



Update on Resource Adequacy in the ERCOT Region

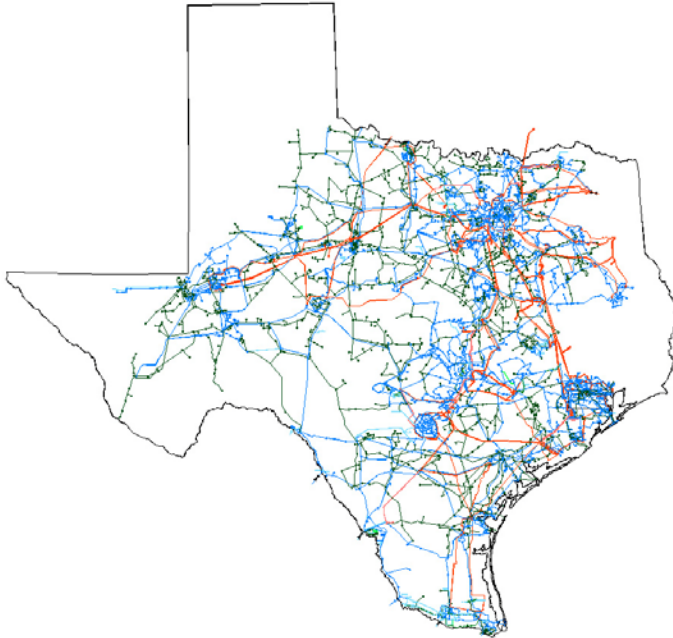
Dallas City Council
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The ERCOT Region:

The interconnected electrical system serving most of Texas, with limited external connections

- 75% of Texas land; 85% of Texas load
- More than 40,000 miles of transmission lines
- 550+ generation units
- 68,294 MW peak demand (set August 3, 2011)



ERCOT Inc.:

A non-profit corporation designated the “Independent Organization” under state law and assigned these responsibilities [Texas Public Utility Regulatory Act (PURA) 39.151]:

- Maintaining System Reliability
- Ensuring Open Access to Transmission
- Facilitating the Competitive Wholesale Market
- Facilitating the Competitive Retail Market

Regulatory Characteristics:

- ERCOT is regulated by the Texas Public Utility Commission with oversight by the Texas Legislature
- ERCOT is not a market participant and does not own generation or transmission/distribution wires

- **One measure of expected reliability is a comparison of the forecasted peak system load for a future year (summer) to the expected installed generation capacity across the system**
- **Generation capacity must exceed the expected peak demand by a “reserve margin” to cover above-normal weather and forced outages of generation**
- **Meeting the target minimum reserve margin does not mean there will be perfect reliability**
 - The target reserve margin is set such that the probability of being short of capacity (due to high demands and/or high generation unavailability) is “one day in ten years”

Resource Adequacy – Update

Summer 2012	12/01/11 CDR for 2012	1/09/12 Current
Firm Load Forecast (MW)	64,618	64,618
Resources (MW)	72,444	*73,574
Reserve Margin (Target = 13.75%)	12.11%	13.86%

*

Returned to Service (MW)

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

Drought Impact Status

- Persistent drought conditions are impacting electric generation resources, but are unlikely to cause significant generation shortfalls in 2012
- If the drought continues into 2013, consequences to electric generation availability are likely to become more severe
- ERCOT will continue to analyze survey results and will continue to keep regulatory authorities well-informed
- On 27 February 2012, ERCOT will host an open drought workshop with generation and transmission entities to coordinate “best practices” in the electric sector

Potential Additional Capacity for Summer 2012

Item	Complete	In Progress	Approximate MW Range	Notes
Mothballed Units which could return to service		X	0 – 2,750	<ul style="list-style-type: none"> • 1 month – 300 MW • 3 months – 1150 MW • 4 months – 450 MW • 6 months – 600 MW • Unknown – 250 MW • 420 MW already included in 2012 CDR
Proposed EILS Rule Change		X	130 – 200	<ul style="list-style-type: none"> • PUC Proj. No. 39948, comments due 1/30/12 • ERCOT Staff exploring options for 30-minute Emergency Response Service pilot • Tight timeline to implement changes for June to September 2012 contract period
Distribution Load Aggregation		X	TBD	<ul style="list-style-type: none"> • More accurate estimate for summer 2012 being prepared based on data from potential provider(s)
Transmission and Distribution Utility Load Management Programs		X	112 – 354	<ul style="list-style-type: none"> • 112 MW under Load Management in 2011 • 178 MW in 2012 with “Business as Usual” • 354 MW in 2012 with increased Load Management • Most MWs have a max of 4 deployments per summer, and a max event duration of 4 hours
Posting non-binding near real-time forward prices		X		<ul style="list-style-type: none"> • ERCOT Board approval 12/13/11 • Implementation planned for June 2012

