

South Dakota Public Utilities Commission

Presents:

***Crisis or Renaissance?***

***The State of America's Energy***

Sioux Falls, SD

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## **Wind Energy Update**

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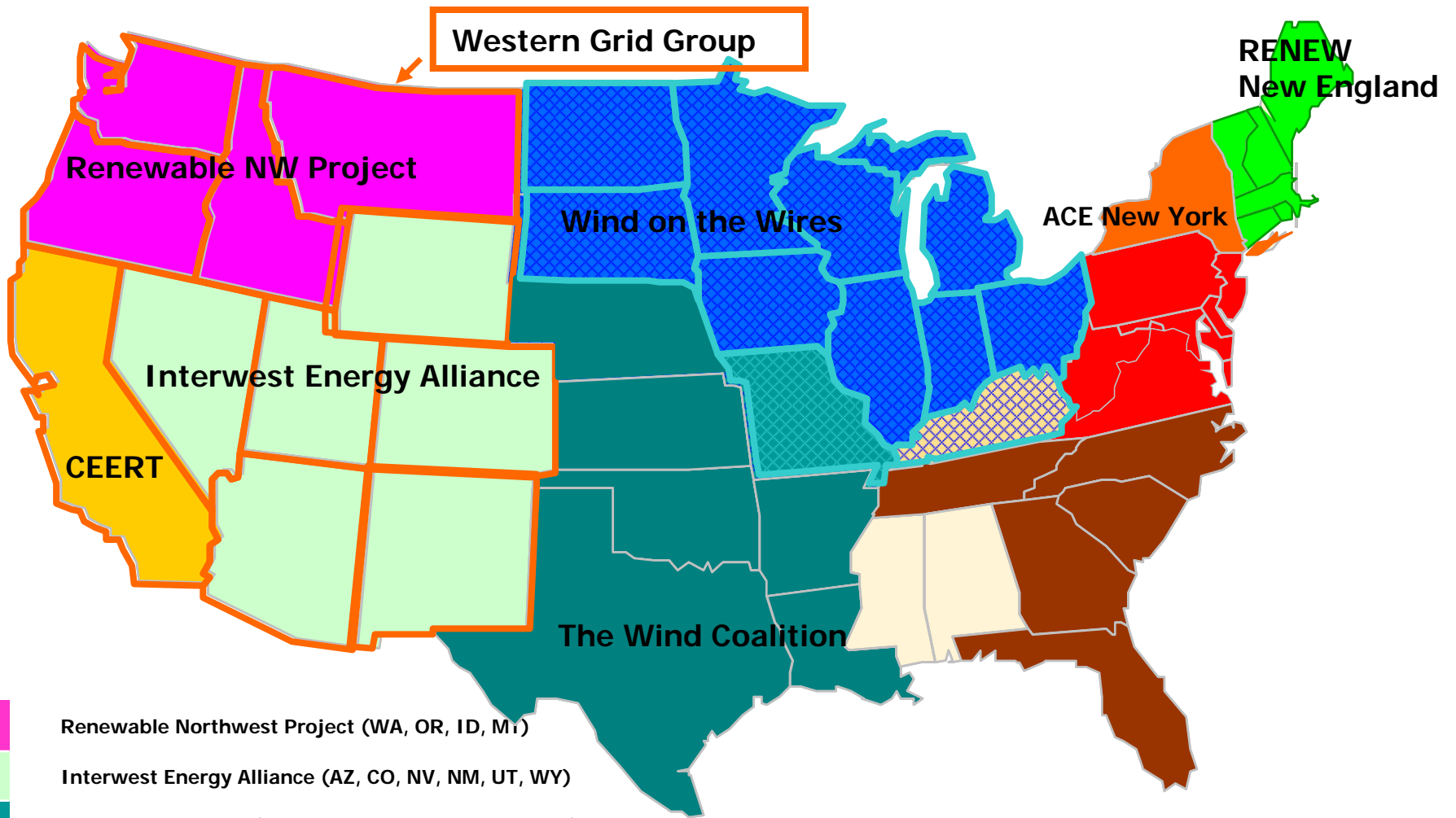
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# Background on Wind on the Wires

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- **Organized** in 2001 to overcome the barriers to bringing wind power to market in the Midwest.
- **Members** include non-profit advocacy organizations, tribes, wind developers and manufacturers, American Wind Energy Association (wind industry trade association), businesses that provide goods and services to the wind industry.
- **Work in 3 areas:**
  - **Technical** – work with electric utilities and Midwest Independent System Operator (MISO – regional “grid” operator) on transmission planning for wind
  - **Regulatory** – involved in cases where states are approving new transmission lines that will advance wind power
  - **Policy education/outreach/advocacy** – speak to many people and groups about our work and issues
- **Support** – Foundations and member contributions.





