



Energy Sector Impacts to Texas' Transportation System

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Task Force Entities

- Texas Department Of Transportation
- Texas Department of Public Safety
- Texas Commission on Environmental Quality
- Railroad Commission of Texas
- Texas Department of Motor Vehicles
- Counties
- Texas Oil and Gas Association
- Texas Farm Bureau
- America's Natural Gas Alliance
- Association of Energy Service Companies
- The Wind Coalition
- Texas Independent Producers & Royalty Owners Association
- Texas Motor Transportation Association



TxDOT's Mission is:

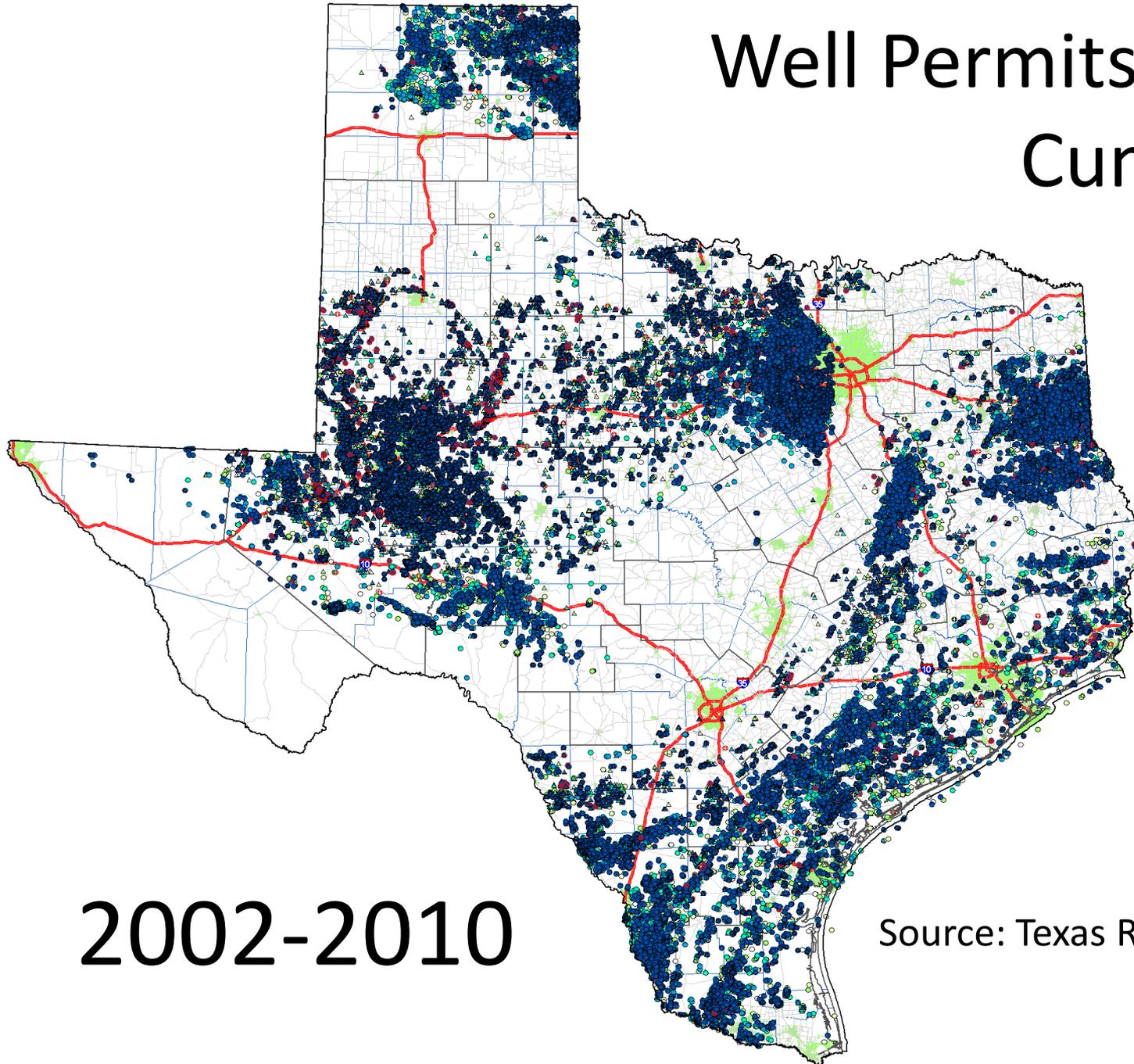
To work with others to provide safe and reliable transportation solutions for Texas.



