

2009 HOUSE FINANCE AND TAXATION

HB 1277

# 2009 HOUSE STANDING COMMITTEE MINUTES

Bill/Resolution No. HB 1277

House Finance and Taxation Committee

Check here for Conference Committee

Hearing Date: **January 20, 2009**

Recorder Job Number: 7285

Committee Clerk Signature



Minutes:

**Chairman Belter opened the hearing of HB 1277.**

**Representative Todd Porter, District 34,** introduced the bill. This will assist with the efficiencies that we need to seek in order to reduce our dependency on foreign oil. What we are looking at here is geothermal. We have vast abundance of geothermal energy available in the state of ND. It is an untapped resource. It does reduce our basic need for other forms of energy and increases our efficiencies so that when we look at our transmission bottleneck and some of other energy issues, it is another tool to use in order to gain some of those efficiencies. This moves the current available tax credit from ND-2 to the ND-1 form. Ninety-eight percent of the individuals today are using ND-1 in order to file their taxes. It brings up the age old debate—why do we have ND-2? The credit is 3% per year for five years or 15% total of the cost of acquisition and installation of a geothermal system.

**Chairman Belter:** So this would be available to individuals as well as businesses.

**Representative Porter:** That's correct.

**Chairman Belter:** I've not followed geothermal technology but isn't it efficient enough that it pays for itself in a relatively short time? Or is it like some other green movements that can only survive with a check from the government?

**Representative Porter:** I think you will hear from individuals that are in the business of installing them and who know what the return on that additional investment would be. I wouldn't classify geothermal as truly green technology so much as I would an increased efficiency because you still have to have electricity to run the compression systems and circulate the water through the house. It reduces the electrical provider's peak demands on their systems. It also decreases our dependency on foreign oil because we don't have to use the natural gas supply for things like heating your house. It definitely had its advantages in the efficiencies that it provided to the consumer and back to the end utility companies that are producing.

**Representative Pinkerton:** Haven't the costs for putting those systems in risen substantially over the last couple of years? It kind of put the average residential consumer out of it. New commercial is going in with ground source heating but very little residential is now being put in.

**Representative Porter:** I don't know what the system would cost to put in but I do know there are individuals here that will be able to answer that. If it cost \$20,000 in 5 years you would get about \$3,000 back.

**Representative Scot Kelsch, District 11:** I want to go on record in support of this bill. When I was practicing architecture we did a lot projects that used ground source heat pump systems. What it does is it takes water that's about 60-65 degrees when your are cooling and will add a degree or two to that water when it goes back in the ground. When you are heating it will take a degree or two out of the water. It changes the temperature of the water very little. It's a very efficient system. You can build it on the site of the project and it requires no resources except electricity to run the capacitors in the house. The Power Commission ironed this out and voted unanimously on this. That speaks well for the work they did. I recommend that you pass this measure.

**Doreen Reidman, representing ND Association of Builders:** We would like to go on record in support of this legislation. Personally as a homeowner, a couple of years ago we built a house and installed this system and we're very pleased that we did.

**Randy Mathern, owner of Comfort Zone Heating and Air Conditioning:** I've been in the heating and air conditioning business in ND for over 30 years and over the last 7 years I've owned my business. I pursued the geothermal industry as an alternative to the conventional work we've done for many years. In the last 7 years we've had about 100 installations across ND. I've been trained and tested in the proper application and installation of this technology both in residential and commercial. I'm here to support 1277. I believe this credit will be a long-lasting investment in the infrastructure of our homes and businesses in ND. Geothermal systems are recognized by the US EPA as the most energy efficient and environmentally safe heating and air conditioning systems available today. Unlike fossil fuel systems that burn gas and oil and emit questionable by products, geothermal energy is more the transfer of energy from the ground to the building. ND is fortunate to produce an abundance of clean electrical energy. This credit would allow more North Dakotans to utilize this form of energy in their businesses and home which will result in lower operating costs giving us a clear advantage in our state's economy. Geothermal employs a broad range of people across ND: architects, engineers, plumbers, sheet metal people, electricians, drillers, excavators—all North Dakotans employed to install this technology. All good paying jobs—the kind of jobs we want to keep in ND. I urge you to consider passage of this bill as it is a win/win proposition.

**Representative Weiler:** Can you put one of these into an existing home? Does there have to be a backup furnace?

**Mathern:** It's not a simple task but we have retrofitted at least 1/2 dozen in the last 3 months; probably because of the high cost of propane and fuel oil. This totally replaces a fossil fuel

system. There are times we have married the two for purposes of off peak situations that rural electricians have asked for. It can be installed to totally replace a fossil fuel system.

**Representative Weiler:** What would it cost to have a house built in 1992 retrofitted?

**Mathern:** Considering it was time to replace the system anyway, the actual equipment we install may be slightly more expensive. The heat pump expense has climbed considerably, drilling costs, diesel costs, and raw material costs have gone up. That would reach about twice as much as a conventional system. It is permanent. They have a 50-year guarantee. To make this more affordable for North Dakotans I think we need this tax credit.

**Representative Headland:** Have you ever been able to put a dollar amount or a time on how quickly the return on investment is captured.

**Mathern:** That would be determined by what we are comparing it to. Fuel oil and propane gas costs fluctuate. We've seen in the 3-5 year or the 10-15 year range depending on the application. I would say 5-10 is an average based on current fuel costs.

