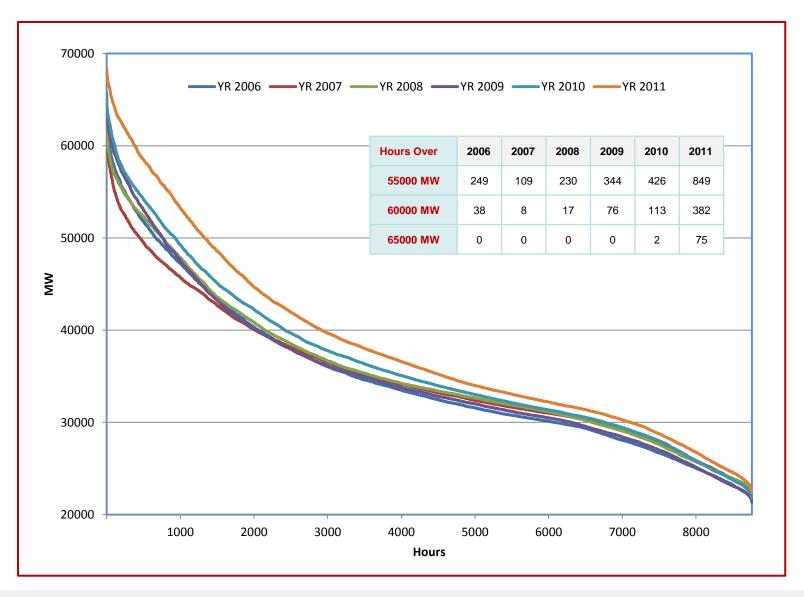
DAILY WIND GRAPH – AUG 2012





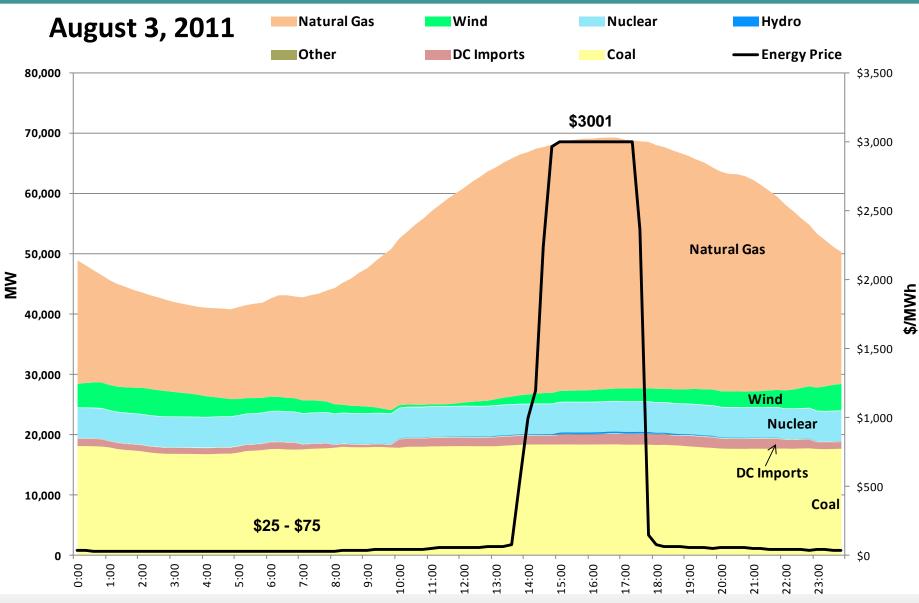
DEMAND RESPONSE

LOAD DURATION CURVES - 2006 TO 2011





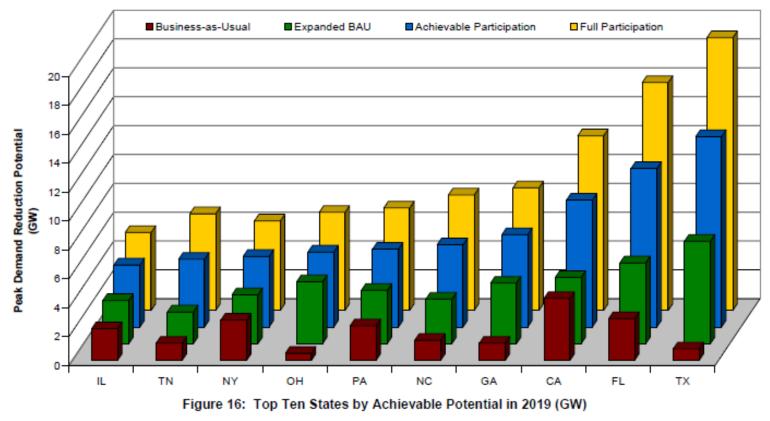
SUMMER PEAK DAY LOAD SHAPE WITH FUEL MIX