Energy Sector Activities

- Oil
- Natural Gas
- Wind
- Coal
- Bio-Fuel
- Biomass
- Geothermal
- Solar

Well Permits by Year Cumulative



2002-2010

Source: Texas Railroad Commission

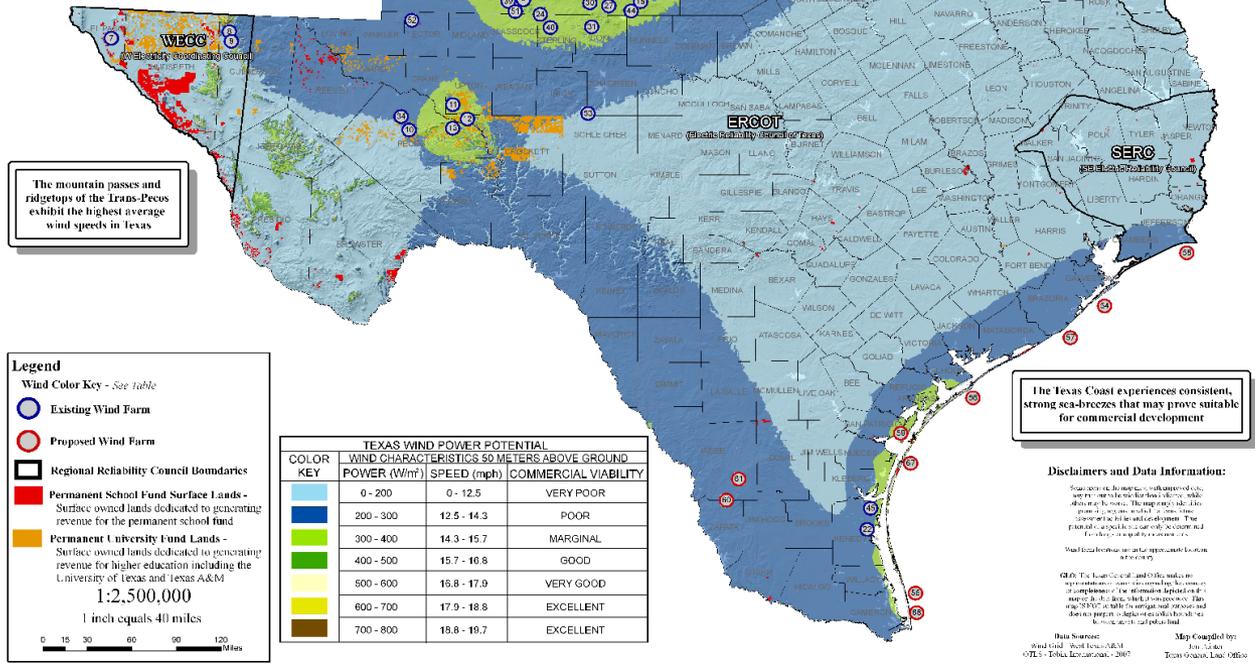


Texas Wind Farms

Jerry Patterson, Commissioner
Texas General Land Office
January 2010

Existing Wind Farms			
ID	Name	Date Online	Megawatts
1	Great Plains Windpower	2001	3
2	White Deer	2001	80
3	Green Hill Wind Farm at Brazos	2001	160
4	Big Spring	1999	34.3
5	Spetrowater	2003	583.3
6	Frank Creek	2001	150
7	Mesa Hill Wind Farms	2004	1.32
8	Texas Wind Power Project	1999	20.8
9	Delaware Mountain Wind Farm	1999	26.5
10	Hogouara at Wind Creek I II	2001	159.72
11	Hogouara Wind Ranch	2001	281.2
12	Southeast Mesa Wind Farms	1999	75
13	Upland Mesa II	2001	263
14	Cherokee State Wind Energy Center	2006	114
15	Buffalo Gap I II	2003	424
16	House Ranch	2004	738.5
17	Community Project John Deere	2001	180.8
18	Llano Estacado Wind Ranch at White Deer	2003	80
19	Love Star	2006	492
20	Snyder	2006	63
21	Iron Canyon	2006	64
22	Gulf Wind	2008	283
23	Millwood	2006	160
24	Parsons Creek	2007	124.2
25	Sass Bull	2007	90
26	Waco	2007	225.6
27	Cherokee	2007	128
28	Camp Springs	2007	130.5
29	Spencer's	2007	80.5
30	Compton	2008	126.5
31	Chapman Ridge	2007	162.5
32	Hickberry	2008	153.6
33	Stratton	2008	150
34	Spawton	2008	160
35	McAfee	2008	150
36	Millfield	2007	50.8
37	Buff Creek	2008	160
38	Oodles	2008	80
39	Blow Creek	2008	122
40	Pathner Creek	2008	258
41	Fulker Track	2008	100.5
42	Hull Ridge	2008	112.5
43	Wage Wind	2008	10
44	South Trest Mesa	2008	220
45	Trinidad	2007	201.6
46	Silver Star	2008	60
47	Barton Creek	2008	120
48	Mojave	2008	70.5
49	Prion	2008	340
50	Inadine	2008	197
51	Pathner Creek	2008	260
52	Waco	2008	150
53	Langdon	2008	150

