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Tuesday, May 11, 2010

Chair

Mr. Bruce Stanton

Standing Committee on Aboriginal Affairs and Northern Development

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● (1530)

[*Translation*]

The Chair (Mr. Bruce Stanton (Simcoe North, CPC)): Good afternoon, ladies and gentlemen.

This is the 16th meeting of the Standing Committee on Aboriginal Affairs and Northern Development.

On the agenda is our study, pursuant to Standing Order 108(2), of northern territories economic development: barriers and solutions.

I want to welcome our witness this afternoon, Mr. Bill Eggertson.

[*English*]

Mr. Eggertson comes from the Canadian Association for Renewable Energies.

Members, we only have the one witness today. It was not through a lack of trying; you will know we usually try to have a full panel. This has been partly because our schedule has been somewhat irregular these last two weeks, with the completion of work on Bill C-3 and the study on the Aboriginal Healing Foundation.

We have our first hour today with Mr. Eggertson. At that point we'll go in camera for our second hour, when we'll be talking about the instructions for the report on AHF.

Mr. Bagnell, you have a point of order.

Hon. Larry Bagnell (Yukon, Lib.): Mr. Chair, on a short point of order, I wonder if the chair could give a 30-second report of the Speaker's ruling for the record. For those people who are following the minutes, they might be happy to know early on.

The Chair: Thank you, Mr. Bagnell.

Members may know that this afternoon, after question period, the Speaker did rule on the point of order that was put forward by the parliamentary secretary to the House leader—I think I have that right—in respect to the admissibility of amendments to Bill C-3.

The Speaker upheld the original ruling from this committee and ruled that the first amendment, which was to paragraph 6(1)(a), is inadmissible.

The second amendment pertained to the amendment to the short title. You'll remember that a short title can only be changed if amendments made to the scope of the bill compel a change in the language. In that the first amendment was ruled by the Speaker to be inadmissible, similarly the amendment to the short title was also inadmissible.

Members, where that puts the bill is that the Speaker has sent the bill to be reprinted without the amendments.

As a footnote, the removal of clause 9, which was agreed to by this committee, remains. That was admissible. Committees have the power to not agree with certain clauses of the bill, so that stays.

The House will now consider Bill C-3 at report stage, and the parties have the opportunity to propose amendments at report stage. As to when those amendments will be heard, that will be a discussion of the House leaders, I'm sure.

Unless there are any questions, we'll leave it at that and proceed with our witness.

Welcome, Mr. Eggertson. As we discussed, you have approximately 10 minutes, and then we go to questions from members.

● (1535)

Mr. Bill Eggertson (Executive Director, Canadian Association for Renewable Energies): Thank you, Mr. Chairman.

The Canadian Association for Renewable Energies, which we sometimes refer to as we c.a.r.e., was formed to promote feasible applications for renewables in three sectors: green power using wind turbines and solar PV electric panels; green fuels, which is the use of cellulosic ethanol or biodiesel to displace conventional gasoline; and green heat for space conditioning, which is using geothermal, solar thermal, or other areas that simply heat air or water.

I have been involved with renewables since 1985, when the NRC solar program was shut down and the Solar Energy Society of Canada scrambled to refute the false impression that since the OPEC—

The Chair: Mr. Eggertson, we're going to give you sufficient time. We have simultaneous interpretation, and one of the things that happens, particularly when you're reading from text, is that it's quite easy to read at a pace that makes it a little difficult for our interpreters. A conversational pace would be good, but by all means take your time. We'll give you an extra minute or two if you need it.

Mr. Bill Eggertson: Thank you very much for that, sir.

Once the solar program was shut down, the association that I headed at the time was stressed in terms of trying to get Canadians to understand that the OPEC oil crisis may have been over, but Canada's energy problems were not solved.

In addition to running that organization, I have worked with the national wind energy and solar industries associations and as the staff head of the Earth Energy Society, which is geothermal heat pumps. I am now with we c.a.r.e. for renewables. I've also been editor or editor-in-chief of two of the largest magazines in the world for renewable energies, and in my time off, I've worked with Finance Canada on the northern tax benefits review, under Minister Michael Wilson, and with the U.K. Foreign Office as Britain's first climate change program manager in Canada, so I come at renewables with both an environmental and an economic scope.

I've been asked to comment on your study into the barriers and challenges of implementing renewables in the north, and of course, the opportunities and the benefits that can accrue. I am no expert on the territories, so I prepared a profile on the residential sector in the three territories, using 2007 data from NRCan's Office of Energy Efficiency.

