

Wind Energy in the U.S.

Markets • Manufacturing • Suppliers • Economic Impact

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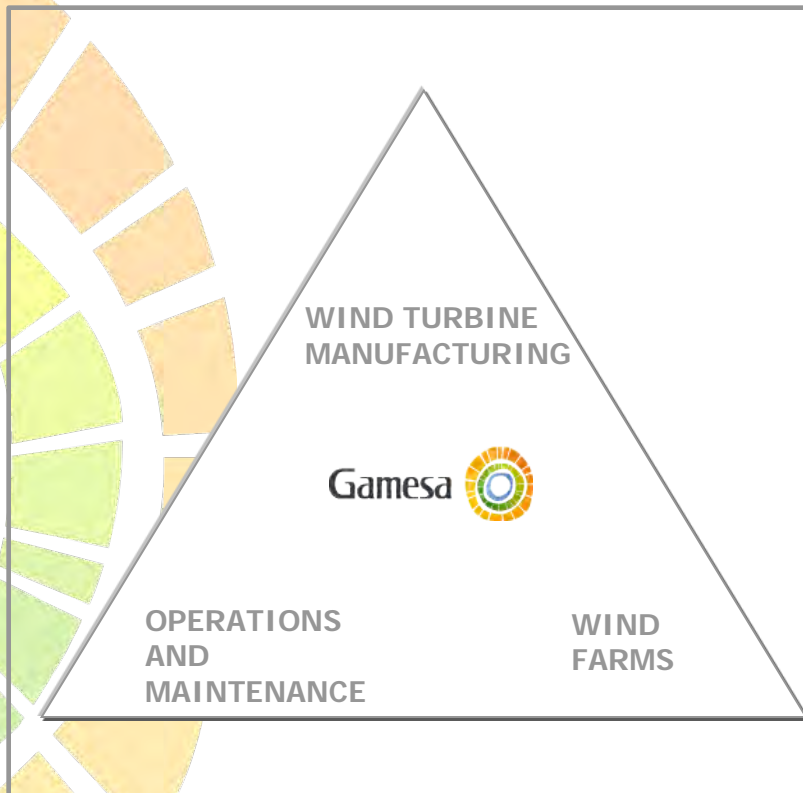


Topics

- Overview of Gamesa
- US Wind Market
- Wind Turbine Manufacturing – Gamesa Example
- Suppliers for Wind Turbine Manufacturing & Projects
- Summary and Economic Impact