- Renewable Northwest Project (WA, OR, ID, MT)
- Interwest Energy Alliance (AZ, CO, NV, NM, UT, WY)
- The Wind Coalition (NM, TX, OK, AR, LA, MS, KS, MO)
- Center for Energy Efficiency & Renewable Technologies (CA)
- Wind on the Wires (ND, SD, MI, MN, MO, IA, IN, WI, IL, OH)
- RENEW New England (CT, MA, ME, NH, RI, VT)
- Alliance for Clean Energy New York (NY)
- Potential New Mid-Atlantic Organization
- Potential New Southeastern Organization

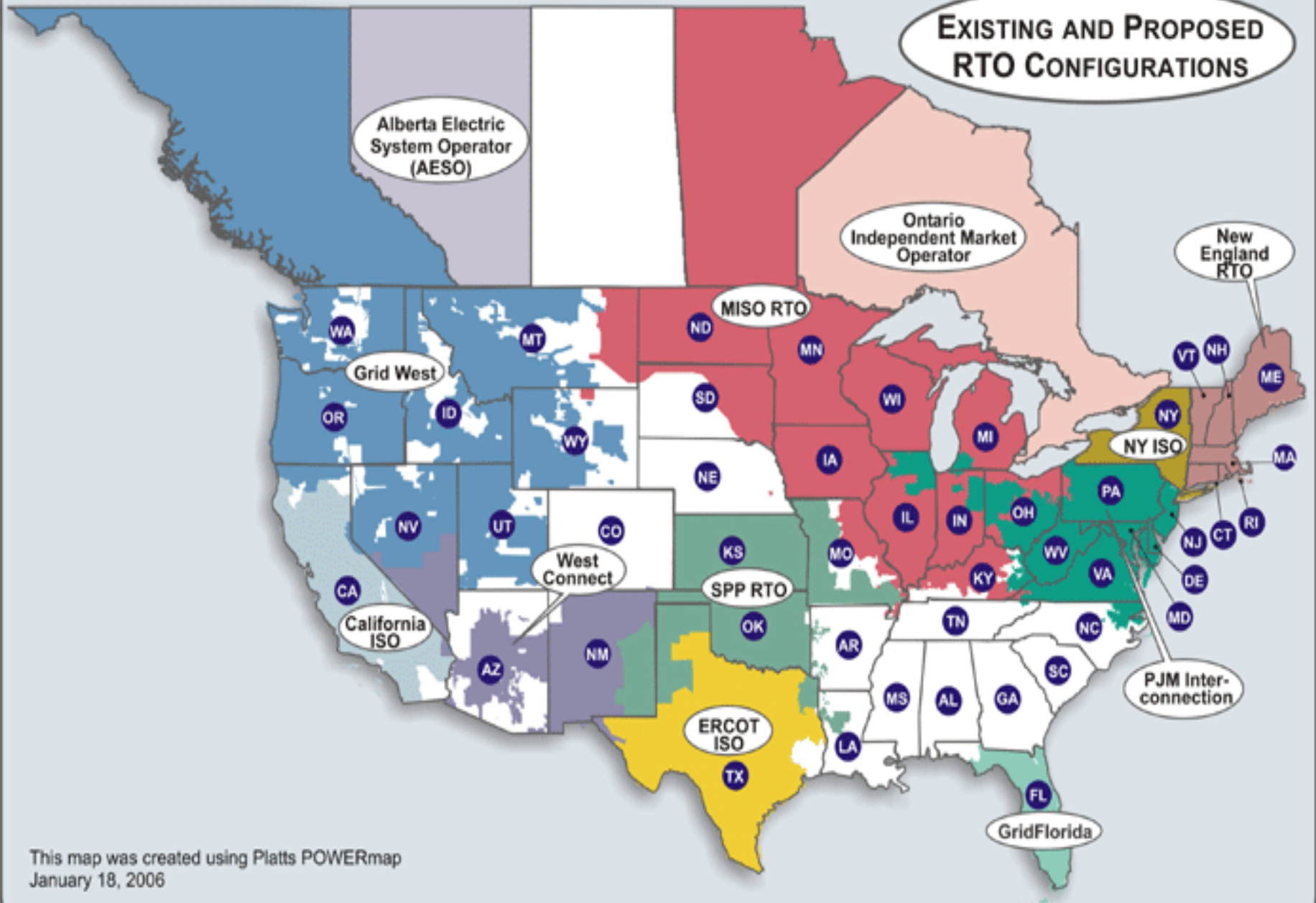


Western Grid Group (CA, OR, WA, MT, ID, AZ, NM, CO, UT, NV, WY)



Midwest Independent Trans. Sys. Operators (MISO) (ND, SD, NE, MN, IA, MO, WI, IL, MI, IN, OH, KY, Manitoba)

# EXISTING AND PROPOSED RTO CONFIGURATIONS



This map was created using Platts POWERmap  
January 18, 2006

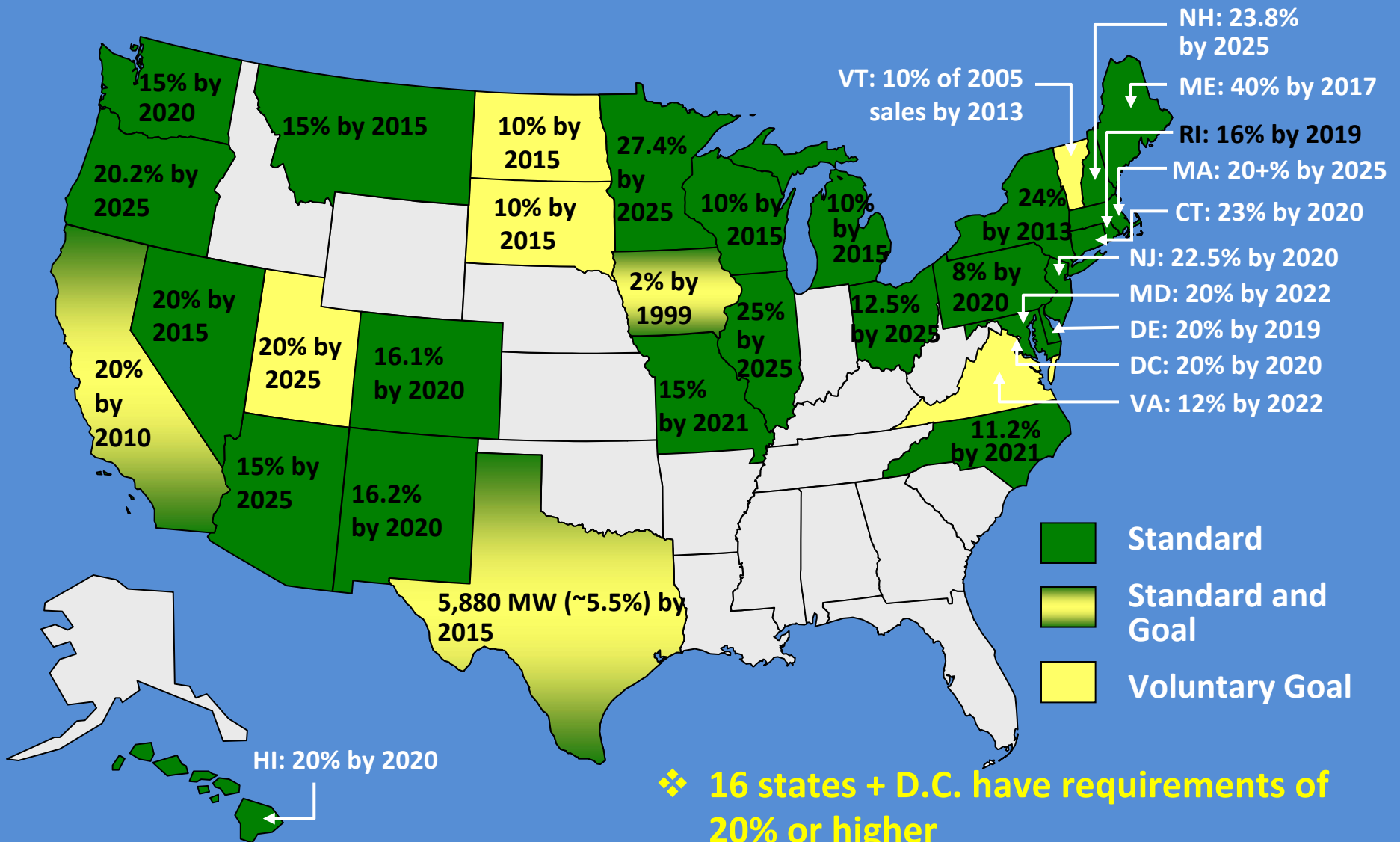
# What's Driving Wind Power and Transmission Expansion in the Midwest?

