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Dennis Hallworth
Operator's Signature

10/3/03
Date

2003 HOUSE NATURAL RESOURCES

HB 1378

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10/3/03
Date

2003 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. 1378

House Natural Resources Committee

☐ Conference Committee

Hearing Date January 31, 2003

Tape Number	Side A	Side B	Meter #
1	xx		5,315-end
Committee Clerk Signature <i>E. M. [Signature]</i>			

Minutes:

Chair Porter opens the hearing on HB 1378 To provide for a study of the generation of electricity from the state's wind resource to produce hydrogen for fuel.

Rep. Monson: Introduced HB 1378. (See Attached Testimony) proposed an amendment.

Tom Bodine: ND Farm Bureau Testified in support HB 1378.

Chair Porter: Closes hearing on HB 1378.

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Deanna Hall [Signature]
Operator's Signature

10/3/03
Date

2003 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. 1378

House Natural Resources Committee

☐ Conference Committee

Hearing Date January 31, 2003

Tape Number	Side A	Side B	Meter #
1		xx	0-410
Committee Clerk Signature <i>Emi Myers</i>			

Minutes:

Rep. DeKrey moved to amend HB 1378 with the amendment proposed by **Rep. Monson**. **Rep.**

Rep. Klein: seconded the motion.

The motion carried by a voice vote.

Rep. DeKrey moved a do pass with amendment. The motion carried 10-0-4. **Rep. Kelsh** will carry the bill.

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Dan Kelsh
Operator's Signature

10/3/03
Date

FISCAL NOTE

Requested by Legislative Council
03/11/2003

Amendment to: HB 1378

1A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2001-2003 Biennium		2003-2005 Biennium		2005-2007 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures	\$0	\$0	\$35,000	\$0	\$0	\$0
Appropriations	\$0	\$0	\$0	\$0	\$0	\$0

1B. **County, city, and school district fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

2001-2003 Biennium			2003-2005 Biennium			2005-2007 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2. **Narrative:** *Identify the aspects of the measure which cause fiscal impact and include any comments relevant to your analysis.*

Based on an estimate prepared by the Engineering Colleges at UND and NDSU, the anticipated cost of the study is \$35,000. No funds are currently available within either the UND or NDSU budget for this purpose. Therefore either an additional state general fund appropriation would be needed or funding would have to be internally reallocated or grant or private funding would be needed to cover the cost of the study, should the Board decide to proceed with the study.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

Funding to support personnel, and associated operating costs, to perform the study.

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, of the effect on the biennial appropriation for each agency and fund affected and any amounts included in the executive budget. Indicate the relationship between the amounts shown for expenditures and appropriations.*

Name:	Laura Glatt	Agency:	NDUS
Phone Number:	328-4116	Date Prepared:	03/12/2003

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Dennis Hall
Operator's Signature

10/3/03
Date

FISCAL NOTE

Requested by Legislative Council
02/06/2003

Amendment to: HB 1378

1A. **State fiscal effect:** *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2001-2003 Biennium		2003-2005 Biennium		2005-2007 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures	\$0	\$0	\$35,000	\$0	\$0	\$0
Appropriations	\$0	\$0	\$35,000	\$0	\$0	\$0

1B. **County, city, and school district fiscal effect:** *Identify the fiscal effect on the appropriate political subdivision.*

2001-2003 Biennium			2003-2005 Biennium			2005-2007 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2. **Narrative:** *Identify the aspects of the measure which cause fiscal impact and include any comments relevant to your analysis.*

Based on an estimate prepared by the Engineering Colleges at UND and NDSU, the anticipated cost of the study is \$35,000. No funds are currently available within either the UND or NDSU budget for this purpose and therefore an additional state general fund appropriation would be needed.

3. **State fiscal effect detail:** *For information shown under state fiscal effect in 1A, please:*

A. **Revenues:** *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. **Expenditures:** *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

Funding to support personnel, and associated operating costs, to perform the study.

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, of the effect on the biennial appropriation for each agency and fund affected and any amounts included in the executive budget. Indicate the relationship between the amounts shown for expenditures and appropriations.*

Additional state appropriation of \$35,000 required to cover estimated expenditures.