**Representative Headland:** If you are building a new home and with these increased costs of installation, estimate how long it would take to recapture the cost.

**Mathern:** The initial investment is higher. The return is what we are comparing it to. If we are buying a fuel oil furnace versus this, the return on investment falls between 5 and 10 years.

**Representative Brandenburg:** How deep do you have to go into the ground to find this water?

**Mathern:** It varies. We have systems along the Missouri River that have gone 15 feet down to find water. There's a wide array of how we apply the technology. If we can use open systems from existing wells and we send it out to water animals. There can be a simple installation. There is the closed system where water is circulated through the ground. Most typically those are drilled to 200 feet. There are times depending on ground conditions where

more wells will be drilled shallower or less wells may be drilled deeper. Our job is to apply to the ground technology to need on the other side.

**Representative Drovdal:** The systems you install—what percent are for private homeowners and what percent is for businesses.

**Mathern:** 75-80% has been residential.

**Representative Pinkerton:** I read someplace that grain dryers will be using ground source heat. Will this bill cover grain dryers?

**Mathern:** I'm not aware of any installations of this type.

**Representative Schmidt:** I was BSC in their new building. Is that heat in the floor? Perhaps we could get some statistics from that building.

**Mathern:** It is geothermal. I'm not sure if it's radiant or forced air. We've done combinations. We have a lot of history. We have some that are spending in a year what they used to be spending in a month to heat their home. Canada has instituted an energy credit.

**Keith Benz, owner of Northern Plains Heating and Air Conditioning:** Around 2000 we started installing geothermal. I called Capital Electric for some comparisons. In 2007 their load for heating went up 3.1 megawatts. In 2008 it went up 4.9 megawatts. 147 members installed electric heat on their meter, 9% being strait electric. Only 10% were geothermal. Basin Electric sells them power at 4 times what they sell here locally. One wind tower can heat 87 homes in an average winter. If you turn those into geothermal you heat on average 305 homes with that same wind turbine. That's where the savings are. Electric systems are safer than the fossil systems. With the snow that we have we have many problems with drifts covering the vents. With geothermal all the working items are tucked into your home. They are safer.

**Gardell Jochim, owner of Northern Plains Plumbing and Heating and Drilling and**

**Excavating:** We employ 30 plus people. The majority of the wells are 200 ft wells and they are all closed loop systems that we are doing right now. The installed this in my own home. I was heating about 4200 sq ft and I require 5 wells. I was on forced air. We bored in to the mechanical room. I've been running about a month. Last year I was at about \$250 a month for propane; this mo I'm running at about \$90. With the cost of installation, I'm looking at about a 6-7 year payback.

**Representative Weiler:** How much more expensive is this to install in an existing home than a brand new home?

**Jochim:** It is more expensive because we are dealing with existing yards, space, fences. You could use 4 – 5 wells that are about 10 feet apart. It's a messy job. I would say about 40-50% higher.

**Representative Brandenburg:** How many gallons of water do you need?

**Jochim:** I can't tell you exactly.

**Representative Pinkerton:** Have you put systems in to melt ice in driveways.

**Jochim:** I have not, but you could use this.

**Representative Grande:** I'm confused. You said you put antifreeze in this water but this fellow says he's giving it to the animals.

**Jochim:** That's an open system and there's no solution put in there.

**Chairman Belter:** Could you explain how this tax credit will work?

**Joe Becker, Tax Department:** The geothermal unit cost of the materials as well as the installation cost. Once you have that total you multiply by 3% and that will give you your credit for that particular year. You can take the same amount of that credit in each of 5 years. It's

15% spread out over 5 years. If you cannot use the credit in any given year, there is a 5-year carryover available. There is no cap on the amount you can take.

**Representative Froseth:** My daughter and her husband built a new house about 15 years ago. They are on a rural electric system for which he works. They have an incentive program and the payback was 7 years. They have an about 2500 sq ft house and it costs them about \$35 mo for heat. Of course, the costs have changed dramatically.

**Chairman Belter closed the hearing of HB 1277.**

## 2009 HOUSE STANDING COMMITTEE MINUTES

Bill/Resolution No. HB 1277

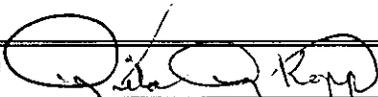
House Finance and Taxation Committee

Check here for Conference Committee

Hearing Date: January 20, 2009

Recorder Job Number: 7341

Committee Clerk Signature



Minutes:

**Vice Chairman Drovdal:** HB1277 is the geo-thermal energy device installation credit.

**Representative Weiler:** I don't know that it makes sense. The bill says to move it from the long form to the short form, but basically it is a 3% credit for five years with a maximum of 15% total credit. That is what the current credit is on the long form.

**Representative Grande:** Do we have a list of the credits that have been transferred?

**Vice Chairman Drovdal:** I don't believe we do have that list because they added six or seven today. The first week we had a handout and I think there were 20 of them that had been transferred and five credits that had not been transferred. This is the fourth one of the five, but a summary has not been made available yet.

**Representative Wrangham:** How many more of these tax credits do we need to move from the long form to the short form before we have to change our code to say the short form is now our median form?

