

The first and only magazine covering the Dakotas and Minnesota

PRAIRIE BUSINESS

Your premier monthly business resource for the Northern Plains

January 2008

Power Curve

Renewables and fossil fuels
producing an 'energy surge'

Hard games ...
Minnesota-style

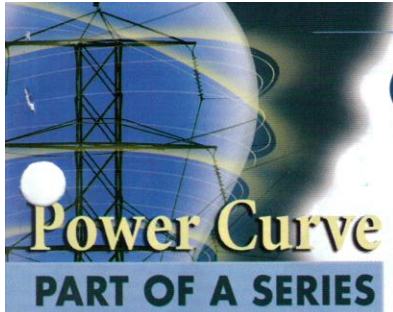
Hot advertising
drives online sales

Two major utilities,
one small SD town

CONTENTS
10 Power Curve
12 Hard Games ... Minnesota-style
14 Hot Advertising Drives Online Sales
16 Two Major Utilities, One Small SD Town
18 ...
20 ...
22 ...
24 ...
26 ...
28 ...
30 ...
32 ...
34 ...
36 ...
38 ...
40 ...
42 ...
44 ...
46 ...
48 ...
50 ...
52 ...
54 ...
56 ...
58 ...
60 ...
62 ...
64 ...
66 ...
68 ...
70 ...
72 ...
74 ...
76 ...
78 ...
80 ...
82 ...
84 ...
86 ...
88 ...
90 ...
92 ...
94 ...
96 ...
98 ...
100 ...

PRAIRIE BUSINESS MAGAZINE
PO BOX 6008
GRAND FORKS, ND 58206-6008
PRSR STD
U.S. Postage Paid
Fargo, ND
Permit #684
CHANGE SERVICE REQUESTED
12209 P-9 P5
#BYNPXNQ *****ALL FOR ADC 55533
#000000000326892#
32689
NATIONAL WEIND LLD
ERIN EDHOLM
3003 EXCELSIOR BLVD STE 525
MINNEAPOLIS MN 55416

Free Subscriptions Online www.prairiebizmag.com



Climate debate fuels renewable energy growth

By Rick Killion

In today's paper was another story documenting what appears to be evidence of global climate change, perhaps at a scope and scale that's ahead of computer models ... Arctic ice is disappearing faster than predicted.

Among a panel of energy experts congregated at the University of Mary in Bismarck on October 23, 2007, this kind of information would probably be debated as it relates to man-made impacts on climate change. While a majority of scientists and climatologists might agree on human causes for a warming earth, there are still quite a few learned individuals who look at geologic history and point to examples of earlier warming periods before the Industrial Revolution.

No matter who's right or who's wrong, "no matter what you believe about global warming, you have to take action," professed Kent Larson, VP of Northern States Power Company-Minnesota, an Xcel Energy company. "We currently have nearly 2800 megawatts (MW) of wind energy on our system and over \$4 billion invested, and we're looking to add another \$5-6 billion of wind energy in Minnesota, North Dakota, and South Dakota, because 10 percent of our energy in the future must come from renewable sources."

Martin White, former CEO of MDU Resources Group (and new dean of U-Mary's



Martin White, Dean, Tharaldson School of Business, University of Mary, Bismarck, ND



John Erickson, President/CEO, Otter Tail Corporation, Fargo, ND

Tharaldson School of Business), noted that, "we can't just quit with traditional energy sources, because people all over the world want to have the same lifestyle we have in America. I think this concept of global warming is one of the biggest hoaxes perpetrated on mankind."

One of White's counterparts, John Erickson, president/CEO of Otter Tail Corporation, noted that energy and the environment are now in the mainstream of public consciousness and pointed out that the Northern Plains has lived well off of the excess generating capacity of the 70s and 80s, adding, "about half of our corporation's earnings are from Otter Tail Power Company, which celebrated its 100th anniversary, but our fastest growing company is DMI Industries of West Fargo, which has become North America's largest wind tower company. It's our second largest holding and another of our firms has done about 30 percent of the wiring on American wind farms."

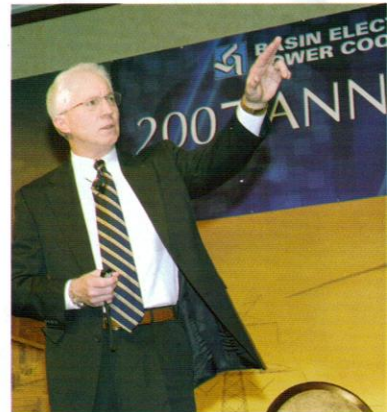
Another panel member, Ron Harper, general manager of Bismarck-based Basin Electric Power Cooperative, pointed to Basin's Dakota Gasification Company near Beulah, ND as evidence of the world's largest carbon sequestration project, and the firm's 158 MW of wind power now, (as well as plans for another 330 MW) to demonstrate Basin's commitment to renewables on behalf of the cooperative customers they serve in nine states.

