

# System Planning Division

Monthly Status Report to Reliability and Operations Subcommittee for February 2010

## Report Highlights

#### <u>Item</u>

1.

 ERCOT is currently tracking 219 active generation interconnection requests totaling over 73,000 MW. This includes over 45,000 MW of wind generation.

2.

- Regional Planning is currently reviewing proposed transmission improvements with a total of \$798.0 Million
- Transmission Projects approved in 2009 total \$405.1 Million
- All projects (in engineering, routing, licensing and construction) total approximately \$9.5 Billion
- Transmission Projects energized in 2009 total about \$538.6 million

# **Table of Contents**

1.	Ger	neration Interconnection	1
1	.1	New Generation Beginning Commercial Operations	1
1	.2	New Generation Interconnection Agreements	1
1	3	Summary of Active Generation Interconnection Requests	1
1	.4	Publicly Disclosed Generation Interconnection Projects	4
1	.5	Generation Projects Undergoing Full Interconnection Studies	6
1	.6	Wind Generation	8
2.	Reg	gional Planning Group Project Reviews	10
3.	Oth	ner Notable Activities	16

#### 1. Generation Interconnection

Additional information regarding detailed generation interconnection and impact studies is contained in the "Generation Project Interconnection Information" folder in the "Operations and System Planning" area on the ERCOT website: <a href="http://planning.ercot.com/login/login">http://planning.ercot.com/login/login</a>.

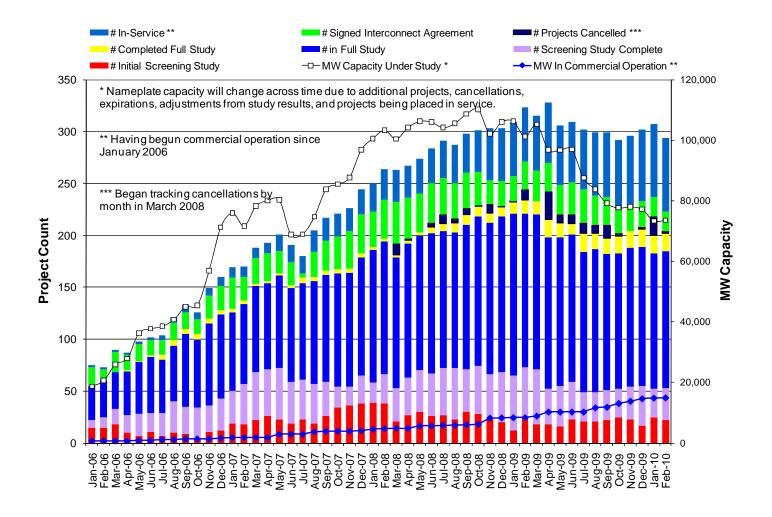
#### 1.1 New Generation Registering for Commercial Operations

- Sandhill Peakers (09INR0045) Gas Turbines in Travis County for 90 MW
  - o The total installed wind capacity remains at 8,916 MW, of which 7,958 MW (89%) is located within the Western Congestion Management Zone.

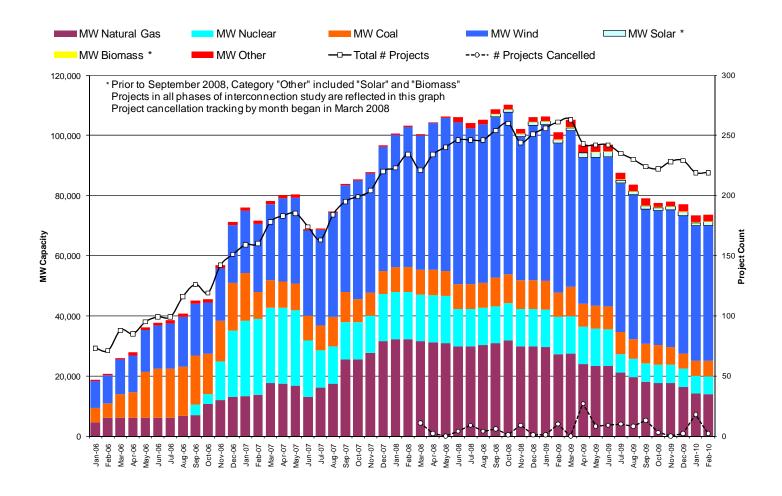
#### 1.2 New Generation Interconnection Agreements - none