**Vice Chairman Drovdal:** The only thing that concerned me a little bit is that a tax credit for a business is certainly different than for an individual because it is before tax money they are paying for that geo-thermal unit. For an individual who can't depreciate, he pays for it with after-tax dollars. To me, that is an important factor.

**Representative Weiler:** We must also remember that corporations and individuals filing Form 2 start out at a much higher rate. Geo-thermal energy is fantastic. People are recouping investments in seven years. You have to be brain dead not to do it. My point is that we shouldn't be giving a tax incentive to something people should do anyway. Any time we give a tax credit, what we are doing is selecting winners and losers. We have people here today who install thermal heat pumps and these systems. There are a lot of people out there who put in electric and gas furnaces too. Where are we going to give them a break? We are going to tax them to give this group a break. I just don't see any good reason to ask this.

**Representative Kelsh :** This bill came out of the empower commission which we authorized last session. I was on this committee. They had several meetings where they reported they almost came to blows. Every recommendation that they came out with was a unanimous decision. This was one of the ones they said would enhance independence from foreign oil.

To me, it makes sense for the state to be energy independent. I think it deserves attention and a favorable recommendation.

**Vice Chairman Drovdal:** You said this came out of committee, but this is sponsored by legislators.

**Representative Kelsh:** Good point, Mr. Vice Chairman. It was out of empower recommendations.

**Representative Pinkerton:** I too agree that it is difficult to decide where we should finance these things, but this is an emerging technology still. We looked at putting it in our home and the cost was prohibitive for the return. I support encouraging emerging technologies with tax incentives, just like we supported horizontal drilling. Once those technologies are developed, then I think they need to stand alone. To put these systems into an existing home is very difficult because of the installation. If we support it and take the gamble of supporting it now

when it is an emerging technology, hopefully whatever the sunset is; at some point, it has to be able to emerge and stand on its own. We can't support it forever. In bigger terms, it is seemingly more difficult to export electricity than it is to export gas out of this state. The more electricity we can consume for home heating as opposed to consuming gas, the better. I think this is one of the things that moves us in that direction by using electricity rather than gas to heat homes or businesses. I think the International Inn in Minot put in over 200 wells. It is widely used in Minot on commercial applications, but residential applications are just not there yet. It needs some development.

**Representative Drovdal:** Somewhere you lost me on how this promotes using electricity over gas. Can you explain that?

**Representative Pinkerton:** If you use geo-thermal energy, it is all electricity that you burn. There is no gas involved at all. As far as exporting electricity, there is a 4% line loss taking it out of the state and transmission lines really aren't there and we have a lot of electricity. It is my understanding that building a gas pipeline is much less expensive than building lines to get electricity out of the state so if we consume electricity in the bigger picture, I think the state is better off than consuming natural gas.

**Vice Chairman Drovdal:** You mentioned something about five years. Are you thinking of proposing a sunset clause on this?

**Representative Pinkerton:** I think every bill we pass out of here should have a sunset clause.

**Vice Chairman Drovdal:** Most people say we meet every two years so we are always sunseting. It is just not automatic. I will tell the chairman when he gets back that we are ready to go.

## 2009 HOUSE STANDING COMMITTEE MINUTES

Bill/Resolution No. **HB1277**

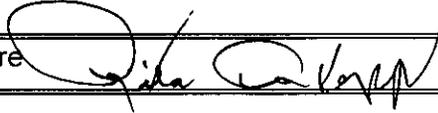
House Finance and Taxation Committee

Check here for Conference Committee

Hearing Date: January 26, 2009

Recorder Job Number: 7779

Committee Clerk Signature



Minutes:

**Chairman Belter:** This is the geo-thermal tax credit.

**Vice Chairman Drovdal:** I move a "do not pass".

**Representative Headland:** Second.

**Chairman Belter:** Any discussion?

**Vice Chairman Drovdal:** Mr. Chairman, I think geo-thermal is very efficient, but any system that will pay itself back in five to seven years doesn't need credit. I think the system is a good idea, but I think this is one that can sell itself and we don't need the credit.

**Chairman Belter:** Any other discussion.

**A roll call vote resulted in 7 yeas, 6 nays, and 0 absent/not voting. Representative Froseth will carry the bill.**

**FISCAL NOTE**  
**Requested by Legislative Council**  
01/12/2009

Bill/Resolution No.: HB 1277

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.*

	2007-2009 Biennium		2009-2011 Biennium		2011-2013 Biennium	
	General Fund	Other Funds	General Fund	Other Funds	General Fund	Other Funds
Revenues			(\$375,000)			
Expenditures						
Appropriations						

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

2007-2009 Biennium			2009-2011 Biennium			2011-2013 Biennium		
Counties	Cities	School Districts	Counties	Cities	School Districts	Counties	Cities	School Districts

2A. **Bill and fiscal impact summary:** *Provide a brief summary of the measure, including description of the provisions having fiscal impact (limited to 300 characters).*

HB 1277 allows the existing tax credit for installation of geothermal energy devices to be claimed on the state's primary individual income tax return, Form ND-1. Currently, the credit can be claimed on the optional return, Form ND-2, only.

