

Control Number: 27706



Item Number: 331

Addendum StartPage: 0

PROJECT NO. 27706

REPORTS OF THE ELECTRIC

RELIABILITY COUNCIL OF TEXAS

PUBLIC UTILITY COMMISSION

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ERCOT'S 2015 OPERATIONS REPORT AND PLAN

Pursuant to Public Utility Commission of Texas (PUC) Substantive Rule §25.362(i)(2), Electric Reliability Council of Texas, Inc. (ERCOT) hereby files its 2015 Operations Report and Plan. Attachments marked with an asterisk (*) contain confidential information and are provided in accordance with the procedures set forth in PUC Procedural Rule §22.71(d). This Report comprises the following documents:

SUBST. R. Section	Document Description	Attachment	Page No.
25.362(i)(2)(A)	A copy of an independent audit of ERCOT's market operation for the report year	A*	
25.362(i)(2)(B)	A summary of key market operations statistics, including prices and quantities of energy and capacity purchased in the markets operated by ERCOT	В	4
25.362(i)(2)(C)	A summary of key reliability statistics	С	18
25.362(i)(2)(D)	A summary of transmission planning (see Attachment I) and generation interconnection activities and the most recent report on capacity, demand and reserves	D1 D2	32 60
25.362(i)(2)(E)	A description of ERCOT's roles and responsibilities within the electric market in Texas, including system reliability, operation of energy and capacity markets, managing transmission congestion, transmission planning and interconnection of new generating plants, and a description of how ERCOT's roles and responsibilities relate to the roles and responsibilities of the transmission and distribution utilities and retail electric providers and to the North American Electric Reliability Corporation and Texas Reliability Entity	E	94
25.362(i)(2)(F)	A risk management plan that identifies any significant risks to system reliability, the operation of ERCOT's energy and capacity markets, its management of transmission congestion, and any other risks that would significantly disrupt the sale and delivery of electricity within the ERCOT region, and the measures that might be taken to mitigate such risks	F*	
25.362(i)(2)(G)	An emergency communications plan that describes how ERCOT will communicate with the public, media, governmental entities, and market participants concerning events that affect the bulk electric system	G	115

SUBST. R. Document Description		Attachment	Page
Section			No.
25.362(i)(2)(H)	An assessment of the reliability and adequacy of the ERCOT system during extremely cold or extremely hot weather conditions, or drought, for which purpose ERCOT has the right, upon reasonable notice, to conduct generator site visits to review compliance with weatherization plans and has the right to obtain from generators any information concerning water supplies for generation purposes, including contracts, water rights, and other information	Н	179
25.362(i)(2)(I)	Identification of existing and potential transmission constraints, and the need for additional transmission, generation or demand response resources within the ERCOT region. The report shall include projections of changes in demand, the capability of generation, energy storage, and demand response resources, projected reserve margins, alternatives for meeting system needs, and recommendations for meeting system needs (Generation and demand information is included in Attachments D1 and D2)	I	214

Respectfully submitted,

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ATTORNEYS FOR ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.

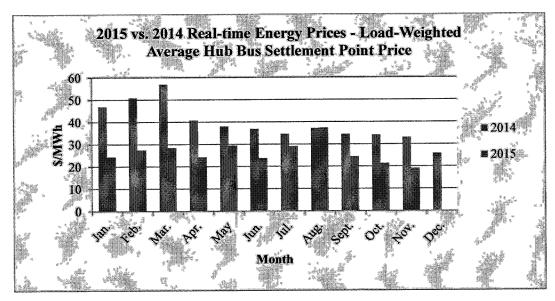
Attachment B

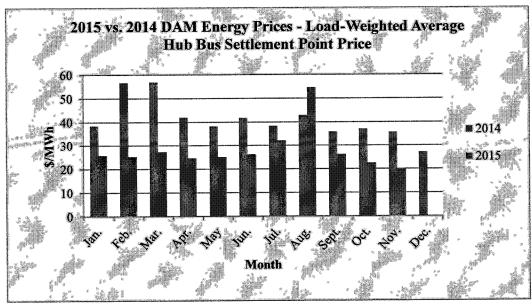
Key Market Operations Statistics

This report summarizes key statistics in ERCOT's Wholesale Market for calendar year 2015. In particular, this report includes information concerning prices, costs, quantities of energy, capacity commitments, ancillary services, and the Peaker Net Margin.

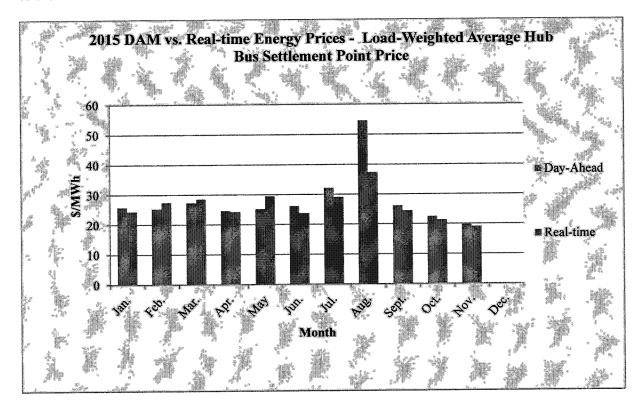
Energy Costs

The first two figures below are monthly comparisons of load-weighted average energy prices between 2014 and 2015, looking at both the Day-Ahead Market (DAM) and the Real-Time Market. For most months, load-weighted average energy prices in both the day-ahead and real-time in 2015 tended to be lower than what were observed in 2014, except August. During August 2015 ERCOT system demand broke the all-time peak record. Simple average natural gas prices at Houston Ship Channel (FIP) were 40.3% less in 2015 than 2014.



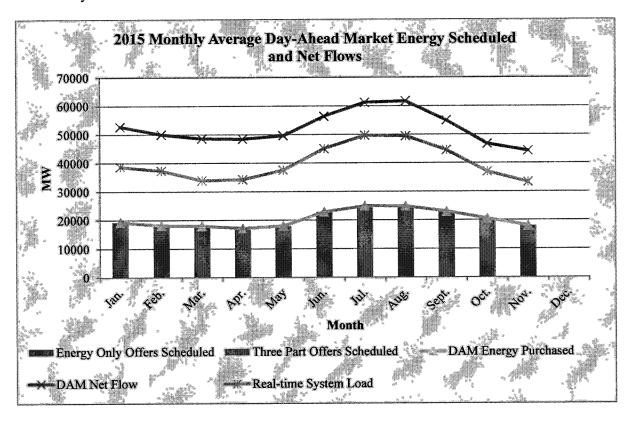


The figure below provides a monthly summary comparing the day-ahead and real-time load-weighted average energy prices for 2015. For most months the day-ahead values are comparable to those in real-time.



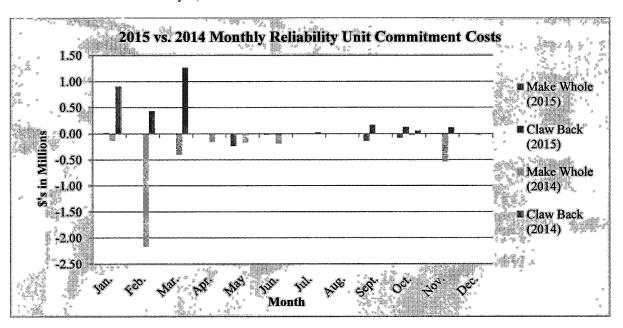
Day-Ahead Market versus Real-time Energy Flow

The following figure shows that on average, the DAM net transmission flow (Defined as the flow from energy sales in the day-ahead market plus point-to-point obligations) was greater than the real-time system load for all months in 2015.



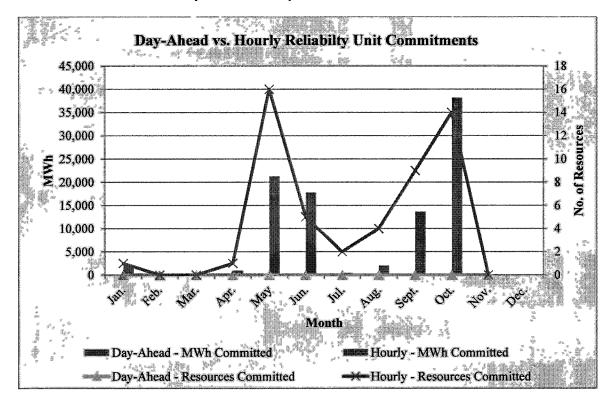
Reliability Unit Commitment Costs

The make whole payments and claw back charges associated with Reliability Unit Commitments (RUCs) in 2015 are lower in most months than what were observed in 2014. The figure below compares the total monthly payments and charges for each month between the two years. The months in 2015 with the largest values were May, September and October (Note: December 2015 data has not been included yet)

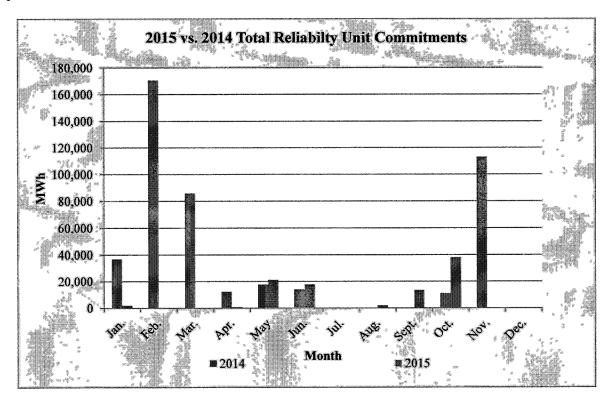


Reliability Unit Commitment Procurement

Below is a figure which compares the amount of RUC commitments for each month of 2015, separating out the day-ahead and hourly RUC processes. This comparison is done by looking at both the total amount of MWh's committed each month and the number of individual resources. The largest number of committed MWh's for 2015 occurred in October, all by hourly RUC. Day-ahead RUC did not commit any resource this year.