DEMAND RESPONSE POTENTIAL IN ERCOT

- FERC estimates >18 GW of DR potential in Texas by 2019
 - Attributed to high peak demand
 - This would represent 20-25% of total ERCOT peak

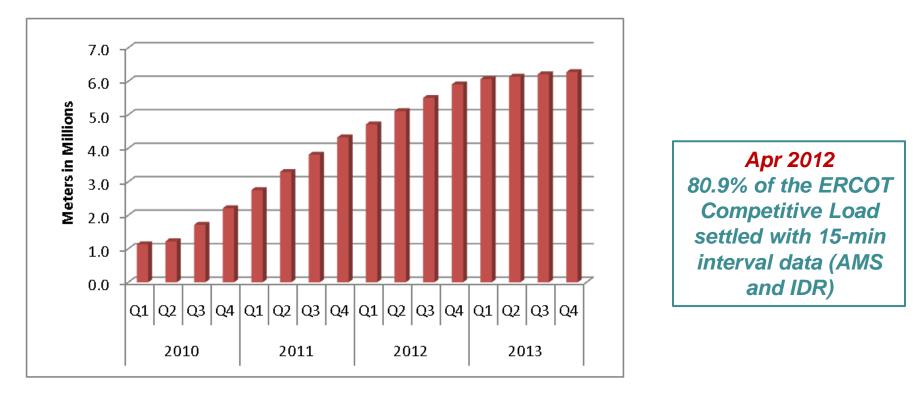


Source: FERC 2009 National Assessment of DR, page 42



TODAY WE'RE SETTLING OVER **5.0** MILLION ADVANCED METERS





Advanced meters give customers the data they need to make educated decisions about their electricity usage



DROUGHT UPDATE

ERCOT ACTIONS TO MANAGE DROUGHT IMPACT

- Surveyed generation entities in the state and reviewed drought concerns and possible mitigations
- Identified water resources used by electric generation that are at historically low levels
- Reviewed public sources regarding state and regional water plans
- Coordinated plans and activities with TCEQ staff and drought response teams
- Conducted a workshop on 27 February 2012 to share best practices relevant to drought conditions

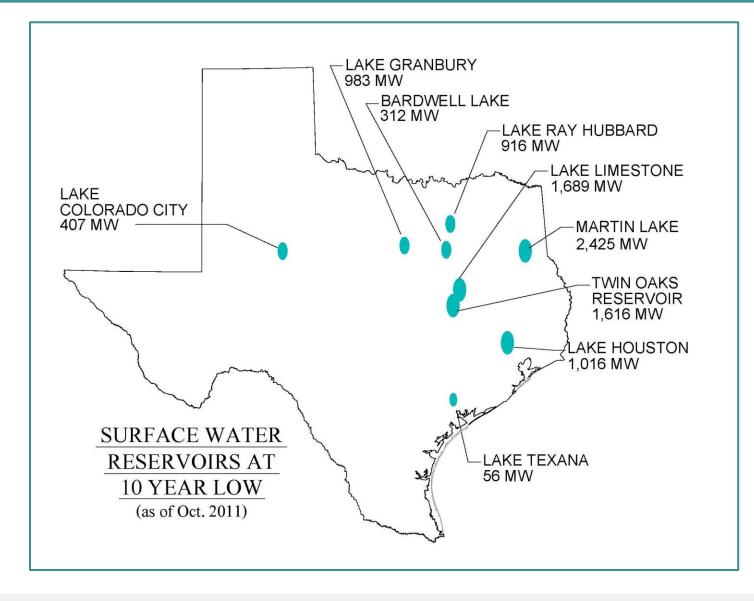


Shared Challenges and Ideas

- Generation
 - Presented white paper on water conservation measures
 - Ideas to optimize usage of existing water supply
- Transmission
 - Equipment contamination/flashovers & mitigation
 - Emergency coordination
 - Wildfire risk and the electrical grid
- More than 200 participants including state and federal government staff, market participants, ERCOT staff and other stakeholders



SURFACE WATER SUPPLIES AT 10 YEAR LOWS (OCT 2011)