B. **Fiscal impact sections:** *Identify and provide a brief description of the sections of the measure which have fiscal impact. Include any assumptions and comments relevant to the analysis.*

If enacted, HB 1277 is expected to reduce state general fund revenues by an estimated \$375,000 in the 2009-11 biennium.

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.*

C. **Appropriations:** *Explain the appropriation amounts. Provide detail, when appropriate, for each agency and fund affected. Explain the relationship between the amounts shown for expenditures and appropriations. Indicate whether the appropriation is also included in the executive budget or relates to a continuing appropriation.*

<b>Name:</b>	Kathryn L. Strombeck	<b>Agency:</b>	Office of Tax Commissioner
<b>Phone Number:</b>	328-3402	<b>Date Prepared:</b>	01/19/2009

Date: January 26, 2009

Roll Call Vote #: 1

**2009 HOUSE STANDING COMMITTEE ROLL CALL VOTES**  
**BILL/RESOLUTION NO. 1277**

House FINANCE AND TAXATION Committee

Check here for Conference Committee

Legislative Council Amendment Number \_\_\_\_\_

Action Taken  Do Pass  Do Not Pass  Amended

Motion Made By Drovdal Seconded By Headland

Representatives	Yes	No	Representatives	Yes	No
Chairman Wesley R. Belter	/		Representative Froelich		/
Vice Chairman David Drovdal	/		Representative Kelsh		/
Representative Brandenburg	/		Representative Pinkerton		/
Representative Froseth	/		Representative Schmidt		/
Representative Grande	/		Representative Winrich		/
Representative Headland	/				
Representative Weiler		/			
Representative Wrangham	/				

Total (Yes) 7 No 6

Absent 0

Floor Assignment Froseth

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

**REPORT OF STANDING COMMITTEE (410)**  
January 26, 2009 5:26 p.m.

**Module No: HR-15-0973**  
**Carrier: Froseth**  
**Insert LC: . Title: .**

**REPORT OF STANDING COMMITTEE**

**HB 1277: Finance and Taxation Committee (Rep. Belter, Chairman) recommends DO NOT PASS (7 YEAS, 6 NAYS, 0 ABSENT AND NOT VOTING). HB 1277 was placed on the Eleventh order on the calendar.**

2009 SENATE FINANCE AND TAXATION

HB 1277

## 2009 SENATE STANDING COMMITTEE MINUTES

Bill/Resolution No. HB 1277

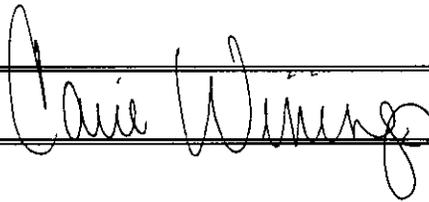
Senate Finance and Taxation Committee

Check here for Conference Committee

Hearing Date: 02/25/2009

Recorder Job Number: 9678

Committee Clerk Signature



Minutes:

**Chairman Cook:** Opened hearing on HB 1277.

**Representative Todd Porter, District 34:** Introduces bill as sponsor and in support of. The bill came to you in the same condition that it went to the house side. This bill moves the current tax credit from ND-2 over to ND-1. The fiscal note is identical to the Senate Bill as well.

**Harlan Fuglesten, North Dakota Association of Rural Electric Cooperatives:** Came to testify in support of the bill and introduce Doug Mork.

**Doug Mork, Member Service Director, Capital Electric Cooperative:** See Attachment #1 for testimony in support of the bill.

8.02 **Senator Triplett:** Question on page 2 of testimony. Do you have an estimate of what the total number of systems in Burleigh County that might have been installed?

**Doug Mork:** I do not have the total number in Burleigh County. We have had pretty good growth in our area. We have 15,000 members and we track our members very closely and there is a lot of construction going on. We provide special heat (inaudible) and that is why we see the majority within our service area. I would like to suggest that those were the primary installations.

**Senator Triplett:** The one criticism that we heard on the other bill is the question of why people are not doing this if it is such a good idea? You answered that a little bit with the upstart costs. Do you think there is interest out there in using geothermal above and beyond what is being done?

**Doug Mork:** There is a large amount of interest. The cost situation has been a barrier. There have been concerns of people coming in and they spend a lot of money on a new home and so on. This percentage of increase costs is a very small percentage overall. What you put into a home is an investment. It comes with a large upfront cost and people are concerned. I think people do shy away because of that.

**Senator Triplett:** We heard conversation on the floor of the Senate about geothermal in general regarding the veteran new home and it was presented on the floor that there would be a 20 year payback on the geothermal system, does that seem logical to you or reasonable?

**Doug Mork:** I would like to question what alternate fuel cost that was based on because fuel prices have gone all over the board. Many times the electric energy side of the equation is much more stable cost wise. Yes, it could be a longer payback. It just depends on the type of system they put in.

