Commercial Wind Energy Development in Wyoming

By

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Suddenly, knowing a lot about the U.S. power grid became sexy at cocktail parties.

Evaluate Wind Energy Development Potential in Wyoming

- Five Major Components
  1. Wind Energy Resources
  2. Market for wind energy
  3. Transmission access and capacity
  4. Landowner and Community Support
  5. Environmental Impacts and Other Location Factors

Developable Nameplate Wind Power Production Potential by Class (MW) (Source: NREL Data)

State	Class 5	Class 6&7	Total Power Potential Class 5 -7	% of Total	Ranking
Arizona	460	200	660	0.32%	#11
California	4,830	4,300	9,130	4.39%	#4
Colorado	3,510	4,060	7,570	3.64%	#5
Idaho	635	395	1,030	0.49%	#10
Montana	38,860	15,620	54,480	26.18%	#2
Nevada	1,140	720	1,860	0.89%	#8
New Mexico	8,980	1,800	10,780	5.18%	#3
Oregon	1,540	850	2,390	1.15%	#6
Utah	770	410	1,180	0.57%	#9
Washington	1,590	790	2,380	1.14%	#7
Wyoming	59,630	57,040	116,670	56.06%	#1
TOTAL	121,945	86,185	208,130	100%	

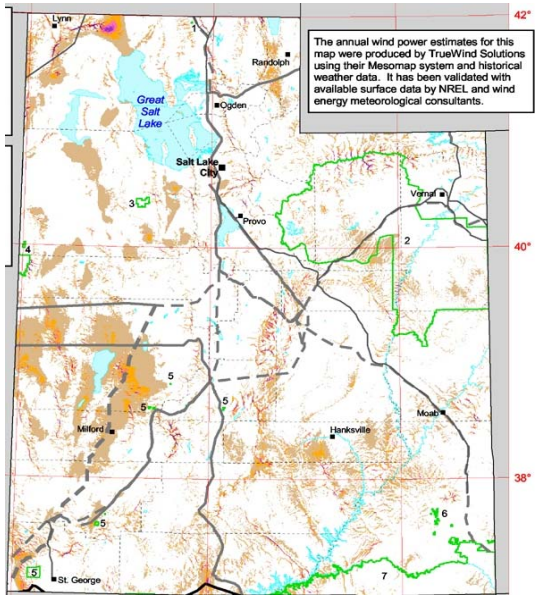
Developable Wind in Wyoming

- **Over 2/3 of Class 7 wind in the Western U.S. is located in Wyoming ***
- **Over 1/2 of Class 6 wind in the Western U.S. is located in Wyoming ***
- **Wyoming has over 100,000 MW's of developable Class 5, 6 & 7 wind (more than all the western states combined) ***
- **Wyoming has over 500,000 MW's of developable Class 3 through 7 wind ***
- **The Wyoming Infrastructure Authority (WIA) can plan, finance, site, own, operate and otherwise promote transmission projects**
- ***Wyoming currently has a sales tax exemption for the purchase of equipment for renewable energy development. No state Income taxes***

SOURCE: NREL DATA (*)