There are 34,000 households in the territories, with a total floor space of 55 million square feet. This is 0.2% of the Canadian total. The average floor space of a house in the north is 1,600 square feet, about 10% larger than the Canadian average. I could throw gigajoule terms at you, and British thermal units; we convert everything to kilowatt hours in the hope that you can understand that basic energy unit.

That means that all homes in northern Canada consume 1 billion kilowatt hours per year of secondary energy. This does not include transportation; this is purely the energy to heat your homes, heat your water, and run your appliances and lights. Across Canada all homes consume 40 billion kilowatt hours per year. The average home in the north consumes a bit more than 31,000 kilowatt hours. By square foot, that works out to 19.6 kilowatt hours per square foot, compared to 21.6 kilowatt hours per square foot for the Canadian average, so in the north you are 10% below the average energy consumption.

To show you the potential, I have just finished a major retrofit on my house. We are one of the top houses in the country. We have now dropped below 5 kilowatt hours per square foot for our house.

[*Translation*]

Mr. Marc Lemay (Abitibi—Témiscamingue, BQ): Mr. Eggertson, you speak very well, but when you give figures, you do it so quickly that the translation cannot keep up.

Please take all the time you need. We will cut back on the time the Conservatives have to ask you questions. Have no fear; take your time.

Some hon. members: Oh, oh!

[*English*]

The Chair: I will back up what we had said earlier. Just take your time. I appreciate Mr. Lemay's comments, because when you talk about statistics, it's that much more difficult.

Mr. Bill Eggertson: I apologize again, sir. The intent was not to inundate you with statistics but to show a very superficial energy profile of homes in the north. Before we ever get into a discussion of energy, we like to know what's used, when, how, and some of the data on that. I apologize. I'll try to keep the statistics as light and frothy as possible. The bottom line, though, is simply that the Arctic territories are not as bad as what I had thought before going into the analysis.

On stationary energy use, all of the energy used in houses—which has nothing to do with transportation—and by applications in the north is actually very close to that used in the rest of Canada. In fact, 61% of the energy used in homes in the north is for heating the buildings. The national average is 63%, so it's not that far off. The north has slightly lower energy use for heating water: 12% of household energy is used to heat water, versus 18% elsewhere. The north uses more energy for appliances and light and, surprisingly, there seems to be no cooling load in the Arctic.

I throw those statistics out to underscore the fact that three-quarters of the energy used in the Arctic has nothing to do with running refrigerators, watching television, or running computers; it's for heating houses and for hot water. It's 80% in most of Canada, but this is an element of the energy use in Canada that very few people, including federal officials in NRCan, understand in terms of the potential for both energy reduction and GHG reduction, because most of the sources used in what we call green heat have high fossil fuel content.

Without getting into too many statistics, 64% of heating in the north comes from oil, 19% from gas, 10% from coal and propane, 5% from wood, and 3% from electric baseboards. Again, that is not far off the national average. Since 1990, total energy consumption in the north has increased 0.3%. In Canada, it's been 13%.

I'll skip a lot of these points and come down to the penultimate one, which is that the energy intensity of homes in the Arctic is twice as good in terms of the reduction in energy use. The Arctic has done twice as well as the national average.

The profile shows that homes in the north are not as bad, as I say, as I had expected when I started the profile, and not bad when compared with the national average, but anything that can reduce energy demand, make more efficient use of whatever energy is used, and increase the substitution by distributed resources, i.e., renewables, is in the best interests of the northern parts of Canada and Canada as a whole.

I admit to being biased, but I say that renewables work, and renewables can work in the north. Last year, the Indian and Northern Affairs Canada report “Sharing the Story” provided case studies of wind and solar thermal power at Rankin Inlet, solar PV at the recreation centre of Fort Smith and at Nunavut Arctic College in Iqaluit, solar air heating at the Weledeh school in Yellowknife, and numerous examples of district heating, waste heat recovery, and small hydro.

One of the first stories I ever did on solar power required security clearance from National Defence so that I could explain how their solar photovoltaic systems at the base in Alert worked. Sure, the panels only worked for half the year, when the sun was up, but the cost saving from not having to helicopter in diesel fuel to charge the generators gave a simple payback of three years.