**Senator Triplett:** For ordinary houses, \$150,000 to \$250,000, what kind of a payback do you suggest there?

**Doug Mork:** It is all based on energy, and the differential costs in energy.

**12.03 Randy Mathern, Comfort Zone Heating and Air:** Testified in support of the bill. We install these systems and we are in favor of moving it to the new tax form so that more people will realize that this tax benefit is available. The EPA has recognized it as the most efficient and most environmentally friendly way to heat and cool our homes. The big difference is that unlike gas and fuel systems that burn a set amount of fuels to achieve so many BTU's, this

technology transfers energy from the ground to the building, or the building to the ground in the case of air conditioning. Once the investment is made in this technology for the life of that building it will continue to lessen the need for energy. The longer you have this, the less fuel we will need. It goes well beyond the payback. From a technical stand point typical installations are two to three times the cost of what we consider conventional. The equipment is more advanced, and of course the drilling of the geo loop field where the energy is transferred, but once invested we are looking at cost around  $\frac{1}{4}$  of what a conventional system is today. That varies. The petroleum market is very volatile. It would be good for North Dakota to invest in this technology.

**15.20 Gardell Jochim, Owner, Northern Plains Drilling and Excavation:** Testified in support of the bill. We are a building contractor of these geothermal systems. We go and drill the wells for the geo loop systems. There has been a great interest in these geothermal systems. The first thing that comes up is affordability. For an example, whether it be new construction or retrofit systems, existing homes can be fitted with the geothermal system. My home was fitted last fall and I have seen a 68% saving over this winter in heating costs. The biggest concern is upfront costs.

**16.45 Doreen Riedman, North Dakota Association of Builders:** Appeared in support of the bill.

**Bill Kalanek, North Dakota Alliance for Renewable Energy:** Appeared in support of the bill.

**Mary Mitchell, Dakota Resource Council:** Appeared in support of the bill.

**Chairman Cook:** I have a question for the tax department. Three percent for 5 years?

**Donnita Wald, Tax Dept Legal Council:** Yes, you are correct.

**Chairman Cook:** You can carry over for 5 more years?

**Donnita Wald:** Yes.

**Chairman Cook:** Closed hearing on the bill.

**Senator Hogue:** I have looked at statute and it sunsets January 1 of 2011. It seems like a reasonable proposal. Neither bill addresses extending the credit beyond 2011.

**Donnita Wald:** Yes it does sunset. But if you will remember, SB 2033 which dealt with the wind credit, the empower bill, your committee passes and the Senate passed, that got rid of the sunset provision. If that bill makes it through the House then that sunset will go away.

**Senator Hogue:** So it amends the 57-38-01.8?

**Donnita Wald:** Yes.

19.30 **Senator Triplett:** Maybe we should put the same language in this bill that we had in the empower bill.

**Donnita Wald:** I can do that and drop that amendment off.

**Chairman Cook:** Please do that.

**Senator Dotzenrod:** Do you think there is any difficulty separating the work on the geothermal installation compared to what is done on the rest of the home?

**Donnita Wald:** They would have to work out separating geothermal installation out from the other work with the contractor on the home. It would probably be itemized out. For the most part, I don't think people take more than they are supposed to.

**Representative Porter:** Just to note, this was not the easiest bill to get out of the house. I don't think having come back across would be a good idea.

**Senator Triplett:** That is a good point.

**Chairman Cook:** Committee, your wishes?

**Senator Triplett:** Moved a Do Pass and Re-Refer to Appropriations.

**Senator Anderson:** Seconded.

**Chairman Cook:** Discussion?

**A Roll Call vote was taken. Yea 6, Nay 0, Absent 1 (Senator Miller).**

**Senator Oehlke will carry the bill.**

(Scott Rising, North Dakota Soybean Growers Association signed registration in support of the bill but gave no testimony)



**REPORT OF STANDING COMMITTEE**

**HB 1277: Finance and Taxation Committee (Sen. Cook, Chairman) recommends DO PASS and BE REREFERRED to the Appropriations Committee (6 YEAS, 0 NAYS, 1 ABSENT AND NOT VOTING). HB 1277 was rereferred to the Appropriations Committee.**

2009 SENATE APPROPRIATIONS

HB 1277

## 2009 SENATE STANDING COMMITTEE MINUTES

Bill/Resolution No. HB 1277

Senate Appropriations Committee

Check here for Conference Committee

Hearing Date: March 6, 2009

Recorder Job Number: 10335 & 10336 (vote)

Committee Clerk Signature

*Rose Lanning*

Minutes:

**Chairman Holmberg** called the committee hearing to order on HB 1277 which relates to income tax credits for installation of geothermal energy devices. Roll call was taken.

**Dwight Cook, State Senator, District 34**

It's an honor to be back again and ask for your favorable consideration of HB 1277. You have seen this bill before. I believe it was SB 2427. It's the same bill; it just transfers the credit of the geo-thermal energy device from the long form also to the short form. You passed it out favorably before and I hope you again can give it your favorable attention. The other night I had dinner with mining engineer up north and he shared a very interesting fact with me. On January 15, 2009, a date we all remember, when it was 44 degrees below zero here in Bismarck. That's the day when the high was minus 20. On that day, Great River Energy, a power plant just to the north of us, produced 23,000 MW of electricity. That is running full steam. And right next door and during those critical conditions, there was a coal mine mining a lot of coal – getting it done. On that same day, January 15, all the wind turbines in North Dakota produced zero electricity. The reason I make that comment is that as we go forward and work on an energy plan, part of that plan is and has to continue to be including ways of reducing consumption. Again, I would ask your favorable consideration.

**Rep. Todd Porter, District 34, Mandan**

I'm here to offer my support during the interim. I served with Sen. Wardner on the Energy and Transmission Interim Committee where we did hear that geo-thermal was one of the methods to increase our efficiency and reduce our dependence on foreign oil. That's what prompted me to put the bill in. It does appear in the EMPOWER final report on the section of energy efficiency and I would ask for your favorable consideration.

