

A photograph of a wind farm with several white wind turbines on a grassy hill under a clear blue sky. The largest turbine is in the center foreground, with others receding into the distance.

# West-central CERTs Meeting

June 21, 2007

Sunburg, MN

# Andrew J. Falk



## Wind Energy Developer

- Currently developing an approximately 18 megawatt wind farm in north-east Swift County.
- Graduate of the Carlson School of Management at the University of Minnesota Twin Cities
  - Entrepreneurial management
  - Finance

# Discussion Items

- Minnesota's Renewable Energy Standard
- Community-Based Energy Development



# Renewable Energy Standard

- Minnesota Statute Section 216B.1691
- 25% of all of the electricity sold within the state of Minnesota must come from a qualified renewable energy resource by 2025.
- For a utility that operates a nuclear generating facility within Minnesota, that utility must do 30% by 2020; 25% of all sales must come from wind.
- Comes down to: **25% by 2020**

# Renewable Energy Standard



Qualified renewable energy resources:

- Solar
- Wind
- Hydroelectric (less than 100 megawatts)
- Hydrogen
- Biomass
  - Includes, without limitation, landfill gas
  - An anaerobic digester system,
  - An energy recovery facility used to capture the heat value of mixed municipal solid waste or refuse-derived fuel

# Renewable Energy Standard



- 5000 to 6000 megawatts of new renewable energy to serve Minnesota's electric needs by 2025
- Targets (Utilities) (Utilities with nuclear)
  - 07% by 2010 15% by 2010
  - 12% by 2012 18% by 2012
  - 17% by 2016 25% by 2016
  - 20% by 2020 30% by 2020
  - 25% by 2025

