

Renewable Energy Development in North Dakota

Kim Christianson – Director, Great Plains Energy Corridor

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Renewable Energy Action Summit

Great Plains Energy Corridor

History – Created through the efforts of U.S. Senator Byron Dorgan to explore opportunities to make the best use of North Dakota’s abundant energy resources. Patterned after the Red River Valley Research Corridor.



Staffed in August, 2008



Great Plains Energy Corridor

Purpose – Innovative approaches that bring people together to advance the development of North Dakota’s abundant and diverse energy sources.

Provide information, education, outreach programs, and special events and activities to highlight and enhance North Dakota’s energy development industry.

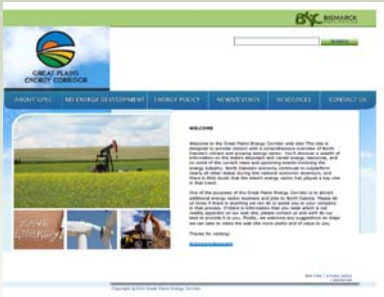


GPEC Activities:



- Conferences/workshops (Energy Expo, REAS, Climate Stewardship, Ethanol, EGS)
- Feasibility study for GPAETC (w/City of Bismarck, energy partners, others)
- Presentations on ND energy development topics
- Energy Information Repository (web site)
- Yearly “North Dakota Energy” report



Energy Statistics and Information



www.energyND.com



National Energy Center of Excellence



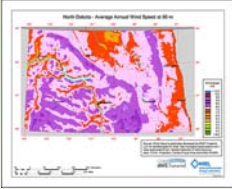
Renewable Energy Helps Diversify Our Energy Resources



- Diversification & production of domestic energy sources will enhance our energy security
- Advanced technology development will create economic opportunity



North Dakota's Renewable Energy Landscape

- Wind:
 - 1,298 MW of installed capacity
 - More than 820 turbines in operation
 - Commercial scale projects in 10 ND counties
 - 6,000+ MW of projects have submitted their intent to the PSC to construct
 - Now rank 10th nationally in installed wind capacity
 - ND is sixth “windiest state”





ND Ethanol Plant Overview

Plant	Location	Employees	Capacity – Ethanol (mil of gal)	Corn Used (mil of bushels)	DDG (ton)	Year Established
ADM	Wahalla	62	34	13	110,000	1985
Blue Flint	Underwood	36	60	20	170,000	2007
Hankinson	Hankinson	51	120	44	399,000	2008
Rod Trail	Richardson	42	50	18	150,000	2007
Tharaldson	Casselton	55	120	43	380,000	2009
TOTALS		246	384	138	> 1.2 million	



Source: ND Ethanol Council

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ND Ethanol Industry

- Economic Impact
 - More than \$300 million annually
- Employment
 - More than 250 workers directly, 10,000 indirectly
 - \$64,000 (approximate) average annual wage
- Rural Economic Development
 - Each of ND's plants
 - Is located in a community with a population of less than 2,500
 - Contributes an average of 51 jobs and an average annual payroll of \$3.3 million to the community
 - Purchases the majority of its corn from ND farmers and sells DDGs to ND livestock producers
- Production
 - More than 350 million gallons per year
 - Ten fold increase since 2005

BIODIESEL

ADM Plant – Velva, ND
85 mmgy
(currently crushing canola,
not producing biodiesel)

Over 100 ND petroleum
retailers sell biodiesel blends
(ND Soybean Council)



BIOMASS

- ND ranked #1 in potential for energy crops (ORNL)
- GRE's "Dakota Spirit AgEnergy LLC" near Jamestown
- ADM Enderlin Sunflower crushing plant
- EERC's Center for Biomass Utilization (Grand Forks Truss plant)
- Fargo Landfill gas project; Bismarck Aquatics Center
- NDSU BioEPIC Center, Northern Great Plains Research Lab



GEOHERMAL

- Ground-source (geothermal) heat pump systems - NECE, Century Center, Bismarck Public Schools, many more
- Enhanced Geothermal Systems – demonstration projects in Bowman County (UND – Dr. Will Gosnold)



And Then There's...

- **Solar** – ND has “good” solar energy resource (Energy Information Admin.)
Verendrye Electric’s water pumping program – over 210 solar wells



- **ENERGY EFFICIENCY!!!!**

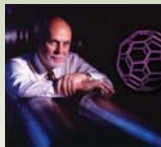


Energy: Issue of our lifetime

“Energy is the single most important challenge facing humanity today – not just the U.S. but worldwide.”

“Somehow we must find the basis for energy prosperity for ourselves and rest of humanity for the 21st century.”

“For worldwide peace and prosperity it must be cheap.”



Nobel Laureate
Dr. Richard E. Smalley