Here are some little-known solar facts. The efficiency of solar PV —the photovoltaic solar cells that generate electricity—increases in cold temperatures. In the north, a cute little trick up there is that because of the latitude, you actually get more sunlight going into the solar panels because it bounces off the snow, so you get both the direct and the indirect bounce of sunlight going into solar panels up north.

Weather bases in both the Antarctic and the Arctic use wind turbines. It's a very effective technology, and wind continues to generate electricity at night, which solar power unfortunately does not.

Canada has a number of manufacturers of evacuated tube solar collectors. These can boil water in sub-zero temperatures. When I ran the geothermal association, I constantly had to convince people that the wide-scale installation of heat pumps in Sweden and Alaska proved that the cold in those countries was the same as the cold in our country. There's at least one federal building in the Arctic that has put ground coils around the foundation piles. It extracts the heat partly to warm the building, but basically to make sure that the permafrost never warms.

● (1540)

I look forward to questions from the members in the question-and-answer session, but your clerk did say that you wanted commentary on the ecoENERGY program for aboriginal and northern communities.

We support the principle that Canadians are responsible for Canada's energy and environmental challenges. Until recently I was heavily involved with a number of environmental groups, but I am less so now, because I've been distracted by their obsession with the tar sands and with large final emitters. Canadians are the people demanding large amounts of energy, and it is Canadians who must change their energy behaviours.

The ecoENERGY program, despite some flaws which I'll discuss in a second, does encourage Canadians to take the appropriate action. The One-Tonne Challenge was a brilliant concept, but it was badly implemented. Also, it focused on GHG emissions, greenhouse gas emissions, as a symptom rather than as the cause of the emissions.

The original ecoENERGY program was based on improvements in energy performance, but that was too complex a concept for most consumers. The current program that is being phased out is based on technology installations. That makes it easier to sell to individuals, but less strategic in its approach. For example, the rebate for geothermal heat pumps has no differentiation between a poor heat pump and a really great heat pump. The greatest gains often come from simply insulating and air-sealing buildings, but there is limited incentive in the ecoENERGY program for those options. Our house installed energy-efficient windows, but they were installed incorrectly. That meant that the energy efficiency of our house actually dropped, but I could get an incentive.

On the positive side, the program does recognize that space-conditioning energy is a major culprit for consumption and GHG emissions, which is in line with our green heat initiative. Specific to the northern ecoENERGY program, we certainly commend its emphasis on planning for efficiency and conservation. It was Amory Lovins who coined the phrase “negawatts” to explain that the cheapest energy is the energy not used. We tell people that if they're serious about renewables, they should close their windows and throw away the old fridge first. Renewables work best when the energy demand is lowest.

Also, I like the support in the northern program for baseline studies and the call to integrate renewables into infrastructure projects. However, I wonder if there is assurance that the appropriate renewable energy is being adopted. People frequently call us to ask how they can install a wind turbine so that they can get away from their hydro utility, because they don't like them. We have to spend a lot of time explaining that a wind turbine without battery storage, without inverter, without balance of system, is not going to do an awful lot for you, and that the electric plug load—the non-heating, non-water heating, electric usage—accounts for only 20%, or 25% in the north, of a home's average energy demand. Are we exorcising the correct demon? We always tell them not to replace a high-quality sine wave electric current when a low-grade thermal collector will work as well, if not better. The program's focus on reducing demand and then meeting that lower demand from renewables certainly matches our philosophy. It also supports a wide range of technologies, which avoids a single-widget approach.

Northern communities must be sustainable communities. I spent time in Timmins after the gold mines shut down, and I've seen the impact of non-sustainable extractive business models. Northern communities may have good renewable energy resources, but there are limits to exporting that green power to the load centres. I would hate to see the north used only as an exporter of resources, as I saw in the case of lumber in Timmins, for instance, especially when there are numerous opportunities to use the appropriate renewable energy technologies to develop the economy in the north as well as enhance the lifestyle of its residents.

In closing, Mr. Chairman, we c.a.r.e. promotes renewable energies, not just because they are cheaper to operate in all scenarios or because they are in most cases totally sustainable, but because they also allow a paradigm shift in the way we look at energy. Renewables avoid offshore oil spills. They avoid meltdown of reactor cores. They avoid long and vulnerable supply pipelines. They avoid the need to send soldiers into unstable political regions. They avoid community disruption and many health impacts. They avoid smokestacks and grid failures. They avoid mercurial price swings for energy. In short, renewables avoid a host of economic, environmental, and social ills at a very acceptable price, when you factor in externalities such as their ability to mitigate the impacts of anthropogenic climate change.