Gamesa Overview – 3 business units dedicated to wind power

GAMESA BUSINESS UNITS

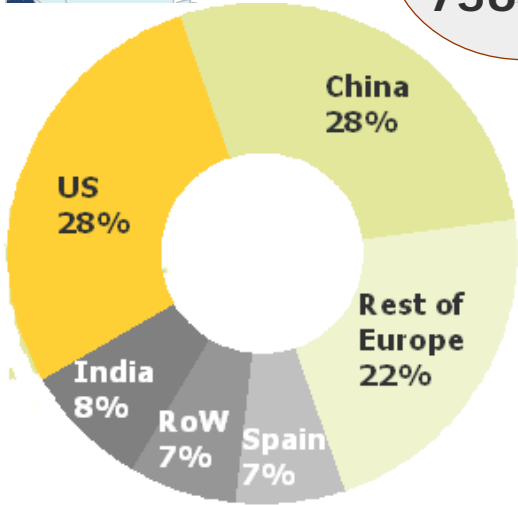
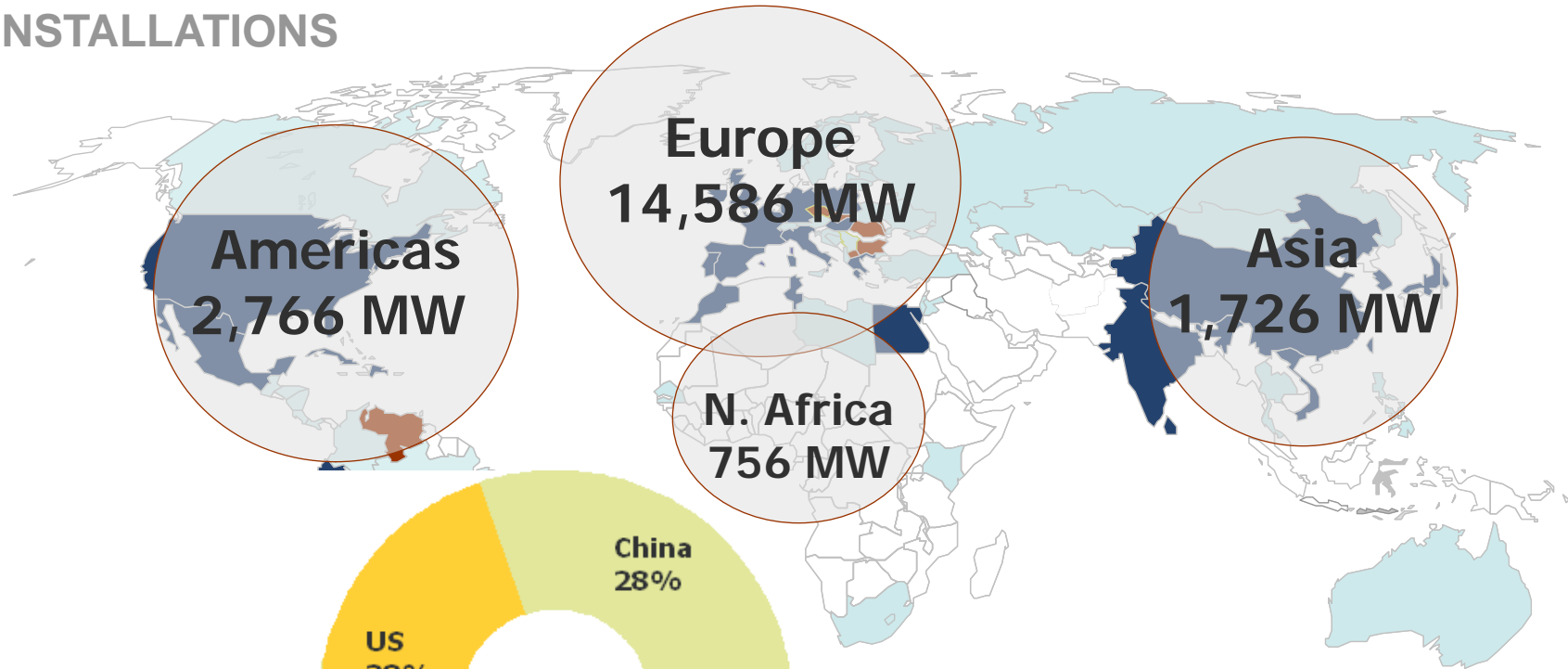


2010 Statistics

REVENUE:	\$3.5 B
GLOBAL HEADQUARTERS	BILBAO, SPAIN
STAFF:	7,200 EMPLOYEES
MANUFACTURING CENTERS:	SPAIN/USA/CHINA/INDIA/ BRAZIL IN DEVELOPMENT
GLOBAL INSTALLED BASE	21,000MW
GLOBAL RANKING 2010	4
U.S. RANKING 2010	3

Growth – 30 Countries and growing

INSTALLATIONS



2010 Total Global Sales :
2,405 MW



US Wind Market

US Wind - A Challenging Market Environment

Current situation Economy and Policy Constraints

U.S. MARKET GROWTH OUTLOOK		2009	2010	2011	2012	2013
LOW GROWTH	Annual	9996	5115	5800	8100	5200
	% CHANGE Y/Y	1.2	0.5	1.1	1.4	0.6
	Cummulative	35086	40201	46001	54101	59301
	% CHANGE Y/Y	1.4%	1.1%	1.1%	1.2%	1.1%