#### 1.3 Summary of Active Generation Interconnection Requests

GENERATION INTERCONNECTION REQUESTS CURRENTLY BEING PROCESSED							
Currently tracking 219 active generation interconnection or change requests							
As of February 28, 2010 North South West Total							
Security Screening Study	3	5	14	22			
SSS Completed	11	8	12	31			
Full Interconnect Study	23	22	87	132			
FIS Completed	3	11	2	16			
Interconnect Agreement Completed	6	7	5	18			
Capacity under Interconnection Agreements	3,632	1,165	626	5,423			
Capacity for Grid, MW	19,945	18,979	34,642	73,566			
Wind Capacity, MW	4,681	8,136	32,277	45,094			



Fuel Type	Confidential Projects (MW)	Projects Under Full Study (MW)	Projects w/ Interconnect Agreement/Public Letter (MW)	Grand Total (MW)
Gas-CC			3,554	13,575
Gas-CT			150	450
Total Gas	1,879	8,442	3,704	14,025
Nuclear			5,900	5,900
Coal	15	3,712	1,353	5,080
Wind	7,524	31,432	6,138	45,094
Solar	629	489		1,118
Biomass	58	50	145	253
Other	156	1,940		2,096
Grand Total	10,261	46,065	17,240	73,566



#### 1.4 Publicly Disclosed Generation Interconnection Projects

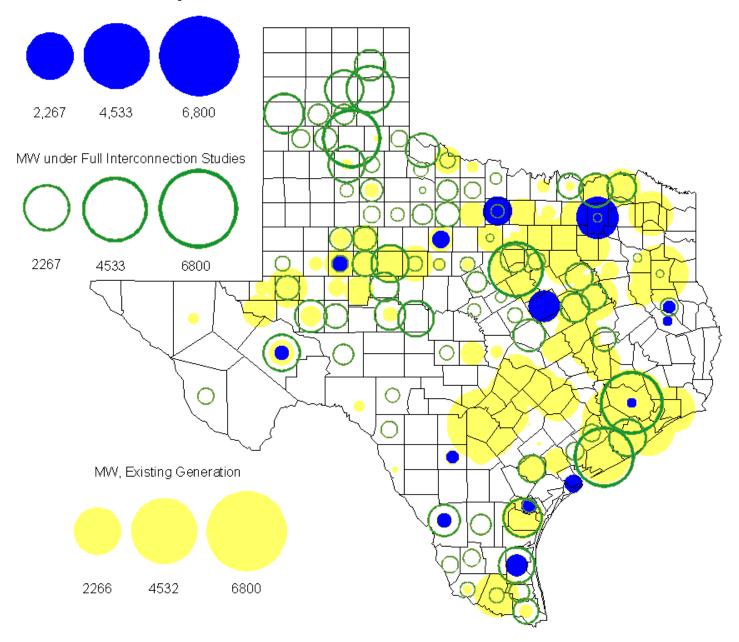
The table below summarizes the publicly disclosed generation projects for the ERCOT region.

(Status: IA=Interconnect Agreement, PL=Public Letter, XX= cancelled)

