



New York and Wind Power

Linking Economic Development, Environmental Protection, and Energy Security

Carol E. Murphy, Executive Director
Alliance for Clean Energy New York

Buffalo Niagara Wind Component
Manufacturing Symposium
Millennium Hotel Buffalo
July 15, 2009



Alliance for Clean Energy New York, Inc.

- Formed in 2006 as a not-for-profit 501(c) (3) organization. Based in Albany, New York.
- Comprised of over 75 leading clean energy developers, energy efficiency companies, environmental organizations, business groups, academic institutions, and consultants to the energy sector.
- Mission: to promote the use of clean, renewable electricity technologies and energy efficiency in New York State, in order to increase energy diversity and security, boost economic development, improve public health, and reduce air pollution.

Outline of Presentation

- **Introduction**
- **Wind Power Market Overview**
- **Future Growth of the Wind Energy Industry**
- **The Wind Energy Industry Supply Chain**
- **Federal and State Policies and Incentives**
- **Your Questions**

U.S. is World Leader in Wind Power

**With over 25,000
MW, the U.S. is
now the #1 wind
power producer in
the world.**

**Global Wind Energy Council,
January 2009**



2008 National Wind Statistics

- U.S. wind energy industry shattered all previous records in 2008
 - ✓ *8,358 megawatts (MW) of new generating capacity installed - enough to serve over 2 million homes*
- Total wind power generation grew by 50%
 - ✓ *\$17 billion invested in the economy*
- New wind projects completed in 2008 accounted for about 42% of the entire new power-producing capacity
 - ✓ *avoiding nearly 44 million tons of carbon emissions, the equivalent of taking over 7 million cars off of the road*

Wind and the US Economy

- 85,000 people employed in the wind industry today, up from 50,000 a year ago including jobs in:
 - ✓ *turbine component manufacturing, construction and installation of wind turbines, wind turbine operations and maintenance, legal and marketing services, and more*
 - ✓ *About 8,000 of these jobs are construction jobs*
- Manufacturing of domestic wind turbine components rising
 - ✓ *30% in 2005*
 - ✓ *50% in 2008.*
 - ✓ *70 new facilities in the past two years, including over 55 in 2008 alone*
 - New manufacturing facilities created 13,000 new direct jobs in 2008.
 - Economic crisis has caused slowdown in orders, wind turbine and turbine component manufacturers not growing as fast as last year.

Benefits of Wind - Price Stability

- Known pricing can offer hedge against fuel price volatility risk
- Electricity from wind is inflation-proof once wind farm is installed