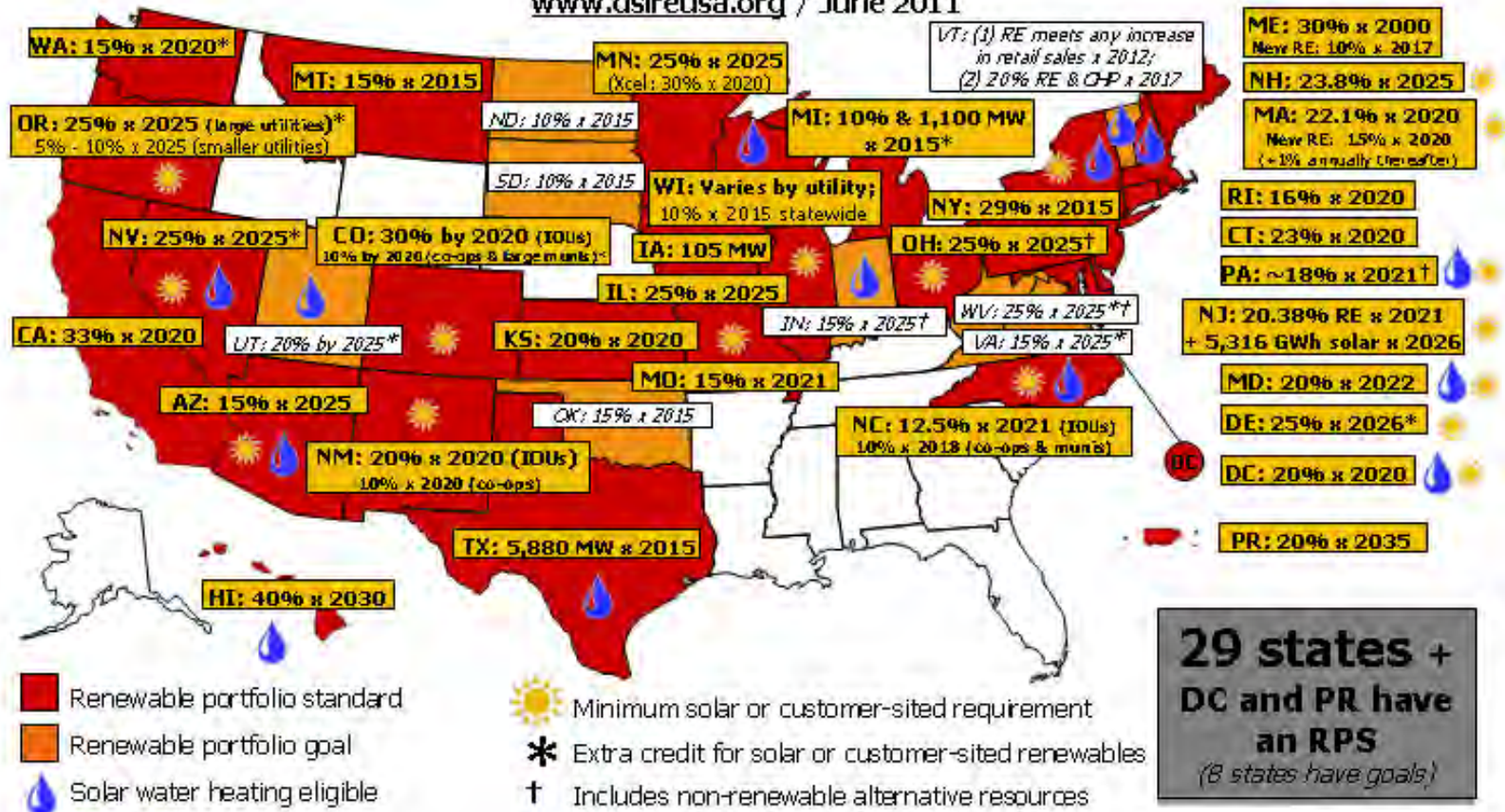
Assumptions for 2011-12:

- Economic recovery slowly improves
- GDP remains below 3%, uptick in 2012
- Electricity demand increases about 1%
- Reserve margins remain well above 15%
- RES loses steam; political shift to CES, no sooner than 2013
- PTC expected to expire in 2012
- Transmission infrastructure build-out stalls
- Natural gas stays in the \$4-5MMBTu range
- Wholesale power prices linger at \$45/MWh
- PPAs still available to secure