	Generation Interconnections as of February 28, 2010							
		Stat				Fuel	MW For	Change from Last
INR	SiteName	us	County	Region	COD	Type	Grid	Report
08INR0038	M Bar Wind	PL	Andrews	West	TBD	Wind	194	
08INR0033	Lufkin	IA	Angelina	North	Apr-10	Biomass	45	
09INR0082	Cedro Hill Wind	IA	Webb	South	May-10	Wind	150	
11INR0014	TECO Central Plant	IA	Harris	South	Jun-10	Gas-CC	50	Date
09INR0079b	Pearsall Expansion	IA	Frio	South	Jun-10	Gas-CT	100	
10INR0070	Greenville Engine Plant	PL	Hunt	North	Jul-10	Gas-CT	50	New
06INR0012b	Sherbino Mesa Wind Farm 2	IA	Pecos	West	Jul-10	Wind	150	
05INR0015c	Gulf Wind 3	PL	Kenedy	South	Sep-10	Wind	400	
05INR0015b	Gulf Wind 2	PL	Kenedy	South	Oct-10	Wind	400	
09INR0029	CFB Power Plant Units 11&12	IA	Calhoun	South	Dec-10	Coal	263	
04INR0011b	Cedar Elm	IA	Shackelford	West	Dec-10	Wind	136	
12INR0003	Throckmorton Wind Farm	PL	Throckmorton	West	Dec-10	Wind	400	
08INR0012b	Papalote Creek Phase 2	IA	San Patricio	South	Dec-10	Wind	198	
06INR0022c	Penascal Wind Farm 2	IA	Kenedy	South	Dec-10	Wind	202	
08INR0065	Buffalo Gap 4 and 5	PL	Nolan	West	Mar-11	Wind	465	
10INR0020	Panda Temple Power	PL	Bell	North	May-11	Gas-CC	1,092	
10INR0010	Jack County 2	IA	Jack	North	Jun-11	Gas-CC	620	
08INR0018	Gunsight Mountain	IA	Howard	West	Aug-11	Wind	120	
08INR0011	Senate Wind Project	IA	Jack	North	Nov-11	Wind	150	
04INR0011c	Cottonwood Wind	IA	Shackelford	West	Dec-11	Wind	100	
09INR0034	Gatesville Wind Farm	PL	Coryell	North	Dec-11	Wind	200	
06INR0026	Wild Horse Mountain	IA	Howard	West	Dec-11	Wind	120	
08INR0025	Pistol Hill Energy Center	PL	Ector	West	Dec-11	Wind	300	
06INR0022b	Penascal Wind Farm 3	IA	Kenedy	South	Dec-11	Wind	202	
09INR0007	Nacogdoches Project	IA	Nacogdoches	North	Apr-12	Biomass	100	
07INR0004	Pampa Energy Center	PL	Gray	West	May-12	Coal	165	
09INR0037	Scurry County Wind III	PL	Scurry	West	Jun-12	Wind	350	
09INR0001	Sandy Creek 1	IA	McLennan	North	Jun-12	Coal	925	
09INR0024	B&B Panhandle Wind	PL	Carson	West	Jun-12	Wind	1,001	
12INR0004	Fort Concho Wind Farm	PL	Tom Green	West	Jul-12	Wind	400	
09INR0036	McAdoo Energy Center II	PL	Dickens	West	Dec-12	Wind	500	
06INR0006	Cobisa-Greenville	IA	Hunt	North	May-13	Gas-CC	1,792	
15INR0002	Comanche Peak 3 and 4	PL	Somervel	North	Jan-15	Nuclear	3,200	
15INR0008	STP 3 and 4	PL	Matagorda	South	Jan-15	Nuclear	2,700	
				•		Total	17,240	

## County Location of Installed Generation and Interconnection Requests (all fuels)

#### MW under Interconnection Agreements



## 1.5 Generation Projects Undergoing Full Interconnection Studies

INR	County	Capacity	COD	Fuel
08INR0049	Clay	50	TBD	Wind
08INR0039	Hamilton	90	TBD	Wind
08INR0023	Floyd	100	TBD	Wind
09INR0054	Stonewall	149	TBD	Wind
09INR0065	Webb	150	TBD	Wind
10INR0045	Webb	734	Apr-10	Wind
10INR0054	Palo Pinto	36	May-10	Wind
09INR0035	Concho	750	May-10	Wind
10INR0016	Childress	150	May-10	Wind
09INR0069	Reagan	36	May-10	Wind
10INR0062a	Pecos	50	May-10	Wind
10INR0069	Rusk	818	May-10	Coal
09INR0081	Rusk	818	Jun-10	Coal
10INR0013	Upton	400	Jul-10	Wind
10INR0057	Taylor	200	Jul-10	Wind
10INR0089	Harris	40	Oct-10	Other
09INR0074	Motley	70	Oct-10	Wind
10INR0081a	Clay	30	Oct-10	Wind
10INR0032	Navarro	800	Dec-10	Gas
10INR0082	Travis	30	Dec-10	Solar
10INR0051	Brazoria	200	Dec-10	Wind
07INR0015	Foard	180	Dec-10	Wind
07INR0026	Baylor	400	Dec-10	Wind
08INR0061	Hardeman	200	Dec-10	Wind
10INR0019	Deaf Smith	609	Dec-10	Wind
10INR0080	Presidio	144	Dec-10	Solar
10INR0077	Callahan	101	Dec-10	Wind
10INR0060	Willacy	401	Dec-10	Wind
11INR0050	Crosby	149	Mar-11	Wind
11INR0062	Nueces	149	May-11	Wind
10INR0009	Castro	300	May-11	Wind
11INR0058	Pecos	135	May-11	Solar
11INR0061	Presidio	90	May-11	Solar
11INR0033b	Cameron	200	May-11	Wind
11INR0054	San Patricio	161	Jun-11	Wind
11INR0065	Nueces	240	Jun-11	Wind
11INR0019	Upton	200	Jun-11	Wind
11INR0040	freestone	749	Aug-11	Gas
11INR0008a	Roberts	1,000	Sep-11	Wind
07INR0014a	Wilbarger	140	Oct-11	Wind
10INR0081b	Clay	19	Oct-11	Wind
11INR0013	Mills	150	Dec-11	Wind
11INR0067	Cameron	78	Dec-11	Wind
11INR0025	Crockett	400	Dec-11	Wind