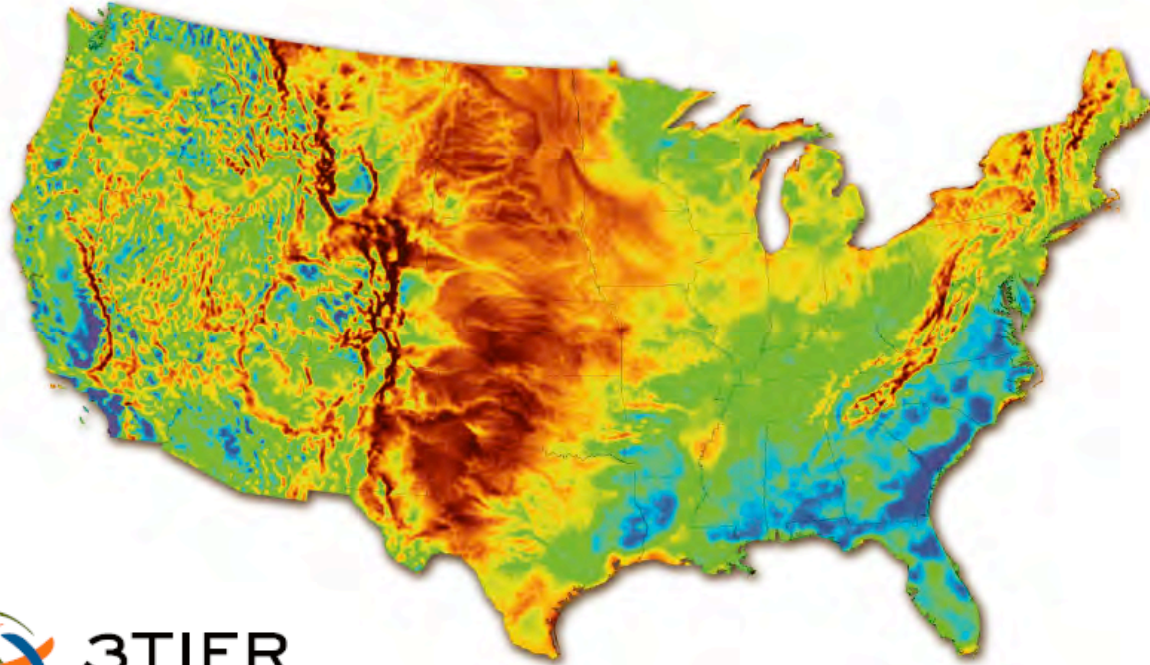


Wind Power Offers Fuel Diversity



- Domestic energy source
- Inexhaustible supply
- Complement to natural gas

U.S. Wind Resource Map

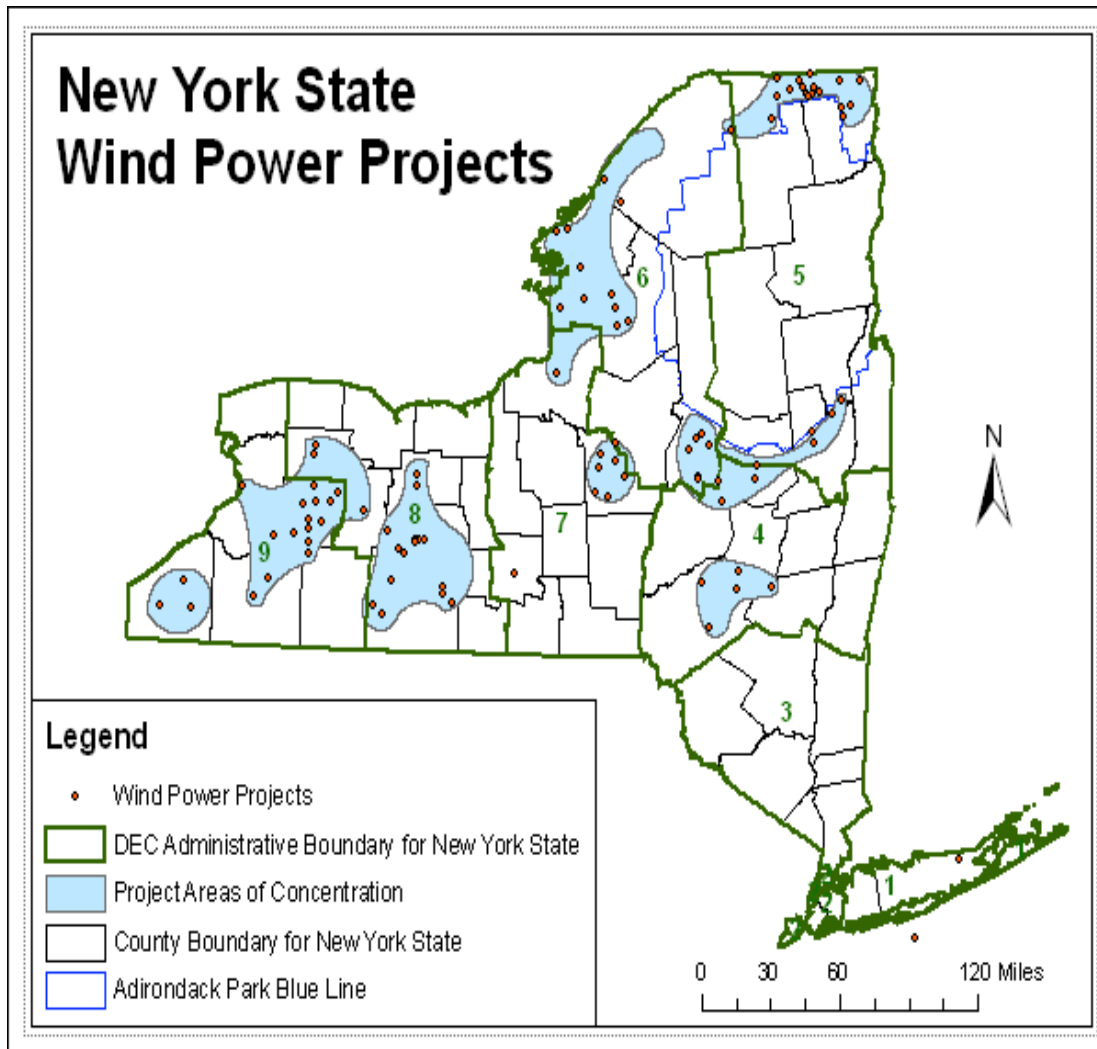


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New York Wind Proposals



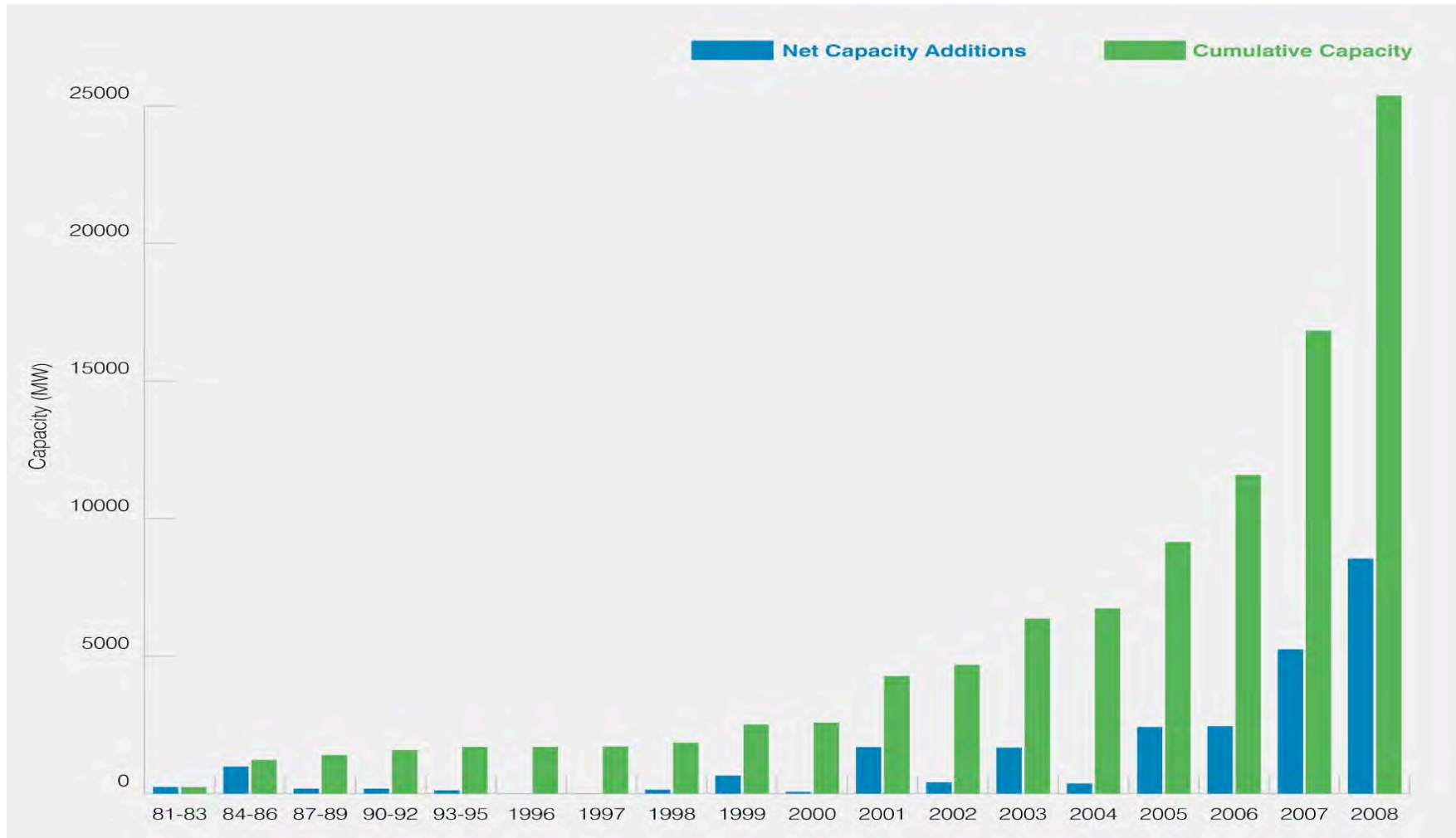
- OVER 1,200 MW ONLINE IN 2009
- RANKED 15th IN US WIND ENERGY POTENTIAL
- OFFSHORE WIND PROJECTS PROPOSED OFF NYC & GREAT LAKES
- OVER 7,000 MW POTENTIAL WIND INCLUDES OFFSHORE
- NY BULK ELECTRIC SYSTEM CAN ACCOMMODATE AT LEAST 3,500 MW WIND
- NYISO USING NEW FORECASTING TO BETTER INTEGRATE RENEWABLES INTO GRID