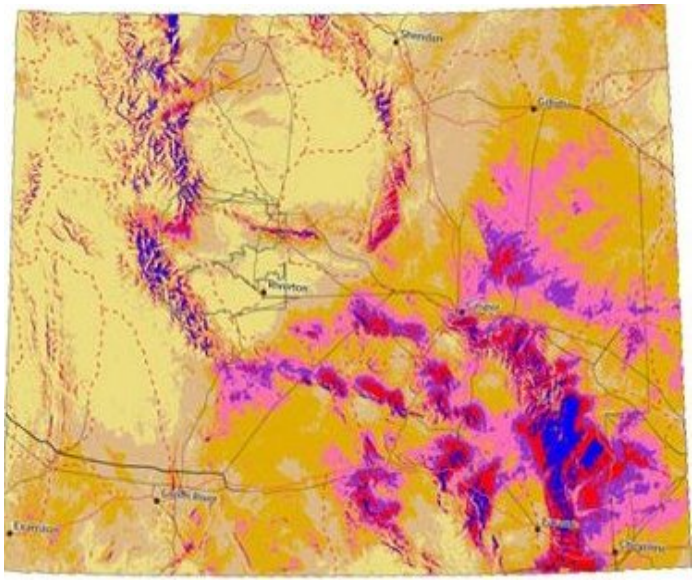
WYOMING INFRASTRUCTURE AUTHORITY

Comparison of States

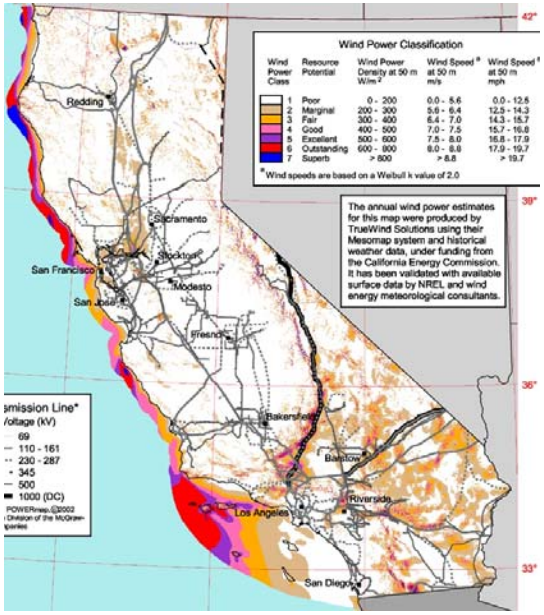


Utah—26th

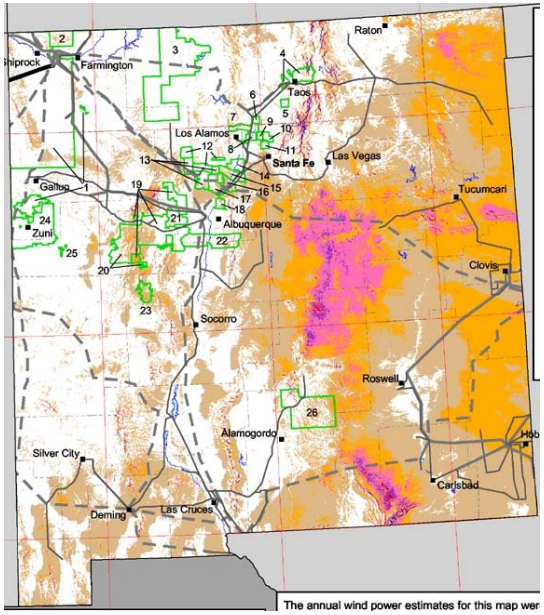
Nevada and Arizona are minimal



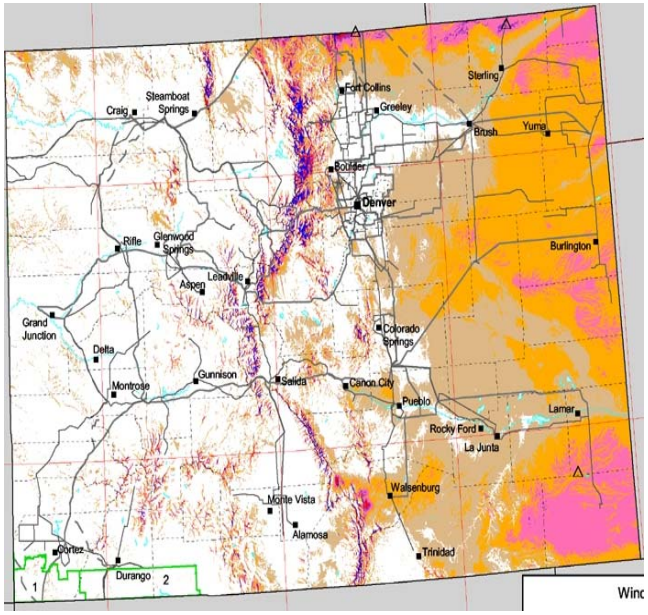
Wyoming—7th



California—17th



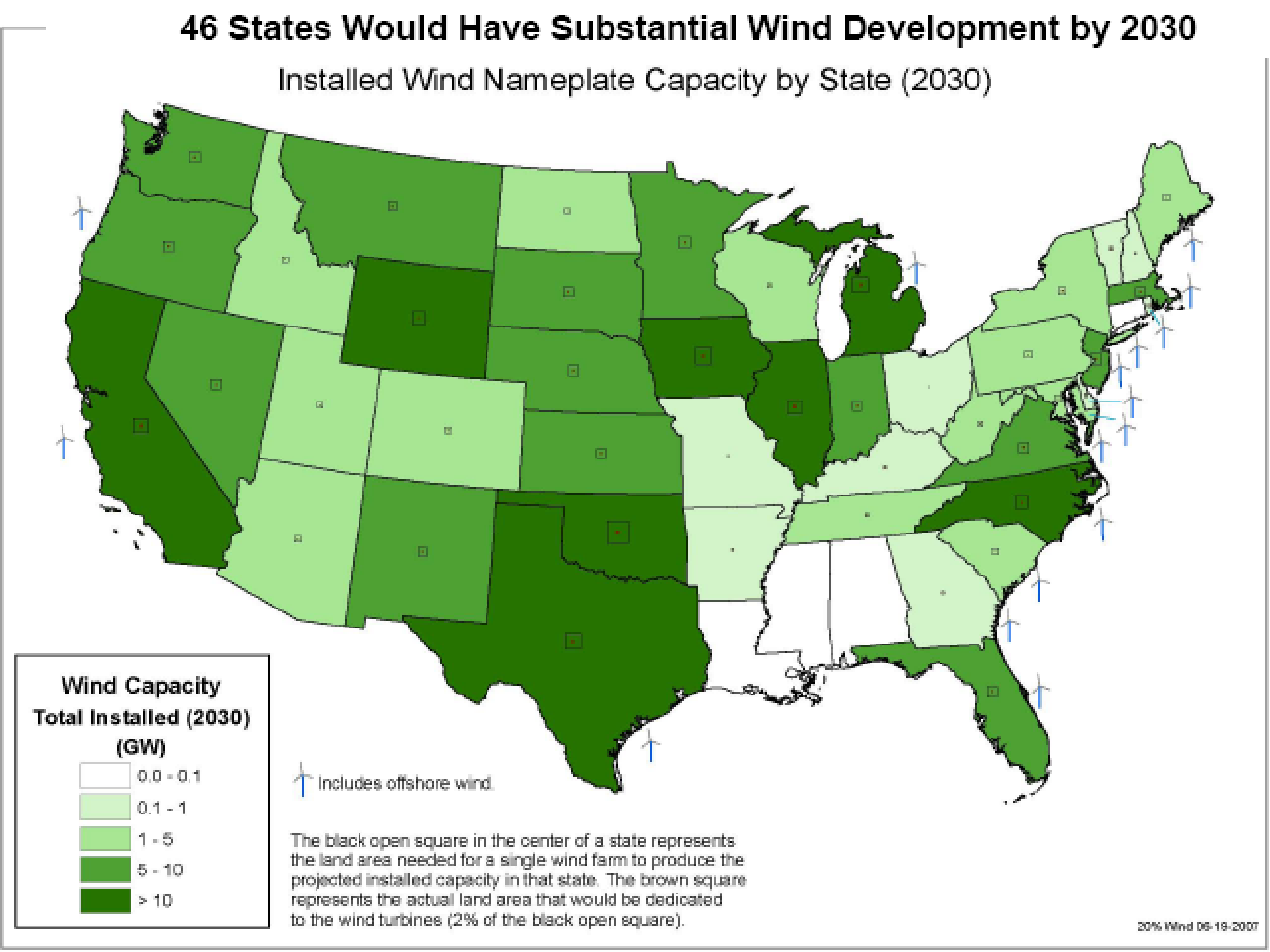
New Mexico—12th



Colorado—11th

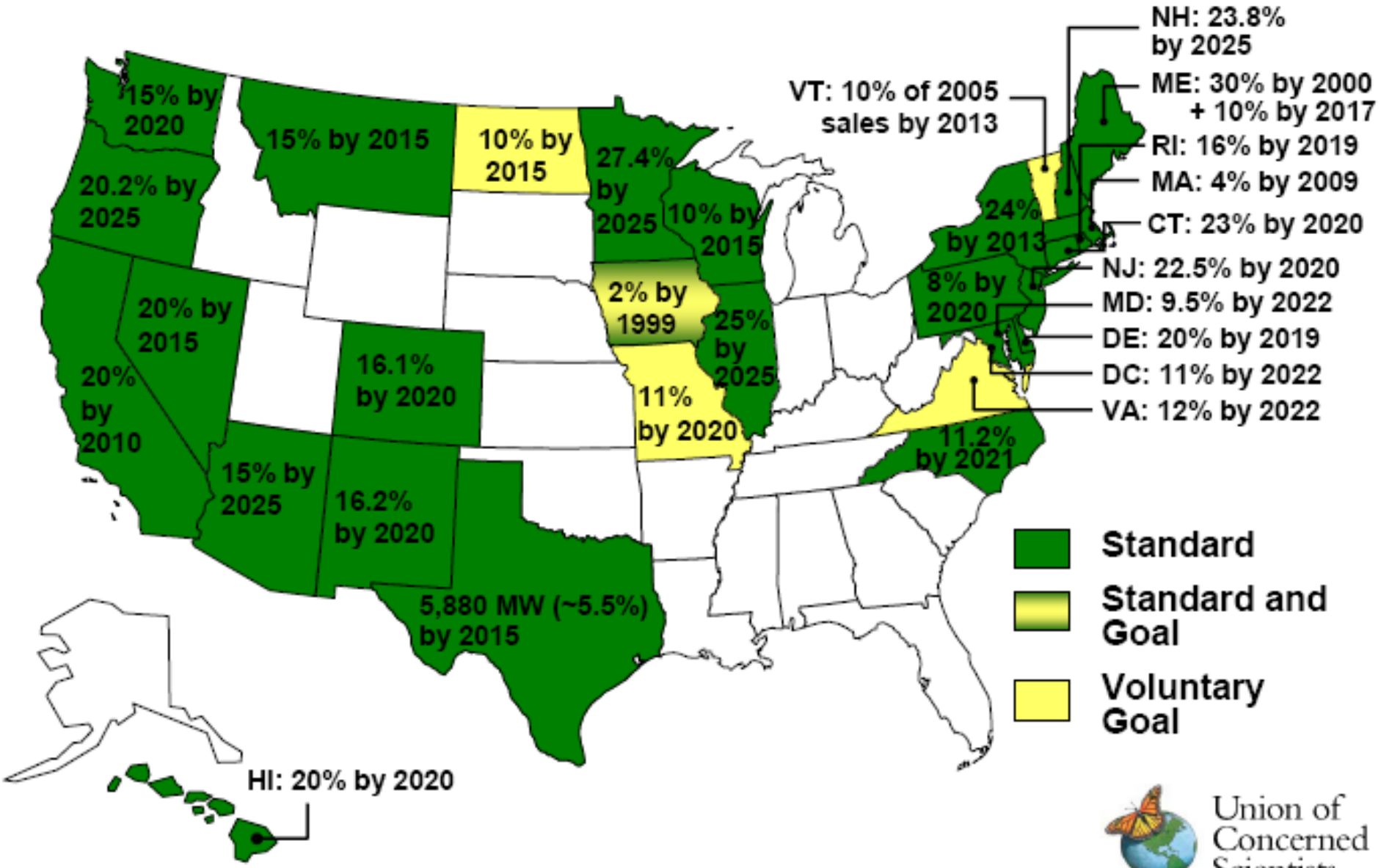
46 States Would Have Substantial Wind Development by 2030

Installed Wind Nameplate Capacity by State (2030)



The black open square in the center of a state represents the land area needed for a single wind farm to produce the projected installed capacity in that state. The brown square represents the actual land area that would be dedicated to the wind turbines (2% of the black open square).