**Senator Christmann:** Question for Sen. Cook, please. The tax form, are we getting too many of these? And will it maintain its integrity as a short form? Have you gone to two pages yet on that? Fill me on the status of that.

**Senator Cook:** It quit being a short form some time ago. We studied it and the interim committee as far as long or short form, what we really find out is that with the technology, and TurboTax and everything else that's available. It's just giving it the information and it automatically calculates it.

**Senator Christmann:** Have we added very many of these this session?

**Senator Cook:** I can think of two this session; long term health care and this one.

**Doreen Riedman, North Dakota Association of Builders**

Testified in favor of HB 1277. No written testimony.

This incentive is needed to get people to take the extra step and put in the more expensive system. People need to be encouraged to draw upon it and use it.

**Senator Mathern:** How do you take 90 degree moisture out of the earth and make it 140 degree heating system?

**Doreen Riedman:** I will let someone else answer that. We have a geo-thermal system in our home and we love it - even when it was 44 below.

**Randy Mathern, Contractor, Comfort Zone Heating and Air Conditioning**

Testified in favor of HB 1277. No written testimony.

The real reason we need to support this is the difference we need to understand about geo-thermal technology versus fossil fuel technology. We are not burning a fuel to create energy; we are transferring energy stored within the earth to the homes and buildings. EPA has recognized geo-thermal technology as the most efficient and the most environmentally friendly form of energy there is. It is more expensive than fuel or gas furnaces and air conditioners. A lot of my clients would like to get into this type of technology, but simply can't afford it. You should use this tax incentive to invest in the future in the homes and buildings of ND so they can utilize this technology and forever forward, save energy.

**Chairman Holmberg:** You talked about the transfer, could you walk us through the system, for example if you went to Senator Krebsbach's house and she wanted to have geo-thermal. What would you do and what would she see after everything was done and installed?

**Randy Mathern:** First of all we'd have to determine Senator Krebsbach's needs for her house. How big is it? How well is it insulated?

**Chairman Holmberg:** I think it's about 24,000 square feet.

**Randy Mathern:** Once you analyze and determine what that is, we select a piece of equipment, the heat pump that does the magic transfer is called the heat pump. Consequently, it's what is going to change cool water from the earth into a comfortable seventy degree home by pulling some 100 degree air out. It is what transfers the energy. Also you would need to tap the earth. She would need a well drilling company to come in and based on how big or how small your house was would determine how many well would need to be built. Once that well drilling is done, it is excavated into your house, attached to the heat pump unit and then consequently into a forced air duct system where it will heat and cool the air by transferring the energy. It is run on electricity; it makes very efficient use compared to straight electric heat. With new technology, it is approaching 5 times more efficient than straight

electric heat. In some cases you can use an open system. A lot of farm communities already have a well and they may have been running that water out to the horse or cow or to the house. We have basically tapped that energy, that water from the ground and then piped it on to the horses. It's just a few degrees colder or warmer depending on whether we're heating or cooling the house.

**Chairman Holmberg:** It's similar to the heat pumps. I live in a condo and we have heat pumps outside and they're just drawing in from the air.

**Randy Mathern:** You're drawing heat and cooling from the ambient air outside. Of course when it's 44 below, it's a little tough to draw enough heat for the house. The earth's constant temperature allows you to do that.

**V. Chair Grindberg:** I'm curious about the efficiency of geo-thermal compared to the Steffes system in Dickinson, built by Steffes Manufacturing.

**Randy Mathern** explained the Steffes system – a straight electric resistance storage heat or heater.

**V. Chair Bowman:** If there is so much efficiency with this system and we're looking at going this way, why do you need a tax incentive? The incentive ought to be the efficiencies. You're going to save that in a short period of time. We're giving up a tax incentive to do something that's way more efficient. As a consumer, I think that's not a bad investment to have that much more of an efficient heating system without an incentive.

**Randy Mathern:** I agree. It is an incentive to install. The tax incentive would be even greater. It's not uncommon to be ten, twenty or even thirty thousand dollars for these systems and it make it a little unreachable for most people to get into that. If they are financing a new home, there may be creative ways to add it to the mortgage – or maybe not. In the case of retrofitting

an existing system, that's a pretty healthy amount of upfront money to get and start realizing the savings.

**Chairman Holmberg:** As part of your program, when you are visiting with a client, do you also do an evaluation of the structure itself as far as windows, insulation and that kind of thing.

**Randy Mathern:** Yes, we need to analyze the home.

**Senator Christmann:** The heat pump operates on electricity. Why or how can it be so efficient to heat cool ground water to heat your house as opposed to my old traditional electric boiler furnace that heats the water that has only dropped a few degrees in temperature from the last time the furnace kicked in circulating the same amount of water in the pipes? What makes it so efficient?

**Randy Mathern:** The source of energy is electricity, yes. The source of heat is the ground water. (Explains the workings for the pump.)