State RPS (plus federal incentives)...key drivers for Renewables

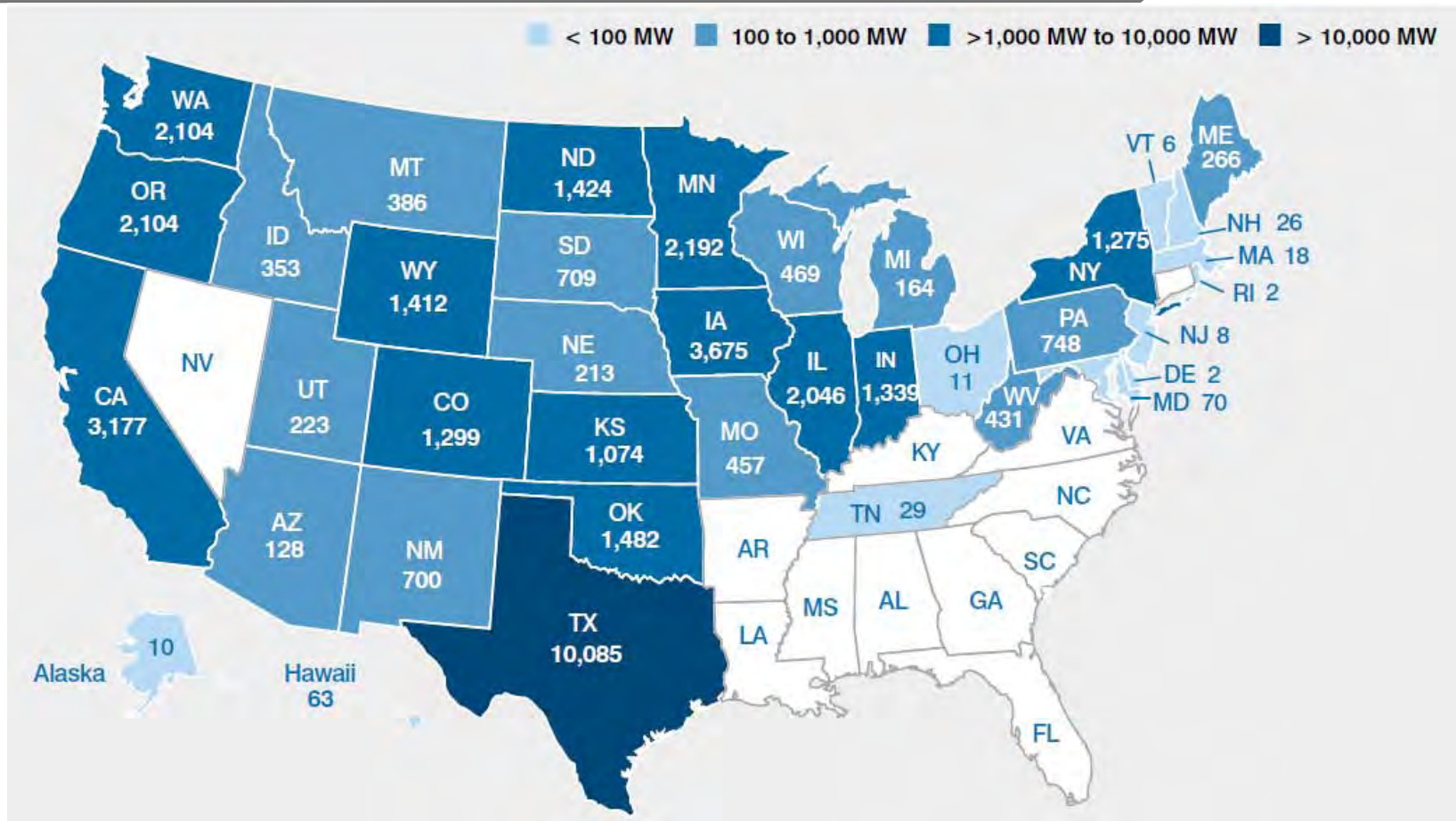
RPS Policies

www.dsireusa.org / June 2011

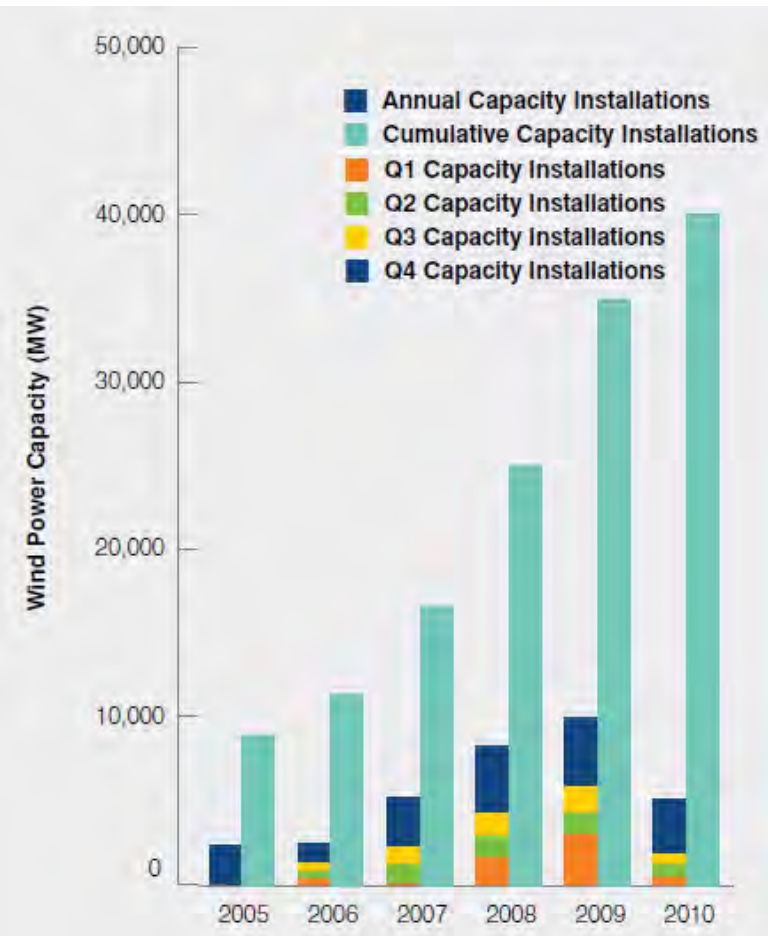


Source: DSIRE

Driving US Wind Installations: State Policies have most clarity...



Clear visibility of market growth drives new turbine manufacturing presence:



	2005	2006	2007	2008	2009	2010
	GE Energy	GE Energy	GE Energy	GE Energy	GE Energy	GE Energy
	Vestas	Siemens	Vestas	Vestas	Vestas	Siemens
	Mitsubishi	Vestas	Siemens	Siemens	Siemens	Gamesa
	Gamesa	Mitsubishi	Gamesa	Suzlon	Mitsubishi	Mitsubishi
	Suzlon	Suzlon	Mitsubishi	Gamesa	Suzlon	Suzlon
		Gamesa	Suzlon	Mitsubishi	Clipper	Vestas
			Clipper	Clipper	Gamesa	Acciona WP
			Nordex	Acciona WP	REpower	Clipper
				REpower	Acciona WP	REpower
				Fuhrlander	Nordex	DeWind
				DeWind	DeWind	Nordex
				AWE	AAER	Samsung
				DES	Goldwind	Northern Power
				Northern Power	Northern Power	Nordic
					Fuhrlander	EWT Americas
						Turbowinds
						PowerWind
						Elecon

Wind Turbine Manufacturing – Gamesa Example

Gamesa US Manufacturing and Supply Chain Example

US Headquarters, Langhorne, PA

Design, manufacture, and development of wind turbines and farms

Nacelle Center of Excellence , Fairless Hills PA

Blade Center of Excellence , Ebensburg, PA

Offshore Wind Technology Center, Chesapeake VA

~1000 US employees

2,400 MW installed in the U.S.