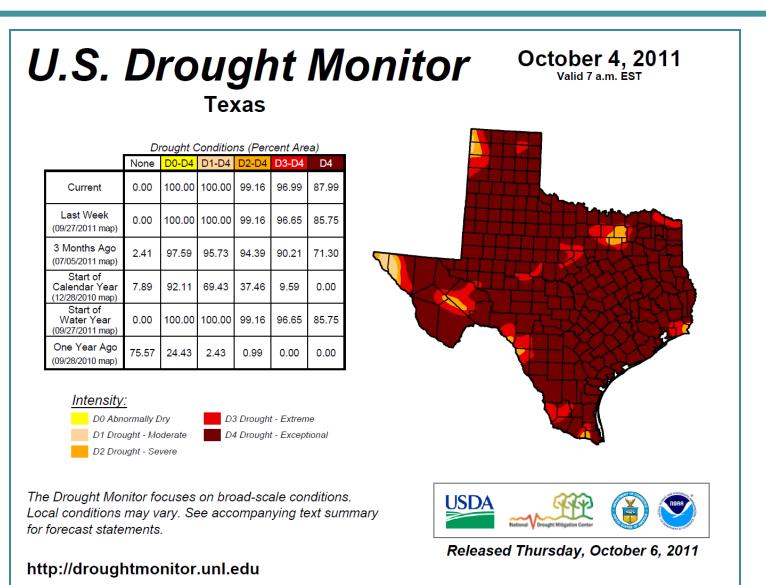
LAKE LEVELS UPDATE – MAY 2012

Surface Water & (MW)	*Level @ Full Conservation Pool	*Level on Jan 1, 2011	*Level on Oct 7 , 2011	*Level on May 01, 2012
Lake Texana (56)	44.50	41.00	32.81	43.19
Bardwell Lake (312)	421.00	420.71	416.23	421.08
Lake Colorado City (407)	2,070.20	2057.33	2052.4	2051.23
Lake Ray Hubbard (916)	435.50	432.37	429.22	435.09
Lake Granbury (983)	693.00	691.90	686.27	692.43
Lake Houston (1016)	41.73	42.10	36.76	41.85
Twin Oaks Reservoir (1616)	400	398.87	398.27	400.18
Lake Limestone (1689)	363	359.03	354	362.62
Martin Lake (2425)	306	300.48	295.06	302.03