If you add to that the overwhelming evidence from numerous studies that job creation in renewables is higher per dollar of public investment than any other energy option, and add as well their potential for export technology if we move decisively, among many other advantages, then the question arises: why would you not go renewable?

● (1545)

The north does present some unique barriers and challenges for renewables, but there are also numerous opportunities and benefits for doing the right thing in the right place at the right time.

I thank you for your time and look forward to your questions.

[*Translation*]

The Chair: Okay, thank you.

Mr. Lemay, do you have something to say?

● (1550)

Mr. Marc Lemay: Mr. Chair, could we have the text of Mr. Eggertson's presentation? Could it be given to the clerk for translation and distribution? I have to say that I did not catch everything that was said.

The Chair: Yes, of course. The document will be sent for translation in the next few days. Okay?

Mr. Marc Lemay: Okay.

The Chair: Thank you.

We will now start the questions with Mr. Bagnell. Mr. Bagnell, you have seven minutes.

[*English*]

Hon. Larry Bagnell: Thank you, Mr. Chair, and thank you for being here, Bill. As you know, we've been very supportive of your organization, so it's exciting to have you here.

I know you could tell us about all sorts of things, but today I ask that you limit your comments to north of 60, as you did in your opening speech, and relate those answers to my questions.

You talked about the ecoENERGY for aboriginal and northern communities program, which was $15 million over four years starting in 2007. Did the department or anyone give you a list, or is there a list available, of the projects funded north of 60 under that program, and how effective they were? I think they were all north of 60.

Mr. Bill Eggertson: I have not seen the most recent list. I do try to track down the ecoENERGY grants, and we go through access to information to obtain other data, but no, I have not seen the most recent list of projects funded north of 60.

Hon. Larry Bagnell: But it's since 2007. It's not that recent. You must have had access to some of the projects.

Mr. Bill Eggertson: Yes. We find that the projects frequently are a description. They don't give enough analysis. There's no methodological, systematic approach to evaluating programs. They simply describe the program, and without a thorough knowledge of the resource base in the area, it's difficult for us to say that it was a good or bad idea. That's up to the experts at NRCan.

Hon. Larry Bagnell: Okay. Maybe our researchers might ask the department if they have such a list.

Another program, the economic action plan, had a billion-dollar clean energy fund. Do you know if any of that money was spent north of 60?

Mr. Bill Eggertson: I don't know about specifically north of 60; no, sir.

Hon. Larry Bagnell: We've been lobbying, or at least I've been lobbying, on the fact that north of 60, things are a lot more expensive. For instance, I could have 5¢ or 6¢ per kilowatt hour electricity in my apartment here in Ottawa, and it could cost 30¢, 40¢, 50¢, or 60¢, depending on where you live in the Arctic. If you offer a government incentive of 1¢ for wind energy, 1¢ per kilowatt hour here, that would be 20% of the cost. It's pretty favourable, and a number of projects were done under that program in the past.

However, in terms of north of 60, 1¢ out of 50¢ is pretty minimal. It's 2%. It really isn't an incentive that works, so no projects were done north of 60 under such an incentive.

Would you be in favour of what I'm lobbying for, which is higher incentives for renewables? Some of them are still in the stage of not being totally economical. Higher incentives in the more remote and Arctic regions north of 60, or in other remote areas where it costs more for electricity, would make the incentive as realistic as it is in the south.

Mr. Bill Eggertson: Certainly in the Northwest Territories I know the first 700 kilowatt hours of electricity are subsidized. I'm not sure at what level. It's only once you go above 700 that you start to get hit.

Our basic fundamental philosophy is that you shouldn't have state-subsidized energies. We even dislike having renewables called a subsidized technology, when it's actually the conventionals that are more highly subsidized than renewables. It just depends on how you look at the economic ledger, but there have been a number of federal programs. The name escapes me right now.

In regard to the ecoENERGY for renewable heat, there is a differentiation in terms of the subsidy paid for remote, and I believe north of 60, installations. It's a significant increase over what you would get in the southern regions, so that does exist, and yes, unfortunately, it has to be done. We want to keep the population in the north. I've heard that from the tax benefits review. You want to keep people up there. You have to make it affordable for them to stay up there, so you have to provide that type of incentive. That's a social priority for the government to undertake, so we would probably back you on that, depending on the details.