Name:	Laura Glatt	Agency:	NDUS
Phone Number:	328-4116	Date Prepared:	02/06/2003

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10/3/03
Date

FISCAL NOTE
Requested by Legislative Council
01/20/2003

Bill/Resolution No.: HB 1378

1A. State fiscal effect: *Identify the state fiscal effect and the fiscal effect on agency appropriations compared to funding levels and appropriations anticipated under current law.*

	2001-2003 Biennium		2003-2005 Biennium		2005-2007 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues	\$0	\$0	\$0	\$0	\$0	\$0
Expenditures	\$0	\$0	\$50,000	\$0	\$0	\$0
Appropriations	\$0	\$0	\$50,000	\$0	\$0	\$0

1B. County, city, and school district fiscal effect: *Identify the fiscal effect on the appropriate political subdivision.*

2001-2003 Biennium			2003-2005 Biennium			2005-2007 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2. Narrative: *Identify the aspects of the measure which cause fiscal impact and include any comments relevant to your analysis.*

Based on EERC's preliminary understanding of the study requirements, they anticipate the cost of the study at \$50,000. No funds are currently available within the UND budget for this purpose and thus an additional state general fund appropriation of \$50,000 would be needed for this purpose. EERC also recommends that one of the engineering schools within the NDUS, rather than the EERC, may be better able to prepare such a study.

3. State fiscal effect detail: *For information shown under state fiscal effect in 1A, please:*

A. Revenues: *Explain the revenue amounts. Provide detail, when appropriate, for each revenue type and fund affected and any amounts included in the executive budget.*

B. Expenditures: *Explain the expenditure amounts. Provide detail, when appropriate, for each agency, line item, and fund affected and the number of FTE positions affected.*

Funding to support current personnel, and associated operating costs, to perform study.

C. Appropriations: *Explain the appropriation amounts. Provide detail, when appropriate, of the effect on the biennial appropriation for each agency and fund affected and any amounts included in the executive budget. Indicate the relationship between the amounts shown for expenditures and appropriations.*

Additional state appropriation of \$50,000 required to complete study.

Name:	Laura Glatt	Agency:	NDUS
Phone Number:	328-4116	Date Prepared:	01/24/2003

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Operator's Signature

10/3/03
Date

30554.0101
Title.

Prepared by the Legislative Council staff for
Representative Monson
January 22, 2003

PROPOSED AMENDMENTS TO HOUSE BILL NO. 1378

Page 1, line 4, remove "Energy and environmental research center -"

Page 1, line 5, replace "energy and environmental research center at the university of North Dakota" with "state board of higher education"

Page 1, line 6, after "shall" insert "require an institution under the board's jurisdiction to conduct a" and after "study" insert "of"

Page 1, line 7, remove "energy and environmental"

Page 1, line 8, replace "research center" with "institution selected by the board"

Renumber accordingly

7

Page No. 1

30554.0101

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Diana Hallmark
Operator's Signature

10/3/03
Date

Date: 1/31/03
Roll Call Vote #: /

2003 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1378

House House Natural Resources Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken Do Pass As Amended

Motion Made By Pellier Seconded By Klein

Representatives	Yes	No	Representatives	Yes	No
Chairman Jon O. Nelson					
Vice-Chairman Todd Porter	✓				
Rep. Byron Clark	✓				
Rep. Duane DeKrey	✓				
Rep. David Drovdal					
Rep. Lyle Hanson	✓				
Rep. Bob Hunsakor	✓				
Rep. Dennis Johnson					
Rep. George Keiser					
Rep. Scott Kelsh	✓				
Rep. Frank Klein	✓				
Rep. Mike Norland	✓				
Rep. Darrell Nottestad	✓				
Rep. Dorvan Solberg	✓				

Total (Yes) 10 No 0

Absent 4

Floor Assignment Kelsh

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

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Dennis Hall
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10/3/03
Date

REPORT OF STANDING COMMITTEE (410)
February 3, 2003 11:07 a.m.

Module No: HR-20-1512
Carrier: S. Kelsh
Insert LC: 30554.0102 Title: .0200

REPORT OF STANDING COMMITTEE

HB 1378: Natural Resources Committee (Rep. Nelson, Chairman) recommends AMENDMENTS AS FOLLOWS and when so amended, recommends **DO PASS** (10 YEAS, 0 NAYS, 4 ABSENT AND NOT VOTING). HB 1378 was placed on the Sixth order on the calendar.