- **In real-time operations, if there is a shortage of generation available to serve load, ERCOT will implement the EEA plan**
- **EEA is an orderly plan to reduce load during a shortage of generation**
 - Procedures for reducing System Demand in emergency situations
 - Provides for maximum possible continuity of service while maintaining the integrity of the ERCOT System
 - Reduces the chance of cascading outages and blackouts
 - Outlines when and how demand (load) can be curtailed

EEA procedure in the ERCOT Protocols defined by levels

- 1 Maintain 2,300 MW of on-line reserves
- 2 Maintain 1,750 MW of on-line reserves. Interrupt loads providing Responsive Reserve Service. Interrupt loads providing Emergency Interruptible Load Service (EILS).
- 3 Maintain System frequency at or above 59.8 Hz and instruct TSPs and DSPs to shed firm load in rotating blocks.

Date	EEA Levels
Wednesday, February 2	EEA 1-3
Wednesday, March 23	EEA 1
Monday, June 27	EEA 1
Tuesday, August 2	EEA 1
Wednesday, August 3	EEA 1
Thursday, August 4	EEA 1-2
Friday, August 5	EEA 1
Tuesday, August 23	EEA 1
Wednesday, August 24	EEA 1-2

Load Shed Responsibility by Transmission Operator (TO)

Transmission Operator	2010 Total Transmission Operator Load (MW)
American Electric Power	9.00
Austin Energy	3.96
Brazos Electric Power Cooperative	4.67
CenterPoint Energy	24.55
City of Bryan	0.61
City of College Station	0.31
City of Denton	0.51
City of Garland	0.76
CPS Energy	7.29
Greenville Electric Utility Service	0.18
Lower Colorado River Authority	5.47
Oncor	37.55
Public Utility Board of Brownsville	0.41
Rayburn Country Electric Cooperative	1.08
South Texas Electric Coop	1.28
Texas-New Mexico Power	2.37
ERCOT Total	100.00

Responsibility is based on the TO's load ratio share.