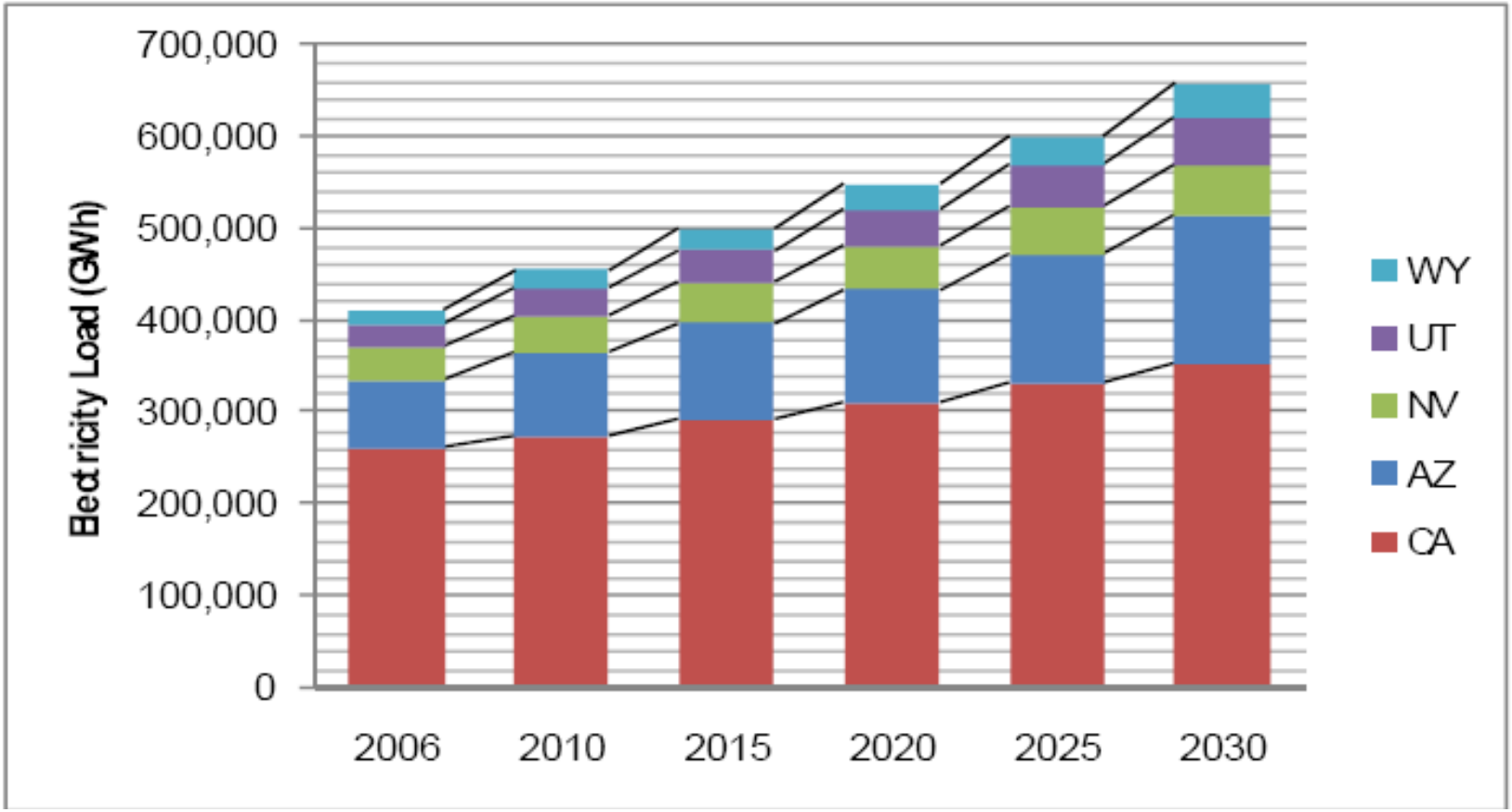
Effective Renewable Electricity Standards