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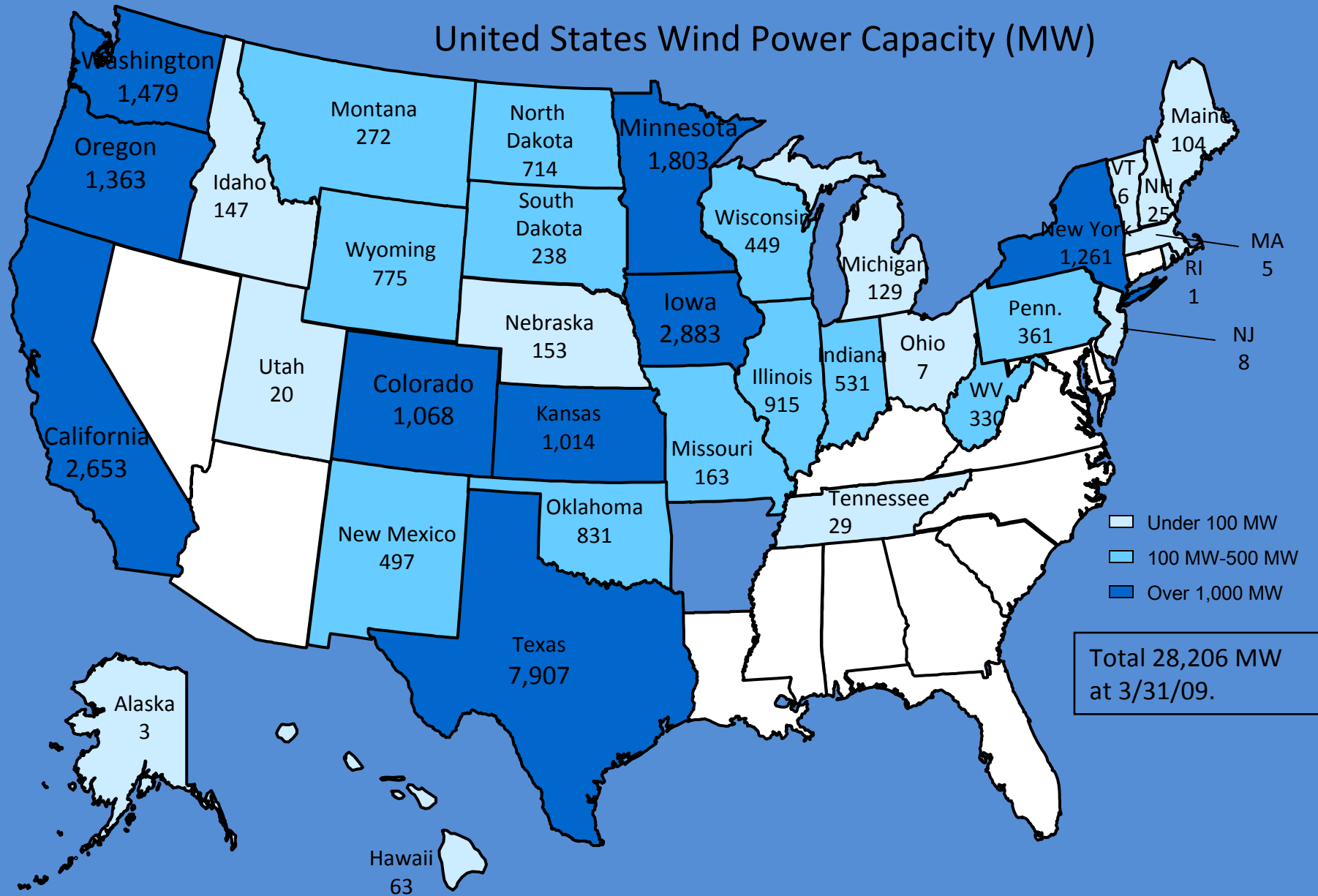
- Climate policy debate – (federal, regional, state)
- State RES/promise of federal RES
- Debate on transmission policy – greater federal role?
- Need for new infrastructure for load growth, renewables, to reduce congestion
- Midwest Governors Association (MGA) Energy Security and Climate Stewardship Platform for the Midwest 2007
  - Aggressive renewables goals (30% by 2030)
  - Transmission Adequacy goals
- Upper Midwest Transmission Development Initiative
  - Governors of IA, MN, ND, SD, WI