"We are about 90-95 percent coal-based now, but we expect to go to about 60 percent coal as we add other sources of energy to our grid," said Harper, whose company currently generates

about 3000 MW, with 2300 MW from coal. "We want to make certain we are good stewards of this earth and we also want to be part of the solution, not the problem, which is part of our motivation for testing CO2 oil enhancement technology near Tioga, ND."

Exacerbating the energy dilemma is the refinery capacity of the United States according to panel member Alan Anderson, manager of the Tesoro Refining & Marketing Company in Mandan, ND.

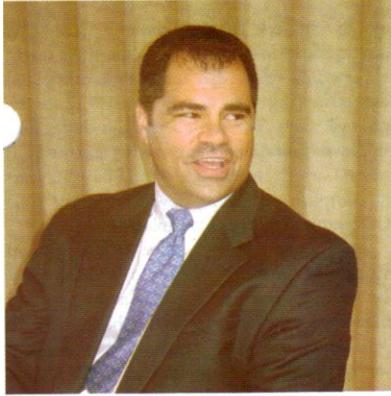
"The last refinery built in America was in 1976 and the overall number of refineries has gone down to about 150 right now," said the North Dakota native and graduate of the University of North Dakota (UND) in Grand Forks. "About 20.4 million gallons of gasoline are consumed every day in this country, with only 14 percent of that refined product coming into the nation by ship. Nearly two-thirds of our crude feed stock comes from outside our borders. At the Mandan refinery we currently process about 60,000 barrels of North Dakota and Montana crude oil each day, with most of the gasoline going to the Twin Cities."



Ron Harper, General Manager, Basin Electric Power Cooperative, Bismarck, ND

Upbeat about biofuel upside

Despite some misgivings about climate change research and its potential impact on American industry and lifestyles, the two panels moderated by North Dakota Public Service Commissioner Kevin Cramer truly highlighted its theme, 'America's Need - North Dakota's Opportunity.' Two panel members representing wind energy and ethanol helped clarify part of



John Di Donato, Executive Director, Central U.S. Wind Development, FPL Energy, Juno Beach, FL

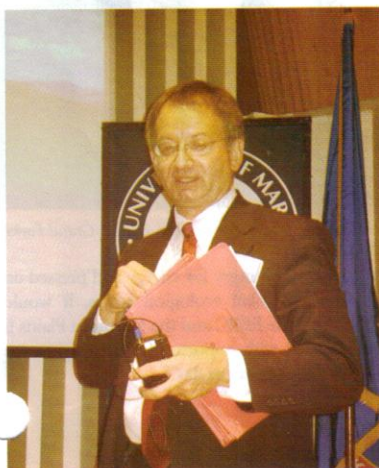
the growth curve being driven by renewable sources.

Randy Schneider, president of the ND Ethanol Producers Association, and John Di Donato, executive director of Central U.S. Wind Development for FPL Energy, raised many salient points at the U-Mary conference.

Admitting that ethanol is a "little brother to the other panel members," Schneider felt that achieving energy independence will require the entire nation working together towards a national energy policy that will help America avoid an apocalyptic outcome.

"There's nothing wrong with identifying a problem, but let's not beat up the industry (energy) that has the problem," said Schneider, a native of Ashley, ND. "We need to deal with issues like distribution of completed ethanol so we can get it to California, Florida, and other coastal states."

Even in the face of a present controversy over a crude oil pipeline connecting Canadian oil fields to refineries in the central U.S. (an issue affecting Cramer in his role as a public service commissioner), Alan Anderson says pipelines are the cheapest way to move oil products (and possibly ethanol), at 1 cent per mile compared to



Randy Schneider, President, ND Ethanol Producers Association, Bismarck, ND

three cents per mile by rail or truck.

Schneider pointed to North Dakota's 450 million gallons of annual ethanol capacity with completed or proposed plants as further evidence that the nation is well ahead of its 7.5 billion gallons goal by 2012. (North Dakota is also home to about 117 gallons of biodiesel capacity and South Dakota expects to have annual ethanol production capacity of 1.14 billion gallons by 2009 if plans are not forestalled by high corn prices and low ethanol prices ... well ahead of its energy objective as outlined in the governor's 2010 initiative.)