**Senator Christmann:** How do we pick and choose which industries to support if the cost of that industry is a little bit too much for the market to demand it? Should we at one time have given tax breaks for Edsels because the market wasn't buying enough of them to keep them going? I'm a cattle producer, if cattle prices dropped too far and everyone is eating chicken and turkey, should there be a tax incentive to buy beef then so they get our market back up? And what if the turkey prices are low? Where do we stop with trying to use the tax system to impact the market place?

**Randy Mathern:** I'm not sure I have the complete answer for that, but I guess with this certain technology is that is has been proven to be the most efficient and the most environmentally friendly. The cheapest power plant is the one that we don't build. **Senator Krebsbach:** Let's be realistic about my 24,000 square foot house and bring it down to the

modest 1600 square foot house that it is with a double, not triple garage, and it's unheated. I have a boiler that I put in my house about three years ago, that wouldn't be usable any longer or you wouldn't need it. What type of duct system would I need to have installed for this other system.

**Randy Mathern:** Every application is a little different to apply that technology to the desired building. We've done similar situations where we've utilized the boiler in concert with the heat pump. So there are a number of ways to do this. What is most cost effective for your house?

**Senator Krauter:** The fiscal effect of this piece of legislation, could you give me some average costs of a residence that is new installation compared to retrofitting a common residence, and also the commercial side of it or a retrofit there.

**Randy Mathern:** If we could take an average new home- new construction using geo-thermal would be in the neighborhood of \$ 25 – \$30,000. Retrofitting forced air for geo-thermal would be about half that. There is such a variety.

**Senator Warner:** What does your industry predict as a break even cost for installing geo-thermal?

**Randy Mathern** answered saying it would be dependent on what type of fuel costs they previously used and gave prices of fuel oil, natural gas and depends on what is being used. Paybacks could be as little as 5 years, but could be up to 10 years. The investment into geo-thermal, like the plastic pipes that are used for the ground loop, will last for 50 years.

**Senator Mathern** put a geo-thermal system in his house in Fargo in 2004. The conventional system was \$7500. The geo-thermal system was \$15,000 with a projected payback of 7 years. But now that the cost of energy has gone up, it's basically paid for now.

**Keith Benz**, local business owner, Northern Plains Heating and Air Conditioning, Bismarck. Testified in favor of HB 1277. No written testimony.

He has customers that gloat over their utility costs. He has basically turned green and said we don't want to keep this to just the people that can afford it. It's very safe; no carbon monoxide, no chimney installation, no gas line, no oil. The efficiency of geo-thermal is 300-500 percent.

**Chairman Holmberg** asked if there were rules and regulations within cities that would keep you from doing the drilling or are you protected and able to go into someone's back yard and do what needs to be done?

**Keith Benz:** We have two hundred wells underneath the parking lot of Corpus Christi Church, and there are 500 wells under the parking lot of the Workforce Safety building. We've dug wells in the Sleepy Hollow area. If you need to dig a well, it will take up the square area of your driveway. Once you pour your driveway on top of these pipes, you never have to access them again. Once the sunlight does not hit that pipe, nothing happens to it, short of the ground seriously shifting somewhere. They are guaranteed for 50 years.

**Senator Krebsbach:** How deep do you have to put the wells in the ground and would you have to chop up a driveway to get one there or can you relocate elsewhere?

**Keith Benz:** The typical well is 200 feet deep. Sometimes instead of 5 – 200 foot wells, we've had to do 10 – 100 foot wells. Under driveways, instead of digging x amount of 200 foot wells, they dug x amount of 300 foot wells to get the same amount capacity, so just need to do the math.

**Harlan Fuglesten, North Dakota Association of Rural Electric Cooperatives**

Testified in favor of HB 1277. No written testimony.

The Association represents five generations of generation cooperatives that together have invested about 90 % of the investment of our coal fired generation industry in ND. Our sixteen distribution cooperatives represent about 250,000 ND consumers and serve that many people in the state. The membership through its resolutions process has for many years has endorsed

this change from the long form to short form tax credit for geo-thermal. It is a system that is much more energy efficient and as a utility company and as a representative, we're very concerned that our energy be used wisely and that our customers get the best deal possible. These are expensive systems and apart from giving an incentive to put in the systems, folks who build or buy homes don't know how long they will be around when the payoff will occur, so an upfront incentive is another reason this is so important.

Additional testimony from:

**Doug Mork, Member Services Director, Capital Electric Cooperative**

Written attached testimony in favor of HB 1277 – see attached # 1.

**Chairman Holmberg** closed the hearing on HB 1277.

**Senator Mathern moved Do Pass.**

**Senator Robinson seconded.**

**A Roll Call vote was taken. Yea: 9 Nay: 2 Absent: 3**

**It goes back to Finance and Taxation.**

Date: 3-6-09  
Roll Call Vote #: 1

2009 SENATE STANDING COMMITTEE ROLL CALL VOTES  
BILL/RESOLUTION NO. 1277

Senate Senate Appropriations Committee

Check here for Conference Committee

Legislative Council Amendment Number \_\_\_\_\_

Action Taken  Do Pass  Do Not Pass  Amended

Motion Made By Sen Mathern Seconded By Sen Robinson

Representatives	Yes	No	Representatives	Yes	No
Senator Fischer			Senator Warner	✓	
Senator Christmann		✓	Senator Robinson	✓	
Senator Krebsbach	✓		Senator Krauter		
Senator Bowman		✓	Senator Lindaas		
Senator Kilzer	✓		Senator Mathern	✓	
Senator Grindberg	✓		Senator Seymour	✓	
Senator Wardner	✓				
Chairman Holmberg	✓				

