

MICROFILM DIVIDER

OMB/RECORDS MANAGEMENT DIVISION

SFN 2053 (2/85) 5M



ROLL NUMBER

DESCRIPTION

2365

2005 SENATE APPROPRIATIONS

SB 2365

2005 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. 2365

Senate Appropriations Committee

☐ Conference Committee

Hearing Date February 1, 2005

Tape Number	Side A	Side B	Meter #
1		b	
Committee Clerk Signature			

Minutes:

Chairman Holmberg opened the hearing on SB 2365.

Senator Every presented testimony on SB2365 by providing opening statements. He indicated he had heard some testimony on renewable energy in North Dakota and how we ranked in certain areas. North Dakota ranks 1st in wind energy potential and 13th in the US. We are behind in some areas in renewable energy. SB 2365 will help with some innovative projects. States that provide matching funds to get demonstration projects are states where future industries locate when the technology is developed. He believes this is a great opportunity for North Dakota.

Brad Crabtree, Powering the Plains Project, Great Plains Institute, Ashley, provided written testimony in support of SB 2365. Brad Crabtree also provided written testimony from **Philip Boudjouk, NDSU, and Bruce W. Furness, Mayor, Fargo**. Brad Crabtree discussed the background of Powering the Plains Project, the production of hydrogen fuel from renewable

7
Missing

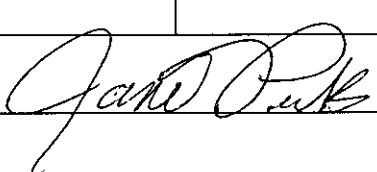
2005 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. 2365

Senate Appropriations Committee

☐ Conference Committee

Hearing Date February 10, 2005

Tape Number	Side A	Side B	Meter #
1		b	3,201
Committee Clerk Signature 			

Minutes:

Chairman Holmberg opened the hearing on SB 2365 which appropriates \$400,000 for hydrogen to wind energy.

Vice Chairman Grindberg moved a DO NOT PASS on SB 2365; Senator Christmann seconded. Discussion followed recommending do not pass for a combination of things which were indicated during past week one of which is other funding on various like projects.

Discussion continued as to other countries doing wind energy projects like this, placement of funding for this project, John Deere devoting new technology for the hydrogen engine.

A roll call vote was taken 11 yes, 4 no, the **motion carried** for a do not pass. Senator Grindberg will carry the bill.

Chairman Holmberg closed the hearing on SB 2365..

Date 2/10/05
Roll Call Vote #: 1

2005 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. SB 2365

Senate SENATE APPROPRIATIONS Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number 2365

Action Taken Do Not Pass

Motion Made By Sen Grindberg Seconded By Sen Christmann

Senators	Yes	No	Senators	Yes	No
CHAIRMAN HOLMBERG	✓		SENATOR KRAUTER		✓
VICE CHAIRMAN BOWMAN	✓		SENATOR LINDAAS	✓	
VICE CHAIRMAN GRINDBERG	✓		SENATOR MATHERN		✓
SENATOR ANDRIST	✓		SENATOR ROBINSON		✓
SENATOR CHRISTMANN	✓		SEN. TALLACKSON		✓
SENATOR FISCHER					
	✓				
SENATOR KILZER	✓				
SENATOR KRINGSTAD	✓				
SENATOR SCHOBINGER	✓				
SENATOR THANE	✓				

Total (Yes) 11 No 4

Absent 0

Floor Assignment Senator Grindberg

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE (410)
February 10, 2005 4:05 p.m.

Module No: SR-27-2483
Carrier: Grindberg
Insert LC: . Title: .

REPORT OF STANDING COMMITTEE

SB 2365: Appropriations Committee (Sen. Holmberg, Chairman) recommends DO NOT PASS (11 YEAS, 4 NAYS, 0 ABSENT AND NOT VOTING). SB 2365 was placed on the Eleventh order on the calendar.

2005 TESTIMONY

SB 2365

NDSU Statement of Support for Senate Bill 2365

59th North Dakota Assembly
January 26, 2005

To: [insert appropriate recipient(s)]

From: Philip Boudjouk
VP Research, Creative Activities and Technology
North Dakota State University

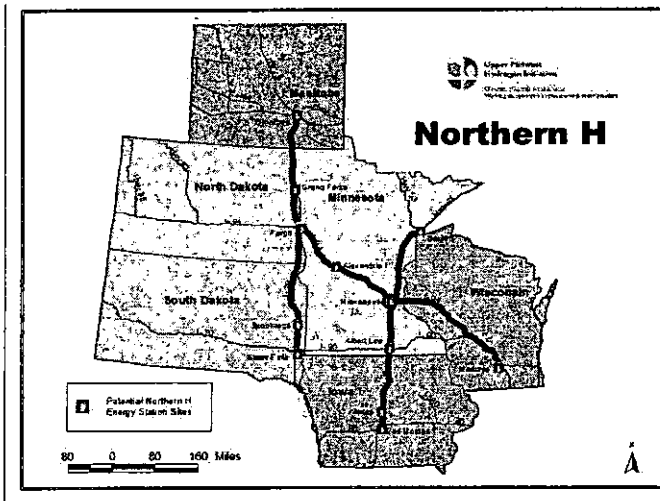
Re: **Appropriation for Wind-to-Hydrogen demonstrations in Minot and Fargo**

Countries and companies around the world are investing billions in hydrogen research and development, particularly in the transportation sector. As one former Ford official has put it, "every dollar spent on hydrogen will save us many more when the final rush for oil begins."