Market Overview



High Sheldon Wind Farm, NY - Invenergy

U.S. Wind Project Installations



Doubling Renewable Energy in U.S.

President Obama has called for the U.S. to double its production of renewable energy in 3 years



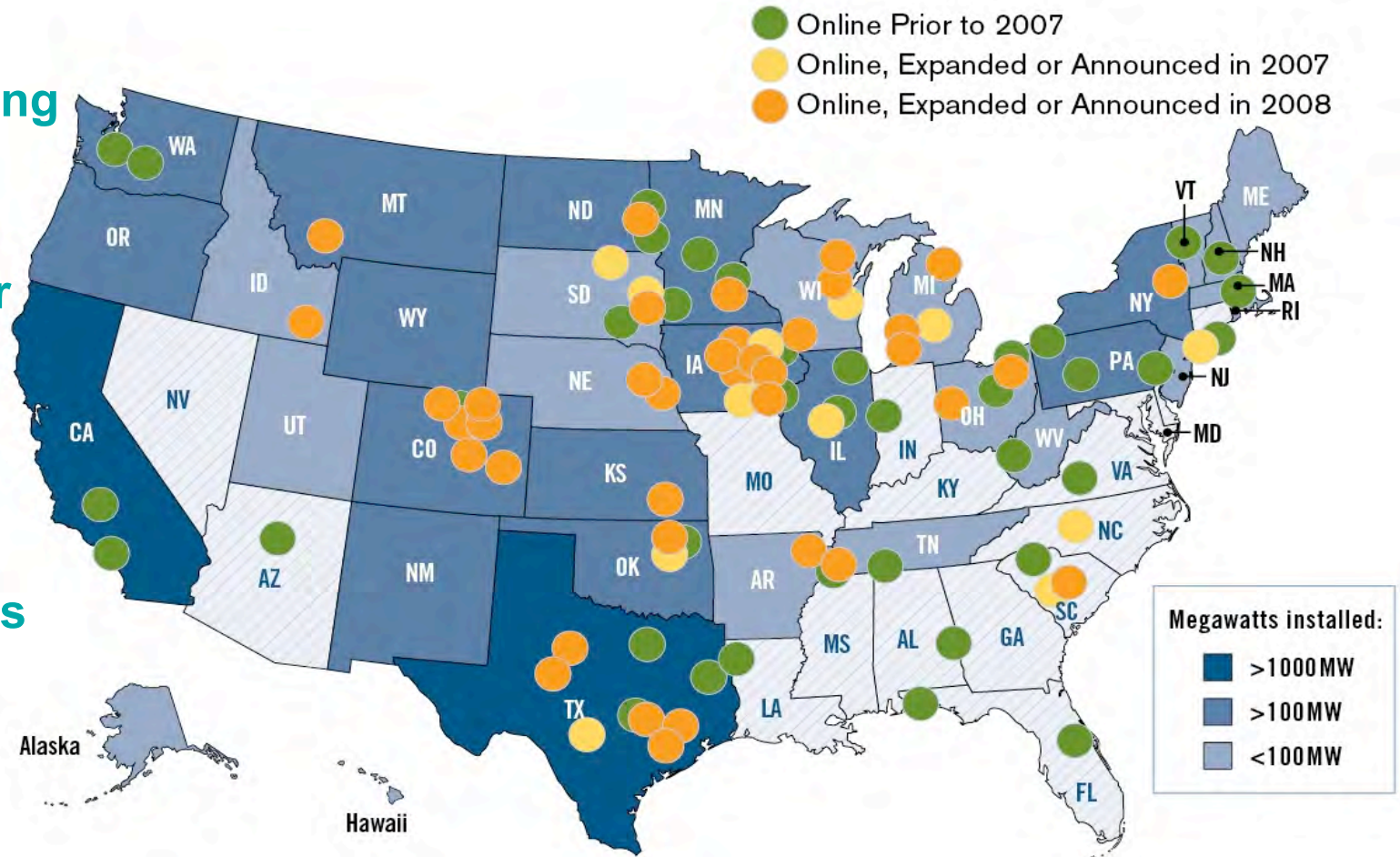
President Obama gives “thumbs up” to wind energy industry leaders at AWEA member Cardinal Fastener manufacturing facility