Some unique aspects to North Dakota biofuels include the combined development of an ethanol plant and expanded malting barley facility near Jamestown (at Spiritwood) that would utilize steam from a new coal-fired plant nearby. A fall groundbreaking was celebrated and work is underway.

While Minnesota features one of the nation's largest builders of ethanol plants, Fagen's in Granite Falls, and one of the country's first ethanol plants near Marshall, it was Iowa that quickly got on the bandwagon and is rapidly approaching at least one ethanol plant in each of its 99 counties. In Minnesota, estimates are that ethanol capacity will be at about 620 million gallons per year by the end of 2007, directly employing about 11,500 people. In nearby South Dakota, one of the industry's premier associations, the American Coalition for Ethanol, is based in Sioux Falls and two of the nation's largest ethanol development and operating firms - POET and VeraSun - either had their genesis in the state or remain based there.

Wind velocity = growth philosophy

Eight years ago the average person would have been hard-pressed to describe what a wind turbine looked like, much less describe the potential for the Northern Plains, often called 'the Saudi Arabia' of windpower due its capacity. Now, North Dakota has over 400 MW of wind-generated electricity on its lines, another 3,000 MW in one stage of development or another, and about 8,000 MW worth of requests for transmission capacity in the cue and two of the continent's largest manufacturers, DMI Systems of West Fargo producing wind towers and LM Glasfiber in Grand Forks producing turbine blades.

According to Jay Haley, one of wind energy's biggest advocates from his Grand Forks offices of EAPC Architects & Engineers, there's also a new plant in South Dakota producing blades and an Indian firm, Suzlon, has opened a turbine plant in Iowa.

"America is the hottest market in the world right now for wind energy parts," affirms Haley, a mechanical engineer with a degree from UND, and head of the EAPC wind effort with additional offices in Fargo, Jamestown, Bismarck, Bemidji (MN) and Norwich, CT. "We've gotten past the preliminary phase where it 'wasn't feasible' for utilities to own wind farms; now

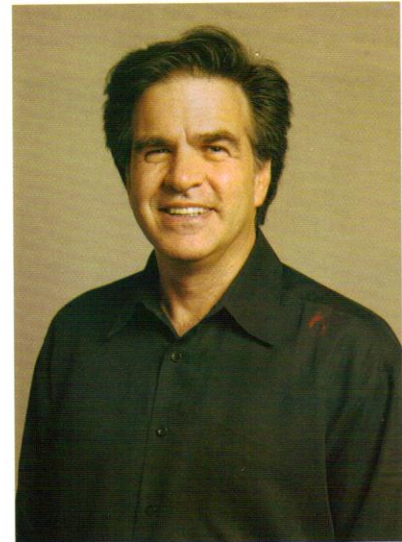


Jay Haley, Partner, EAPC Architects Engineers, Grand Forks, ND

some utilities are beginning to understand the rewards and want to participate in the profits. More utility companies are embracing wind energy, even without the mandates and renewable targets. It's good for landowners where towers are sited, earning them about \$2,000/turbine per year, and neighboring landowners receiving a smaller payment to act as a 'buffer' to prevent other turbines from encroaching on the resource."

Haley believes the explosive growth in wind development surpassed everyone's expectations and he doesn't anticipate any slowing down, although he'd like to see the state replace its aging fleet of meteorological towers, which would make it easier for developers to plan and site wind farms (a delicate task requiring sophisticated software).

"Transmission has always been the limiting factor," he says, although major utility firms have found more available capacity than they first felt existed for wind. "The new business model that helps deal with transmission is one being utilized



Leon Steinberg, CEO, National Wind, Minneapolis, MN

by National Wind from the 'Twin Cities.'

Leon Steinberg, CEO of National Wind and sister firm Wind Energy Developers, says the young development firm (begun in 2003) already has 12 wind energy projects and 2,000 MW in development in the Dakotas, Minnesota, and Iowa and he expects to be making major announcements on a wind project that will be the biggest in the region.

"The model we use differentiates us from outside developers (like FPL Energy, which currently has 70 wind farms in 24 states and 34 percent of U.S. market share), because we include the local community in one of three ways, enabling them to capture most of the profits," explains Steinberg, a one-year veteran of the company founded by Patrick Pelstring and Jack Levy back in 1999. "By getting the broader community behind our projects we don't have zoning and permitting problems, so we actually develop and install the transmission corridor at the same time. The utilities love us, with 10-15 percent of any project's cost allocated to transmission construction. The average project that we do is between \$200 million and \$1.5 billion in scope."