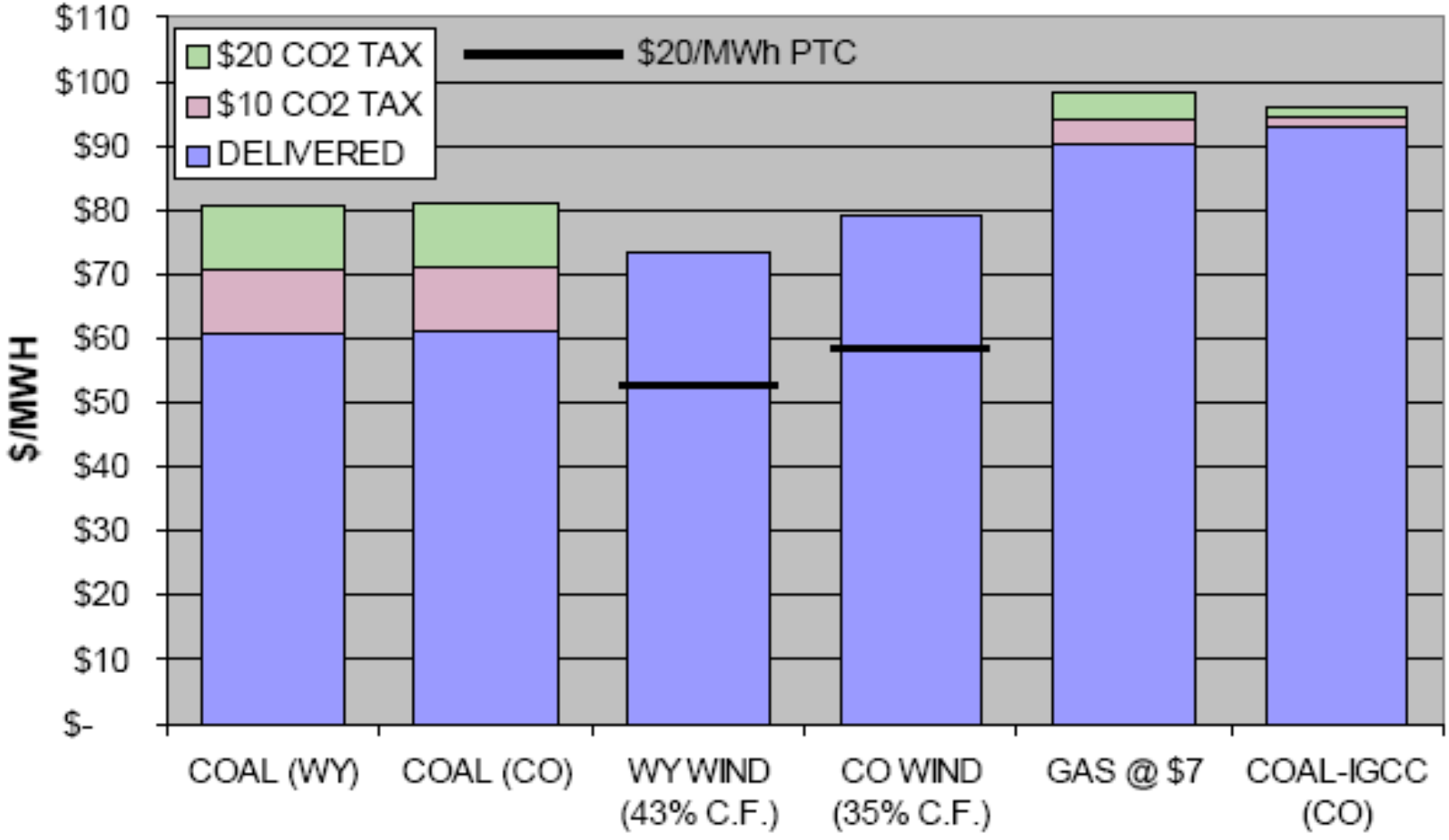
Union of Concerned Scientists

Total Load Growth in the West

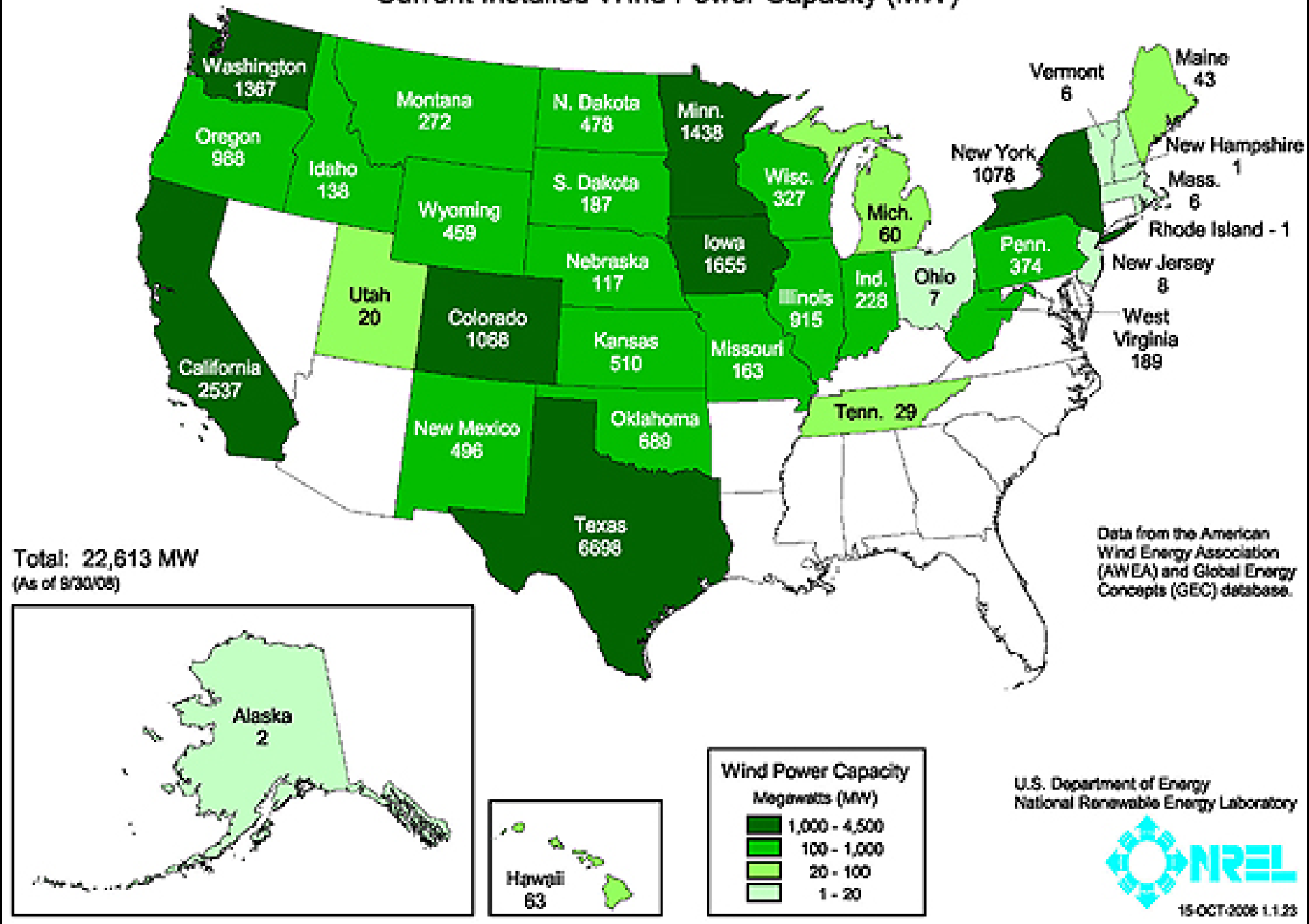
- As the fastest growing region in the country the west is expected to grow more than 45 percent between 2000 and 2030 (35% of expected total U.S. population growth)
- The five state region of Arizona, California, Nevada, Utah and Wyoming will grow from 412,000 GWh in 2006 to nearly 660,000 GWh in 2030 (load growth of 60%)



Delivered Power Costs to Colorado Front Range



Current Installed Wind Power Capacity (MW)



Total: 22,613 MW
(As of 9/30/08)