Photo: Courtesy of AWEA

New Manufacturing

Over 55 manufacturing facilities opened, expanded or announced in 2008

35,000 wind industry jobs created in one year



Source: AWEA, November 2008

Future Growth of the Wind Energy Industry

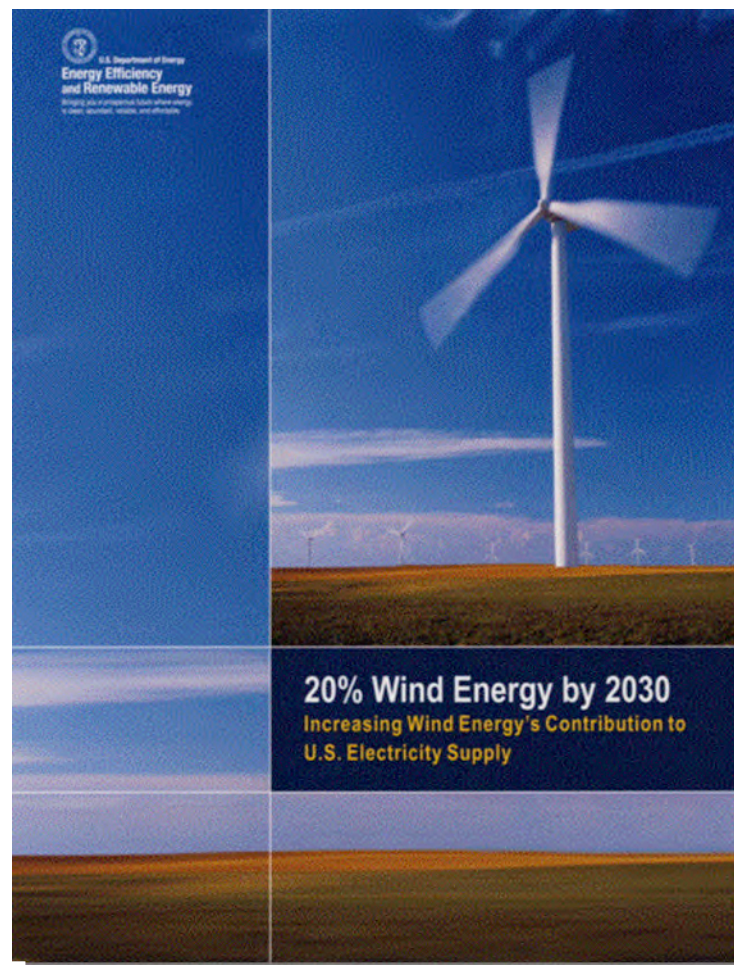


Children at Fenner Wind Farm Celebration

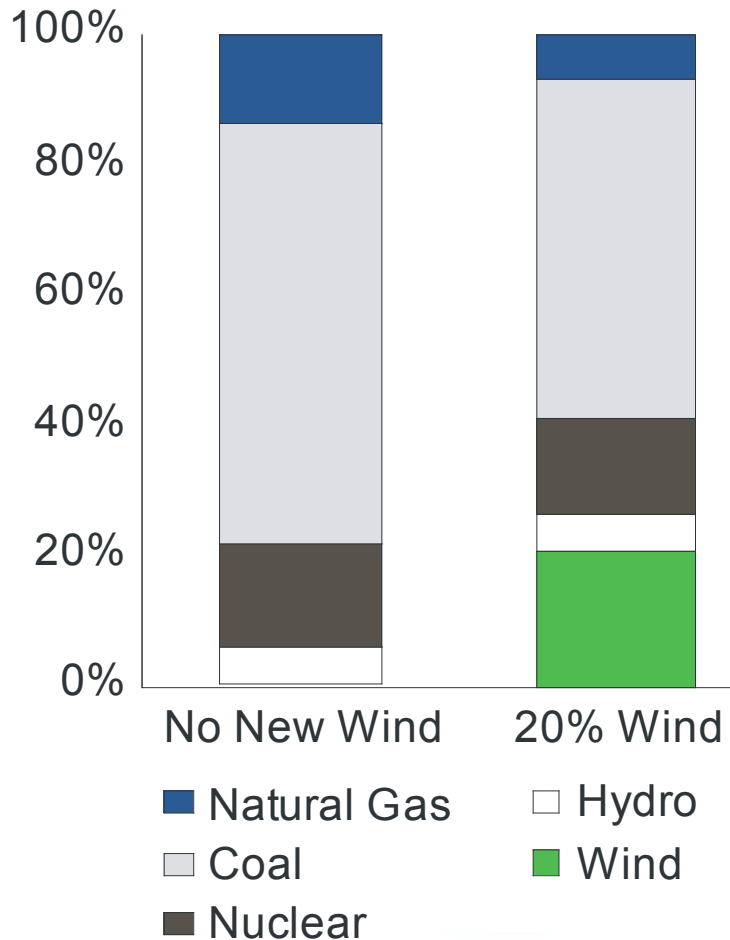
20% Wind Energy by 2030

The U.S. possesses sufficient and affordable wind resources to obtain at least 20% of its electricity from wind by the year 2030.