# Renewable Energy Standard

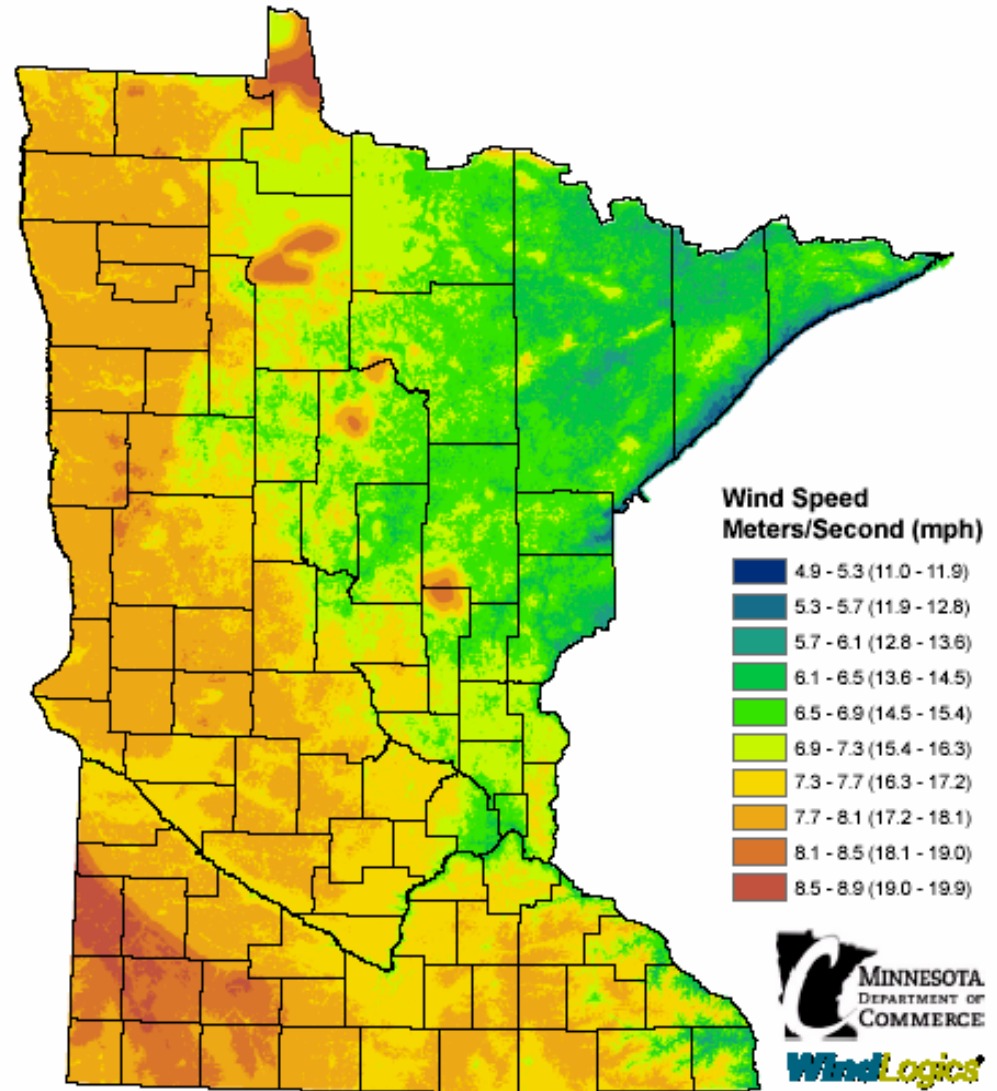


Wind energy is the most viable option

- Technology is well understood
  - Fastest growing source of energy in the world
- Clean
- Lowest cost
- Fastest installation
- Ability for local communities and local economies to reap extra-ordinary benefits and value

## Minnesota's Wind Resource by Wind Speed at 80 Meters

- Over 50% of Minnesota is a developable resource
  - Southwest corner (Buffalo Ridge)
  - Western edge
- South Dakota
  - 4<sup>th</sup> highest potential energy
- North Dakota
  - 1<sup>st</sup> highest potential energy