One of the most promising ways to produce large amounts of hydrogen is to use wind-generated electricity to split off hydrogen from water (the H out of the H₂O). The U.S. Department of Energy estimates that the United States would need roughly 40 million tons of hydrogen per year to meet its current fuel needs. One estimate suggests that North and South Dakota alone have enough cost-effective wind-power potential to make 50 million tons of hydrogen per year.

The proposed wind-to-hydrogen demonstrations in Minot and Fargo would provide the ideal laboratory for beginning to tap this exceptional native resource and for demonstrating the potential for wind-to-hydrogen systems to produce cost competitive electricity and fuel.

The Fargo station would also be part of a much larger regional network of hydrogen refueling stations along key Interstate trade routes (dubbed the Northern H) that already has support from 8 U.S. Senators in our region. Fargo would be one of as many as 10 such multi-fuel stations



stretching from Winnipeg to Madison, WI; and eventually linking with Chicago and hydrogen projects already underway along I-90.

In fact, the city of Winnipeg is already cold-weather testing a hydrogen-powered hybrid bus this month and running it in regular revenue service. They plan to have a permanent hydrogen station as the northern anchor of the Northern H starting in 2006.



H₂ Hybrid bus in MB

From NDSU's perspective, being involved in both the Fargo and Minot projects could allow us to build on some of our core research competencies in nano-scale science, computational fluid dynamics, engine technology, and fuel cells.

Long-term, wind-powered hydrogen development in North Dakota holds enormous economic potential in the form of a new and expanded energy industry, value-added energy production for farmers and ranchers, a potentially competitive option for fertilizer production, payments to landowners, economic development from related manufacturing and services, and increased tax revenues once hydrogen is well-established.

There are at least 87 hydrogen stations worldwide and "hydrogen highway" efforts are emerging across the globe. Until now, however, no similar effort has been proposed in the heartland of the United States —where the clean hydrogen potential is among the greatest. It is time for North Dakota to begin harnessing its economic potential for large-scale hydrogen production.

We urge you to support the appropriation request of \$400,000 requested in Senate Bill No. 2365. We also support House Bill No. 1496 providing a sales tax exemption for hydrogen.

Thank you for your dedicated public service.

**Senate Bill 2365:
State Support for Wind Energy to Hydrogen Fuel Demonstration
Projects in Fargo-Moorhead and Minot**

**Testimony to the North Dakota Senate Appropriations Committee
February 1st, 2005**

**Brad Crabtree
Powering the Plains Project
Great Plains Institute
Ashley, North Dakota
(701) 647-2041
bcrabtree@gpi.edu**

Thank you Chairman Holmberg and members of the Appropriations Committee for this opportunity to testify in favor of Senate Bill 2365. I would also like to recognize Senator Mike Every and Representative Dave Monson for their efforts to encourage the development of hydrogen fuel in North Dakota and to thank the other sponsors from both parties who support this legislation.

I am here today as director of the Powering the Plains project. PTP brings together representatives of industry and agriculture, government officials and legislators, and environmental advocates from the Dakotas, Iowa, Minnesota, Wisconsin and Manitoba to develop regional energy strategies, policies and projects.

A major objective of PTP is to help our region develop its potential for the production of hydrogen fuel from renewable energy sources such as wind, ethanol, biomass and hydro and from the gasification of coal. Toward that end, PTP launched the Upper Midwest Hydrogen Initiative two years ago. UMHI is a public-private consortium whose membership includes Fortune 500 companies such as 3M to small technology companies to research institutions such as UND's Energy and Environmental Research Center.

Two years ago, Representative Monson joined other bipartisan North Dakota, South Dakota, Minnesota and Manitoba legislative delegates in asking PTP and UMHI participants to recommend how legislators could advance hydrogen development on a regional basis. In response to this Legislators Forum request, a Policy Work Group was formed that included North Dakota Senator Every and Representative Jon Nelson, together with legislators and representatives of industry, agriculture and nongovernmental groups from the Dakotas, Iowa, Manitoba, Minnesota and Wisconsin. This Work Group met quarterly in 2004 to develop a set of recommendations for legislative consideration. Support for visible demonstration projects such as those identified in this bill fulfills one of the Work Group's key policy recommendations.

Other policy recommendations are being addressed through House Bill 1496 introduced by Representative Jon Nelson to exempt these hydrogen projects and others from sales and fuels taxes for a ten-year period and by a policy resolution introduced by Representative Monson.