Proposed Wind Farms			
ID	Name	Date Online	Megawatts
54	Coastal Palms/Arvida	1st semester 2009	
55	Coastal Plant	1st semester 2009	
56	Coastal Plant	Late summer 2009	
57	Coastal Plant	Late summer 2009	
58	Coastal Plant	Late summer 2009	
59	Napoleon	2009	180
60	Harbison	2011	30
61	Collin	2010	24
62	Proton Hillside	2010	20
63	Runway	Late summer 2009	40
64	Public Capital Plains II	1st semester 2009	120
65	Dallas County	Late summer 2009	
66	Blanton	Late summer 2009	30
67	Waxburg Island	Late summer 2009	750
68	Waco	Unknown	750



The mountain passes and ridgetops of the Trans-Pecos exhibit the highest average wind speeds in Texas

The Texas Coast experiences consistent, strong sea-breezes that may prove suitable for commercial development

Legend

- Wind Color Key - See table
- Existing Wind Farm
- Proposed Wind Farm
- Regional Reliability Council Boundaries
- Permanent School Fund Surface Lands - Surface owned lands dedicated to generating revenue for the permanent school fund
- Permanent University Fund Lands - Surface owned lands dedicated to generating revenue for higher education including the University of Texas and Texas A&M

1:2,500,000
1 inch equals 40 miles

TEXAS WIND POWER POTENTIAL				
COLOR KEY	WIND CHARACTERISTICS 50 METERS ABOVE GROUND	POWER (W/m ²)	SPEED (mph)	COMMERCIAL VIABILITY
Light Blue	0 - 200	0 - 12.5		VERY POOR
Blue	200 - 300	12.5 - 14.3		POOR
Light Green	300 - 400	14.3 - 15.7		MARGINAL
Green	400 - 500	15.7 - 17.0		GOOD
Yellow-Green	500 - 600	16.8 - 17.9		VERY GOOD
Yellow	600 - 700	17.9 - 18.8		EXCELLENT
Orange	700 - 800	18.8 - 19.7		EXCELLENT

Disclaimers and Data Information:

This data is for informational purposes only. It is not intended to be used for any other purpose. The data is based on a 10-year average of wind speed data. The data is based on a 10-year average of wind speed data. The data is based on a 10-year average of wind speed data. The data is based on a 10-year average of wind speed data.

Map Created by:
Jan. 2010
Texas General Land Office



Center for Transportation Research report conclusions

- Growth in the energy sector contributes to state's economic prosperity, but impacts the service life of existing pavements.
- Adequate funding sources need to be identified to maintain existing infrastructure and to ensure the transportation system can serve the energy sector in the future.



Growth in Energy is Good for Texas

The Impacted Partners Have
Identified Some Concerns that need
to be addressed



Roadway Damage



Traffic Impacts



Increased Traffic/Safety Concerns





ROW Issues





Safety/Environmental Concerns





Bridge Impacts/Restrictions





Loaded Trucks Per Gas Well

(Based on Information from Fort Worth)

- 1,184 loaded trucks to bring one gas well into Production, plus
- 353 loaded trucks per year to maintain, plus
- 997 loaded trucks every 5 Years to re-frac the well

This is equivalent to roughly 8 Million cars plus an additional 2 Million cars per year to maintain



Impacts to the System

Research has determined that the service life on IH, US, SH, and FM highways is reduced:

- Due to truck traffic associated with natural gas well operations alone between:
 - 1% and 16% for rig movements
 - 1% and 34% for the saltwater disposal traffic
 - 4% and 53% for construction traffic
 - Overall Impact (Average) 30%



Impacts to the System (Cont.)

- Due to truck traffic associated with crude oil well operations alone between:
 - 1% and 3% for construction traffic
 - 2% and 16% for the production traffic
 - Overall impact (Average) 16%



“Before and After” Oil & Gas Well Production

FY	ADT	ADTT	% Trucks
2010	2600	458	18%
2012	7300	4550	62%



Estimates of Truck Traffic Associated with a Single Wind Mill Site

- Concrete for Pad 35 Truck Hauls
- Base Material for Pad 223 Truck Hauls
- Service Road 78 Truck Hauls
- Note: These estimates do not include many other deliveries such as steel rebar, cooling fans, etc.



“Before and After” Wind Mill Construction

FM 97	ADT	ADTT	% Trucks	Distress Score
2007	340	30	9%	100
2008	2000	220	11%	52



Responsibilities of this Task Force

- Coordination of efforts
- Support of agency activities
- Sharing of information
- Identify opportunities for innovation
- Identify opportunities for partnerships
- Identify potential solutions to common issues