# Renewable Electricity Standards

## 28 States + D.C.



# United States Wind Power Capacity (MW)



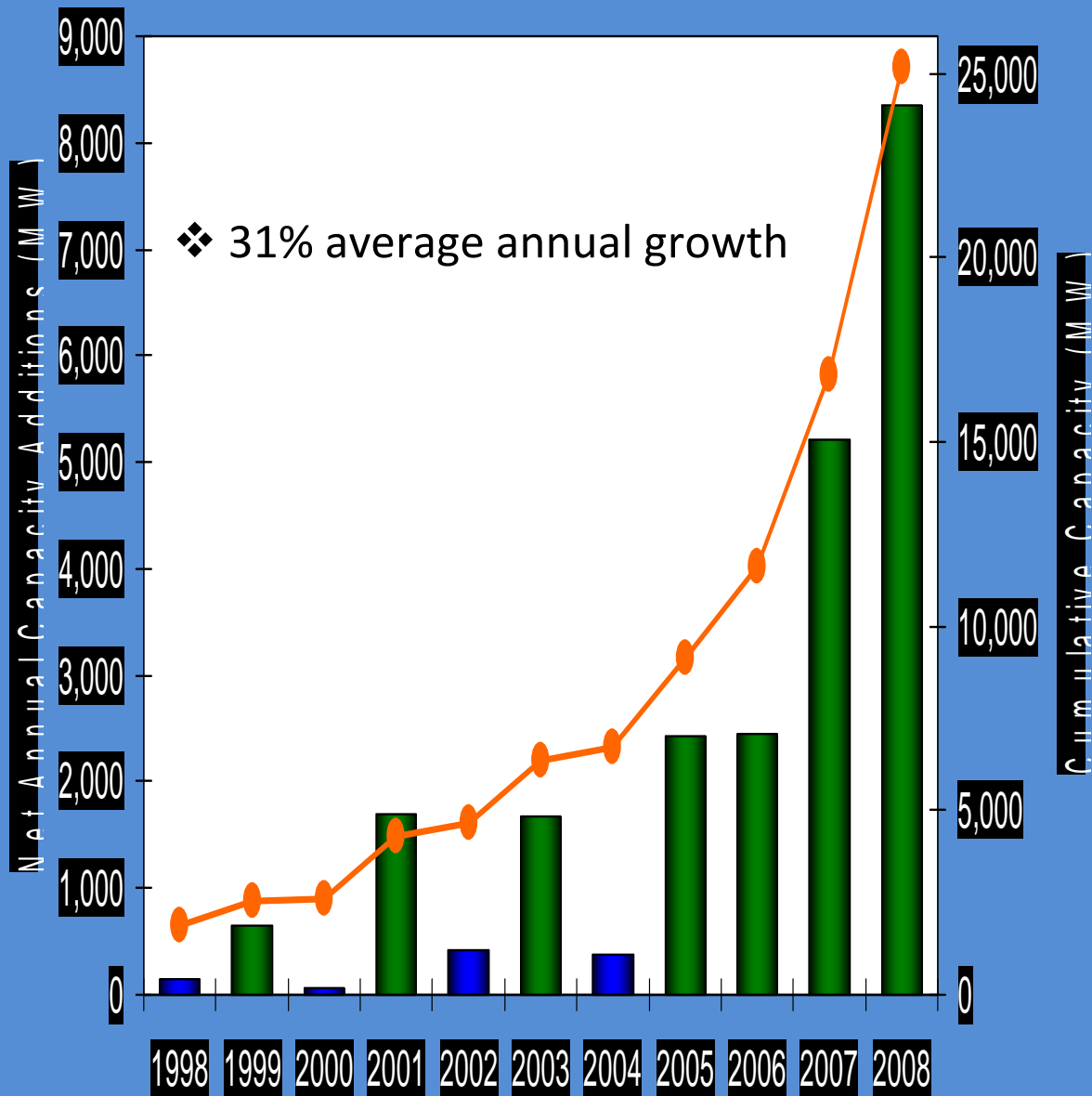
# The State of Wind Power

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- 28, 206 MW were installed as of March 31, 2009
  - Enough to serve 8 million homes and avoid the emissions of 52 million tons of carbon dioxide annually—the equivalent of removing 8.8 million cars from the road
- 2,836 MW installed in the first quarter of 2009
- At the end of 2008, the Wind Industry employed 85,000 workers - up from 50,000 in 2007
- In 2008, 55 new wind turbine component manufacturing facilities opened, expanded or were announced in the United States
- GE Energy turbines accounted for 43% of all new capacity installed in the U.S. in 2008. The rest of the top five include Vestas, which accounted for 13%, Siemens and Suzlon at 9% each, and Gamesa at 7%. Several new companies--Acciona, REPower, Fuhrlander, DeWind and AWE--entered the U.S. market in 2008.



# Growth of US Wind Capacity, 1998 - 2008



- More wind added in 2007 and 2008 than in prior 20 years
- Renewable energy now largest source of new capacity additions

# The State of Wind Power

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- “Gigawatt” state club :
  - Texas 7,907 MW
  - Iowa 2,883 MW
  - California 2,653 MW
  - Minnesota 1,804 MW
  - Washington 1,479 MW
  - Oregon 1,363 MW
  - New York 1,261 MW
  - Colorado 1,068 MW
  - Kansas 1,014 MW

# The State of Wind Power

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- Largest wind project – Roscoe project in Texas
  - Currently 584.5 MW
  - 197 MW will be completed soon making it the largest operating wind power project
- Indiana is the fastest growing wind power state with 400.3 MW Fowler Ridge Wind Farm – Phases I and II that was brought online in first quarter 2009.
- States tallying the most rapid growth in wind capacity in the first quarter include:
  - Indiana 75%
  - Maine 55%
  - Nebraska 53%
  - Idaho 49%
  - New York 34%

# Where Will the Wind be Located?

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	<u>MW Spinning</u>	<u>MW Under Construction</u>
Illinois	915	312
Indiana	531	305
Iowa	2,883	210
Michigan	129	---
Minnesota	1,804	---
Missouri	163	146
Nebraska		153
North Dakota	714	149
Ohio	7	---
South Dakota	238	50
Wisconsin	449	---
<b>Total Midwest</b>	<b>7,986</b>	<b>1,172</b>
Total United States	28,206	3,406

Source: <http://www.awea.org/projects/>

Information current as of March 31, 2009

# The Vision for the Midwest??

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	<u>Spinning</u>	<u>Under Construction</u>	<u>2020 VISION</u>	<u>2030 VISION</u>
Illinois	915	312	6,000	12,000
Indiana	531	305	4,000	8,000
Iowa	2,883	210	8,000	18,000
Michigan	129	---	6,000	12,000
Minnesota	1,804	---	5,000	10,000
Nebraska	153	---	2,000	8,000
North Dakota	714	149	4,000	6,000
Ohio	7	---	2,000	3,000
South Dakota	238	50	6,000	10,000
Wisconsin	<u>449</u>	<u>---</u>	<u>2,000</u>	<u>3,000</u>
<b>TOTAL</b>	<b>7,823</b>	<b>1,026</b>	<b>45,000</b>	<b>90,000</b>

# How do we continue to make progress on Wind Power?

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- Work in all timeframes – near, mid, and long-term
  - Wind projects must become commercially operational as we plan and build for mid- and long-term
- Continue to advocate at the state, regional, federal levels for policy changes - particularly a National Renewable Electricity Standard
- Educate stakeholders on the benefits of transmission
  - Climate mitigation, economic development, job creation
- Collaborate to build transmission to support renewables
- Continue to move the decimal point in transmission planning
- Tackle and decide cost allocation, siting issues
- Move transmission lines from the planning phase to approval and construction
- Address seams issues between the Dakotas and the Midwest ISO