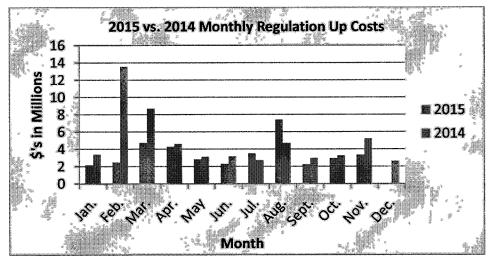
The figure below shows the total number of MWhs procured in the day-ahead or hourly RUC process for each month of 2014 and 2015. For January, February, March, and November, RUC procurement in 2015 tended to be notably lower than what was observed in 2014.

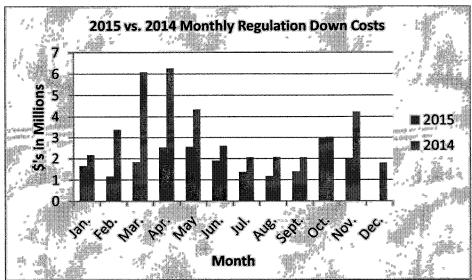


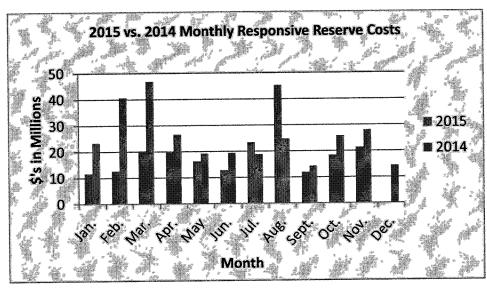
Since early 2014, a resource that is not an RMR committed by a RUC process or Verbal Dispatched Instruction may choose to self-commit, with RUC claw back charges to be waived and RUC make whole payments to be forfeited. About 40% of committed resources have chosen to self-commit in 2015.

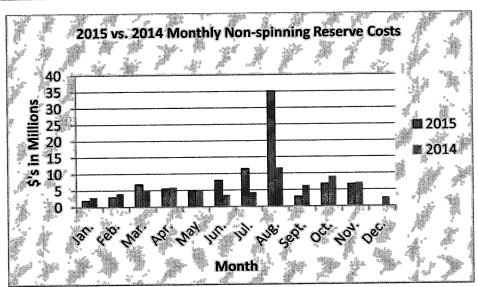
Ancillary Services Costs

The four figures below provide a comparison of ancillary services costs between 2014 and 2015 taking into consideration both the DAM and any Supplemental Ancillary Service Markets (SASMs). The services that were analyzed were Regulation Up (Reg-Up), Regulation Down (Reg-Down), Responsive Reserve (RRS), and Non-spinning Reserve (Non-spin). Starting June 1, 2015, the ERCOT RRS requirement was based on expected diurnal load and wind patterns for the month and covering 70% of historic system inertia conditions for each month. Also, starting June 1, 2015, ERCOT computed the amount of Non-Spin that is required to ensure that the combination of Non-Spin procured plus the average amount of Reg-Up procured will result in a total capacity that is larger than or equal to 95% of the uncertainties observed in the Net Load accuracy evaluation. In the determination of the requirements, ERCOT also considers the size of the largest unit. This is intended to cover exposure to the loss of the largest unit during periods of higher risk.



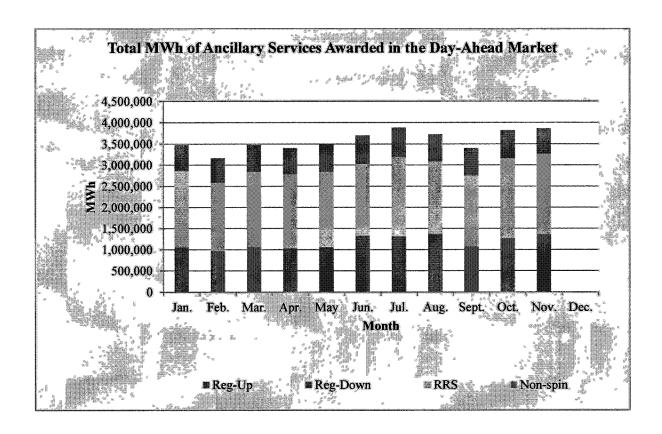






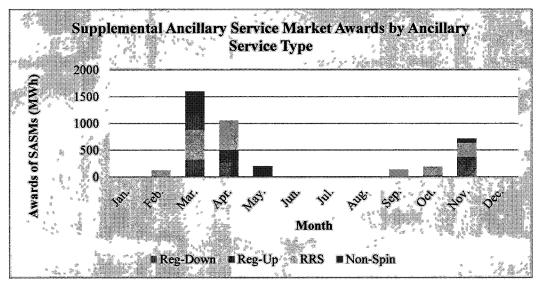
Day-Ahead Market Ancillary Services Awards

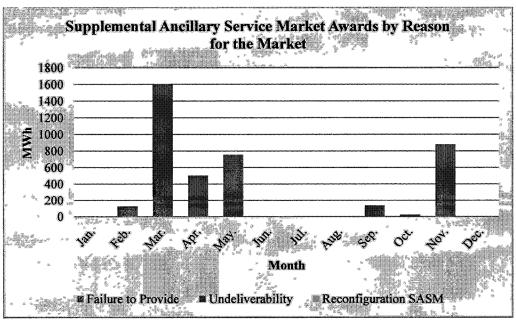
Below is a comparison of the total amount of ancillary services that were awarded each month during 2015 in the DAM. The figure distinguishes between the four ancillary services which are awarded in the DAM. It can be seen that the total amount of awards were higher in most months since June.



Supplemental Ancillary Service Market Awards

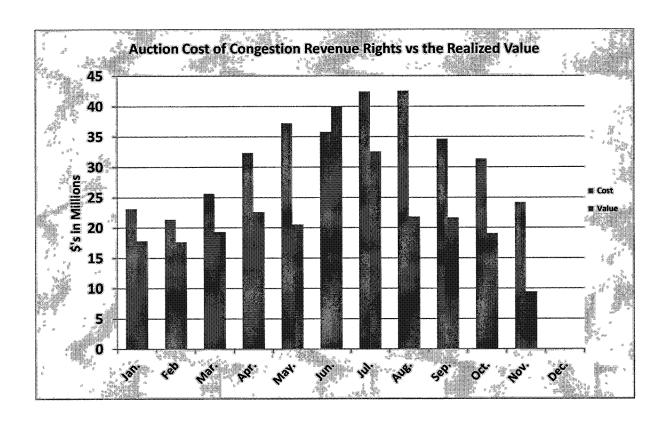
The following two figures provide a monthly summary of the SASMs that were executed during 2015. The information is provided in two formats: one in which the monthly data is separated out by ancillary service type and another in which it is separated out by the reason for which the SASM was executed. The majority of undeliverability occurred in March due to breaker outages which caused generators to be isolated.





Congestion Revenue Rights Costs and Value

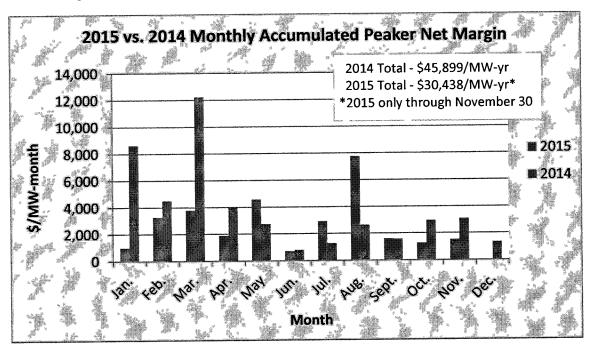
The following figure compares the total cost of the Congestion Revenue Rights (CRRs) to the total value of the CRRs to the CRR Account Holders. The cost is based on what was paid by the CRR Account Holder during the annual and monthly auctions and the value is the final payments to the CRR Account Holders based on outcomes of the DAM.



Peaker Net Margin Accumulation

Energy prices in the ERCOT energy-only market are subject to offer cap management as defined in the Scarcity Pricing Mechanism defined in PUCT Rule §25.505, and tracked by the value of the Peaker Net Margin calculation. Under the current rules, if the Peaker Net Margin reaches \$315,000/MW-yr within an annual resource adequacy cycle, then the offer caps for energy and capacity are reduced from high system-wide offer cap (\$7,000/MWh before June 1, 2015, and \$9,000/MWh beginning on June 1, 2015) down to \$2,000/MWh for the remainder of the calendar year (or to 50 multiplied by the daily Houston Ship Channel gas price index if this results in a value high than \$2,000/MWh).