\$200M invested since 2005 in US Manufacturing



Commitment to the US Market

Nacelle Center of Excellence

Fairless Hills



- o **Brownfield site rehabilitation in 2005-6** (Formerly US Steel Fairless Hills Site)
- o 235,000 sq. ft. Factory in three production bays and 75,000 sq. ft. Warehouse.
- o 93 acres of land.
- o Access to Rail and Deepwater Port
- o **Gross investment > \$70 MM** including land, building, equipment.
- o Currently produces nacelles & hubs .
- o Additional bays available for expansion or product diversification.



Commitment to the US Market Blade Center of Excellence Ebensburg, PA

- o Greenfield site installed in 2005-6.
- o 168,000 sq. ft. Factory with offices and warehouse included in plant.
- o Total of approximately 29 acres of land - ample FG storage
- o **Gross investment > \$65 MM** including land, building, equipment.
- o Plant produces wind turbine blades
- o Upgraded from G87 to G90 blades in 2009-10.

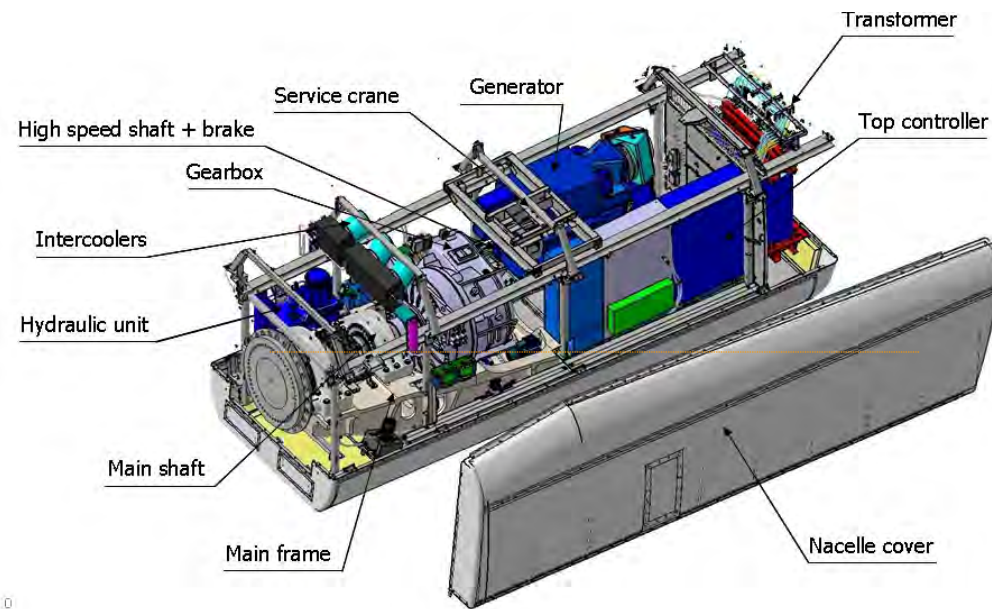


**Additional \$20MM
invested in N American
Facilities in 2009**

Suppliers for Wind Turbine Manufacturing & Projects

Gamesa Supply Chain

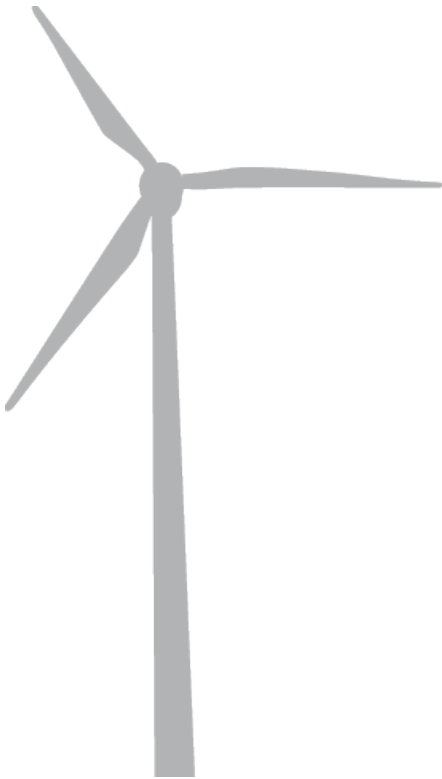
- Typical Wind Turbine has about 8,000 parts
90% metal components
- Gamesa US Supply chain
Active in 41 states
Over \$1B spent in US over a 5 year period
- Pennsylvania Supply chain
~ 65 PA vendors
2010 spend: \$75M in PA