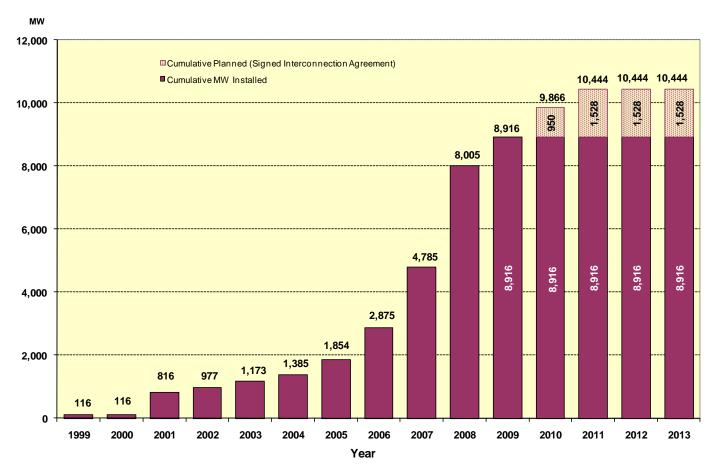
INR	County	Capacity	COD	Fuel
09INR0073	Scurry	200	TBD	Wind
08INR0022	Floyd	100	TBD	Wind
09INR0051	Borden	249	TBD	Wind
09INR0061	Kent	258	TBD	Wind
10INR0048	Hardeman	1,000	TBD	Wind
10INR0046	Jim Hogg	264	Apr-10	Wind
09INR0018	Concho	249	May-10	Wind
07INR0032	Tom Green	249	May-10	Wind
10INR0023	Haskell	386	May-10	Wind
09INR0070	Reagan	42	May-10	Wind
10INR0079	Nolan	60	May-10	Wind
10INR0029	Hood	810	Jun-10	Gas
10INR0035	Harris	416	Jun-10	Gas
10INR0052a	Knox	21	Jul-10	Wind
10INR0012	Nacogdoches	300	Jul-10	Gas
10INR0015	Mitchell	350	Oct-10	Wind
10INR0041	Floyd	135	Oct-10	Wind
11INR0029	Throckmorton	200	Nov-10	Wind
10INR0042	Mason	170	Dec-10	Wind
09INR0076	Jackson	300	Dec-10	Wind
07INR0013	Coke	200	Dec-10	Wind
10INR0008	Pecos	500	Dec-10	Wind
07INR0035	Tom Green	270	Dec-10	Wind
08INR0062	Archer	249	Dec-10	Wind
10INR0033	Armstrong	420	Dec-10	Wind
10INR0056	Borden	249	Dec-10	Wind
11INR0012	Duval	400	Dec-10	Wind
09INR0041	Mitchell	300	Dec-10	Wind
11INR0037	Smith	55	May-11	Biomass
11INR0048	Harris	300	May-11	Gas
10INR0062b	Pecos	50	May-11	Wind
11INR0060	Tom Green	90	May-11	Solar
11INR0033a	Cameron	200	May-11	Wind
09INR0050	Fannin	1,200	Jun-11	Gas
11INR0057	Cameron	165	Jun-11	Wind
08INR0020	Eastland	200	Jun-11	Wind
11INR0006	Lamar	579	Jul-11	Gas
11INR0039	Starr	201	Sep-11	Wind
11INR0047	Deaf Smith	600	Sep-11	Wind
07INR0014b	Wilbarger	70	Oct-11	Wind
10INR0021	Grayson	646	Nov-11	Gas
06INR0022d	Kenedy	200	Dec-11	Wind
11INR0005	Upton	500	Dec-11	Wind
11INR0043	Coke	300	Dec-11	Wind
		6		