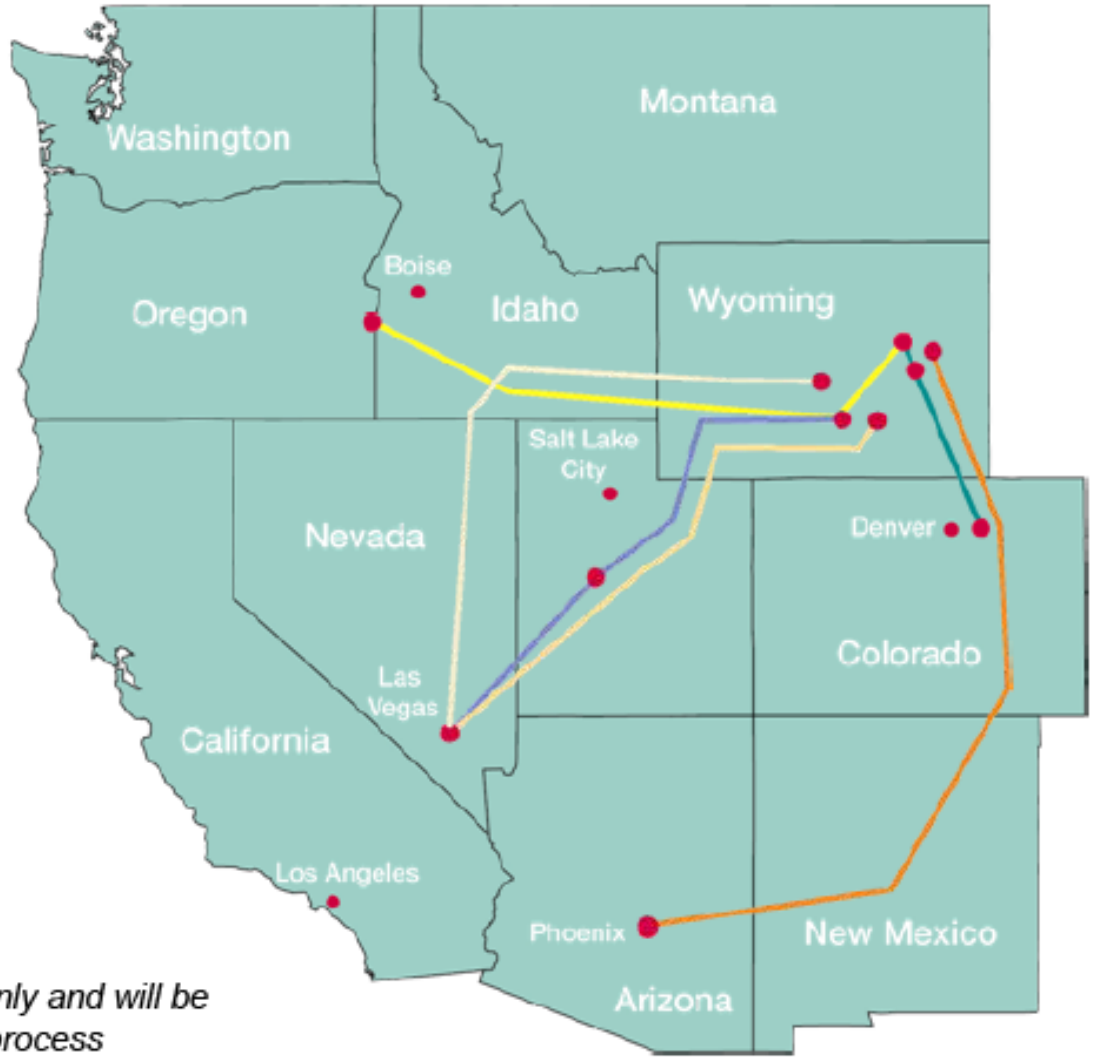
Data from the American Wind Energy Association (AWEA) and Global Energy Concepts (GEC) database.

U.S. Department of Energy
National Renewable Energy Laboratory

NREL

15-OCT-2008 1.1.23

Transmission Projects under Development in Wyoming



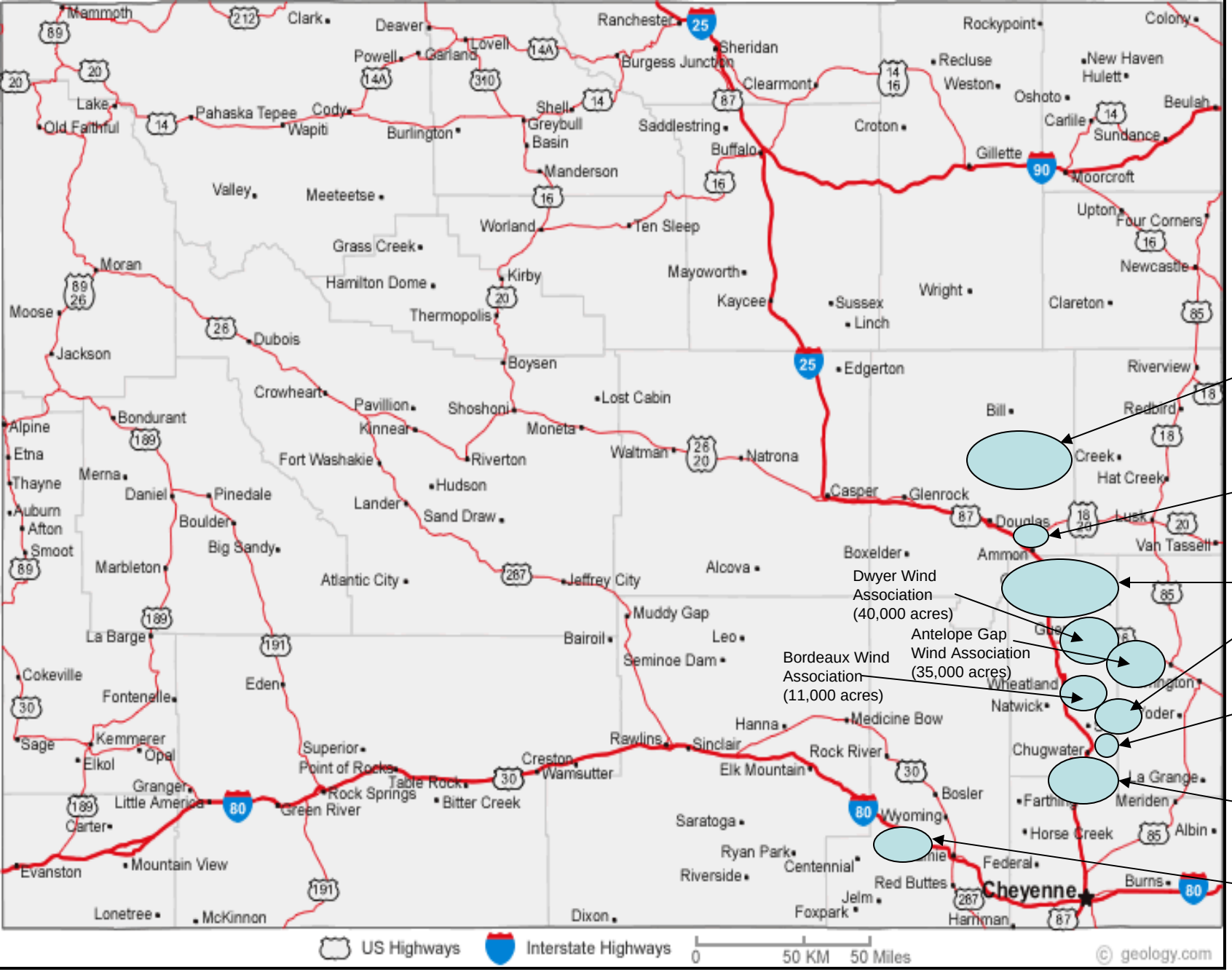
Routes shown are for illustrative purposes only and will be finalized following a comprehensive review process