U.S. Department of Energy,
May 2008

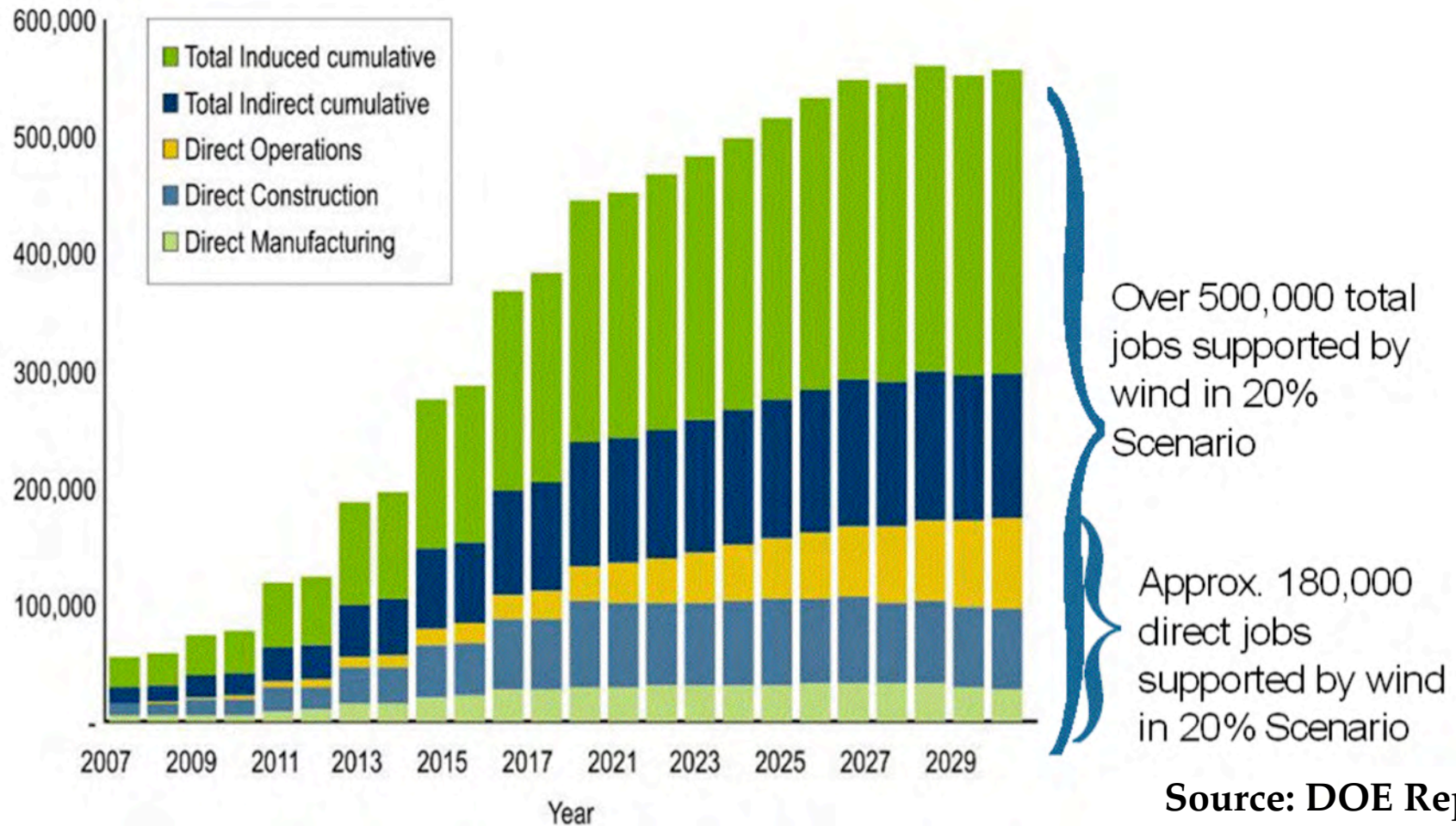


Impact on Generation Mix 20% Wind in 2030



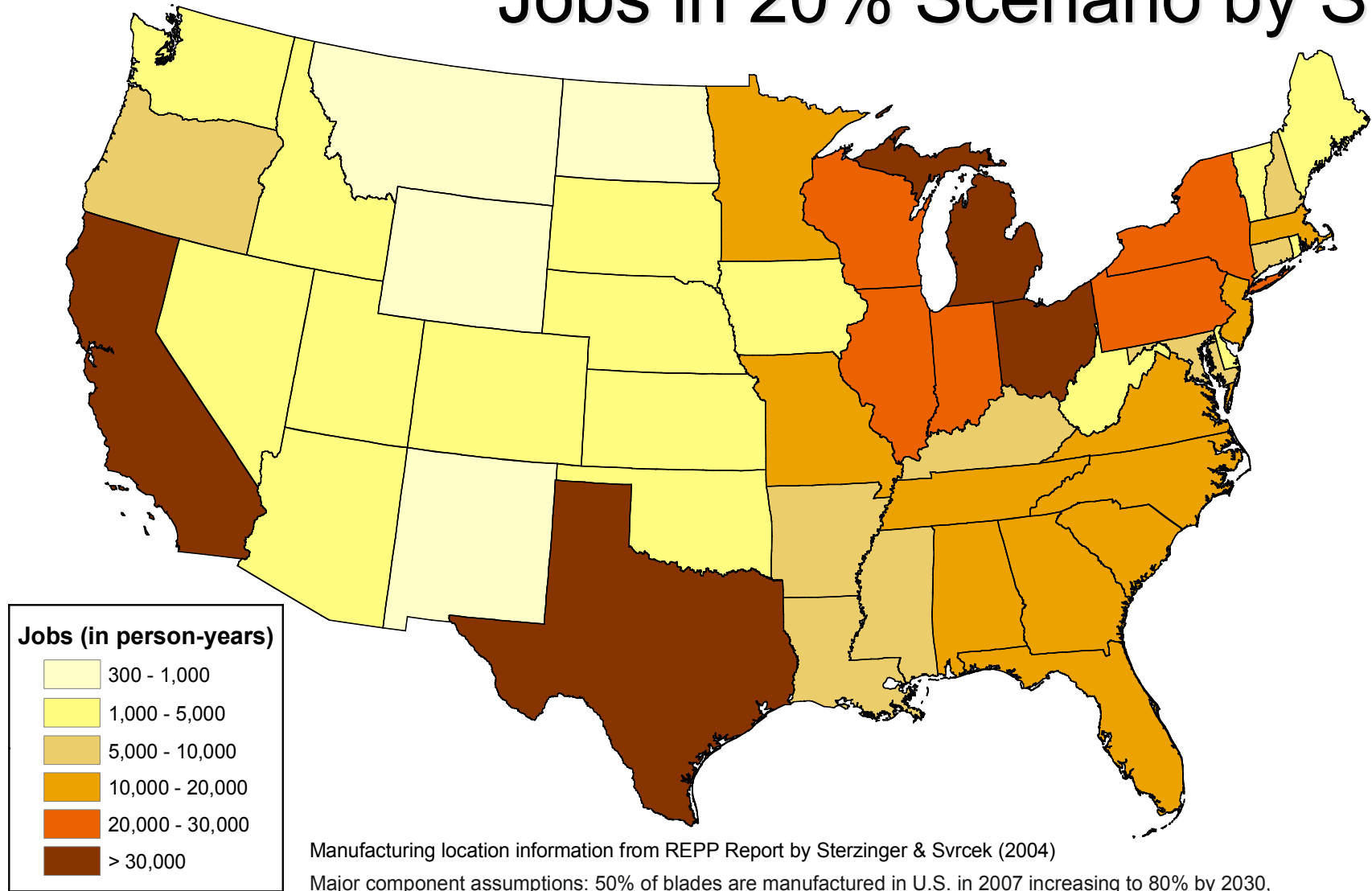
- **Reduces electric utility coal consumption by 18%**
- **Reduces electric utility natural gas consumption by 50%**
- **Natural gas consumer benefits: \$86-214 billion***
- **Reduces total natural gas consumption by 11%**