		_		
12INR0034	Borden	342	Dec-11	Wind
09INR0075	Kinney	248	Dec-11	Wind
12INR0033	Motley	150	Jan-12	Wind
12INR0007	Lamar	296	May-12	Gas
09INR0031	Ector	275	May-12	Gas
12INR0006	Limestone	875	Jun-12	Coal
10INR0022	Harris	1,380	Jun-12	Gas
08INR0041	Coke	200	Oct-12	Wind
12INR0027	Gray	200	Oct-12	Wind
08INR0019a	Gray	250	Nov-12	Wind
08INR0019c	Gray	250	Nov-12	Wind
12INR0016	Nueces	1,200	Nov-12	Other
06INR0022f	Kenedy	200	Dec-12	Wind
08INR0042	Coke	200	Dec-12	Wind
08INR0056	Nolan	149	Dec-12	Wind
12INR0018	Gray	600	Dec-12	Wind
10INR0024	Briscoe	3,000	Jan-13	Wind
13INR0005	Carson	600	Oct-13	Wind
13INR0006	Gray	750	Oct-13	Wind
09INR0077	Reagan	500	Dec-13	Wind
14INR0003	Nolan	850	Jun-14	Coal
14INR0001	Pecos	500	Dec-14	Wind

i		i i		i i
09INR0048	Jack	150	Dec-11	Wind
12INR0021	Edwards	165	Jan-12	Wind
10INR0018	Madison	550	Mar-12	Gas
11INR0049	Wharton	275	May-12	Gas
10INR0062c	Pecos	201	May-12	Wind
08INR0031	Childress	100	Jun-12	Wind
12INR0002	Briscoe	750	Jul-12	Wind
12INR0026	Randall	400	Oct-12	Wind
12INR0035	Nueces	249	Nov-12	Wind
08INR0019b	Gray	250	Nov-12	Wind
08INR0044	Concho	200	Nov-12	Wind
08INR0054	Comanche	401	Dec-12	Wind
12INR0022	Hidalgo	200	Dec-12	Wind
09INR0025	Concho	180	Dec-12	Wind
12INR0005	Floyd	1,100	Dec-12	Wind
12INR0029	Swisher	500	Dec-12	Wind
09INR0058	Howard	250	Mar-13	Wind
13INR0004	Deaf Smith	500	Oct-13	Wind
06INR0022e	Kenedy	200	Dec-13	Wind
14INR0002	Goliad	756	Feb-14	Coal
14INR0005	Matagorda	1,200	Jul-14	Coal
16INR0002	Brazoria	1,000	Jun-17	Other
			_	