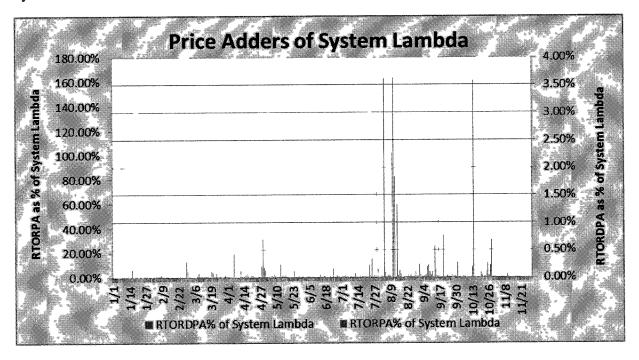
For 2015 the cumulative PNM value is \$30,438/MW-yr as of November 30, 2015. The following figure provides a comparison of the monthly incremental changes to the PNM value looking at both 2014 and 2015. The total PNM for 2015 is currently 34% lower than the 2014 total. August created the highest incremental PNM value in 2015.



Real-Time Price Adders

The Real-Time On-Line Reserve price adder (RTORPA) implemented on June 1st 2014 reflects the price for reserves available in the ERCOT System based on the loss of Load probability at that reserve level. The Real-Time On-Line Reliability Deployment price adder (RTORDPA) implemented on June 25th 2015 captures the impact of reliability deployments on energy prices. These two adders are additions to the Real-Time Settlement Point Price.

The following figure shows the percentage value of online price adders RTORPA and RTORDPA to system lambda. The highest value of RTORPA with regard to system lambda occurred on 8/5/2015 and 8/12/2015. During these days, online capacity was not ramping as fast as load in the afternoon and PRC dropped below 3,000 MW. The highest value of RTORDPA with regard to system lambda occurred on 10/15/2015. During that day 10,224 MWh of resources got committed by HRUC to solve transmission constraint.



Attachment C Summary of Key Reliability Statistics



ERCOT Operations 2015 Key Reliability Statistics

January 15, 2016

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REPORT SUMMARY

The following report summarizes the key reliability statistics for the ERCOT Region. The purpose of this report is to allow the Public Utility Commission of Texas (PUCT) to review the most recent year's operations report under PUCT substantive rule 25.361. This report contains key metrics related to the following:

2015 Operations

- Peak Demand: Actual vs. Forecast
- On-line Resources: Total at Peak and Wind
- CPS1 Monthly Performance
- Historical Peak and Minimum Loads
- Day-Ahead Load Forecast Performance
- Reliability Unit Commitment Capacity (RUC) by weather zone
- Generic Transmission Constraints (GTCs)
- Advisories, Watches and EEAs

• 2015 General Operations Information

- The 2015 peak demand was 69,877 MW on August 10, 2015, a new all-time peak record which was greater than the previous peak record of 68,305 MW set on August 3, 2011.
- The 2015 winter peak demand was 56,764 MW on January 8, 2015, which was lower than the previous winter peak of 57,277 MW set on January 16, 2014.
- Mean Absolute Percent Error (MAPE) for Day-ahead Load Forecast from Jan-Nov 2015 was 2.91%
- Advisories for Physical Responsive Capability (PRC) below 3000 MW issued on 7 days
- Watches for PRC below 2500 MW issued once
- Transmission Emergency Notice issued on 2 days
- No Energy Emergency Alert (EEA) issued

MONTHLY PEAK DEMAND IN 2015 Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak

Figure 1 below provides a comparison of the actual peak demand with Day Ahead forecasted load, actual wind output with Day Ahead forecasted Wind output (as submitted in their Current Operating Plan) along with actual Online Capacity during the peak load hour in each month. The ERCOT Region did not experience any instance in 2015 where there was not enough capacity available to meet demand.

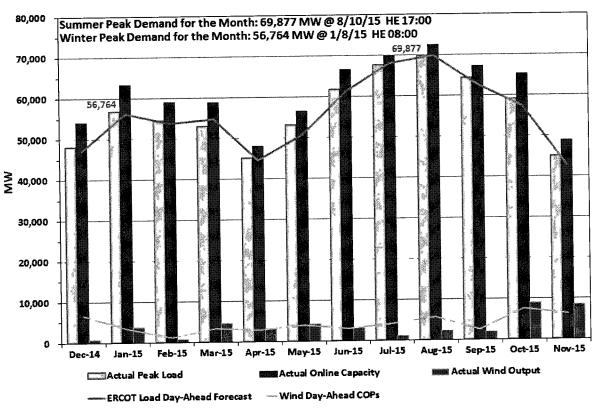


Figure 1 Monthly Peak Demand in 2015 – Actual vs. Forecast for Load & Wind and Actual On-line Capacity

MONTHLY WIND ACTUAL VS FORECAST PERFORMANCE IN 2015 Actual Wind Output plus Curtailments vs. Wind Day-Ahead COPs for All Hours

The information in Figure 2 below has been provided to illustrate the performance of the wind forecasting tools that are in use by ERCOT. Nodal protocols require entities to submit their Current Operating Plans (COPs) which is less than or equal to the amount from the most recent wind forecast provided by ERCOT. The maximum monthly average wind output for 2015 was 6100 MW and occurred in November.

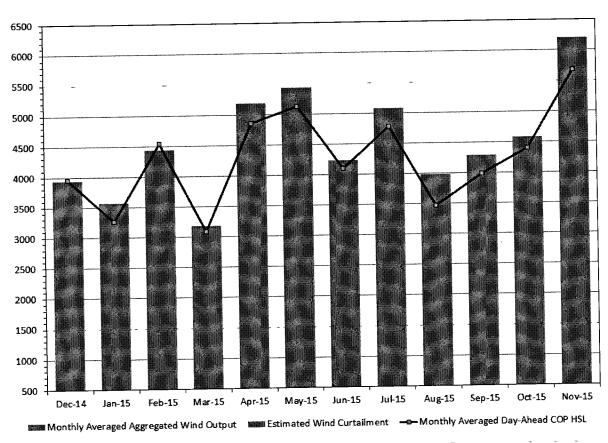


Figure 2 Monthly Aggregated Actual Wind Output, Wind Curtailment and Wind Day-Ahead COPs in 2015

ERCOT CPS1 Monthly Performance In 2015

CPS1 is a NERC performance metric which measures the ability to control grid frequency. ERCOT has typically tried to maintain a score between 130% and 170% with 200% being a perfect score. As a smaller interconnection with less inertia to maintain grid frequency, ERCOT has relied upon on the Nodal 5 minute dispatch model to accomplish its goal of reliably managing grid frequency.

For the ERCOT Region, the highest CPS1 score in 2015, 178.08%, occurred in November, 2015 and the highest 12-Month Rolling Average, 173.32%, occurred in November, 2015. In 2014, the highest CPS1 score 168.67% occurred in the month of November and the highest 12-Month Rolling Average 165.51% occurred in January.

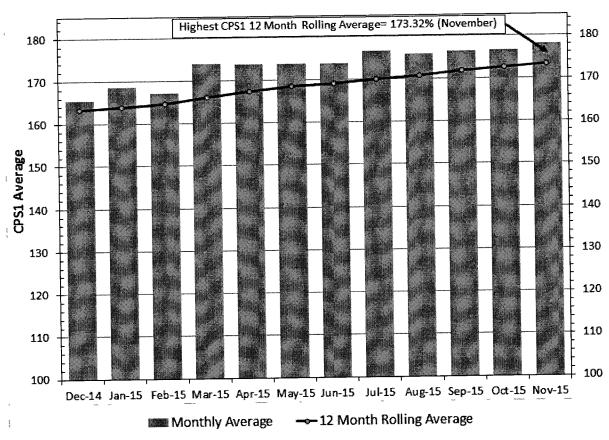


Figure 3 ERCOT's CPS1 Performance in 2015

MONTHLY PEAK ACTUAL DEMAND IN 2015

Figure 4 below illustrates the peak demand for each month of the year, comparing 2014 with 2015. Overall, 2015 exhibited a similar load pattern to 2014, with no months significantly different between the two years.

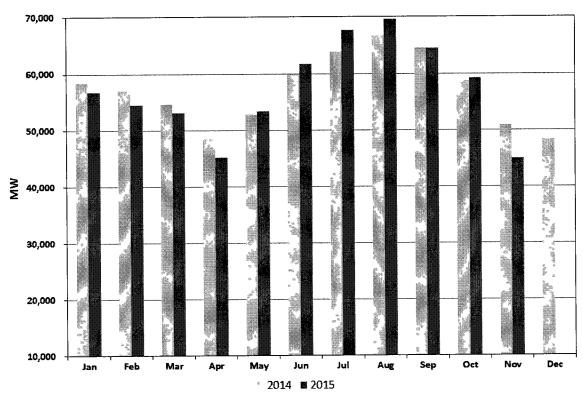


Figure 4 Monthly Peak Actual Demand in 2015

MONTHLY MINIMUM ACTUAL DEMAND IN 2015

Figure 5 below illustrates the minimum demand for each month of the year, comparing 2014 with 2015. Overall, 2015 exhibited a similar load pattern to 2014, with no months significantly different between the two years.