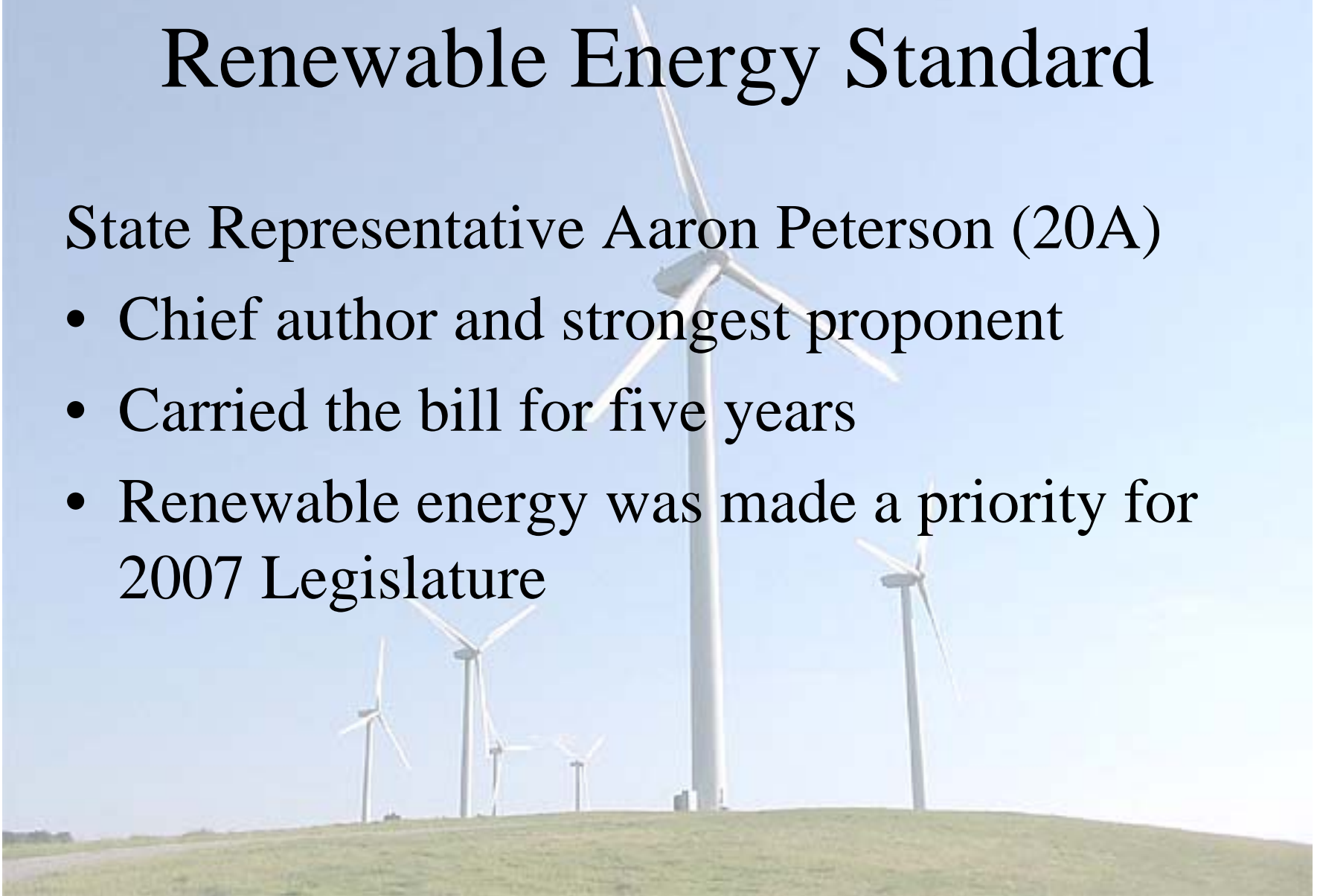


This map has been prepared under contract by WindLogics for the Department of Commerce using the best available weather data sources and the latest physics-based weather modeling technology and statistical techniques. The data that were used to develop the map have been statistically adjusted to accurately represent long-term (40 year) wind speeds over the state, thereby incorporating important decadal weather trends and cycles. Data has been averaged over a cell area 500 meters square, and within any one cell there could be features that increase or decrease the values shown on this map. This map shows the general variation of Minnesota's wind resource and should not be used to determine the performance of specific projects.

# Renewable Energy Standard

State Representative Aaron Peterson (20A)

- Chief author and strongest proponent
- Carried the bill for five years
- Renewable energy was made a priority for 2007 Legislature



# Renewable Energy Standard



- There will be a Federal Renewable Energy Standard
  - Senator Amy Klobuchar has introduced a bill that mirrors Minnesota's 25% by 2025
  - Unsure what the numbers will be
  - Nonetheless, significant megawatts (or even gigawatts) of renewable energy will need to be developed in the near future!