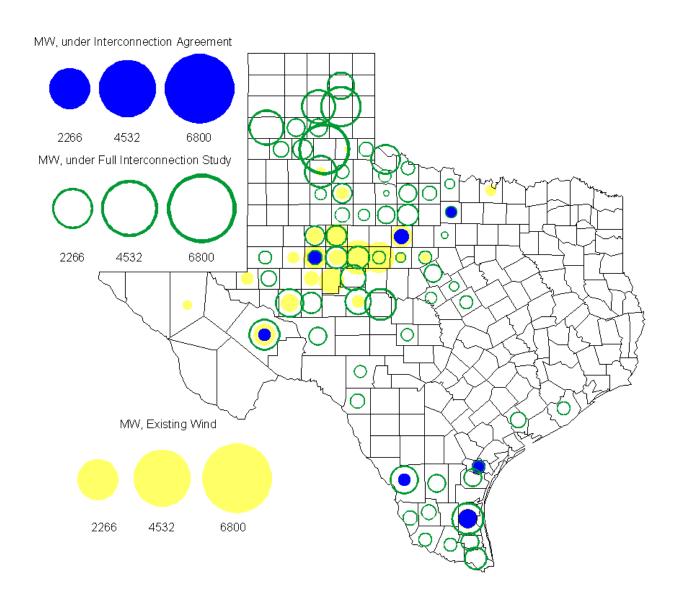
#### 1.6 Wind Generation

#### Wind Capacity Installed by Year



as of February 28, 2010

## County Location of Installed Capacity and Interconnection Requests (Wind only)



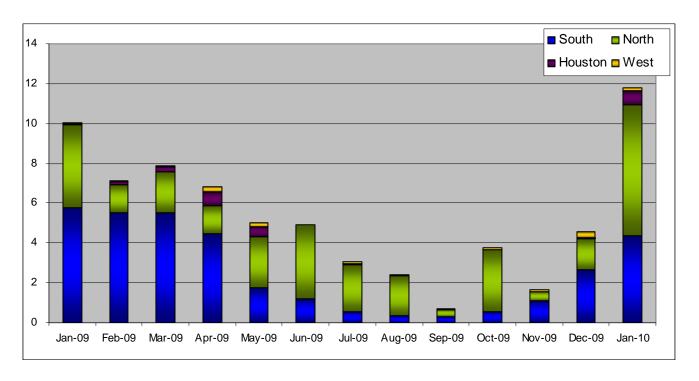
#### 2. Regional Planning Group Project Reviews

- Oncor submitted a project to relieve congestion related to new wind units in the Lamesa area. The project will upgrade the Lamesa to Bluff Creek 138 kV line, rebuild the Bluff Creek to China Grove 138 kV line, rebuild the Lamesa to Ackerly Vealmoor 69 kV line to 138/69 kV double circuit, rebuild the Lamesa 138 kV switching station, build a new 138 kV Ackerly Vealmoor station, add second circuits to all rebuilt lines and include station upgrades at China Grove and Big Spring. The cost of this project is \$ 80.8 M. This project will be reviewed to ensure that the improvements fit into the likely CREZ transmission solution for the area. This project is in ERCOT Independent Review.
- Oncor submitted a project to add several 345 kV circuits to support the addition of Comanche Peak units 3 and 4 in 2015 at an estimated cost of \$ 133 M. These upgrades include a new 345 kV double circuit line with one circuit in place from Comanche to Whitney, a new 345 kV line from Comanche to Johnson Switch, a new circuit on existing structures from Johnson Switch to Everman, a new 345 kV double circuit with one circuit in place from Comanche to DeCordova, and a new 345 kV line on existing structures from Comanche to Parker Switch. This project is in ERCOT Independent Review and will be studied when the 2009 Five-Year Transmission Plan is complete.
- Sharyland Utilities submitted a project to construct and operate the ERCOT Southeast Loop facilities consisting of a 345 kV double circuit from Lufkin to Canal 345 kV substation on the northeast side of Houston. This project will cost \$359 M with an estimated completion date of summer 2013. This project is in ERCOT Independent Review.
- Centerpoint Energy has submitted a project to construct a new 345 kV double circuit line to allow greater power imports into the Houston area. The project involves expanding the Fayetteville and Zenith substations and constructing a new 345 kV double circuit from Fayetteville to Zenith. The proposal also includes looping the Fayette Power Project to Salem 345 kV circuit into Fayetteville and upgrading the Fayette Power Project to Fayetteville 345 kV double circuit lines. The project is estimated to be complete by September 2014 at a cost of \$222 M. This project is in ERCOT Independent Review.
- Luminant Energy has submitted the Comanche Peak Area Congestion Mitigation Plan project to loop the future Parker to Everman 345 kV CREZ line into the Comanche Peak 345 kV switch station. Luminant Energy's estimated completion date for this project is April 2010 and the estimated cost is \$3 M. This project is in ERCOT Independent Review.
- Luminant Energy submitted a proposal to either accelerate the Waco West to Waco Atco 138 kV line rebuild
  that is currently scheduled to be completed by the fall of 2010 or to open the line in order to prevent
  congestion. This project is in study mode.