Jobs Supported by 20% Scenario



Source: DOE Report

Jobs in 20% Scenario by State



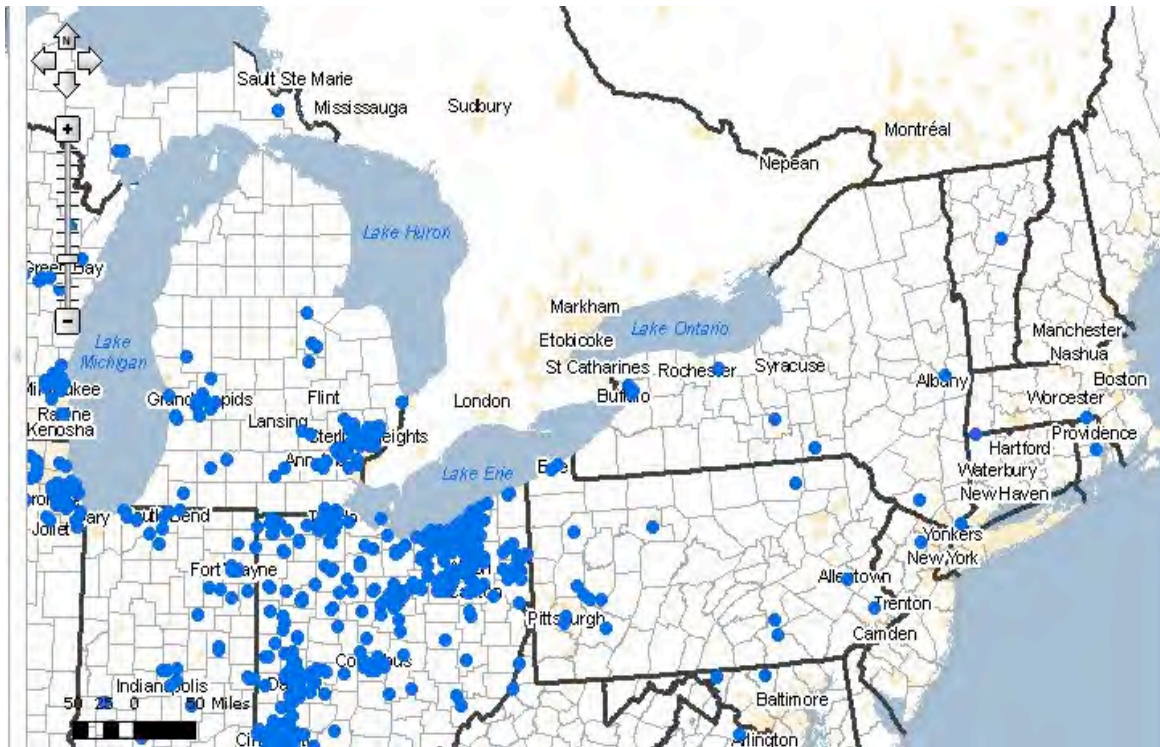



BUILDING THE U.S. SUPPLY CHAIN

Great Lakes WIND Network™
Wind Industry Supply Chain Mapping

Great Lakes Wind Network
Site made possible by: Ohio University's Volnovich School

Search Companies ▾ | Select State ▾ | Map Contents



**Register for the
Supply Chain
Map**

By Visiting:

WWW.GLW.ORG

Turbine Components

There are over 8,000 components in a turbine, including:

Towers:

Towers
Ladders
Lifts

Rotor:

Hub
Nose Cone
Blades
- Composites
- Blade Core
Pitch Mechanisms
Drives
Brakes
Rotary Union

Nacelle:

Nacelle Cover
Nacelle Base
Heat exchanger
Controllers
Generator
Power Electronics
Lubricants
Filtration
Insulation
Gearbox
Pump
Drivetrain
Ceramics
Shaft

Foundation:

Rebar
Concrete
Casings
Other:
Transformers
Bolts/Fasteners
Wire
Paints and Coatings
Lighting
Lightning Protection
Steel Working/Machining
Communication Devices
Control and Condition Monitoring Equipment
Electrical Interface and Electrical Connection
Batteries
Bearings
Brakes

Current Manufacturing Capacity

- **There are well over 120 manufacturing facilities for turbines and large components currently online in the U.S.**
- **U.S. manufacturers are producing all the turbine's components.**
- **In 2005, about 70% of turbine & major components were imported into the U.S.**
- **Domestically manufactured components in turbines account for about 50% by value.**

New U.S. Manufacturing Capacity

Between 1Q 2007 and 4Q 2008 (24 months), there was significant growth in the industry's manufacturing capacity.

- ✓ *19 new facilities online*
- ✓ *31 announced facilities*
- ✓ *21 announced facility expansions*

A total of 71 facilities have come on-line, been announced, or have expanded.