* In Feet above Mean Sea Level

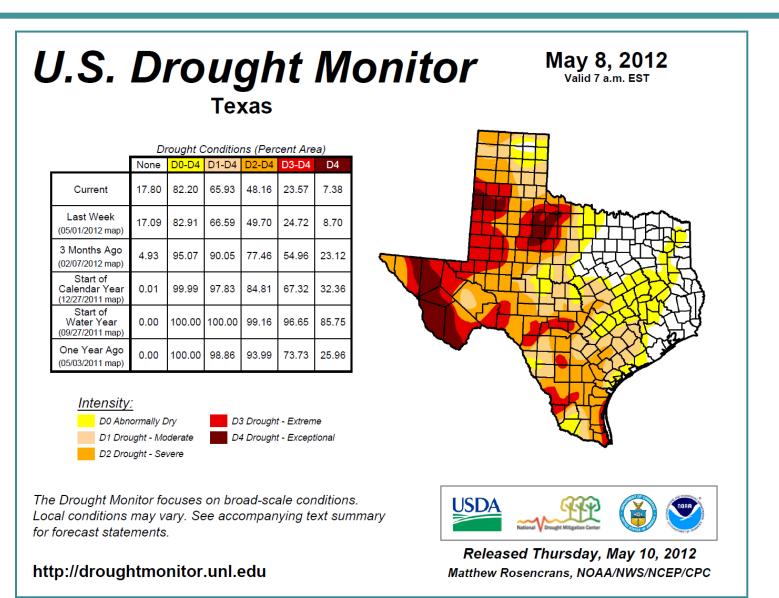


TEXAS DROUGHT CONDITIONS – OCT 4, 2011





TEXAS DROUGHT CONDITIONS – MAY 8, 2012



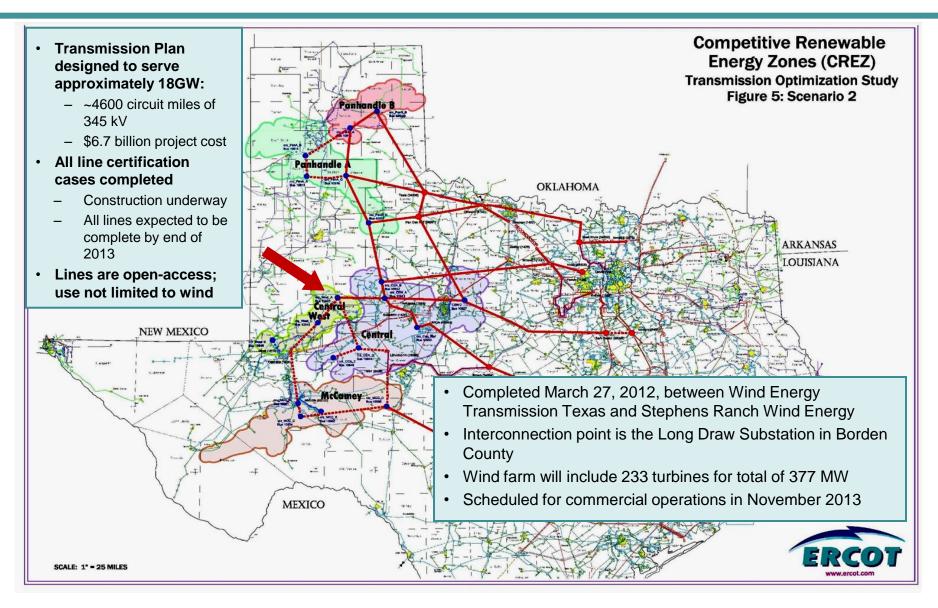


- Improved drought conditions in many river basins
 - Reservoir levels not expected to affect power plant operations this summer
 - Potential risks to generation capacity continue while Texas remains under drought conditions



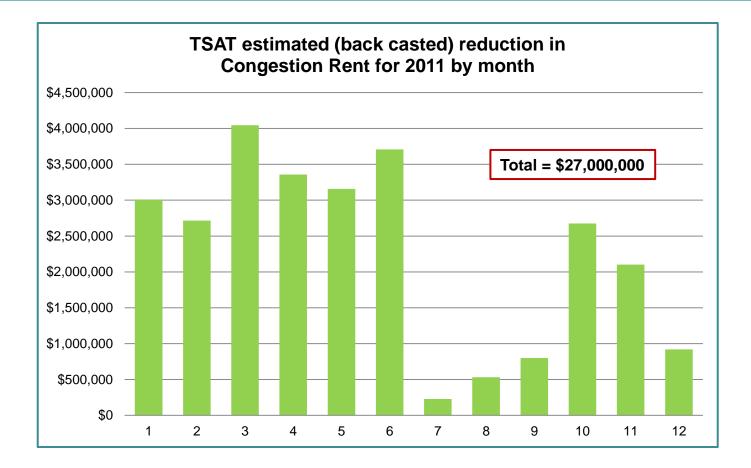
TRANSMISSION PROJECTS

FIRST INTERCONNECTION AGREEMENT FOR A CREZ SUBSTATION





BENEFITS OF REAL-TIME TRANSIENT STABILITY ANALYSIS TOOL (TSAT)



- Actual testing showed between 200 and 500 MW improvements in West to North transfers
- Estimated benefit was calculated using 200 MW as the maximum improvement and using average shadow prices and average limits for each hour
- IMM reported actual Congestion Rent for West to North constraint in 2011 was \$95,000,000

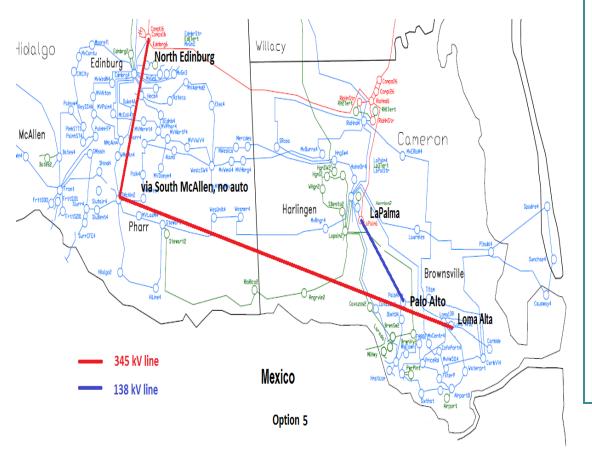




- Driver Reliability Need
- Project Components
 - Lobo-Rio Bravo-N. Edinburg 163 mile single circuit 345 kV line on double circuit structures with 50% series compensation
 - Energized reconductor of Lon Hill-N. Edinburg and Lon Hill-Rio Hondo 345 kV lines
 - Reconfigure N. Edinburg and Rio Hondo series capacitors
- Cost Estimate \$527 million
- Expected in-service 2016



CROSS VALLEY 345KV PROJECT



• Driver – Reliability Need

Project Components:

- New La Palma-Palo Alto 138 kV line (~12 miles) with a rating of at least 215 MVA
- New North Edinburg-Loma Alta 345 kV line (double circuit capable with one circuit in place) routed in proximity to the existing South McAllen Substation (~106.5 miles)
- New 345kV bus at the Loma Alta station with one 345/138kV autotransformer
- Cost estimate = \$274.7M
- Expected in-service 2016