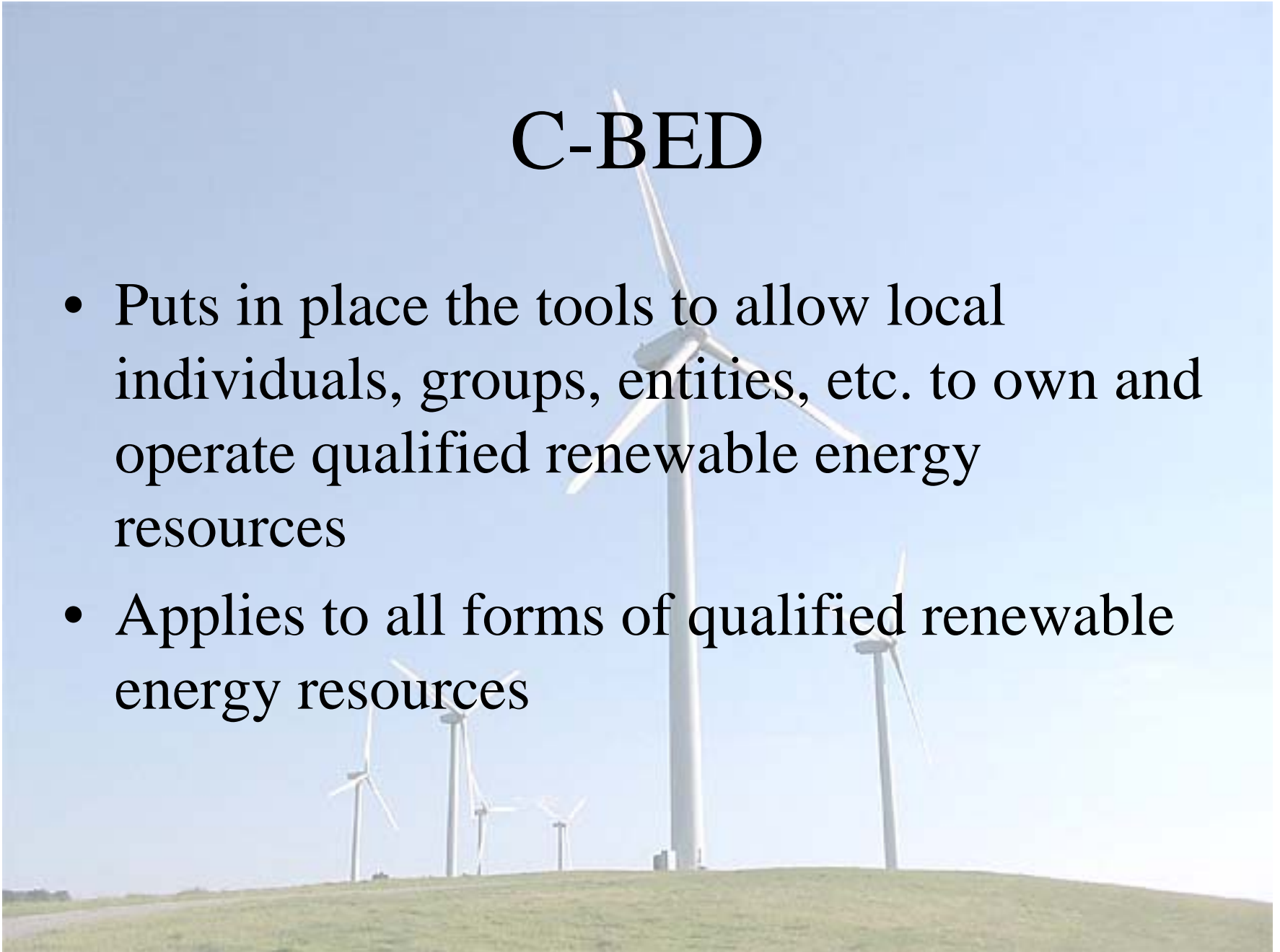
# C-BED

The background of the slide is a photograph of a wind farm. Several white wind turbines are visible on a grassy hill. The sky is a clear, light blue. The turbines are of varying sizes and are positioned across the landscape, with one particularly large one in the foreground.

- Community-Based Energy Development (C-BED)
- Part of the Next Generation Energy Act of 2007
- Minnesota Statute Section 216B.1612

# C-BED

- Puts in place the tools to allow local individuals, groups, entities, etc. to own and operate qualified renewable energy resources
- Applies to all forms of qualified renewable energy resources



# C-BED



- Must demonstrate that 51% of the gross revenues of a Power Purchase Agreement flow to qualified local owners/entities
- Put into place a regulatory consideration that new generation must take into account local benefits

# Distributed Generation

- Focuses on improving the efficiency of the transmission system by strategically injecting power to avoid the costly transmission upgrades
- Pros:
  - **Lower cost to consumers**
  - **Greater system stability**
  - **Easier to inject smaller, locally-owned resources**
- Cons:
  - **Lower profits for coal industry and electric-utility corporations**