Total Yes 9 No 2

Absent 3

Floor Assignment Finance Tax Oehlke

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

**REPORT OF STANDING COMMITTEE (410)**  
March 6, 2009 9:28 a.m.

**Module No: SR-41-4185**  
**Carrier: Oehlke**  
**Insert LC: . Title: .**

**REPORT OF STANDING COMMITTEE**

**HB 1277: Appropriations Committee (Sen. Holmberg, Chairman) recommends DO PASS**  
**(9 YEAS, 2 NAYS, 3 ABSENT AND NOT VOTING). HB 1277 was placed on the**  
**Fourteenth order on the calendar.**

2009 TESTIMONY

HB 1277

#1

HB 1277

ND Income Tax Credits for Geothermal Energy Device  
Senate Finance and Taxation Committee  
February 25, 2009 (9:00 AM)  
Lewis and Clark Room

Presented By: Doug Mork, Member Services Director  
Capital Electric Cooperative  
4111 State Street  
Bismarck, ND 58503  
(701) 223-1513

*same so same  
same so same  
approps -*

Mr. Chairman and members of the committee, my name is Doug Mork, Member Services Director for Capital Electric Cooperative here in Bismarck. I rise in support of HB 1277. My interest in this tax credit is primarily because I have seen the benefits that geothermal heat pumps have in saving energy and promoting jobs and profits for North Dakota businesses.

Capital Electric Cooperative has been involved in promoting geothermal heat pumps for almost twenty one (21) years. These state of the art heating and cooling systems have become the most efficient systems available today. They work 24 hours a day, 7 days a week, without concern for outside temperatures or day/night conditions. They operate at an efficiency of more than 300%, meaning they transfer the required btu's/hr. to heat your home or business with 1/3 the energy usage of standard electric resistance heat. The energy used is electricity produced from our coal-based power plants and wind farms here in North Dakota.

Changing the law to allow taxpayers to take advantage of the tax credit on energy saving devices is important because many consumers do not make this energy efficient choice

because of the high initial installation cost, even when there are sufficient energy savings that lower long term operation costs. For example, the costs of a geothermal heat pump system are high compared to other heating and cooling systems. The cost for a residential unit could be \$7,000 to \$10,000 higher depending on the size of the home. These systems, however, operate at a cost that is one quarter to one fifth the cost of operating a high efficiency gas furnace. To promote the wise use of our energy resources, a small investment in a tax credit for energy savings can pay large dividends.

The installation of these systems is very labor intensive; each installation requires as many as four (4) different contractors to complete. The installation of the ground loop, from which heat is extracted, is done by a well drilling contractor specifically tooled for ground loop installation. Bores are from 150' to 200' deep with all pipe being heat fused and pressure checked. The inside work is done by the sheet metal duct work contractor who attaches and installs the duct work and filters, the plumber assembles and installs all the piping and pumps to circulate the ground loop heat transfer fluid and the electrician wires the system and provides metering so that the special heat rates can be applied to its energy usage. These systems create many positives for many contractors, providing them with new revenues from which they can generate profits. We have worked with virtually all the HVAC contractors in our service area to help them get into the geothermal business.

As a distributor of geothermal heat pump materials, Capital Electric provides an inventory of all the required parts and pieces to install a system. This inventory is supported by eleven electric cooperatives (located from Jamestown to the Montana Border and South Dakota to Canada) and five local contractors, who all share in the costs to maintain it. Our material inventory group provided materials for the installation of 38 systems in 2008.

Should this legislation be approved by the 2009 legislature, it will have a very positive effect on the heating and cooling industry, helping to provide additional revenues and profits for contractors who provide jobs in our state. They pay sales tax on materials and income tax on profits which will help offset the cost to the state to provide tax credits to our citizens who make these large investments.

The State of North Dakota has two beautiful office buildings, Job Service and Workforce Training and Safety, which use 100% geothermal heating and cooling. The state has determined that this technology is the way of the future and has invested in its efficiency for state facilities. It is important that we help others do the same by providing this small but important incentive to install these highly energy efficient systems that will save energy and money for our citizens for many years.

I urge the Senate Finance and Taxation Committee to give a DO PASS to HB 1277 to provide a short form tax credit for geothermal energy devices installed after December 31, 2008.

Thank You

HB 1277

Attachment #1

**Weiler, Dave A.**

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**From:** Porter, Todd K.  
**Sent:** Tuesday, January 20, 2009 12:14 PM  
**To:** Weiler, Dave A.  
**Subject:** FW: geo-thermal

*No reference  
to this in hearing  
so did not include  
it*

*John*

**From:** Walstad, John M.  
**Sent:** Tuesday, January 20, 2009 8:16 AM  
**To:** Porter, Todd K.  
**Subject:** RE: geo-thermal

Todd- The bill allows the existing credit to be used on the ND-1 form, which is what 98% of individuals use. Existing law allows the credit for corporations and individuals filing form ND-2. The credit has no dollar limit. It applies to residential and commercial property. The credit is 3% per year for 5 years (15% total credit) of the cost of acquisition and installation of the geothermal system.