2008 Installations by Turbine Manufacturers

FIGURE 11: MANUFACTURERS' SHARE OF TOTAL WIND POWER FLEET

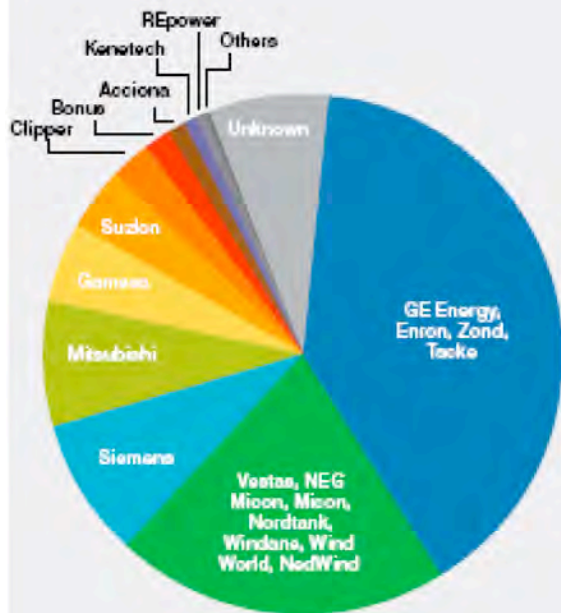
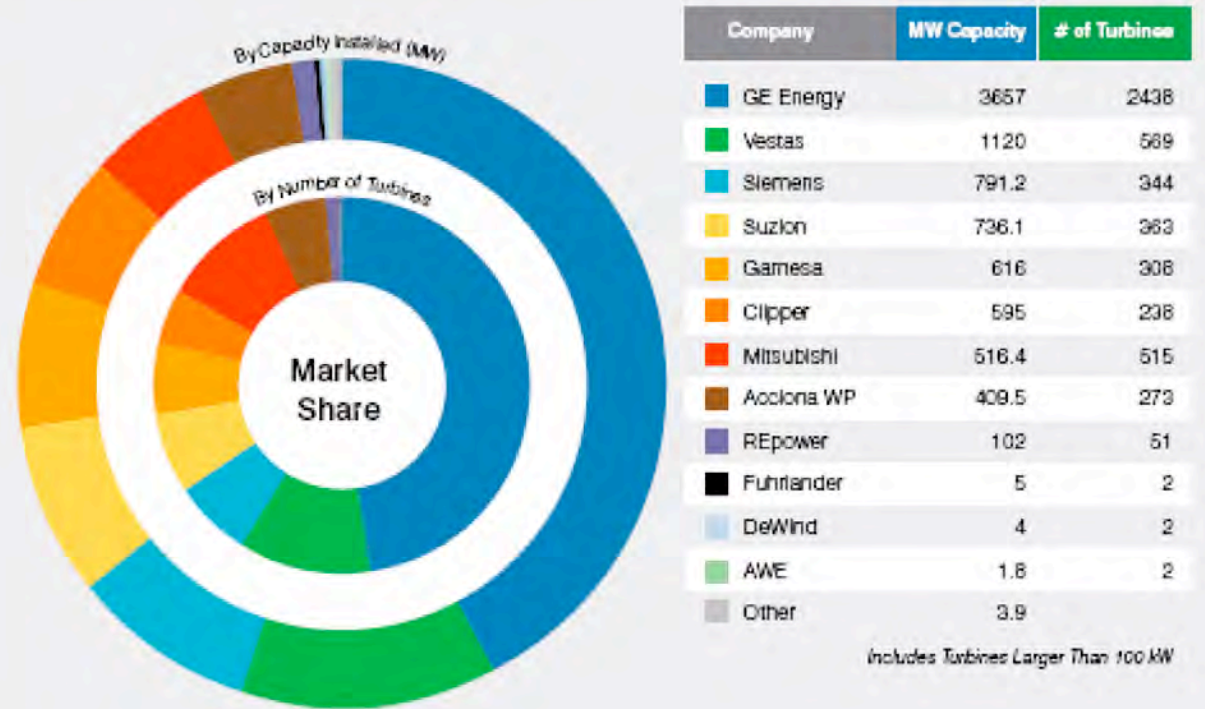