Gamesa US Purchasing

Examples of US suppliers needed in Wind:

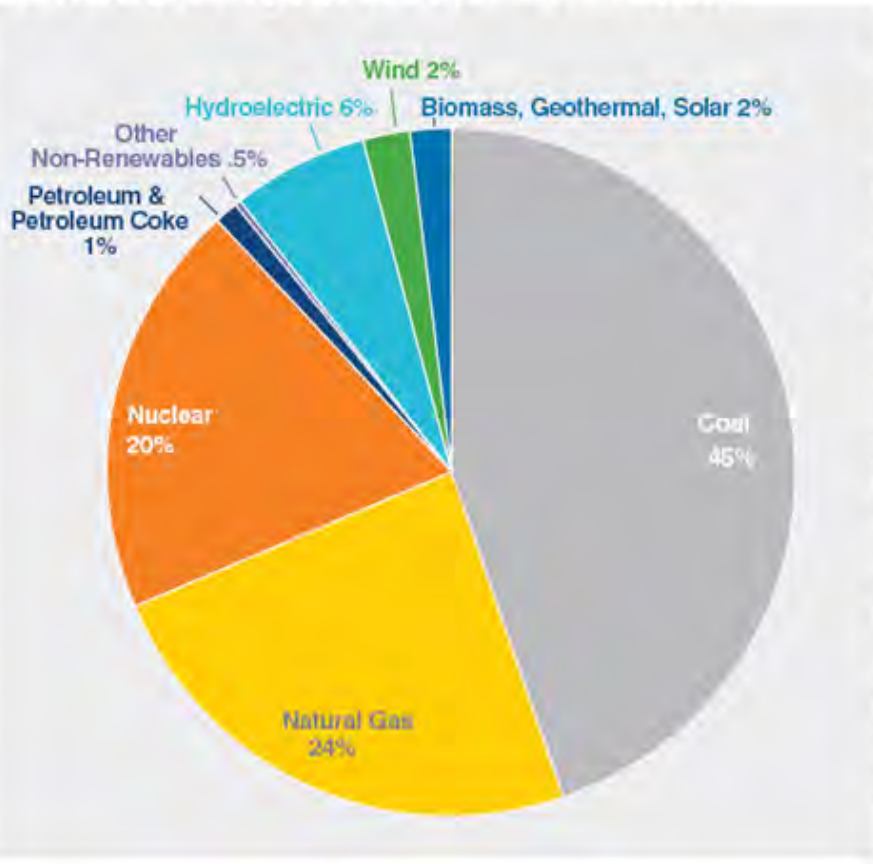
- Large Metal Castings and Fabricated Components
- Metallurgical towers
- Engineered tools, fixtures and inspection devices for maintenance of wind turbines
- Transporters of major assemblies to the wind farms
- Environmental inspection services
- Suppliers of large industrial portable generators
- Construction contractors to complete the civil work on the wind farm & support the erection of wind turbines
- Electrical Cabling
- Quality Inspection Providers
- Road and Foundation Construction Materials (Locally)
- High Quality, Utility Scale Electrical Components
- MANY MORE>>>>