Page 1, line 4, remove "Energy and environmental research center -"

Page 1, line 5, replace "energy and environmental research center at the university of North Dakota" with "state board of higher education"

Page 1, line 6, after "shall" insert "require an institution under the board's jurisdiction to conduct a" and after "study" insert "of"

Page 1, line 7, replace "energy and environmental" with "institution selected by the board"

Page 1, line 8, remove "research center"

Renumber accordingly

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10/3/03
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2003 SENATE NATURAL RESOURCES

HB 1378

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Deanna Halliwell
Operator's Signature

10/3/03
Date

2003 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. HB 1378

Senate Natural Resources Committee

☐ Conference Committee

Hearing Date 3-7-03

Tape Number	Side A	Side B	Meter #
1		X	12.4 - 41.5
Committee Clerk Signature <i>Jant Jant</i>			

Minutes:

Senator Thomas Fischer, Chairman of the Senate Natural Resources Committee opened the hearing on HB 1378 providing for a study of the generation of electricity from the state's wind resource to produce hydrogen for fuel.

All members of the Committee were present except Senator Stanley Lyson.

Representative David Monson of District 10 cosponsor of HB 1378 introduced the bill (See attached testimony). He also presented an amendment that would "urge" not "require" the study (see attached).

Andy Mork of rural Mandan testified on his own behalf in support of HB 1378. He stated he thought the public is uninformed as to the fact that with a wind energy system and a coal burning plant must still be there because the wind does not always blow. He stated electricity cannot be stored but hydrogen can be stored and it can be compressed. Hydrogen fuel is not a new concept,

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10/3/03
Date

Page 2
Senate Natural Resources Committee
Bill/Resolution Number HB 1378
Hearing Date 3-7-03

it is very difficult to store and is light weight so a lot is needed to produce the power necessary.

Hydrogen fuel is clean and has a lot of potential.

Terry Schaunama representing the Dakota Resource Council testified in support of HB 1378.

(See attached testimony).

Mike Hillman, Vice Chairman of Academic and Student Affairs with the North Dakota University Systems testified in support of HB 1378 along with the amendments submitted by Representative Monson. He stated there would be more impact and potential gain if the amendments are adopted than if they are not. If the amendment is adopted it will give the system more flexibility to work the study into the long range plans. There would be a long term view and with a long term research effort if it shows promise.

Discussion was held as to the EERC and its ability to attract funding. Although EERC is part of the University system it is run like a business, needs resources to run and charges a fee for its services.

There was no neutral or opposing testimony on HB 1378.

Senator Fischer closed the hearing on HB 1378.

Senator John Traynor made a motion to accept the amendment.

Senator Michael Every second the motion.

Roll call vote #1 was taken indicating 6 YEAS, 0 NAYS AND 1 ABSENT OR NOT VOTING.

Senator Traynor made a motion for a Do Pass as Amended.

Senator Every second the motion.

Roll call vote # 2 was taken indicating 6 YEAS, 0 NAYS AND 1 ABSENT OR NOT VOTING.

Senator Traynor will carry HB 1378.

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10/3/03
Date

30554.0201
Title.0300

Adopted by the Natural Resources
Committee

March 7, 2003

403
3-7-3

PROPOSED AMENDMENTS TO ENGROSSED HOUSE BILL NO. 1378

Page 1, line 5, replace "require" with "urge"

Page 1, line 7, remove "The institution selected by the board shall present its report to the"

Page 1, remove line 8

Renumber accordingly

Page No. 1

30554.0201

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10/3/03
Date

Date:
Roll Call Vote #: /

2003 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1378

Senate Senate Natural Resources Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken Accept Amendment

Motion Made By Traynor Seconded By Every

Senators	Yes	No	Senators	Yes	No
Senator Thomas Fischer	✓		Senator Michael A. Every	✓	
Senator Ben Tollefson	✓		Senator Joel C. Heitkamp	✓	
Senator Layton Freborg	✓				
Senator Stanley W. Lyson					
Senator John T. Traynor	✓				

Total (Yes) 6 No 0

Absent 1

Floor Assignment _____

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

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Dennis Hallmark
Operator's Signature

10/3/03
Date

Date: 3-7
Roll Call Vote #: 2

2003 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 1378

Senate Senate Natural Resources Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken Do Pass as Amended

Motion Made By Traynor Seconded By Every

Senators	Yes	No	Senators	Yes	No
Senator Thomas Fischer	✓		Senator Michael A. Every	✓	
Senator Ben Tollefson	✓		Senator Joel C. Heitkamp	✓	
Senator Layton Freborg	✓				
Senator Stanley W. Lyson					
Senator John T. Traynor	✓				

Total (Yes) 6 No 0

Absent 1

Floor Assignment Traynor

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

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Operator's Signature

10/3/03
Date

REPORT OF STANDING COMMITTEE (410)
March 7, 2003 3:23 p.m.