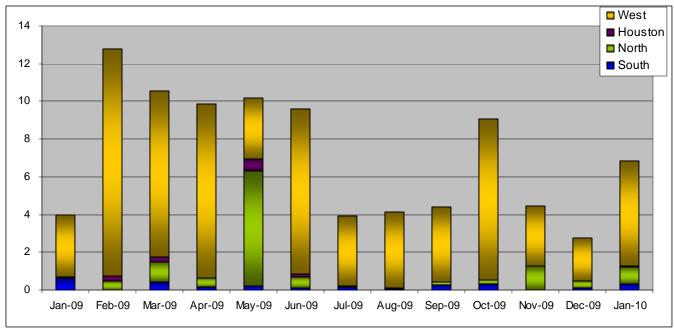
# 3. Congestion Costs

Dollars shown in graphs are settlement quality.

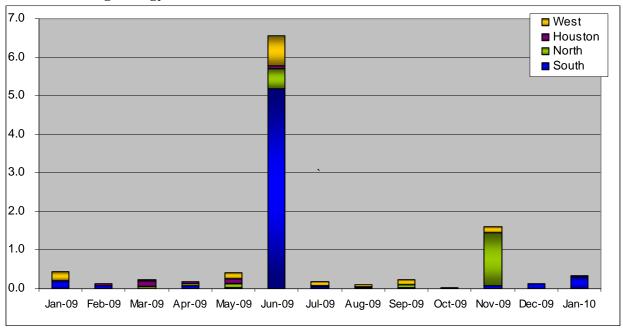
OOMC - last 13 months in million\$



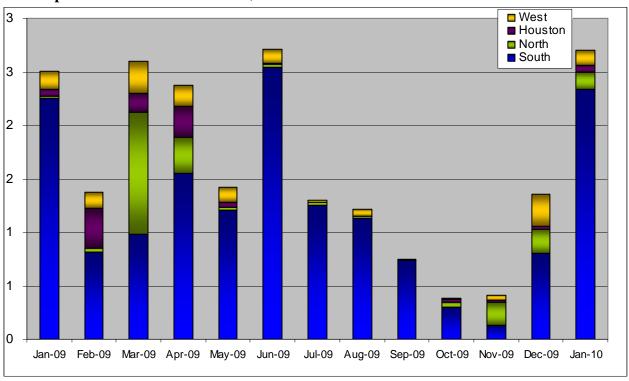
#### OOM Down - last 13 months in million\$



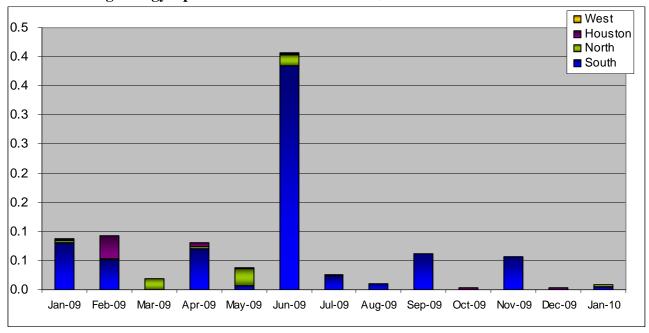
## **Local Balancing Energy Down – last 13 months in million\$**