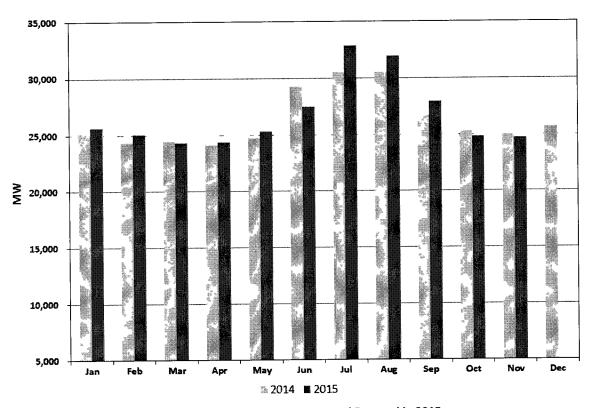


Figure 5 Monthly Minimum Actual Demand in 2015

DAY AHEAD LOAD FORECAST PERFORMANCE IN 2015

The Mean Absolute Percentage Error (MAPE) for 2015 was approximately 2.91%, and is not significantly different from the past several years.

Mean Absolute Percent Error (MAPE) for ERCOT Mid-Term Load Forecast (MTLF) Run at 14:00 Day Ahead

	2012 MAPE	2013 MAPE	2014 MAPE	Jan. – Nov. 2015 MAPE
Average Annual MAPE	3.02	2.86	2.83	2.91
Lowest Monthly MAPE	2.51	2.07	2.15	1.89
Highest Monthly MAPE	3.49	3.50	3.70	3.81

Table 1 Day-Ahead Load Forecast Performance in 2015

RELIABILITY UNIT COMMITMENTS (RUC) IN 2015

RUC is a process utilized to ensure that there are adequate Resources on-line to meet expected congestion as well as expected capacity and Ancillary Service requirements. ERCOT performs a Day-Ahead RUC once a day, and an Hour-Ahead RUC every hour. Figure 6 below illustrates the total RUC commitments by RUC Type for 2015.

There were no Day-Ahead RUC commitments in 2015.

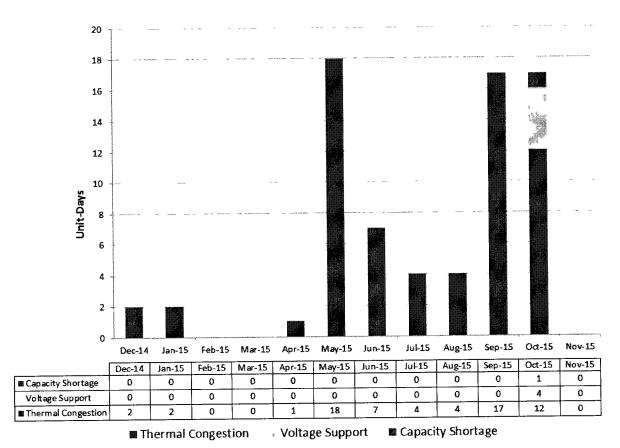


Figure 6 Reliability Unit Commitment (RUC) Commitments by RUC Type in 2015

GENERIC TRANSMISSION CONSTRAINTS (GTCs) USAGE IN 2015

There was an increase in activity related to Generic Transmission Constraints in 2015, specifically on the newly effective GTC Zorillo – Ajo GTC. The Panhandle, Laredo and Liston GTCs were also introduced between December 1st, 2014 and December 1st 2015. These new GTCs were introduced to address voltage stability concerns in the Panhandle and various stability concerns in the Rio Grande Valley. Transmission system improvements in East Texas allowed the retirement of the SOP110 GTC on August 14th, 2015 since the stability concerns in the region were no longer the most limiting constraint.

GTCs	2011 Days GTCs	2012 Days GTCs	2013 Days GTCs	2014 Days GTCs	Dec '14 - Nov '15 Days GTCs
North - Houston	1	1	0	0	4
Valley Import	14	0	3	10	7
Zorillo – Ajo	-	_	_	-	102
Panhandle	-	-	_	-	6
Laredo	_	_	_	-	7
Liston	_	-	_	-	0
West - North	228	199	79	21	-
SOP110	0	0	1	25	0*

Table 2 Generic Transmission Constraints (GTCs) in 2015

Note: Table 2 lists the number of times a constraint has been activated to avoid exceeding a GTC limit, it does not imply an exceedance of the GTC occurred. *The SOP110 GTC was retired on August 14th, 2015.

Generic Transmission Constraint (GTC)

A transmission constraint made up of one or more grouped Transmission Elements that is used to constrain flow between geographic areas of ERCOT for the purpose of managing stability, voltage, and other constraints that cannot otherwise be modeled directly in ERCOT's powerflow and contingency analysis applications.

Generic Transmission Limit (GTL)

The value of the transmission flow limit associated with a GTC.

EMERGENCY OPERATIONS IN 2015

ERCOT may issue communications in the form of Operating Condition Notices (OCNs), Advisories, Watches and Emergency Notices. These communications may relate to but are not limited to, weather, transmission, computer failure, or generation information. ERCOT shall specify the severity of the situation, the area affected, the areas potentially affected, and the anticipated duration of the Emergency Condition. These communications will be issued by ERCOT to inform all TOs and QSEs of the current operating situation.

In 2015, ERCOT issued 12 notifications, the breakdown of which can be seen in Figure 7 below. The significant number of notifications in August is attributive to the higher than expected demand experienced in the region.

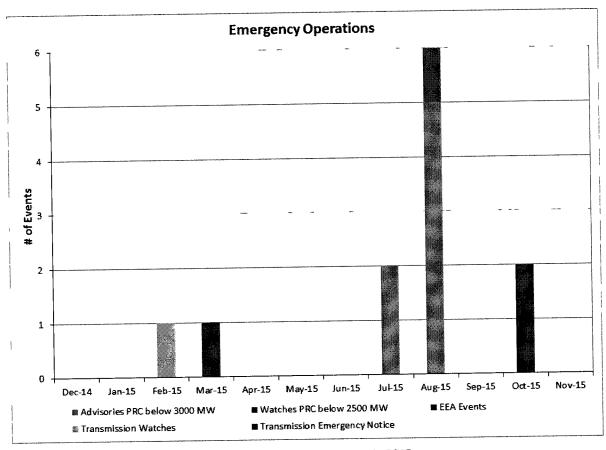


Figure 7 Emergency Operations in 2015

Operating Condition Notice (OCN)

The first of four possible levels of communication issued by ERCOT in anticipation of a possible emergency condition detailed in Section 6.5.9.1 Emergency and Short Supply Operation.

Advisory

The second of four possible levels of communication issued by ERCOT in anticipation of a possible Emergency Condition, detailed in Section 6.5.9, Emergency Operations.

Watch

The third of four possible levels of communication issued by ERCOT in anticipation of a possible Emergency Condition, detailed in Section 6.5.9, Emergency Operations.

Emergency Notice

The fourth of four possible levels of communication issued by ERCOT in anticipation of a possible Emergency Condition, detailed in Section 6.5.9, Emergency Operations.

Energy Emergency Alert (EEA)

An orderly, predetermined procedure for maximizing use of available Resources and, only if necessary, curtailing load during an Emergency Condition while providing for the maximum possible continuity of service and maintaining the integrity of the ERCOT System.

Attachment D1

Transmission Planning and Generation Interconnection Activities Report



System Planning

Monthly Status Report November 2015

Report Highlights

- ERCOT is currently reviewing proposed transmission improvements with a total cost of \$1.1 Billion.
- Transmission Projects endorsed in 2015 total \$413.3 Million.
- All projects (in engineering, routing, licensing and construction) total approximately \$6.74 Billion.
- Transmission Projects energized in 2015 total about \$652.9 Million.

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2.	Planning Model Activities	•
3	Other Notable Activities	•

1. Regional Planning Group Project Reviews

- AEPSC has submitted the LRGV Area Transmission Improvements project. This is a Tier 1 project that is estimated to cost \$621.5 million. This project is currently under ERCOT independent review.
- Oncor has submitted the Big Brown Navarro 345 kV double-circuit upgrade project. This is a Tier 3 project that is estimated to cost \$10.2 million. This project has been submitted for RPG comments.
- AEPSC has submitted the Hidalgo-Starr Transmission project. This is a Tier 1 project that is estimated to cost \$151.1 million. This project is currently under ERCOT independent review.
- Lone Star has submitted the North Central 345 kV transmission project. This is a Tier 1 project that
 is estimated to cost \$83.1 million. This project is currently under ERCOT independent review.
- CPS Energy and Sharyland Utilities have jointly submitted the LRGV Import project. This is a Tier
 1 project that is estimated to cost \$643.7 million. This project is currently under ERCOT independent review.
- Sharyland Utilities has submitted the Panhandle Loop project. This is a Tier 1 project that is estimated to cost \$145 million. This project has completed the ERCOT independent review and will be presented to ERCOT BOD in December.
- Brazos Electric Cooperative has submitted the Aspermont Knox Area Improvement project. This
 is a Tier 2 project that is estimated to cost \$23.5 million. This project is submitted for RPG
 comments.
- Denton Municipal Electric has submitted the DME 69 kV Loop Conversion to 138 kV project. The
 project is classified as a Tier 3 project and once the RPG comments are resolved, it will be
 reclassified as a Tier 4 Neutral project. This project is submitted for RPG comments.
- Oncor has submitted the Trinidad Big Brown Tap 138 kV upgrade project. This is a Tier 3 project
 that is estimated to cost \$18 million. This project is submitted for RPG comments.