FIGURE 12: MANUFACTURERS' PERCENTAGE OF 2008 INSTALLATIONS

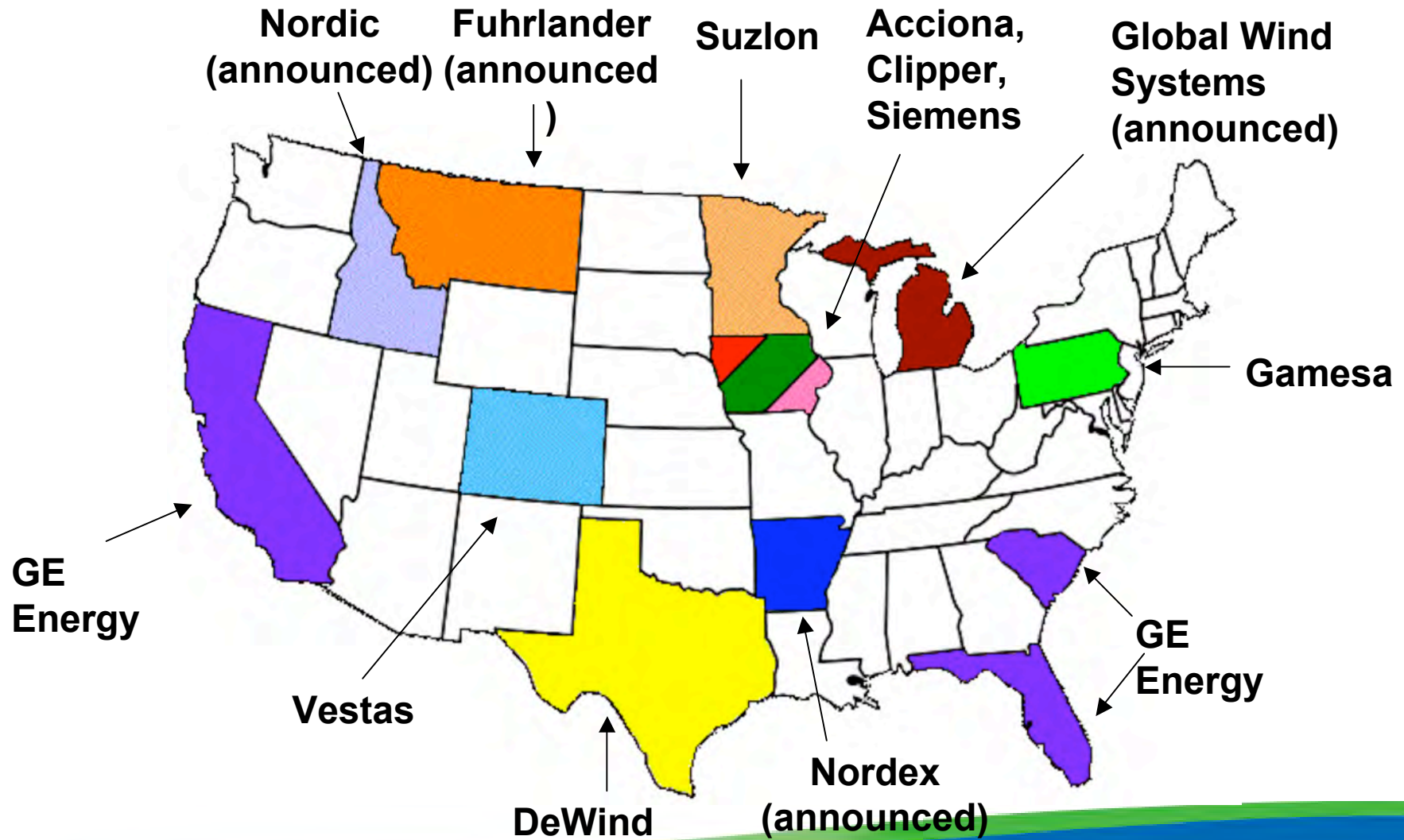


If a project meets AWEA minimum criteria for project completion, "completion" is determined by project owners, which may lead to some discrepancies between numbers reported by manufacturers and project owners.

FROM AWEA 2009 INDUSTRY REPORT

Alliance for Clean Energy New York

Turbine Manufacturer Locations



Federal and State Policies and Incentives

2009 American Recovery and Reinvestment Act (ARRA)

- **Three Year Extension of the PTC** (Sect. 1101)
 - *Extends PTC for wind power three years to 12/31/2012*
- **Temporary ability to claim ITC** (Sec. 1102)
 - *Temporary ability to claim ITC 30% investment tax credit (ITC) instead of production tax credit (PTC)*
 - *This is an option, not a requirement*
- **Treasury grant program** (Sec. 1603)
 - *Allows taxpayers that are eligible for ITC (including investment tax credits claimed in lieu of production tax credits) to receive an equivalent financial grant from the Department of Treasury instead*

2009 American Recovery and Reinvestment Act (ARRA)

- **Manufacturing tax credit (Sec. 1302)**
 - *New 30% credit for investment in qualified property used in a “qualified advanced energy manufacturing project.”*
 - *Renewable energy manufacturing project “that re-equips, expands, or establishes a manufacturing facility for the production of property designed to be used to produce energy from the sun, wind, or geothermal deposits.”*

New York's Energy Policy



- Governor Paterson's new Renewable Portfolio Standard 30% goal, must continue funding programs
- Governor's Task Force - wind recommendations, green collar workforce
- New York ISO - transmission, integration into grid
- Siting Issues - agency guidelines, property taxes, public support
- Regional Greenhouse Gas Initiative (RGGI)

New York's Renewable Portfolio Standard

- *Original RPS Goal – “25% renewable energy by 2013” which really meant a 6% increment in renewable energy use*
- *Governor's 2009 State of the State Address*
 - *30% renewable energy by 2015*
 - *15% reduction in energy use by 2015*
- *Centralized procurement by NYSERDA with competitive, pay as bid, 10 year contracts for Renewable Energy Credits (RECs)*
- *Bids evaluated on price and economic benefits to NY (70/30)*
- *RPS also includes rebates for customer-sited wind turbines, 2008 change in net metering law allows for all customer classes to net meter solar and wind up to 2 MW*
- *2009 RPS evaluation shows for every \$1 spent, NY receives \$6 in direct benefits*

Unique RPS Design Features

- Public Service Commission is responsible for program policy and regulations
- NYSERDA acts as central administrator of the NY RPS under a two-tiered approach
 - ✓ Customer Tier, behind the meter applications such as solar and small wind
 - ✓ Main Tier, large generators that sell power to the wholesale grid for use by all customers
- Utilities are not subject to compliance

Governor's Renewable Energy Task Force

Chair of Committee on Central Generation

Report issued February 26, 2008

Wind power related recommendations included:

- Fund RPS program to achieve goals
- Consider expansion of RPS goal
- Incentives for offshore wind development
- Community wind (consider specific RPS support mechanism)
- Build in-state supporting infrastructure (manufacturing)
- Workforce Development (wind research and training facility)

New York Independent System Operator

- *Restructured, competitive wholesale market*
- *Over 1,200 MW of wind now on the grid*
- *Over 7,000 MW of wind energy in the interconnection queue*
- *New wind forecasting system about to debut*
- *New study on wind integration in process*
- *New market rules for wind*
- *Transmission issues increasingly important and acknowledged but no solutions yet identified*

Education is Key to Building Support



Fenner Wind Farm Celebration 2006
400 Madison county students form a
human wind turbine



Steel Winds Tour - NYSAC, Fall 2008

Public Education is Critical

Wind Project Siting Realities in NY

- Fairly congested land use pattern
- Increasing reliance on tourist economy or second home development
- Many land owners involved per project
- Different approaches needed for different circumstances and communities
- Challenge: translate general support for renewable energy into support for specific projects
- After wind projects are built, community acceptance is very high (FREE Center, Lewis County survey)

UPCOMING EVENTS

Alliance for Clean Energy New York

Annual Membership Meeting & Conference

October 20 - 21, Desmond Hotel, Albany, NY

AWEA Supply Chain Conference

November 3 - 5, Detroit, MI



For More Information Visit:

Alliance for Clean Energy New York

WWW.ACENY.ORG

(518) 432-1405

American Wind Energy Association

WWW.AWEA.COM

(202) 383-2500

Great Lakes WIND Network

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QUESTIONS ?????