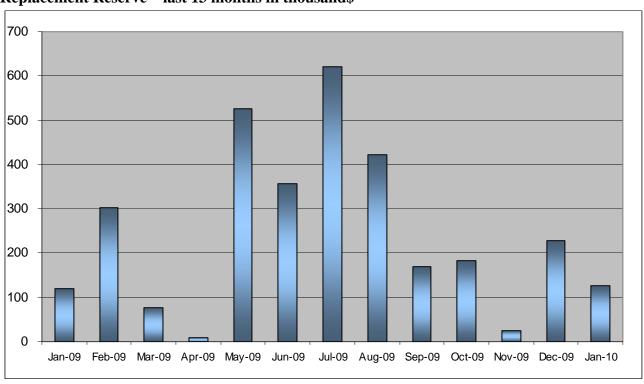
## OOM Up – last 13 months in million\$



## Local Balancing Energy Up – last 13 months in million\$



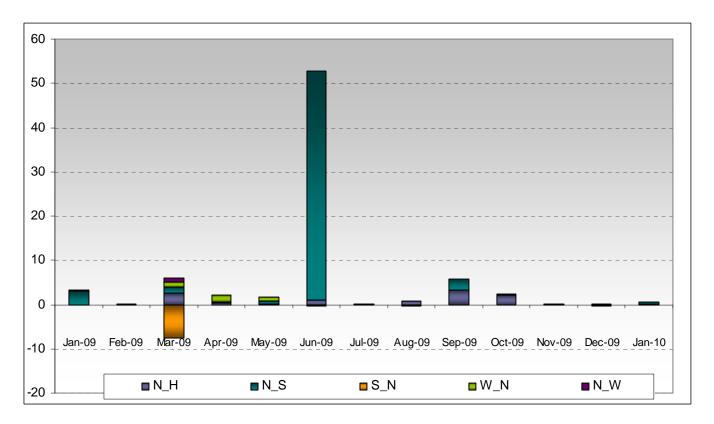
## Replacement Reserve – last 13 months in thousand\$



# Binding Constraints & Capacity Shortages—January, 2010

Contingency	Binding Element	Estimated Costs	Transmission Project	Clearance
	Capacity Shortage	\$ 1,710,015		
Garfield-Onion & Hicross 138kV	Lytton Springs Autos	\$ 1,065,839	Lytton Springs Autotransformer Addition (10TPIT0058)	Outage: Lytton Springs 345kV circuit breakers & 138kV ckt breakers
Basecase		\$ 922,430		Outage: Center bus
	Voltage - DFW	\$ 769,116		
WA Parish - O'Brien 345kV Oasis - PH Robinson 345kV	Garrott - Midtown 138KV	\$ 533,835	Garrott - Midtown - Polk Ckt. 90 (11TPIT0072)	Outage: Garrott – Blogett 138KV
Abilene Mulberry Creek - Bitter Creek & Long Creek - Sweetwater Cogen 345kV	Sterling County - Sterling City 69kV	\$ 486,262	CREZ	Outage: Divide Switchyard - Twin Butte 345KV
Garfield - Onion & Hicross 138kV Graham - Long Creek - Cook Field Rd 345kV	Abilene South - Potosi Tap 138kV	\$ 411,094	CREZ	
	RPRS	\$ 400,001		
	Voltage Stability - Valley	\$ 373,329		
Dilley Switch – San Miguel Switch 138kV	Derby Sub – Pearsall Switch 69kV	\$ 324,919	Pearsall to Dilley 69 kV (09TPIT0189)	Outage: Sonora - Cauthorn 138KV

## **Inter-zonal Congestion**



#### 4. Other Notable Activities

Five-Year Transmission Plan Update:

The 2009 Five-Year Transmission Plan report is undergoing final edits. Work on the 2010 Five-Year Transmission Plan has begun. The analysis is currently focused on identifying reliability concerns in the 2015 summer peak case and finding solutions for identified issues.

TPIT updates have begun. This marks the end of the one month delay in TPIT to better align with SSWG case building efforts. TPIT will resume its quarterly updates from this point forward.

Nodal Network Model Management System work has begun in earnest to prepare a Planning case for use in Annual Planning Studies and CRR Auctions in accordance with Nodal Protocols section 3.10. The key initial goal for this activity is to produce a Planning (Bus/Branch) model consistent with the Network Operations (Breaker) model for use in CRR Monthly Auctions during Market Trials and for CRR Monthly Auctions starting in October 2010.

#### Voltage Ride Through Study Update:

The vendor has reported their data collection efforts for Phase II has been completed. ERCOT is reviewing Phase II deliverables to ensure that sufficient data has been collected to model existing wind plants for Phase III of the study and for future VRT reliability tests. Phase III has started with preparation of a dynamic flat-start base case with (Phase II) wind models using PSSe v.31.

Voltage Stability Study for 2015 Summer on-peak conditions:

In preparation for the annual NERC Long-Term Reliability Assessment reporting, a voltage stability study has begun using the SSWG 2015 year summer on-peak base case to assess the reliability of the network. The study results will allow an assessment of the 2015 network model to meet voltage stability margin requirements for NERC B and NERC C contingencies.