2. Planning Model Activities

The short term calendar of major planning model events follows:

- Dec 30, 2015 Extract Topology Processor output for 2015 Update 2 SSWG cases
- Feb 24, 2016 Post SSWG 2015 Update 2 cases
- Mar 13, 2016 Post SSWG 2015 Update 2 contingency definition files

The following table shows updates since last month of interconnection projects that met Planning Guide section 6.9 (1) and were either modeled or not modeled based on submitted RARF data in accordance with Planning Guide section 6.9 (2). A non-null value in the Project ID column signifies that the project was modeled and a null value means it was not modeled. The Notes column may provide further explanation.

INR Number - In-ser	rvice Date v	Updated J PMCRI	
15INR0045 Riggins Solar (aka Oak Solar)	3/31/2017	11/23/2015 5082	A STATE OF THE PROPERTY OF THE
13INR0049 Friendswood G	4/30/2017	11/20/2015	CNP Insufficient Data on RARF SHRY Insufficient Data on RARF
15INR0074 Happy Whiteface W	8/1/2016	11/20/2015	ONCOR Insufficient Data on RARF
17INR0009 Wolf Hollow 2	7/31/2017	11/20/2015	The second secon
16INR0087 RTS Wind	12/31/2016	11/20/2015	LCRA Insufficient Data on RARF 🦠 🖠

3. Other Notable Activities

- ERCOT has completed the 2015 Regional Transmission Plan (RTP) analysis. The final report is currently under review and will be posted no later than December 31, 2015.
- ERCOT commenced stakeholder discussions on the 2016 Long Term System Assessment (LTSA) at the April RPG meeting. ERCOT facilitated its second and third 2016 LTSA scenario development workshops on July 13th and 14th, 2015. Stakeholders have identified eight potential scenarios that will be studied further in the 2016 LTSA. ERCOT developed and presented load forecasts on three of the eight scenarios and is currently working on generation expansion analysis.

Generator Interconnection Status Report November 2015

Date: 12/14/2015 1:49:39 PM

New Resources Approved for Synchronization				
IND.	Project	MW	County	Part2 Synch Apprv
INR	Sendero Wind	78	Jim Hogg	11/2015
12INR0068	Los Vientos V	110	Starr	11/2015

New Resources Approved for Commercial Operation				
INR 12INR0070 14INR0072 14INR0025a	Project Green Pastures W Briscoe Wind South Plains I	300 150 200	County Knox Briscoe Floyd	Part3 Commercial Apprv 11/2015 11/2015 11/2015

Fuel Type	Screening Study (MW)*	Screening Study w/ PL (MW)**	Study w/ PL PL		IA Executed (MW)**	IA Executed FIS Pending (MW)**	Grand Total (MW)
	1,612	Ö	6,967	0	2,226	1,067	11,872
	1,435	0	5,979	0	6,685	1,715	15,814
Total Gas	3,047	0	12,946	0	8,911	2,782	27,686
Nuclear	0	0		0	0	0	
Coal	- 0	0		0	240	0	240
Wind	1,986	0	11,969	0	4,080	6,788	24,823
Solar	1,598	0	5,144	0	1,043	819	8,604
Biomass	0	0		0	0	0	
	20	0	270	0	324	0	614
Storage Petroleum Coke				0	0	0	
Total	6,651		30,329	0	14,598	10,389	61,967
Confidential project intercon Public project interconnecti	nection requests on requests; waiver of confidential in	formation recei	ved by ERCOT ("Put	olic Letter') or IA	executed.		

