

Wind Energy Global Opportunities in Texas

Greg Wortham

West Texas Wind Energy Consortium

Windenergie-Boom USA

Germany-USA Wind Conference

Berlin, Germany

February 14, 2008



West Texas Wind Energy Consortium

- Counties
- School districts
- Cities
- Economic development leaders
- Ranchers
- Farmers
- Colleges
- Small business
- Heavy industry
- Electric co-ops
- Wind developers
- Chambers of commerce
- 100,000+ square miles of north & west Texas



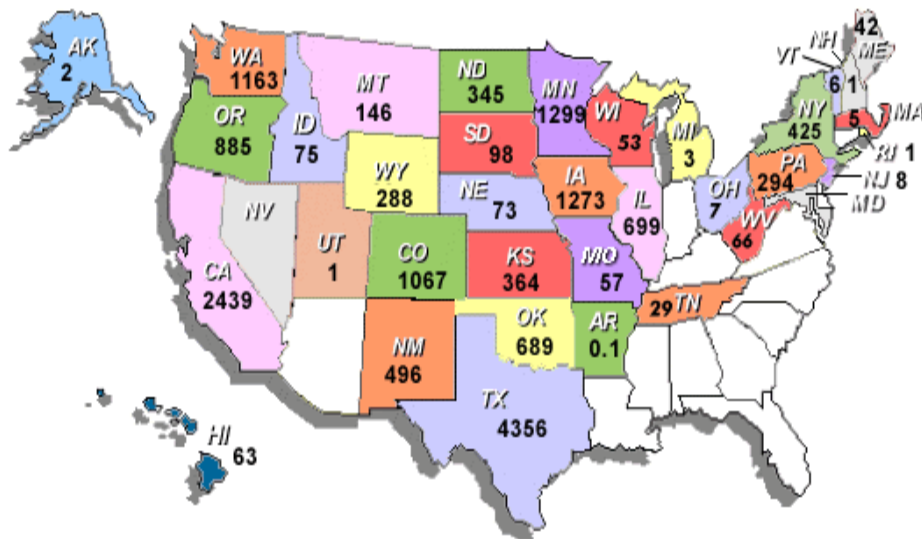
Global Perspective

- **Germany – 22,247 MW**
- **USA – 16,818 MW**
- Spain – 15,145 MW
- India – 8,000 MW
- China – 6,050 MW
- **West Texas – 5,600 MW**
- Denmark – 3,125 MW
- Italy – 2,726
- France – 2,454 MW
- **California – 2,439 MW**
- United Kingdom – 2389 MW
- **Nolan County – 2,150 MW**
- Portugal – 2,150 MW



USA Wind Energy

AWEA statistics



- 1. West Texas – 5,600 MW
- 2. California – 2,439 MW
- Nolan County – 2,150 MW
- 3. Minnesota – 1299 MW
- 4. Iowa – 1273 MW
- 5. Washington state – 1163 MW
- 6. Colorado – 1067 MW
- 7. Oregon – 885 MW
- Horse Hollow – 760 MW
- McCamey region – 750 MW
- 8. Illinois – 699 MW
- 9. Oklahoma – 689 MW
- Buffalo Gap 1-2-3 – 604 MW
- Scurry County – 597 MW
- Sweetwater Wind 1-5 – 584 MW
- Taylor County – 500 MW
- 10. New Mexico – 496 MW
- 11. New York – 425 MW
- 12. Kansas – 364 MW

Texas Wind Energy

- Nolan County
- McCamey region
- Scurry-Borden counties
- Taylor County
- Shackelford County
- Texas Panhandle
- Howard County
- Permian Basin
- Texas Mountains
- Red River Valley
- Cross Timbers region



Regional Project Benefits

- Landowner revenue
- Tax revenue
- Employment
- Small business
- Industry



The New York Times

WINDPOWER 2007[®]
CONFERENCE & EXHIBITION

LOS ANGELES, CA
JUNE 3 - 6, 2007

Texas Action

- Presentations to thousands of community leaders & landowners
- Strategy sessions across entire region
- Representation of region at US & international expos
- Wind project VIP tours
- International media



Your News Anytime.



Local initiative conferences

- West Texas Wind Energy Trade Fair
- Wind Law Institute
- Texas Wind Industrial Network Summit
- Monthly programs
- Town hall meetings across region
- Local strategy sessions across region
- US-Mexico Border Energy Summit



Local initiatives & project facilitation

- \$ 2 Billion-plus in 2008 project construction directly attributable to grass roots initiatives
- \$ 6 Billion in Panhandle projects working directly with region to maximize local economic benefits 2008-2040

The logo for e-on, featuring the lowercase letters "e-on" in white on a red rectangular background.

mesa POWER



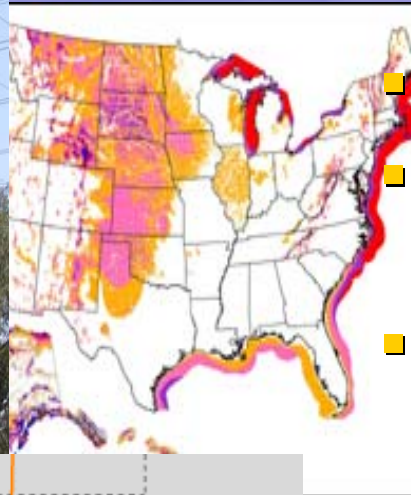
Third Planet
Windpower



Texas – supply chain leader



Texas logistics



- Midway USA
- Railroads, interstates, major transmission lines
- Industries: oil & gas, wind, nuclear, coal, gypsum, cement, cotton, ranching, education, transportation
- Wind MW: 5,600 MW heading to 30,000 MW
- 5-state region at 7 GW
- Wind energy colleges & universities