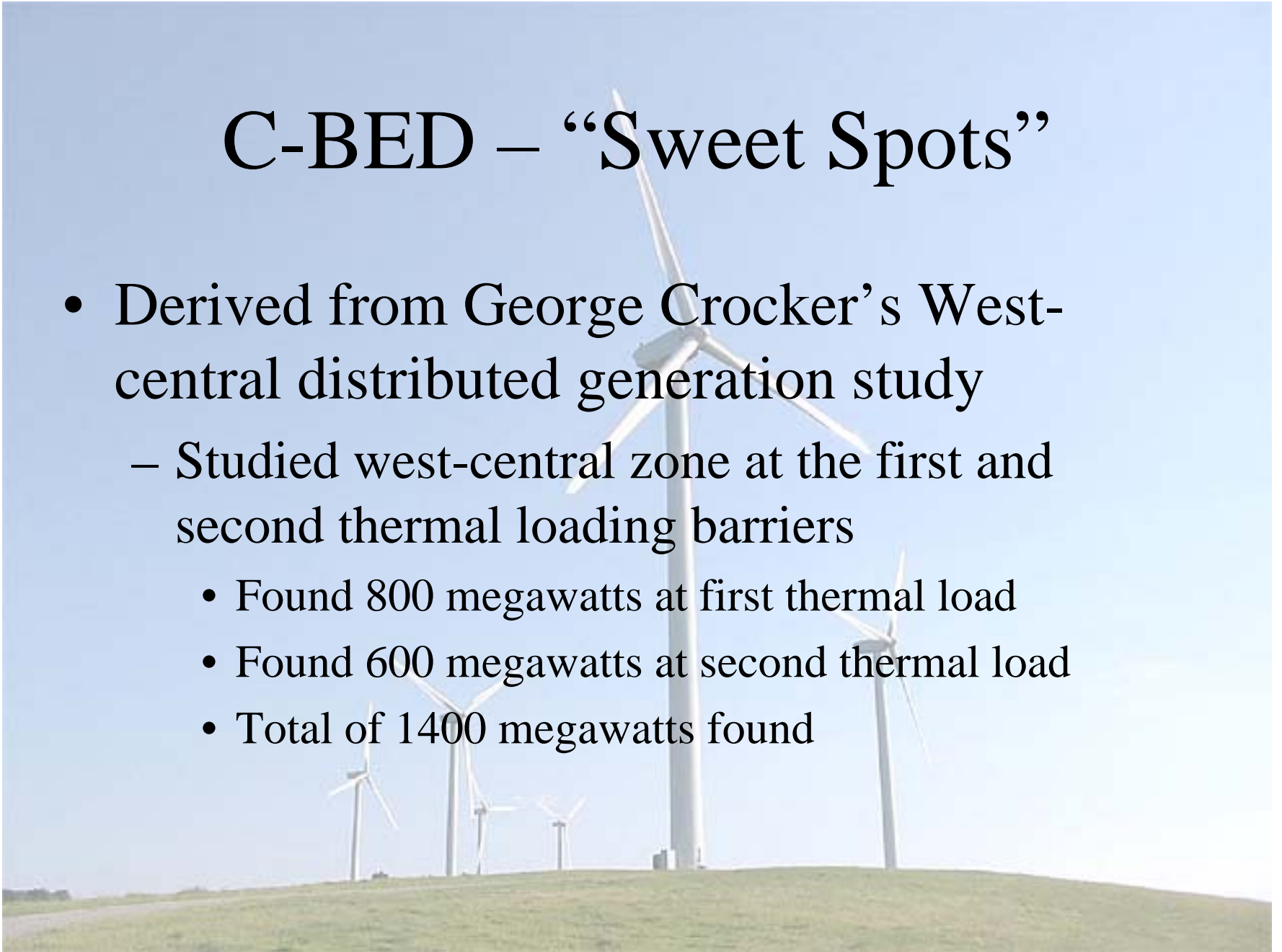
# C-BED – “Sweet Spots”

- All Minnesota utilities must study their systems at a lower voltage level ( $< 230$  kV)
- Identify “Sweet Spots” where power can safely be injected without costly transmission upgrades