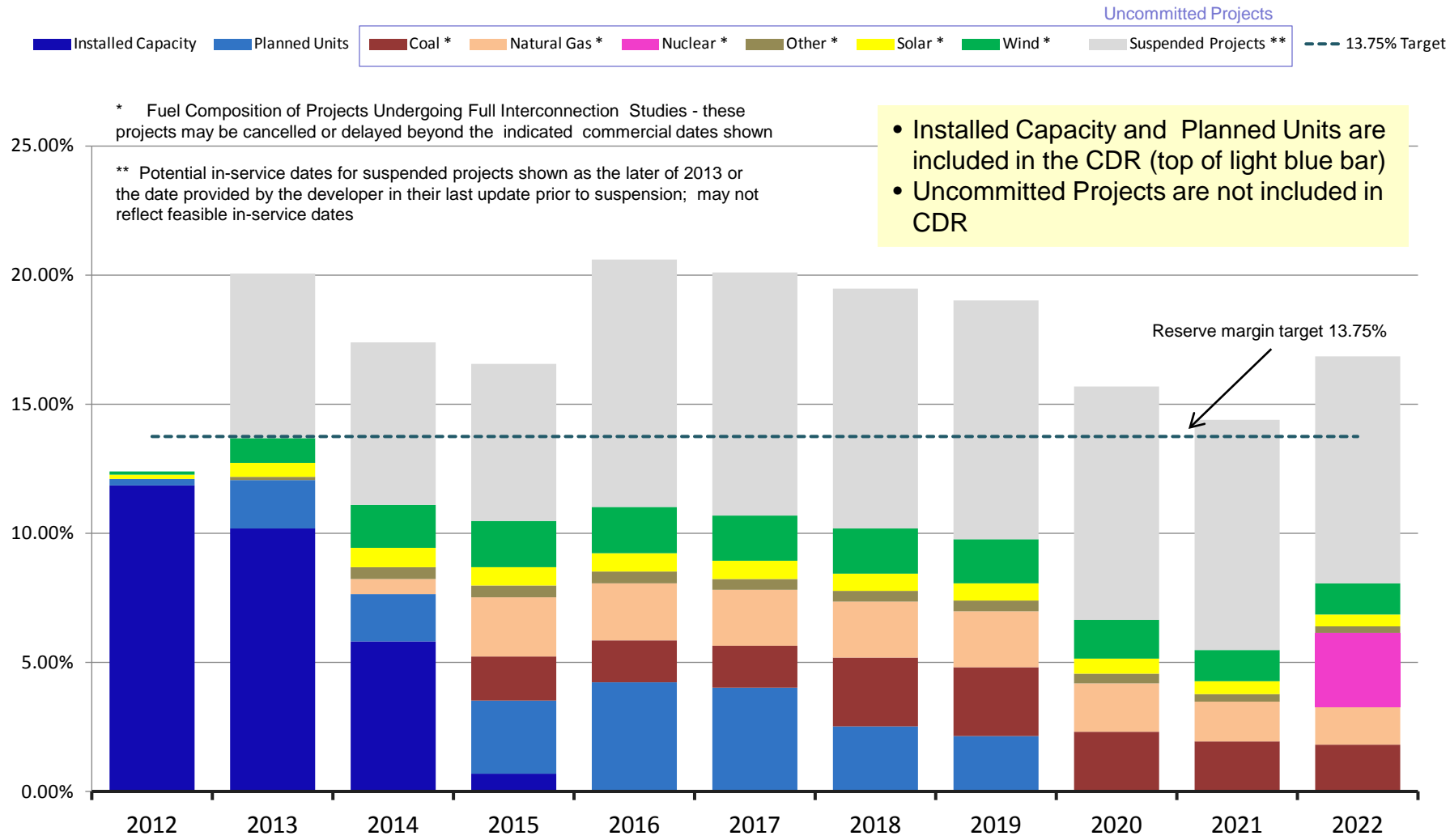
Megawatts ordered shed by each of the TOs per every 100 MW instructed by ERCOT

Location of specific load shed and rotation sequence is determined by the TO.

Energy Emergency Alert (EEA) Communications Matrix

Emergency Levels	Operating Reserves	Grid Operators' Actions	Automated Emergency Notifications	Follow-up Communications from External Affairs	Media/Public Notifications
Normal Conditions	Reserves > 3,000 MW	Normal operations			
Control Room Advisory	Reserves < 3,000 MW	Issue "Advisory" to utilities -- informational only -- no additional authority for operators' actions.	Public Utility Commission (PUC) and NERC regional entity (TRE) notified via grid report daily emails		
Control Room Watch	Reserves < 2,500 MW	Use quick-start capacity and non-spinning reserves (available within 30 minutes).	Automated Emergency Notification System phone call and email to PUC, the independent market monitor (IMM), TRE, and FERC	If potential emergency situation, additional information sent to the GridEmergency email list (SOC, PUC, OPC, Board, Govmt/Lege, IMM, TRE, FERC, and Market Participants' media contacts/PIOs)	
Energy Emergency Level 1 POWER WATCH - Conservation Needed (appeal optional if situation short- lived)	Reserves < 2,300 MW	Use capacity available from other grids (via asynchronous connections; 500 MW on average) and dispatch all available units.	Above plus State Operations Center (notifies city, county officials & law enforcement), Office of Public Utility Counsel, govmt/lege staff and ERCOT Board	Notify GridEmergency list with additional information	News release, if appropriate; Twitter and Facebook
Energy Emergency Level 2 POWER WARNING - Conservation Critical	Reserves < 1,750 MW	Deploy demand response resources: Load Resources under contract (1,000 MW on average) and/or Emergency Interruptible Load Service (400-500 MW on average), in either order. Begin block load transfers of load to other grids if appropriate.	Above plus major news services and media contacts for utilities	Same as above	News release, if appropriate; Twitter and Facebook
Energy Emergency Level 3 POWER EMERGENCY - Rotating Outages	Reserves continuing to trend downward or frequency at or below 59.8 Hz	Instruct transmission operators to implement rotating outages. Areas affected are at the discretion of the utilities.	Same as above	Same as above	News release; Twitter and Facebook

December 2011 CDR – Reserve Margin, with Potential New Generation Resources



Questions?