But Wait…..There's More!!

- **Stimulus Package Wind Energy Incentives**
  - **a 3-year PTC extension,**
  - **an option to elect a 30% ITC in place of the PTC,**
  - **an option to convert the ITC into a grant for projects placed in service in 2009, or 2010, or placed in service before 2013 provided construction begins in 2009 or 2010;**
  - **a new $6 billion DOE loan guarantee program (with $4 billion to directly promote renewable energy and $2 billion to promote transmission),**
  - **an additional year of bonus depreciation for 2009,**
  - **a $1.6 billion increase in the Clean Renewable Energy Bonds (CREBs) program,**
  - **elimination of the cost caps for the small wind tax credit,**
  - **$1.25 billion in undesignated funding for DOE's Office of Energy Efficiency and Renewable Energy**
  - **$6.5 billion for additional bonding authority for transmission AND another $4.5 billion for transmission improvements**

Working Together is Important

- **Have formed eight (11) wind energy associations**
  - **Slater Wind Energy Assn. LLC – 30,000 acres/45 Landowners**
  - **Chugwater Wind Energy Assn. LLC – 12,000 acres/12 Landowners**
  - **South Chugwater Wind Energy Assn. LLC – 72,000 acres/48 Landowners**
  - **Windy Ranches LLC – 71,000 acres/10 Landowners**
  - **Glendo Wind Energy Association, LLC – 113,000 acres/over 40 landowners**
  - **Walker Creek Wind Energy Association, LLC – 148,000 acres/50 Landowners**
  - **Orin Junction Wind Energy Association, LLC – 25,000 acres/8 landowners**
  - **Southwest of Casper – 100,000 acres/4 Landowners**
  - **Dwyer Wind Energy Association – 40,000 acres and 20 landowners**
  - **Bordeaux Wind Energy Association – 11,000 acres and 10 landowners**
  - **Antelope Gap Wind Energy Association – 35,000 acres and 44 landowners**
- **The Pine Bluffs and Prairie Center Wind Energy Associations are in the Formation Stages (total acres are to be decided)**
- **Wind Energy Associations have at least 3,500 MW planned for development**
- **Associations versus Cooperatives**



NOTE: The Wind Energy Association boundaries are approximations and are intended for illustration purposes only.

Land Owner Concerns with Wind Energy Development (Commercial)

- Some wind energy developers are “wind speculators”
- These Wind Speculators will sell or “flip” land leases for a profit
- Usually results in checkerboard land lease patterns that are too small to develop wind farms
- Many landowners are required to sign non disclosure clauses
- Unable to discuss with your neighbors
- Divide and conquer
- Landowners feel they are being picked off one at a time
- Landowners may not know the value of their wind resources
- Difficulty in marketing wind resources
- Concerned about private property rights
- Bottom line:
  - Lack of information and knowledge
  - Lack of control
  - UNLEVEL PLAYING FIELD
- **Wind Energy Associations can address many of these concerns!!!!**

Landowner Benefits of Forming a Wind Energy Association

- Block up lands to enhance their ability to market wind resources
- Strength in Numbers-pool resources-protect private property rights
- Collective bargaining
- Opportunity to become informed about wind energy-LEVEL THE PLAYING FIELD
- Everybody gets a “piece of the pie”
- “Being a good neighbor”
- Avoid divided communities
- Utilize the RFP Process to advertise wind resources and solicit proposals- FORCE THE WIND DEVELOPERS TO COMPETE
- Determine what the wind resource is worth
- Landowners are able to drive the process- Ownership- PRICE MAKERS AND NOT PRICE TAKERS
- Landowners have an opportunity to build a positive working relationship with wind developers

Wind Developer Benefits of Forming a Wind Energy Association.

- Creates a win-win situation
- Creates a MARKET for Wind Energy Development
- Saves time and MONEY!!!– Land is blocked up
- Associations provide a value added product
- Opens the door for Developers
- One entity to work with rather than many
- Can help in obtaining local and state permits
- Can assist in obtaining legislative and congressional support for wind energy development
- Can assist in obtain “local and community support” for wind energy development
- Wind Developers must recognize that landowners have an “emotional tie” to the land

Successful Tools for the Association

- Operating agreement
  - Legally binds landowners together to solicit and market wind energy resources
  - 5 member Board of Managers
  - Duration of 2 years
  - Assesses a $.10 per acre membership fee
  - Limited liability
  - Individual landowners sign the final agreement
- Request for Proposals (RFPs)
  - Consists of Marketing Plan, Feasibility Study and Business plan incorporated into one document
  - Sent to over 50 wind developers
  - Wind developers have an equal opportunity to submit proposals