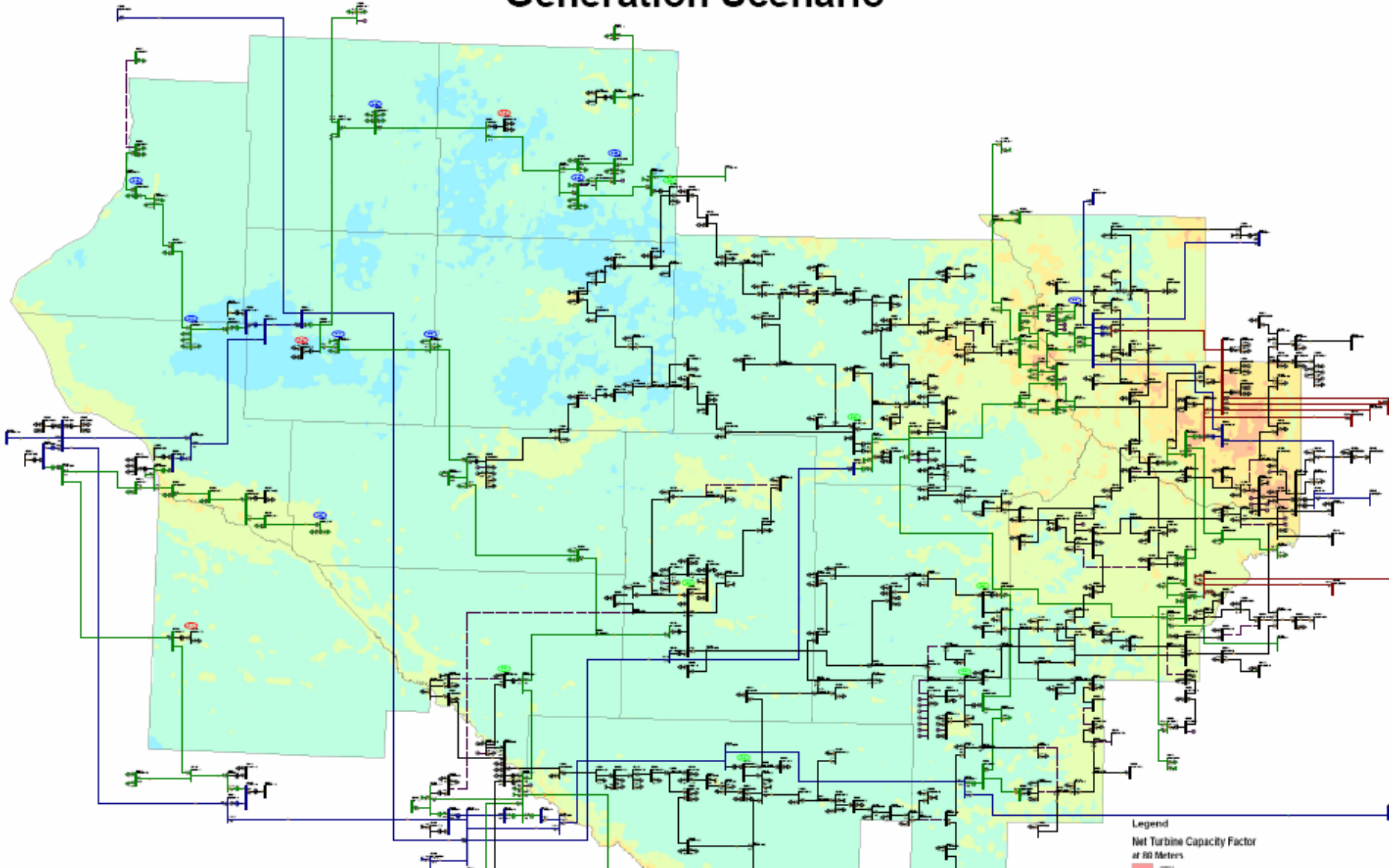
# C-BED – “Sweet Spots”

- Derived from George Crocker’s West-central distributed generation study
  - Studied west-central zone at the first and second thermal loading barriers
    - Found 800 megawatts at first thermal load
    - Found 600 megawatts at second thermal load
    - Total of 1400 megawatts found



