

Powering the Plains:

Creating a Positive Energy Future for the Upper Midwest



Presentation to the Pew Center on Climate Change 2.7.05
Jon Nelson, ND State Legislator and PTP Participant



Overview of Presentation



1. Background on Powering the Plains Project
2. Short Briefing on Delegation to Northern Europe
3. PTP Regional Strategies and Initiatives





Geography, Participation, Funding



PTP Region

- Dakotas, Iowa, Manitoba, Minnesota and Wisconsin

Participants

- Elected and government officials
- Energy industry executives
- Farm organization representatives and agricultural producers
- Environmental advocates

Funding

- Broad base: foundations, utilities, farm organizations/producers, and environmental NGOs.



Powering the Plains

Creating a positive energy future for the Midwest

a project of the Great Plains Institute





Rationale



Northern Plains: untapped economic potential in climate-friendly energy development

- World class renewables potential: top in wind, significant biofuels/biomass and hydro
- Pioneering experience with climate-friendly coal technologies
- Substantial carbon sinks: prairie soils, wetlands and geologic formations
- Opportunity to become net exporter of renewable and carbon credits



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





Background



PTP Activities

- **Regular consultation meetings: Launched in early 2002**
- **Regional Work Groups**
 - Policy Work Group to develop state and provincial legislative recommendations
 - Technical Review Committee to design renewable energy credit tracking system
 - Goals and Measures Work Group to establish energy and climate goals and targets
- **Special events and activities include:**
 - Upper Midwest Renewable Energy and Agriculture Summit: *Feb 2002*
 - Northern Plains Delegation to Northern Europe and Iceland: *Sep 2003*



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





PTP Delegation to Europe



- **Netherlands, Denmark, Germany and Iceland**
- **Challenge assumptions about what's possible in our region**
- **Learn from leading countries' experience with:**
 - Renewable energy development
 - Climate change policy
 - Transition to hydrogen fuel
- **Apply lessons learned to our Upper Midwest region**



Powering the Plains

Creating a positive energy future for the Midwest

a project of the Great Plains Institute





Lessons Learned from Europe



- Large increases in renewable energy are achievable.
- Encouraging renewables and reducing greenhouse gas emissions can drive innovation, job creation and growth.



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





Lessons Learned Cont.



- A 30 to 50-year vision, bold and measurable targets, and clear policy incentives are critical.
- Comprehensive strategies yield maximum results.
- Leadership and public support matter more than resources or population base.



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





Achieving the Transition Here: PTP Regional Strategies



- I. Develop 25-50 year regional energy transition roadmap
- II. Lay foundation for large-scale renewable energy development
- III. Establish leadership position in renewable and carbon-neutral hydrogen production



Powering the Plains

Creating a positive energy future for the Midwest

a project of the Great Plains Institute





Achieving the Transition Here: PTP Regional Strategies cont.



- IV. Chart transition path to carbon-neutral coal
- V. Demonstrate new technologies and synergies among region's key energy resources
- VI. Engage policy-makers in support of policies and projects to achieve the transition





I. Regional Transition Roadmap



Resolution from Legislators Forum

- Unanimous, bipartisan statement from MB, MN, ND and SD legislative leaders
- Endorses regional transition that **“relies on clean energy production and sequestration of carbon dioxide”**
- Charges PTP to develop:
 - scenarios, goals and measurable targets; and
 - Identify legislative and institutional measures to implement transition roadmap





I. Regional Transition Roadmap



PTP Response to Resolution

- Develop scenarios for 80% CO₂ reduction from 1990 levels by 2050 in Upper Midwest
 - Everything on table: Renewables, coal gasification, nuclear, carbon sequestration, and efficiency
 - U of MN funding and team working with PTP
- Use scenarios to:
 - Build agreement on measurable goals and targets
 - Guide policy and project development





II. Large-Scale Renewables Development



- Upper Midwest Renewable Energy Tracking System (M-RETS)
 - Accounting system for renewable energy credit trading market
 - Endorsement of MN PUC and other states' regulators for PTP design role
 - Final design recommendations and RFP expected by end of 2005
 - Legislative authorities under consideration in ND and SD



II. Large-Scale Renewables Development

Federal Production Tax Credit

- PTP exploring policy changes to:
 - Eliminate “boom and bust” effect of PTC on wind industry
 - Foster local ownership of renewable energy projects
- Independent analysis of potential PTP recommendations underway
 - Funding from ND Dept of Commerce and Minnesotans for an Energy Efficient Economy





III. Renewable and Carbon-Neutral Hydrogen Production



- Establishment of public-private Upper Midwest Hydrogen Initiative (UMHI)
 - Consortium of regional companies, research institutions and other stakeholders
- “Northern H” clean fueling station network
 - Stations supplying hydrogen, ethanol, biodiesel and gasoline
 - Enable hydrogen fleet vehicle use in major cities and along regional transportation corridors
- Regional Hydrogen Transition Act
 - Three bills introduced in ND and legislation forthcoming in SD, MN, and IA in 05





IV. Transition to Carbon-Neutral Coal



PTP Upper Midwest Coal Gasification Initiative

- Foster incremental 25-50 year transition from combustion to gasification with carbon capture/sequestration
- Convene utilities, coal industry, NGOs, regulators and congressional staff beginning in 05 to:
 - Develop regional strategy and policy framework that includes:
 - New plants and repowering of existing facilities
 - Linkages to large-scale wind and hydrogen development





IV. Transition to Carbon-Neutral Coal



Why?

- 3/4 of region's power from coal
- ND's highest per capita incomes in coal counties
- Suitable geologic reservoirs
- Pioneering ND experience with coal gasification and CO₂ sequestration

Benefits of Gasification

- Near total capture of CO₂ and mercury
- Acceptance of new transmission due to dramatically reduced emissions
- Better coal technology to partner with wind
- Avoidance of future carbon liability and opportunity to market carbon credits
- Potential for carbon-neutral hydrogen production



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





V. Demonstration Projects



“Northern H” hydrogen fueling station network

- Provincial/Canadian federal funds committed
- Unanimous support from region’s senators

“Energy Farm” at SD State University

- Manure digester inspired by PTP delegation visit to Denmark
- Federal design/development funds; construction authorized by SD Legislature

Potential wind energy-compressed air storage demonstrations

- Preliminary design/analysis by PTP participants, Mechanology LLC and NuSource Energy



Powering the Plains
Creating a positive energy future for the Midwest
a project of the Great Plains Institute





VI. Engaging Policy-Makers



Partnership with Legislators Forum (MB, MN, ND and SD)

- Model legislation for 05 sessions (hydrogen and credit tracking)

Utilities Commissioners

- Regional credit tracking system design and RFP

Congressional Delegation

- Federal recommendations

Governors/Premier and Staff

- Issue briefings and exploring future regional meeting



Powering the Plains

Creating a positive energy future for the Midwest

a project of the Great Plains Institute





Thank You

Jon Nelson

Farmer and Chair

ND House Natural Resources Committee

Wolford, ND

jonelson@state.nd.us

For more information on PTP contact:

Great Plains Institute

2801 21st Avenue South, Suite 230

Minneapolis, MN 55407

(612) 278-7150

www.gpisd.net



Powering the Plains

Creating a positive energy future for the Midwest

a project of the Great Plains Institute