West Texas wind projects – leading Western Hemisphere

- Horse Hollow – 760 MW
– World’s largest –
USA #1
- Buffalo Gap – 597 MW –
USA #2
- Sweetwater – 584 MW –
USA #3
- Proposals in West Texas
for 3 GW & 4 GW wind
projects by 2012



2008 construction in West Texas

- Buffalo Gap 4-5-6
- Sweetwater 6
- Inadale
- Pyron
- Trent South
- Turkey Track
- Loraine
- Lone Wolf
- Spade



Turbine types – West Texas



- Mitsubishi 1.0 MW
- Suzlon 1.25 MW
- GE Wind 1.5 MW
- Vestas 1.8 MW
- Gamesa 2.0 MW
- DeWind 2.0 MW
- Siemens 2.3 MW
- Clipper 2.5 MW
- Vestas 3.0 MW



Operations, Manufacturing, Research

- Construction
- Wind project operations
- Manufacturing
- Ancillary businesses
- County initiatives
- TSTC wind energy technician training
- GE Wind Capture Center – Americas
- Lone Star Wind Alliance
- U.S. DOE wind tunnel
- Sweetwater prototype center – Sweetwater Wind Energy Engineering Technology Center (SWEET)



Wind company examples – local operations



- GE Wind
- Babcock & Brown
- FPL Energy
- AES Wind
- AEP Wind
- Airtricity – e.on
- DeWind
- Blattner
- RES Americas
- SecondWind
- Mortenson
- Third Planet Windpower
- Power Partners
- Wind Energy Turbine Services
- Upwind Solutions
- Siemens
- Northwind



More wind company examples

- Crane Service Inc.
- Mitsubishi
- Sun Electric
- Invenergy
- Windkraft Nord WKN
- MFG blade repair
- Specialized wind energy law firms



Texas wind components industry

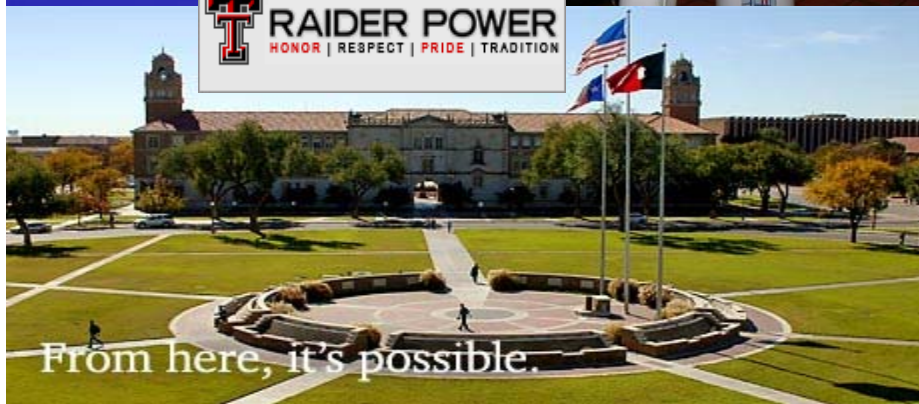
- Turbines (Round Rock)
- Steel fabrication (Brownwood)
- Tower prep (Coleman)
- Carbon fiber (Abilene)
- Tower steel (Fort Worth, El Paso)
- Bolts, clamps, steel base (Nacogdoches, Corpus)
- Blades (Gainesville, Juarez)
- Blade repair (Sweetwater)
- Generators (Round Rock)
- Harbors (Houston, Corpus Christi, Beaumont)
- Cement (Maryneal)
- Concrete (Mitchell County)



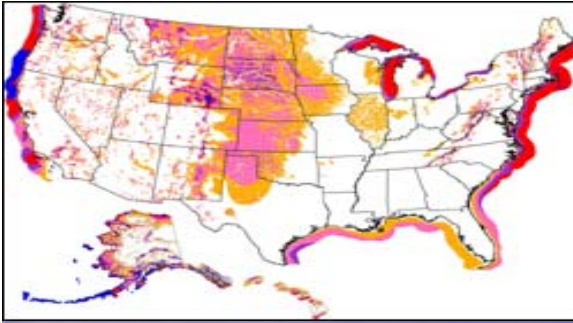
Industry & workforce



Amarillo College



- Western Hemisphere's largest & most skilled wind energy workforce
- Leading wind science & technology colleges & universities
- Lone Star Wind Alliance – wind blade test facility – Corpus Christi
- SWEET Center – field prototypes of turbines & wind assessment – TSTC
- Workforce training – 'Training Texas' initiative
- Workforce recruitment – www.GreenCollarVets.org



Unlimited opportunity – bold commitment

- Top North American wind resource
- Access to all North American grids
- Industrial training
- Interested landowners & local officials
- Transportation link to North American wind region
- **Transmission access**
- **Bold Texas target: 25,000 new MW**



Texas pro-wind attitude





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**WEST TEXAS
WIND ENERGY
CONSORTIUM**

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