Module No: SR-41-4292
Carrier: Traynor
Insert LC: 30554.0201 Title: .0300

REPORT OF STANDING COMMITTEE

HB 1378, as engrossed: Natural Resources Committee (Sen. Fischer, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (6 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING). Engrossed HB 1378 was placed on the Sixth order on the calendar.

Page 1, line 5, replace "require" with "urge"

Page 1, line 7, remove "The institution selected by the board shall present its report to the"

Page 1, remove line 8

Renumber accordingly

(2) DESK, (3) COMM

Page No. 1

SR-41-4292

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10/3/03
Date

2003 TESTIMONY

HB 1378

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10/3/03
Date

Testimony on HB1378
Rep. David Monson

Mr. Chairman and members of the House Natural Resources Committee.
For the record I am Rep. David Monson from Dist. 10 in northeast ND.

I have been fascinated by this idea for the last 25 years or more. When I was a science teacher back in Nekoma, ND, in the mid to late 1970's, I had high school students looking for science fair projects. This was one of the many ideas I gave my students to consider for a project. No one ever picked up this idea at that time, and I never heard much about fuel cells, hydrogen, or electrolysis of water for a long time. I never forgot about it though, and occasionally ran into a news or magazine article that had me thinking about this again. Recently, fuel cell and hydrogen as a fuel source have been given serious consideration. In fact, if you heard the President's State of the Union Address the other night, he was promoting this very idea of fuel cells and hydrogen fuel for automakers. Fuel cell technology for cars is also being promoted by Sen. Dorgan. All the major automakers revealed that they are working on this technology now, too.

I had the bill before you drafted with the EERC in GF on the UND campus doing the research since they are big into wind and energy. However, they called me when they saw the bill and wondered how much money we were sending with it. I told them none, and they said they were not interested. They mostly work for companies and do research for pay. I told them I would replace them in the bill and give it to an entity like UND or NDSU, hence my amendments. I have been in informal contact with someone in the UND engineering dept., and believe any college student could do this easily at minimal cost. With the push in our research universities to develop entrepreneurs and new businesses, this could turn into a viable business for ND. With the wind in ND, much of it in areas not close to a transmission line, we have to

David Monson
Operator's Signature

10/3/03
Date

convert our wind to fuel on-site. I believe we could have a "gold mine" here if this idea can be perfected.

I have been tracking a company called Proton Energy Systems. They specialize in hydrogen generators, electrolysis of water, fuel cell systems, and proton exchange membranes. I have found about 10 such companies in the US and feel with the push toward cleaner and more efficient fuel, this is a very viable idea for ND, especially with the wind resources that we have.

I would be happy to answer any questions.

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Donna Hall
Operator's Signature

10/3/03
Date

Testimony on HB1378
Rep. David Monson

Mr. Chairman and members of the Senate Natural Resources Committee.
For the record I am Rep. David Monson from Dist. 10 in northeast ND.

I have been fascinated by this idea for the last 25 years or more. When I was a science teacher back in Nekoma, ND, in the mid to late 1970's, I had high school students looking for science fair projects. This was one of the many ideas I gave my students to consider for a project. No one ever picked up this idea at that time, and I never heard much about fuel cells, hydrogen, or electrolysis of water for a long time. I never forgot about it though, and occasionally ran into a news or magazine article that had me thinking about this again. Recently, fuel cells and hydrogen as a fuel source have been given serious consideration. In fact, if you heard the President's State of the Union Address this year, he was promoting this very idea of fuel cells and hydrogen fuel for automakers. Fuel cell technology for cars is also being promoted by Sen. Dorgan. All the major automakers revealed that they are working on this technology now, too. Hydrogen as a fuel source is becoming a reality.