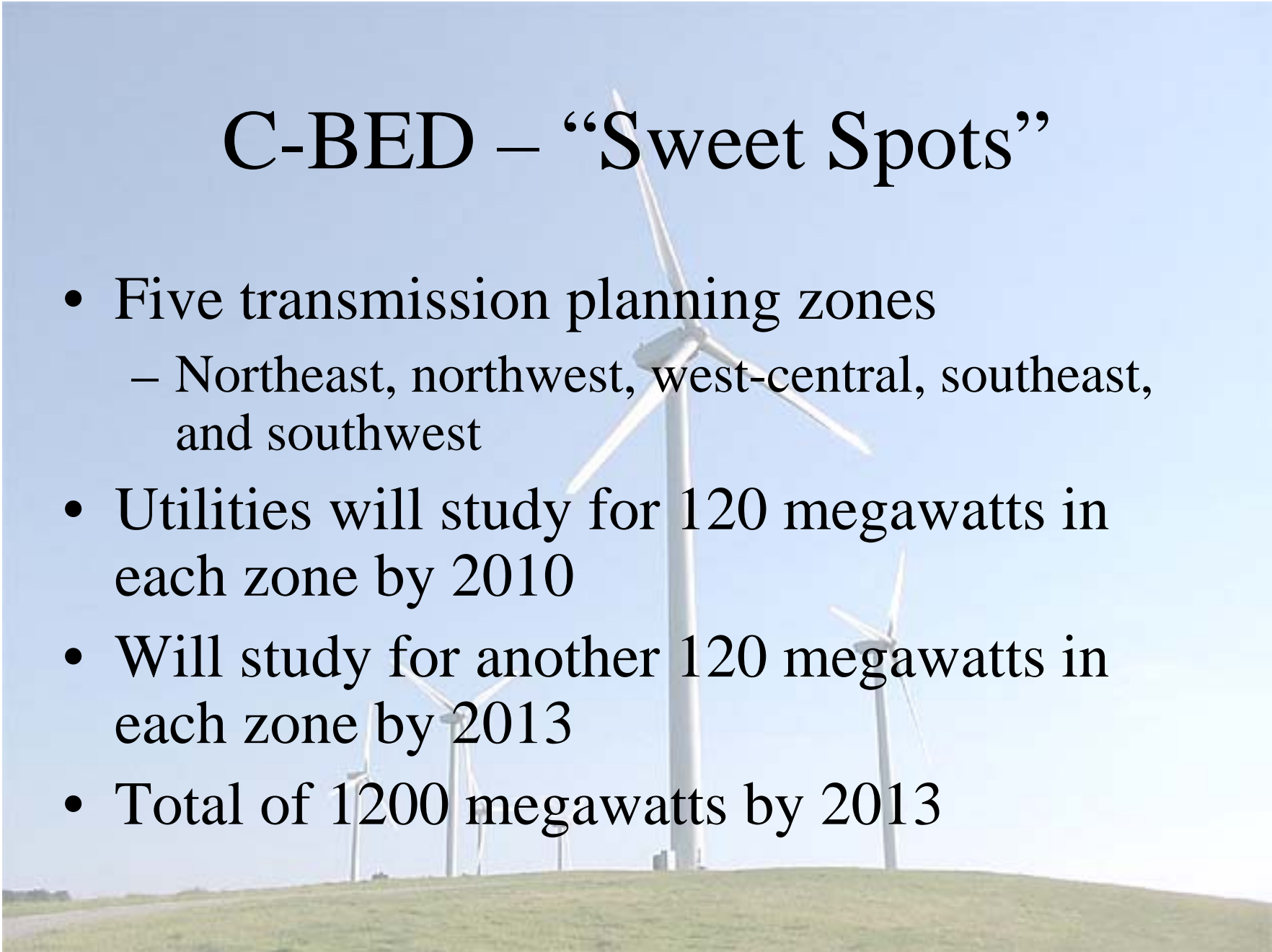
# West-Central Transmission Zone

## 800 MW Generation Scenario



# C-BED – “Sweet Spots”

- Five transmission planning zones
  - Northeast, northwest, west-central, southeast, and southwest
- Utilities will study for 120 megawatts in each zone by 2010
- Will study for another 120 megawatts in each zone by 2013
- Total of 1200 megawatts by 2013



# C-BED – “Sweet Spots”

- To view the five transmission planning zones, go to:

[www.capx2020.com/about.html](http://www.capx2020.com/about.html)

– Scroll down to Studies



# C-BED – “Sweet Spots”

- Local individuals, companies, entities, governments, etc. must get proactive!
- Work to setup and secure some of those megawatts in your local area
  - You have to go out and earn them!
  - Start now!
  - If you need help, go find it! Start talking to other individuals and/or C-BED developers

# C-BED



- Not everything is C-BED
  - In fact, the majority of projects are not C-BED
  - C-BED is a Minnesota concept; however, we have managed to export it to Nebraska and are working on getting it in New York and other Northeast states
- If approached to get involved in a wind energy project, know what you are getting involved with before actually signing anything

# Conservation and Efficiency



- Minnesota Statute Section 216B.16
- All utilities in the state of Minnesota have a goal of reducing their electric sales by 1.5% per year
- Public Utilities Commission may not sign-off on a plan of less than a 1% reduction per year

# What It All Means?

- 25% by 2025; 5000 to 6000 megawatts of new renewable energy generation
- Utilities must shrink their sales by at least 1% per year
- Carbon cap and trade will be implemented by 2009
- All new forms of energy generation will come from renewable energy resources!



Thank You.

Questions  
Comments

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