	Generation Interconnecti	on Agreeme	nts as of Nov	vember 201	.5						
							Plant	ing Guide Section 6.9	Requirement		
Reference	Project Name	County	Projected Date	Fuel	MW For Grid	Changes From Last Report	Meets All Requirements	Sufficient Financial Security Received by TSP	Air Permit		FIS completion
	Los Vientos III	Starr	9/2015	WIND	200		Yes	Yes	N/A	N/A	Complete
	Barilla Solar 1B Baffin Wind	Pecos Kenedy	11/2015 12/2015	SOLAR WIND	7 202	Projected Date	Yes Yes	Yes Yes	N/A N/A	N/A N/A	Complete Complete
11INR0057	Cameron County Wind	Cameron	12/2015	WIND	165	Projected Date	Yes	Yes	N/A	N/A	Complete
11INR0079a 12INR0068	Shannon Wind Sendero Wind	Jim Hogg	12/2015 12/2015	WIND	200 78	Projected Date	Yes Yes	Yes Yes	N/A N/A	N/A N/A	Complete Complete
13INR0055	Javelina Wind	Zapata	12/2015	WIND	250		Yes	Yes	N/A	N/A	Complete
15INR0021 15INR0036	Los Vientos V Downie Ranch Solar	Starr Uvalde	12/2015 12/2015	SOLAR	110 95		Yes Yes	Yes Yes	N/A N/A	N/A N/A	Complete Complete
14INR0038	PHR Peakers	Galveston	3/2016	GAS	390		Yes	Yes	Yes	N/A	Complete
13INR0028	Antelope & Elk 1	Hale	4/2016	GAS	369		Yes Yes	Yes Yes	Yes Yes	Yes Yes	Complete
15INR0032 15INR0033	Elk 2	Hale	4/2016 4/2016	GAS GAS	202		Yes	Yes	Yes	Yes	Incomplete
16INR0057	Sky Global Power One	Colorado	4/2016	GAS	51	Project Name, Projected Date	Yes	Yes	Yes	N/A	Complete
	Miami Wind G3 South Plains II Phase a	Gray Floyd	5/2016 5/2016	WIND	111 152	Project Name Project Name, Projected Date	No Yes	No Yes	N/A N/A	N/A N/A	Complete Complete
14INR0025c	South Plains II Phase b	Floyd	5/2016	WIND	148	Project Name, Projected Date	Yes	Yes	N/A	N/A	Incomplete
13INR0010a 13INR0010b	Mariah Wind A Mariah Wind B	Parmer Parmer	6/2016 6/2016	WIND	232 230		No No	No No	N/A N/A	N/A N/A	Incomplete Incomplete
14INR0031	Baytown Chiller	Chambers	6/2016	GAS	270		Yes	Yes	Yes	N/A	Complete
14INR0040	Redgate G	Hidalgo	6/2016	GAS	225		Yes	Yes	Yes	N/A	Complete
14INR0057 14INR0066	Buckthorn Wind 1 Lamar Power Upgrade	Erath Lamar	6/2016 6/2016	WIND GAS	96 130	MW For Grid	Yes Yes	Yes Yes	N/A Yes	N/A N/A	Complete Complete
15INR0061	SolaireHolman 1	Brewster	6/2016	SOLAR	50	NEW	No	No	N/A	N/A	Incomplete
16INR0048	RE Roserock Solar Gunsight Mt W	Pecos Howard	6/2016 8/2016	SOLAR	160 120	Projected Date, MW For Grid	Yes	Yes Yes	N/A N/A	N/A N/A	Complete Complete
08INR0018 14INR0047	Wake Wind	Dickens	8/2016 8/2016	WIND	300	Projected Date	Yes	Yes	N/A	N/A	Complete
15INR0050	Unity Wind	Deaf Smith	8/2016	WIND	203		No	No	N/A	N/A	Incomplete
15INRO074 16INRO052	Happy Whiteface W Solara Solar	Deaf Smith Haskell	8/2016 8/2016	WIND SOLAR	157 110	SFS, PG Section 6.9 Project Name	Yes Yes	Yes Yes	N/A N/A	N/A N/A	Complete Incomplete
16INR0065B	SP-TX-12-Phase B	Upton	8/2016	SOLAR	120	NEW	No	No	N/A	N/A	Complete
14INR0045a	Torrecillas Wind A	Webb	9/2016	WIND	200		Yes	Yes Yes	N/A N/A	N/A N/A	Incomplete Incomplete
14INR0045b 15INR0037	Torrecillas Wind B Los Vientos IV	Webb Starr	9/2016 9/2016	WIND	200		Yes Yes	Yes	N/A	N/A	Incomplete
15INR0070_1	West Texas Solar	Pecos	9/2016	SOLAR	110		Yes	Yes	N/A_	N/A	Complete
16INRO049 14INRO060	Nazareth Solar Horse Creek Wind	Castro Haskell	9/2016 10/2016	SOLAR WIND	201		No No	No No	N/A N/A	N/A N/A	Incomplete Complete
14INR0060b	Willow Springs Wind	Haskell	10/2016	WIND	200		No	No	N/A	N/A	Complete
15INR0045	Riggins Solar	Pecos	10/2016	SOLAR	150	Project Name, Projected Date, MV	Yes No	Yes No	N/A N/A	N/A N/A	Incomplete Complete
15INR0070_1b 15INR0079	Pearl Solar Pullman Road	Pecos Randall	10/2016 10/2016	SOLAR	50 300	Project Name, Projected Date	No No	No No	N/A	N/A	Incomplete
15INR0085	Muenster Wind	Cooke	10/2016	WIND	118		No	No	N/A	N/A	Incomplete
16INR0024 16INR0062	Hidalgo & Starr Wind Electra Wind	Hidalgo Wilbarger	10/2016 10/2016	WIND	250 360		Yes Yes	Yes	N/A N/A	N/A N/A	Incomplete
11INR0082a	Val Verde Wind	Val Verde	11/2016	WIND	180	Projected Date	Yes	Yes	N/A	N/A	Complete
11INR0054	Midway Wind	San Patricio	12/2016	WIND	161		Yes	Yes	N/A N/A	N/A N/A	Complete
11INR0062 12INR0029	Patriot Wind Comanche Run Wind	Nueces Swisher	12/2016 12/2016	WIND	180 500		Yes No	Yes No	N/A	N/A	Complete Complete
12INR0059c	Barilla Solar 2	Pecos	12/2016	SOLAR	21		No	No	N/A	N/A	Complete
13INR0005b	Colbeck's Corner W Grandview W 3	Carson	12/2016 12/2016	WIND	200 188		Yes Yes	Yes Yes	N/A N/A	N/A N/A	Incomplete Incomplete
13INR0005c 13INR0038	Swisher Wind	Swisher	12/2016	WIND	300		Yes	Yes	N/A	N/A	Incomplete
14INR0013	San Roman Wind 1	Cameron	12/2016	WIND	103		Yes	Yes	N/A	N/A	Incomplete
14INR0023b 14INR0030c	Longhorn South Panhandle Wind 3	Briscoe Carson	12/2016 12/2016	WIND	160 248		Yes No	Yes No	N/A N/A	N/A N/A	Complete Incomplete
14INR0041a	Redfish W 2a	Willacy	12/2016	WIND	115		Yes	Yes	N/A	N/A	Incomplete
14INR0041b	Redfish W 2b	Willacy	12/2016 12/2016	WIND	115 200		Yes Yes	Yes Yes	N/A N/A	N/A N/A	Incomplete Incomplete
14INR0062 16INR0019	Salt Fork 1 Wind Capricorn Ridge Solar	Gray Coke	12/2016	SOLAR	100		No	No	N/A	N/A	Incomplete
16INR0023	BNB Lamesa Solar	Dawson	12/2016	SOLAR	200		No V	No	N/A	N/A	Complete
16INR0037 16INR0037b	Blanco Canyon Wind 1 Blanco Canyon Wind 2	Floyd	12/2016 12/2016	WIND	50 150		Yes Yes	Yes Yes	N/A N/A	N/A N/A	incomplete incomplete
16INR0055	Chapman Ranch Wind I	Nueces	12/2016	WIND	250		Yes	Yes	N/A	N/A	incomplete
16INR0065 16INR0073	SP-TX-12 East Pecos Solar	Upton Pecos	12/2016 12/2016	SOLAR SOLAR	180 100		Yes Yes	Yes	N/A N/A	N/A N/A	Complete Incomplete
16INRO073	Salt Fork 2 Wind	Carson	12/2016	WIND	200		No	No	N/A	N/A	Incomplete
16INR0087	RTS Wind	McCulloch	12/2016	WIND	200	NEW	Yes	Yes	N/A N/A	N/A N/A	Complete
16INR0091 16INR0114	Santa Rita Wind Upton Solar	Reagan Upton	12/2016 12/2016	SOLAR	300 100	NEW NEW	No No	No No	N/A N/A	N/A N/A	Complete
10INR0009	Caprock Wind	Castro	2/2017	WIND	300		No	No	N/A	N/A	Incomplete
12INR0018	Pampa Wind Fluvanna Renewable 1	Gray	3/2017 3/2017	WIND	500 240	NEW	No No	No No	N/A N/A	N/A N/A	Incomplete
13INR0056 13INR0049	Friendswood G	Scurry Harris	4/2017	GAS	129	SFS, PG Section 6.9	Yes	Yes	Yes	Yes	Complete
15INR0023	Indeck Wharton	Wharton	4/2017	GAS	700	Projected Dr. 1	No.	No No	Yes N/A	Yes N/A	Complete
13INR0045 16INR0003	Changing Winds Freeport LNG	Castro Brazoria	5/2017 6/2017	WIND GAS	288 11	Projected Date	No Yes	No Yes	N/A Yes	N/A N/A	Complete
131NR0010d	Scandia Wind D	Parmer	7/2017	WIND	200		No	No	N/A	N/A	incomplete
13INR0010e 13INR0010f	Scandia Wind E Scandia Wind F	Parmer Parmer	7/2017 7/2017	WIND	200		No No	No No	N/A N/A	N/A N/A	Incomplete
17INR0009	Wolf Hollow 2	Hood	7/2017	GAS	1042	NEW	Yes	Yes	Yes	Yes	Complete
10INR0022	Pondera King G	Harris	8/2017	GAS	925	Projected Date	No Ver	No Yes	Yes N/A	Yes N/A	Complete
15INR0059 13INR0020b	Pecos Solar I Rattlesnake W 2	Pecos Glasscock	10/2017 11/2017	SOLAR WIND	108 158	Projected Date	Yes No	Yes No	N/A N/A	N/A N/A	Complete
16INR0006	Pinecrest G	Angelina	11/2017	GAS	785		No	No	Yes	Yes	Complete
16INR0004 16INR0010	LaPaloma G FGE Texas 1	Cameron Mitchell	2/2018 4/2018	GAS GAS	730 799		No No	No No	Yes Yes	Yes Yes	Complete
18INR0001	Rockwood G	Colorado	4/2018	GAS	1122	NEW	No	No	Yes	No	Complete
17INR0010	FGE Texas II	Mitchell	5/2018	GAS	799	D11D	No	No	Yes	No No	Incomplete
14INR0027 17INR0003	Guadalupe II SPC Jackson G	Guadalupe Jackson	6/2018 6/2018	GAS GAS	362 916	Projected Date	No No	No No	Yes No	No No	Complete Incomplete
13INR0023	Texas Clean C	Ector	10/2018	COAL	240		No	No	Yes	Yes	Complete
15INR0013	Bethel CAES Brownsville G	Anderson Cameron	12/2018 12/2018	STORAGE GAS	324 871		No No	No No	Yes Yes	Yes No	Complete
16INRD005 16INRD008	Brownsville G Tenaska Roans Prairie	Grimes	4/2019	GAS	663	Projected Date	No	No	Yes	No	Incomplete
		_									

GINR	County	Fuel	Capacity to Grid (MW)	Projected Date	Public
Reference			Gria (IVIVV)	(as specified by	Letter
Number				the resource	
				developer)	
15INR0033	Hale	Gas	202	4/2016	
15INR0032	Hale	Gas	202	4/2016	
14INR0025c	Floyd	Wind	148	5/2016	
16INR0050	Brewster	Solar	50	6/2016	
16INR0035	Nueces	Gas	82	6/2016	
16INR0034	Bosque	Gas	124	6/2016	
16INR0045	Henderson	Gas	432	6/2016	
16INR0044	Wharton	Gas	419	6/2016	
13INR0010b	Parmer	Wind	230	6/2016	
13INR0010a	Parmer	Wind	232	6/2016	
15INR0061	Brewster	Solar	50	6/2016	
16INR0094	Culberson	Solar	280	8/2016	
16INR0052	Haskell	Solar	110	8/2016	
15INR0050	Deaf Smith	Wind	203	8/2016	
16INR0009	Calhoun	Gas	494	8/2016	
16INR0072	Pecos	Solar	50	9/2016	
16INR0049	Castro	Solar	201	9/2016	
15INR0037	Starr	Wind	200	9/2016	
14INR0045b	Webb	Wind	200	9/2016	
14INR0045a	Webb	Wind	200	9/2016	
16INR0080	Brewster	Solar	56	9/2016	
16INR0079	Brewster	Solar	56	9/2016	
16INR0093	Reeves	Solar	48	10/2016	
16INR0089	Andrews	Solar	60	10/2016	
15INR0054	Reeves	Gas	123	10/2016	
15INR0053	Winkler	Gas	123	10/2016	
15INR0040	Presidio	Solar	60	10/2016	
16INR0085	Mills	Wind	300	10/2016	
16INR0062	Wilbarger	Wind	360	10/2016	
16INR0024	Hidalgo	Wind	250	10/2016	
15INR0045	Pecos	Solar	150	10/2016	
15INR0047	Presidio	Solar	42	10/2016	
14INR0033	Armstrong	Wind	500	10/2016	
14INR0020	Floyd	Wind	150	10/2016	
12INR0002a	Briscoe	Wind	200	10/2016	
15INR0085	Cooke	Wind	118	10/2016	
15INR0079	Randall	Wind	300	10/2016	
15INR0064	Glasscock	Wind	240	11/2016	
15INR0063	Castro	Wind	200	11/2016	
14INR0009	Kent	Wind	248	11/2016	
16INR0117	Briscoe	Wind	200	12/2016	
16INR0060	Upton	Solar	150	12/2016	
16INR0018	Upton	Solar	40	12/2016	
14INR0026	Presidio	Solar	30	12/2016	
12INR0060	Schleicher	Wind	201	12/2016	
16INR0091	Reagan	Wind	300	12/2016	
16INR0073	Pecos	Solar	100		
16INR0019	Coke	Solar	100		
14INR0041b	Willacy	Wind	115		
14INR0041a	Willacy	Wind	115		
13INR0005b	Carson	Wind	200		
16INR0115	Pecos	Solar	182		