● (1555)

Hon. Larry Bagnell: In your study as to barriers and opportunities to economic development, do you talk about what's stopping us from using more renewables and what opportunities specific to economic development there are with renewables north of 60?

Mr. Bill Eggertson: After being asked to appear, I looked at it in two sectors. One is the cost of the individual to stay in the north, whether it is mine employee or a local indigenous resident of the north. What keeps them up there, keeps them happy, keeps them cost effective? Second, what can be done for companies that want to set up manufacturing processes or businesses up there? It is a major barrier if a company has to pay significantly more for electricity or heat to set up a widget manufacturing plant in the territories, and you want that; you want to diversify the economy as much as possible. Again, does that mean that we have to subsidize the energy source, or should we look a little bit more strategically—

[*Technical difficulty—Editor*]

Hon. Larry Bagnell: There was a technical problem. You can go ahead now.

Mr. Bill Eggertson: I'm sorry. I got thrown off track there a little bit.

The issue is yes, there would have to be subsidies if it's a government priority to have companies and individuals in the north. That was part of the reason for the statistics that I quoted. The use of appliances and lighting is exceptionally high in the north, whereas the consumption of energy for heating your home is not. I don't know why. I was simply stealing the statistics.

Hon. Larry Bagnell: I only have a minute left and I have one more question.

As far as you're aware, can you tell us anything about Canada's use of renewable energy in the north, compared with other countries in the world that might have some best practices in the northern parts of their nations?

Mr. Bill Eggertson: My understanding is that we are behind the areas and countries of which I'm aware—northern Europe, Sweden, Finland, Norway, and northern Russia—as well as some of the Antarctic. I've also done a recent project on renewables in the Antarctic.

In terms of technologies that work well in cold climates, we don't have as many in Canada and we've attributed it to the fact that because conventional energy is subsidized, there is no need to adopt the implementation of renewables to the same degree that we should or could.

[*Translation*]

The Chair: Thank you, Mr. Bagnell.

Mr. Lemay, you have seven minutes.

Mr. Marc Lemay: Thank you, Mr. Chair.

Our guest is very interesting, but I feel a bit like someone pleading a case before the Supreme Court. I am not sure the judges would have understood everything Mr. Eggertson said. My God, you talk fast! What you say is very interesting and extremely important. I tried to understand one thing, but I did not get an answer. I would like to know whether there is any way to improve things, to reduce energy consumption in the north. Energy there usually comes from non-renewable sources like diesel. I may not have caught everything you said, and I am not blaming the interpreters, because I know they worked hard.

Are there any plans to use something other than non-renewable sources, such as wind turbines, for example? Is there anything else?

[*English*]

Mr. Bill Eggertson: There are quite a few experimental prototype and small-scale renewable energy installations in the north.

Mr. Marc Lemay: Where, and *où?*

I look like a supreme judge.

[*Translation*]

Mr. Bill Eggertson: I do not know exactly where.

Mr. Marc Lemay: There, he speaks French!

Mr. Bill Eggertson: It will take me a long time if I talk in French.

[*English*]

There were some bad experiences. I have been able to discern from the literature that the utilities up north were burnt, if I can use that. They had problems with early wind turbines, and they are shy of implementing the technologies now.

Renewables are not perfect technologies. Wind turbines don't work if the wind is not blowing. Solar doesn't work if the sun is not shining. Many of them—geothermal, solar, biomass, etc.—do work. They are what are called dispatchable energy sources because they work whenever you want them to, but there has been a bad track record in northern Canada, and people are reluctant to get into it.

Again, there is a higher level of subsidy of the conventional energy prices up north. It is not market driven. I don't think any energy pricing in Canada is market driven. It does not reflect all of the variables. The Arctic just tends to be more highly subsidized, so again there's less incentive for investors to get into that. There is no payback, and they don't have some of the programs that we do.

On my house we've just installed 10,000 watts of solar panels under the Ontario microFIT program. It pays 80¢ a kilowatt hour for every kilowatt hour that is generated while I'm down here and my house is sitting at home. I'm getting 80¢. That is a very strong incentive for me and for others to get into solar. The resource doesn't exist to that degree in the Arctic.

I was dealing with Gilbert Parent, the former ambassador of the environment. He was an indigenous Canadian. He wanted a huge wind farm just south of 60, meaning northern Manitoba or northern Saskatchewan. I was consulting with him, and I said, "How are you going to get the power down to Toronto, which is where the power is needed?" It's a little bit like LG 2. You've had to invest billions of dollars for the transmission infrastructure to get it down to Montreal from La Grande.