Adding some more 'green' to the energy equation

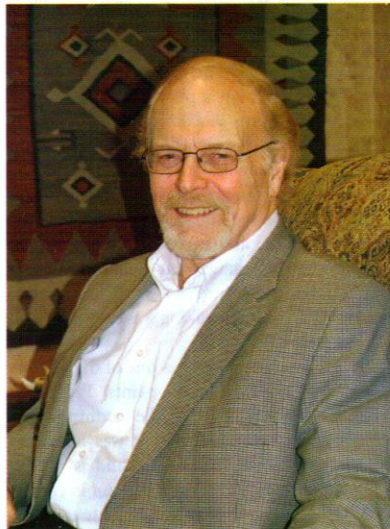
Back in 1988 the U.S. Department of Energy (DOE) was forced to purchase the failing fortunes of the Dakota Gasification Company near Beulah, ND. Initiated during the first energy crisis of the 70s and going operational during the Reagan administration, the \$2.1 billion dollar coal gasification plant had nearly \$1.5 billion in loans guaranteed by the DOE. Basin Electric Power Cooperative made the decision to purchase the plant in 1988 and still repays part of the original DOE loan.

In addition to the natural gas produced by the plant (the only one of three such facilities in operation in the world, with two other larger plants in South Africa), numerous byproducts



Gary Loop, CFO, Dakota Gasification Company, Bismarck, ND

were identified and marketed, with one of the most unique – and unexpected – profitmakers coming from the transportation of carbon dioxide through a 205-mile-long pipeline to the Weyburn oilfield in Saskatchewan.



Gerry Groenewold, Director, Energy & Environmental Research Center, UND, Grand Forks, ND

"In 2000 we started two compressors and began sending a million tons of CO₂ per year through a 14-inch pipeline," offers Gary Loop, chief operating officer since May 2006 when he found the position on the Internet after 24 years in the oil industry. "We have always captured our CO₂ but we weren't necessarily sequestering it. Now, we've added a new customer and a third compressor and in-line pump at Tioga (ND) to boost the pressure so we can serve another new client, Apache Corporation, operator of the Midale Field."

By pumping the CO₂ into depleted oil wells, not only is it being sequestered, but it makes the oil more viscous and contributes to the amount of oil that can be extracted. The project now stands as the largest CO₂ sequestration project in the world, according to Loop, capturing over 10 million tons of the gas so far.

Such a grand project is not lost on Gerry Groenewold and John Harju of the Energy & Environmental Research Center on campus at UND. Lead entity for one of seven carbon sequestration regional partnerships, the Plains CO₂ Reduction (PCOR) Partnership includes 73 partners in nine states and four Canadian provinces. The EERC is also the National Center for Hydrogen Technology and one of the world's most active energy research firms, with nearly 300 scientists, engineers, and support personnel grappling with many of the world's trickiest issues.

"This began with a solicitation for a proposal from the DOE," recalls Harju, who helps lead the 30 fulltime EERC positions dedicated to PCOR with another 40 who contribute their expertise part-time. "There are three phases to the project

— the first one getting a sense of CO₂ being generated, learning where geologic sinks might be, learning what legal framework exists, and demonstrating how to move CO₂ into the geologic sinks. The second phase includes field demonstrations over two years and the third phase – which we just started and have 10 years to complete – showing how commercial scale CO₂ sequestration can take place."

As Groenewold says, agree or not with Al Gore, the country needs to reduce CO₂ emissions as an insurance policy, adding, "we are blessed with the largest geological basin in North America and there are companies that need and want the CO₂ we are producing. North Dakota could easily become the poster child for how to capture it."

Harju observes that only three of the seven national partnerships have been provided the funding for Phase III work... about \$67 million, but it was matched by over \$68 million in cash from the partners.

"Not only do we have the right geology, but also the socio-economic environment because it wouldn't change the landscape and would extend the life of the Williston Basin oilfield," says Harju, "possibly adding another billion barrels in the next couple decades. We're changing it from a problematic issue to a tradable commodity."

Asked about the hydrogen center, already being occupied as new equipment is installed, Groenewold says the all the space in the center is spoken for, with 43 corporate partners and over \$57 million in contracts lined up.



John Harju, PCOR Partnership, EERC, Grand Forks, ND

In a world hungry for energy and pressed on all sides by global ecological issues, it would appear that the EERC and the Northern Plains is truly blessed with opportunity that might even outshine the sun some day.