I had the bill before you drafted originally with the EERC in GF on the UND campus doing the research since they are big into wind and energy. However, they called me when they saw the bill and wondered how much money we were sending with it. I told them none, and they said they would rather have the research universities do the research. The EERC work is mainly for companies, and they contract with them to do research for pay. We amended the bill to give this to an entity like UND or NDSU in the NDUS. I have been in informal contact with someone in the UND engineering dept., and received an e-mail from someone at NDSU who would be interested in possibly do this. I believe this research could be done by a college quite easily at minimal cost. With the push in our research universities to develop entrepreneurs and new businesses, this could turn into a viable business for ND. With the wind

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David Monson
Operator's Signature

10/3/03
Date

in ND, much of it in areas not close to a transmission line, we have to convert our wind to fuel on-site. I believe we could have a "gold mine" here if this idea can be perfected.

I have been tracking a company called Proton Energy Systems for a year or more now. They specialize in hydrogen generators, electrolysis of water, fuel cell systems, and proton exchange membranes. I have found about 10 such companies in the US and feel with the push toward cleaner and more efficient fuel, this is a very viable idea for ND, especially with the wind resources that we have. Hydrogen as a burnable fuel has no by product except water vapor. Hydrogen as a fuel in fuel cells is completely not polluting and becoming commercially usable. We need to do this in ND as soon as possible.

Chancellor Isaak of the NDUS talked to me about making a change in this bill to "urge" this study instead of "requiring" this study. I have no problem with this change if you feel you want to amend the bill this way. I am confident that with the push from the President, the US Congress, the big three automakers, as well as private industry in fuel cell research, it should and would be a high priority for someone in the NDUS system to take this idea and run with it. Mandating a study may not be the kind of precedence we want to establish, even in session law, so the amendment I am passing out is acceptable to me.

One of the questions asked in the House was why is this a bill and not a study resolution? Study resolutions are studied by legislative interim committees. This is beyond the realm of an interim committee and falls within the realm of scientific research done by a university. Thus it is in the form of a bill.

I would be happy to answer any questions.

Deanna Hallmark
Operator's Signature

10/3/03
Date

PROPOSED AMENDMENTS TO ENGROSSED HOUSE BILL NO. 1378

Page 1, line 5, replace "require" with "urge"

Page 1, line 7, remove "The institution selected by the board shall present its report to the"

Page 1, remove line 8

Renumber accordingly

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Deanna Halliwell
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10/3/03
Date

Testimony, House Bill 1378

Presented to Senate Natural Resources Committee

March 7, 2003

Chairman Fischer and members of the Senate Natural Resources Committee,

Dakota Resource Council submits this testimony in support of HB 1378, which shall require an institution under the state board of higher education's jurisdiction to conduct a study of the feasibility and desirability of generating electricity from the state's wind energy resource for the purpose of producing hydrogen for fuel.

On January 28, 2003 President George Bush announced the FreedomCAR and Fuel Initiative: A Clean and Secure Energy Future Initiative to promote a hydrogen fuel cell future in the United States.

On March 5, 2003 Senator Byron Dorgan introduced a bill to launch an Apollo-like program to develop hydrogen-powered fuel cell, stationary fuel cells, and the infrastructure to support them. This bill will invest \$6.5 million over 10 years to help free the United States from its continuing reliance on foreign oil by developing hydrogen fuel cell energy technologies that will allow the nation's transportation sector to move beyond its reliance on petroleum and especially, on foreign oil.

The Department of Energy currently has several solicitations available for hydrogen production and delivery research. The opportunity is ripe for North Dakota to implement its own "Hydrogen Economy" by utilizing these federal funding sources.

Senator Kent Conrad and the Western Area Power Association are working on efforts to explore how to utilize our state's hydroelectric resources to firm up our state's inexpensive wind energy resources.

Our unrivaled wind energy can be utilized to produce hydrogen from water, biomass, and other renewable resources, which will maintain our environment and provide a sustainable quality of life. Farmers, ranchers, landowners, and rural communities will all gain as wind energy is harnessed all across North Dakota to produce hydrogen for local use and to export.

HB 1378 is the beginning for North Dakota to enter the Hydrogen Economy and to utilize the state's inexpensive and unrivaled wind energy resource. North Dakota needs to vision itself to be a leader in the production of hydrogen and to utilize its wind energy resources to bring economic development back to its rural communities. Dakota Resource Council urges that the committee vote a "do pass" on HB 1378.

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