GINR	County	Fuel	Capacity to	Projected Date	Public
Reference	,		Grid (MW)	(as specified by	Letter
Number			. ,	the resource	
				developer)	
16INR0074	Brazoria	Wind	150	12/2016	
16INR0058	Brewster	Solar	88	12/2016	
15INR0082	Comanche	Wind	400	12/2016	
15INR0062	Hale	Wind	200	12/2016	
13INR0026	Oldham	Wind	201	12/2016	
13INR0005c	Carson	Wind	188	12/2016	
15INR0073	Armstrong	Wind	201	12/2016	
14INR0014	Val Verde	Solar	100	12/2016	
14INR0030c	Carson	Wind	248	12/2016	
16INR0119	Crosby	Solar	150	12/2016	
16INR0112	La Salle	Wind	200	12/2016	
16INR0111	Starr	Wind	200	12/2016	
16INR0106	Andrews	Solar	150	12/2016	
16INR0105	Jim Hogg	Wind	300	12/2016	
16INR0100	Brewster	Solar	150	12/2016	
16INR0099	Brewster	Solar	50	12/2016	
16INR0098	Brewster	Solar	50	12/2016	
16INR0092	Brewster	Solar	50	12/2016	
16INR0086	Concho	Wind	150	12/2016	
16INR0076	Brazoria	Gas	135	12/2016	
16INR0070	Winkler	Solar	150	12/2016	
16INR0037c	Floyd	Wind	200	12/2016	
16INR0031	Starr	Wind	100	12/2016	
16INR0029	Hill	Wind	100	12/2016	
16INR0027	Grayson	Wind	100	12/2016	***
15INR0090	Travis	Solar	120	12/2016	
15INR0086	Uvalde	Solar	45	12/2016	
15INR0081	Mason	Wind	62	12/2016	
15INR0049	Zapata	Wind	250	12/2016	
15INR0044	Webb	Solar	200	12/2016	
14INR0048 1	Wilbarger	Wind	114	12/2016	
16INR0082	Carson	Wind	200	12/2016	
16INR0055	Nueces	Wind	250	12/2016	
16INR0037b	Floyd	Wind	150	12/2016	
16INR0037	Floyd	Wind	50	12/2016	
14INR0062	Gray	Wind	200	12/2016	
14INR0013	Cameron	Wind	103	12/2016	
13INR0038	Swisher	Wind	300	12/2016	
10INR0009	Castro	Wind	300	2/2017	
16INR0054	Harris	Gas	12	3/2017	
15INR0057	Wharton	Gas	142	3/2017	
13INR0056	Scurry	Wind	240	3/2017	
15INR0071	Deaf Smith	Wind	199	3/2017	,
15INR0068	Sterling	Solar	20	3/2017	
15INR0035	Kenedy	Wind	200	3/2017	
15INR0034	San Patricio	Wind	201	3/2017	
14INR0043	Sterling	Solar	40	3/2017	
12INR0045	Kleberg	Wind	135	3/2017	
13INR0025	Randall	Wind	150	3/2017	
12INR0018	Gray	Wind	500	3/2017	
18INR0004	Hill	Gas	928	4/2017	
16INR0063	Pecos	Solar	98	4/2017	

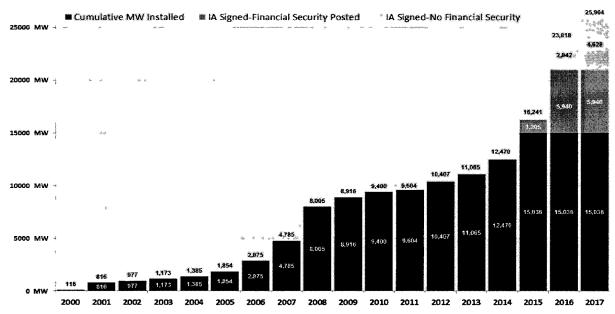
GINR	County	Fuel	Capacity to	Projected Date	Public
	County	ruei	Grid (MW)		
Reference			Grid (IVIVV)	(as specified by the resource	Letter
Number					
				developer)	
17INR0024	Nolan	Gas	350	5/2017	
16INR0022	Borden	Solar	100	5/2017	
16INR0039	Reeves	Solar	100	5/2017	
15INR0055	Austin	Gas	142	5/2017	
13INR0045	Castro	Wind	288	5/2017	
16INR0104	Crockett	Wind	400	6/2017	
16INR0036	Nolan	Gas	280	6/2017	
17INR0022	Harris	Gas	11	6/2017	
16INR0014	Castro	Wind	200	7/2017	
14INR0074	Williamson	Gas	92	7/2017	
13INR0010f	Parmer	Wind	200	7/2017	
13INR0010e	Parmer	Wind	200	7/2017	
13INR0010d	Parmer	Wind	200	7/2017	
17INR0007	Wharton	Gas	1128	7/2017	
16INR0068	Andrews	Solar	100	9/2017	
16INR0067	Dawson	Solar	100	9/2017	
17INR0020	Pecos	Solar	500	9/2017	
16INR0021	Pecos	Solar	150	9/2017	
16INR0020	Presidio	Solar	55	9/2017	
17INR0025	Zapata	Wind	202	10/2017	
12INR0002b	Briscoe	Wind	200	10/2017	
15INR0059	Pecos	Solar	108	10/2017	
15INR0064b	Glasscock	Wind	120	11/2017	
17INR0033	Briscoe	Wind	200	12/2017	
17INR0027	Scurry	Wind	250	12/2017	
16INR0061	Hardeman	Wind	200	12/2017	
16INR0033	Castro	Wind	150	12/2017	
16INR0015	Wharton	Wind	248	12/2017	
16INR0014b	Castro	Wind	200	12/2017	
16INR0012	Kenedy	Wind	200	12/2017	
15INR0072	Pecos	Solar	140	12/2017	
15INR0069	Pecos	Solar	110	12/2017	
15INR0067	Reeves	Solar	80	12/2017	
15INR0051	Castro	Wind	200	12/2017	
14INR0044	Reeves	Solar	100	12/2017	
13INR0006	Gray	Wind	750	12/2017	
08INR0019c	Gray	Wind	250	12/2017	
08INR0019b	Gray	Wind	250	12/2017	
08INR0019a	Gray	Wind	250	12/2017	
17INR0031	Cameron	Wind	150	12/2017	
17INR0030	Deaf Smith	Solar	100	12/2017	
17INR0005	Starr	Wind	200	12/2017	
16INR0097	Upton	Solar	200	12/2017	
16INR0096	Pecos	Solar	102	12/2017	
16INR0081	Starr	Wind	200	12/2017	
16INR0075	Culberson	Solar	100	12/2017	
16INR0040	Reeves	Solar	105	12/2017	
14INR0056	Mills	Wind	101	12/2017	
11INR0093	San Patricio	Wind	41	12/2017	
16INR0066	Mitchell	Solar	150	12/2017	
13INR0032	Andrews	Solar	100	12/2017	
16INR0102	Pecos	Solar	130	1/2018	

				-	
GINR	County	Fuel	Capacity to	Projected Date	Public
Reference	·		Grid (MW)	(as specified by	Letter
Number				the resource	
				developer)	
16INR0101	Pecos	Solar	57	1/2018	
12INR0055	Baylor	Wind	40	1/2018	
11INR0040	Freestone	Gas	640	3/2018	
15INR0063b	Castro	Wind	101	4/2018	
13INR0056b	Scurry	Wind	142	5/2018	
15INR0062b	Hale	Wind	122	5/2018	
17INR0010	Mitchell	Gas	799	5/2018	
17INR0018	McLennan	Gas	471	6/2018	
17INR0017	Guadalupe	Gas	540	6/2018	
16INR0038	McLennan	Gas	471	6/2018	
15INR0042	Hood	Gas	460	6/2018	
17INR0016	Wilson	Gas	540	6/2018	
17INR0014	Grayson	Gas	548	6/2018	
17INR0003	Jackson	Gas	916	6/2018	
16INR0013	Nacogdoches	Gas	229	7/2018	
14INR0011	Swisher	Storage	270	7/2018	
18INR0009	Cherokee	Gas	1156	8/2018	
14INR0028	Live Oak	Wind	300	10/2018	
18INR0005	Grayson	Gas	541	12/2018	
17INR0027b	Scurry	Wind	250	12/2018	
17INR0013	Hill	Gas	800	4/2019	
16INR0008	Grimes	Gas	663	4/2019	
18INR0002	Tarrant	Gas	853	6/2019	
17INR0004	Hale	Gas	202	6/2019	
17INR0002	Henderson	Gas	478	6/2019	