Economic Impact on Agriculture

- EXAMPLE OFFERS:
  - Sign up bonus - $8.00 per acre
  - Initial Development Phase – $8 dollars per acre per year
  - Construction Phase - $4,500 per MW, plus fees for Roads, buildings, and connection lines
  - Operational Phase -Each 640 acres within the project area with 2 turbines would receive a **minimum** of $39,000 per year
  - Each 320 acres within the project area (without turbines) would receive a **minimum** of $6,000 per year
  - WIND TURBINES NEED NO WATER TO GENERATE ELECTRICITY
  - Farming and ranching operation can continue
  - Ag diversification
  - Good for the environment

Impact to Local Economies

- 100 MW will contribute $500k to $1 million per year in county revenues
- 100-200 jobs per 100 MW during construction
- 2-6 permanent O&M jobs per 50-100 MW
- Multiplier effect – $1 generates $3

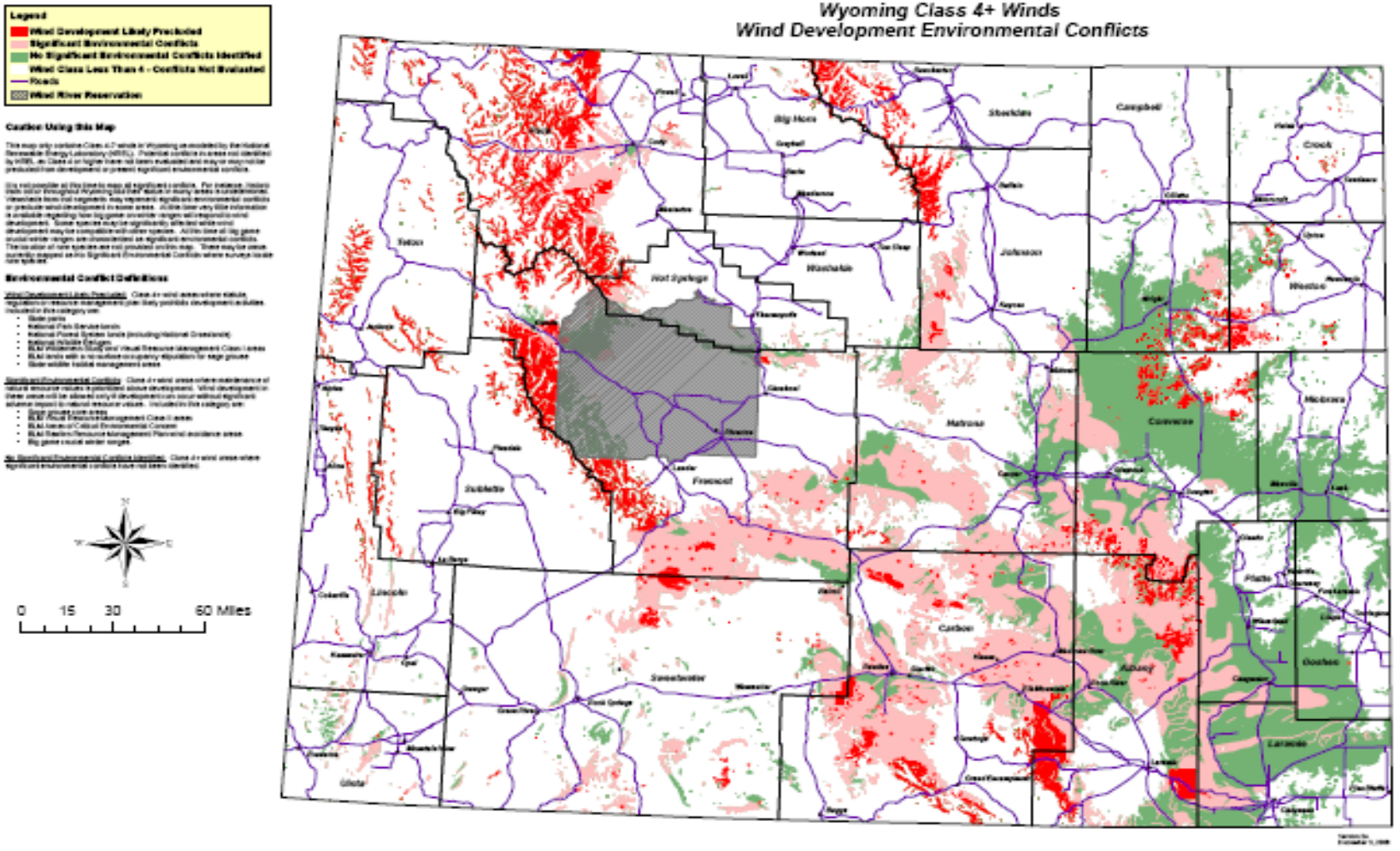
Potential of Wind Energy "Spin Off" Businesses

- $61 billion dollar industry over the next 8 years
- Expected to provide 20% of the nations energy
- Southeast Wyoming needs to develop a marketing strategy
  - Identify Key Wind Developers and Utility Companies
  - Initiate contacts and conduct tours
  - Showcase our community and business opportunities
- "Spin Off" Business Potential
    - Examples- Vesta Blade Plant in Windsor and wind turbine plant in Butte Montana
    - Virtual Businesses

Concerns:

- Change in Landscapes
- Impact on viewsheds
- Noise?
- Surface damage
- Production loss
- Environmental concerns
- Increased traffic, additional housing, more schools, increased sewage, etc.
- Wind energy is not a “firm” power – unreliable
  - Gas turbines
  - Geographical diversity

Environmental Conflicts



Role of RC&D Councils in Wind Energy Development

- Facilitate the process
  - Assist with project planning, organizing, and coordinating
  - Not a decision maker
  - Bring the right people together to “make it happen”
  - Empower local people
  - Be neutral
  - Provide local people with the proper information so they can make better decisions
  - **Most of all build trust and a team!!!!**

CONCLUSIONS

- Wyoming has some of the best wind in the world for energy development
- Wind energy associations have positioned the landowner and wind developer for success
- Additional Transmission is moving forward

Questions?

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