Summary and Economic Impact

Creating a balanced portfolio

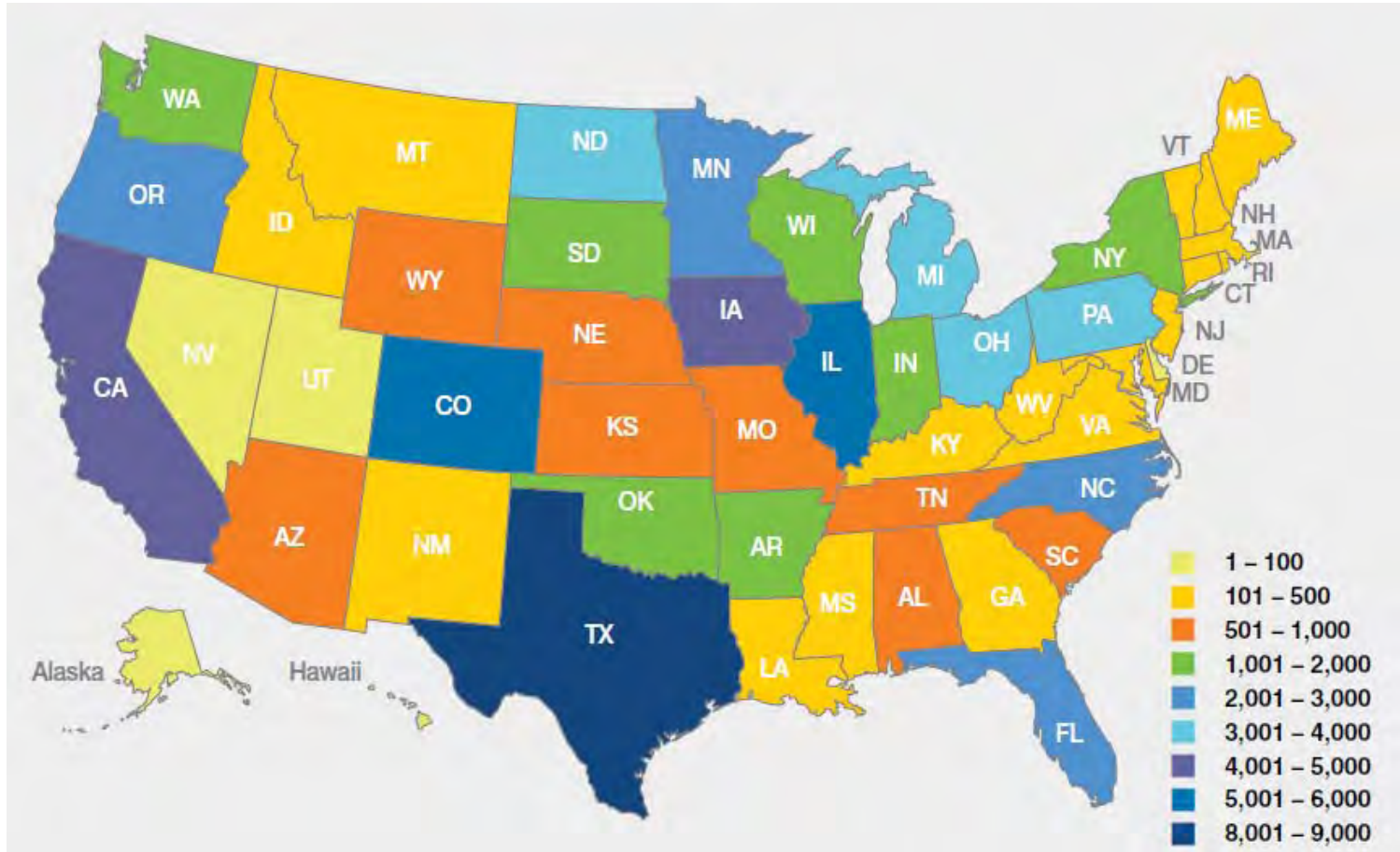
U.S. Electricity Generation Mix in 2010



Source: Energy Information Administration Electric Power Monthly

- Protect against reliance on volatile fuel costs long term
 - Wind Fuel Cost will be \$0 forever
 - Natural Gas bubble/burst 2000-2010
 - Coal...prices surges due to exports to Europe
- Protect against supply interruptions
 - Katrina...disruption of Natural Gas in southeast
 - Nuclear issues... i.e. Japan

Driving Jobs – US Wind Industry Related Jobs



Thank You