13INR0052 11INR0079a	Los Vientos III	Starr	*****	Projected Date				MWForGrid	Year
11INR0079a		DUALT	PLANNED	9/2015	10/2013	WIND	WT	200	
	Shannon Wind	Clay	PLANNED	12/2015	4/2013	WIND	WT	200	2015
06INR0022c	Baffin Wind	Kenedy	PLANNED	12/2015	5/2009	WIND	WT	202	
11INR0057	Cameron County Wind	Cameron	PLANNED	12/2015	8/2013		WT	165	2015
12INR0068	Sendero Wind	Jim Hogg	PLANNED	12/2015	6/2013		WT	78	
13INR0055	Javelina Wind	Zapata	PLANNED	12/2015	10/2014		WT	250	
15INR0021	Los Vientos V	Starr	PLANNED	12/2015	10/2014		WT	110	
14INR0012b	Miami Wind G3	Gray	PLANNED	5/2016	3/2013		WΤ	111	2016
14INR0025b	South Plains II Phase a	Floyd	PLANNED	5/2016	1/2014		wr	152	
14INR0025c	South Plains II Phase b	Floyd	PLANNED	5/2016	1/2014		wr	148	2016
13INR0010a	Mariah Wind A	Parmer	PLANNED	6/2016	1/2013		WT	232	2016
13INR0010b	Mariah Wind B	Parmer	PLANNED	6/2016	1/2013		wt	230	
14INR0057	Buckthorn Wind 1	Erath	PLANNED	6/2016	9/2015		WT	96	2016
08INR0018	Gunsight Mt W	Howard	PLANNED	8/2016	11/2007		wt	120	2016
14INR0047	Wake Wind	Dickens	PLANNED	8/2016	3/2014		WT	300	2016
151NR0050	Unity Wind	Deaf Smith	PLANNED	8/2016	10/2014		WT	203	2016
15/NR0074	Happy Whiteface W	Deaf Smith	PLANNED	8/2016	7/2015		WT	157	2016
14INR0045a	Torrecillas Wind A	Webb	PLANNED	9/2016	1/2015		wr	200	2016
14INR0045b	Torrecillas Wind B	Webb	PLANNED	9/2016	1/2015		WT	200	2016
15INR0037	Los Vientos IV	Starr	PLANNED	9/2016	10/2014		WT	200	2016
14INR0060	Horse Creek Wind	Haskell	PLANNED	10/2016	5/2015	WIND	WT	200	2016
14INR0060b	Willow Springs Wind	Haskell	PLANNED	10/2016	5/2015	WIND	WT	200	2016
16INR0024	Hidalgo & Starr Wind	Hidalgo	PLANNED	10/2016	7/2015	WIND	WT	250	2016
16INR0062	Electra Wind	Wilbarger	PLANNED	10/2016	3/2015	WIND	wr	360	2016
15INR0079	Puliman Road	Randall	PLANNED	10/2016	5/2014	WIND	WT	300	2016
15INR0085	Muenster Wind	Cooke	PLANNED	10/2016	6/2015	WIND	WT	118	2016
11INR0082a	Val Verde Wind	Val Verde	PLANNED	11/2016	8/2015	WIND	WT	180	2016
	Colbeck's Corner W	Carson	PLANNED	12/2016	4/2014	WIND	wr	200	2016
	Redfish W 2a	Willacy	PLANNED	12/2016	8/2015	WIND	WT ···	115	2016
	Redfish W 2b	Willacy	PLANNED	12/2016	8/2015	WIND	WT	115	2016
16INR0091	Santa Rita Wind	Reagan	PLANNED	12/2016	11/2015	WIND	WT	300	2016
	Grandview W 3	Carson	PLANNED	12/2016	4/2014	WIND	WT	188	2016
	Midway Wind	San Patricio	PLANNED	12/2016	9/2012	WIND	WT ·	161	2016
	Patriot Wind	Nueces	PLANNED	12/2016	7/2013	WIND	wT	180	2016
	Panhandle Wind 3	Carson	PLANNED	12/2016	8/2014	WIND	WT-	248	2016
	Comanche Run Wind	Swisher	PLANNED	12/2016	7/2013		WT	500	2016
	Swisher Wind	Swisher	PLANNED	12/2016	9/2015	WIND	WT	300	2016
	San Roman Wind 1	Cameron	PLANNED	12/2016		WIND	WT	103	2016
	Longhorn South	Briscoe	PLANNED	12/2016	12/2012		WT	160	2016
		Gray	PLANNED	12/2016	8/2014		WT	200	2016
	Blanco Canyon Wind 1	Floyd	PLANNED	12/2016	8/2015		WT	. 50	2016
	Blanco Canyon Wind 2	Floyd	PLANNED	12/2016	8/2015		WT	150	2016
	Chapman Ranch Wind I	Nueces	PLANNED	12/2016	7/2015		WT .	250	2016
	Salt Fork 2 Wind		PLANNED	12/2016		WIND	wr	200	2016
	RTS Wind Caprock Wind	McCulloch	PLANNED	12/2016	10/2015		WT	200	2016
			PLANNED	2/2017	10/2014		WT	300	2017
	Fluvanna Renewable 1 Pampa Wind		PLANNED	3/2017	9/2015		WT	240	2017
	rampa wind Changing Winds		PLANNED PLANNED	3/2017		WIND	WT	500	2017
			PLANNED	5/2017 7/2017	2/2015 4/2014	WIND	WT.	34,640	2017
			PLANNED	7/2017	4/2014		WT	200	2017
	Scandia Wind F		PLANNED	7/2017	4/2014		WT	200	2017 2017
			PLANNED	11/2017	6/2013		WT	158	2017
					-,,		77.8%	7777 430	2011
382					* 3007				
	V				18,2		7.1		



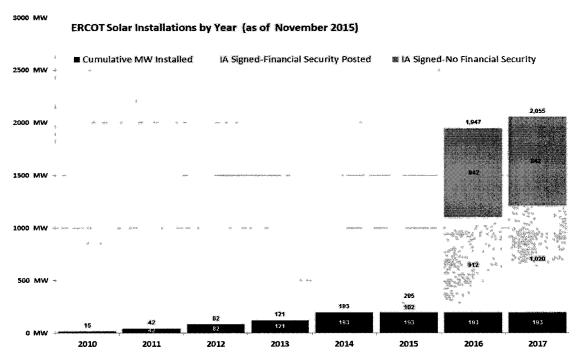
ERCOT Wind Installations by Year (as of November 2015)



The data presented here is based upon the latest registration data provided to ERCOT by the resource owners and can change without notice. Any capacity changes will be reflected in current and subsequent years' totals. Scheduling delays with also be reflected in the planned projects as that information is received. This chart reflects planned units in the calendaryear of submission rather than installations by peak of year shown.

Financial security posted for funding interconnection facilities does not include CRE2 security deposits, which are refunded to the Interconnecting Entity when a niA is signed.

INR	ProjectName	County	Status	Projected Date	IA Signed	Fuel	TypeCode	MWForGrid	Year
12INR0059b	Barilla Solar 1B	Pecos	PLANNED	11/2015	12/2013	SOLAR	PV	. 7	2015
15INR0036	Downie Ranch Solar	Uvalde	PLANNED	12/2015	5/2014	SOLAR	PV	95	2015
15INR0061	SolaireHolman 1	Brewster	PLANNED	6/2016	11/2015	SOLAR	PV	50	2016
16INR0048	RE Roserock Solar	Pecos	PLANNED	6/2016	11/2015	SOLAR	PV	160	2016
16INR0052	Solara Solar	Haskell	PLANNED	8/2016	4/2015	SOLAR	PV	110	2016
16INR0065B	SP-TX-12-Phase B	Upton	PLANNED	8/2016	10/2015	SOLAR	PV	120	2016
16INR0049	// Nazareth Solar	Castro	PLANNED	9/2016	5/2015	SOLAR	PV	201	2016
15INR0070_1	West Texas Solar	Pecos	PLANNED	9/2016	12/2014	SOLAR	PV	110	2016
15INR0045 6	Riggins Solar	Pecos	PLANNED	10/2016	1/2015	SOLAR	PV	150	2016
15INR0070_1b	Pearl Solar	Pecos	PLANNED	10/2016	12/2014	SOLAR	PV	50	2016
16INR0019	Capricom Ridge Solar	Coke	PLANNED	12/2016	8/2015	SOLAR	PV	100	2016
16INR0065	SP-TX-12	Upton	PLANNED	12/2016	9/2015	SOLAR	PV	180	2016
16INR0073	East Pecos Solar	Pecos	PLANNED	12/2016	3/2015	SOLAR	PV =	100	2016
16INR0114	Upton Solar	Upton	PLANNED	12/2016	12/2015	SOLAR	PV	100	2016
121NR0059c	Barilla Solar 2	Pecos	PLANNED	12/2016	12/2013	SOLAR	PV	21	2016
16INR0023	BNB Lamesa Solar	Dawson	PLANNED	12/2016	6/2015	SOLAR	PV	200	2016
151NR0059	Pecos Solar I	Pecos	PLANNED	10/2017	6/2015	SOLAR	PV.	108	2017
			-				1		



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