So, why hydrogen and why a State investment in these projects? Since 9/11, Americans have devoted increasing attention to the need to develop greater energy independence for reasons of national security. Hydrogen has been a major focus of that attention, notably in President Bush's initiative to promote hydrogen-powered vehicles. Support is also evident in major urban states such as California, New York and Ohio, among others. Republican and Democrat administrations and legislatures alike in these states have committed tens of millions of dollars each to hydrogen and fuel cell research, development and commercialization. Finally, CEOs of some of the world's largest companies and top policy-makers see a transition to hydrogen fuel as the most viable long-term path to U.S. energy security.

Earth's most abundant element, hydrogen can be produced from multiple energy sources for use as a fuel through combustion or, more efficiently, in a fuel cell to produce electricity. All of North Dakota's renewable energy sources can produce hydrogen—wind energy and hydropower through electrolysis of water, and ethanol and biomass through of a variety of emerging technologies. In addition, hydrogen is an immediate product of coal gasification, along with carbon dioxide, which can then be captured and stored underground, as Dakota Gasification has pioneered with an oil company in Saskatchewan.

Our global leadership in coal gasification, world class wind potential, and significant ethanol and biomass resources leave our State well-positioned to be a North American leader in the production of hydrogen. Ensuring that North Dakota leads a future hydrogen transition requires that we begin today to demonstrate hydrogen production, storage and delivery technologies suited to our particular energy resources.

The two demonstration projects in North Dakota that would benefit from this bill will be among the very first hydrogen fuel projects in the Midwest of any kind and among the first in the world that showcase the production of hydrogen from renewable energy resources, in this case from wind. The first is a wind power-to-hydrogen project near Minot, involving Basin Electric, UND EERC, Stuart Energy Systems Corp., NDSU North Central Research Extension Center, Verendrye Electric Power Cooperative, and the City of Minot. In addition to the partners' commitments of nearly \$125,000, a federal grant of \$497,050 has been awarded to produce, store and distribute for vehicle use hydrogen fuel produced from an electrolyzer powered by wind turbines located south of Minot. Since the generation of electricity from wind cannot be scheduled in advance, sometimes wind farm output exceeds what can be effectively utilized on

the grid. This project will explore the viability of dedicating that surplus windpower to the production of hydrogen, while keeping windpower available for use on the grid when needed.

The second project is a proposed hydrogen fueling station for Fargo-Moorhead that would serve as a north-south and east-west hub in a larger regional hydrogen fueling station network spanning the entire Upper Midwest. Dubbed the "Northern H", the network concept was supported by all eight U.S. senators from the Dakotas, Iowa and Minnesota last year, and efforts to secure federal funding in FY 2006 are underway. Locally, the cities of Fargo and Moorhead jointly support the proposed fueling station, which would be located in Fargo, near the junction of I-94 and I-29. The station would be supplied with wind power from Moorhead Public Services to produce the hydrogen on-site to power local hydrogen fleet vehicles.

Fueling stations elsewhere in the region will demonstrate hydrogen produced from other renewable energy sources such as ethanol. The province of Manitoba just unveiled last week a fuel cell bus and hydrogen station in Winnipeg that will anchor the build-out of the regional network between now and 2010.

Like all new technologies, the production of hydrogen fuel is currently expensive. Yet, technologies are advancing rapidly, and costs are falling. The history of wind energy illustrates the opportunity. The first wind farms in California in the 1980s cost around 40 cents per kilowatt hour. Today, new wind power in our region comes in at below 4 cents per kilowatt hour without the federal production tax credit, and wind is the fastest growing source of electric power generation nationwide.

Together with the hydrogen tax exemption legislation and policy resolution, this bill provides North Dakota legislators with the opportunity to send a signal that our State is committed to a hydrogen future and that we are open for business in this enormously important future industry.

Please recommend passage of Senate Bill 2365 today. Thank you.



Mayor Bruce W. Furness
200 3rd Street North
Fargo, North Dakota 58102
Phone (701) 241-1310
Fax (701) 476-4136

Dear Members of the Senate Appropriations Committee:

On behalf of the City of Fargo, I write in strong support of Senate Bill #2365 appropriating money for wind-to-hydrogen demonstrations in Minot and Fargo. We have been involved with developing plans for hydrogen development here and throughout the upper Midwest for some time now and see enormous opportunity for our City and for North Dakota in becoming among the first hydrogen demonstrations in our region.

Public and private interests around the world are investing literally billions of dollars in hydrogen research, development and deployment. Hydrogen holds the promise of allowing our state to tap and fully capitalize on its many domestic energy resources. The time to begin developing that potential is now. We believe that it is critical for North Dakota to be a part of this emerging economic sector.

I urge you to pass Senate Bill #2365. Thank you for your time and consideration.

Sincerely,

Bruce W. Furness (SF)

Bruce W. Furness
Mayor