From the Arctic it's a problem. There are reasons that they don't export the renewable power. I'm arguing there are no reasons for them not to generate and produce the renewable energy there and use it there, which, as many of these case studies from the INAC publication show, can be done cost-effectively.

● (1600)

[*Translation*]

Mr. Marc Lemay: I am very concerned. What you say is very interesting, but also very disturbing. You are saying that people living in the north are at a disadvantage and will always have to produce their electricity, for example, from non-renewable energy. That is sad.

[*English*]

Mr. Bill Eggertson: Northern residents need to use less electricity and whenever possible get off electricity. I don't know how they heat their water.

We are very upset with southern Canadians who use electricity, which is a high-quality energy carrier, to heat water to 30°C or heat their houses to 20°C. It's insane, in our opinion, when you can get a range of renewable energy technologies that will do it.

You are correct that the north does not have as many resources as the south. The sun doesn't shine as brightly or as strongly as it does in the south. Wind will work up north. Why they haven't gone into wind turbines up there more, I don't know. They've used small hydro in Mayo and in a large number of the northern communities. Small hydro works. Geothermal works extremely well.

There have been problems. Again, the early technology needed a lot of hand-holding, a lot of labour and maintenance, and there weren't the trained people up north to do it. When something went wrong, it would take weeks for somebody to get a float plane or whatever transportation to bring a southern mechanic up to fix the machine. You can only take that so many times before you say, "*Tant pis*. We're not going to use the technology".

There have been some problems. I think it's time to turn the page and to get them back onto the page the rest of the world is on.

[*Translation*]

Mr. Marc Lemay: Thank you.

The Chair: Thank you, Mr. Lemay.

[*English*]

Now we'll go to Mr. Bevington for seven minutes.

Mr. Dennis Bevington (Western Arctic, NDP): Thanks, Mr. Chair, and thanks to Mr. Eggertson. I remember your newsletter, which came out for many years.

I'm just a little concerned with your figures on household consumption of energy in the north. You said the north represents 0.2% of houses in Canada.

Mr. Bill Eggertson: Yes.

Mr. Dennis Bevington: That would be one out of every five hundred houses in Canada, right?

Mr. Bill Eggertson: Yes.

Mr. Dennis Bevington: Then you said we used one billion kilowatt hours per year in those houses, right?

● (1605)

Mr. Bill Eggertson: Yes. It's versus 400 billion in all of Canada. It works out to the same ratio.

Mr. Dennis Bevington: It's 400 billion for 500 parts and one billion for one part. I have a little trouble with the figures, because they don't seem to add up.

It doesn't fit in terms of what I know about the north and energy use, especially on the heating side. The heating side is huge. For houses, you measure it by temperature. There's a temperature gradient measurement that you use for heating. It's extremely high compared to southern Canada. There are longer seasons and colder temperatures.

This committee has seen the work that's been going on in Yellowknife with the conversion to wood pellets. It's turned out to be highly successful. Many large buildings have been converted to wood pellets. They're coming in at half the cost of conventional fuel. It's considered to be green energy. Is that correct?

Mr. Bill Eggertson: Yes. It depends on the tree that you're using for the pellets.

Mr. Dennis Bevington: These come from sawmill waste in northern Alberta.

Does the federal government have any program now for the conversion of buildings and homes to wood pellets, when we have very successful examples of these conversions in Yellowknife and in the Northwest Territories?

Mr. Bill Eggertson: I am more familiar with the southern ecoENERGY program than with some of the details on the northern one. They don't allow an incentive or support for individual residential homes, but they do for commercial buildings.

If you were to set up district heating, Oujé-Bougoumou in northern Quebec probably has one of the most famous wood pellet systems. There are quite a few around the country. If you set it up, you will get a subsidy from the federal government to displace conventional oil, gas, or propane.

Mr. Dennis Bevington: Aren't wood pellets one of the more successful potentials in Canada? Don't we have quite a large supply that has not yet been put on the market, in terms of wood waste from a variety of plants across the country?

Mr. Bill Eggertson: My understanding is that north of 60, trees are not—

Mr. Dennis Bevington: No, I'm not talking about north of 60. We're shipping these things to the north. We ship fuel oil; if we don't ship fuel oil, we can ship these other things.

Mr. Bill Eggertson: There's a higher energy content per litre of oil than per litre of wood chips. You may actually increase transportation costs to get it up there, but I totally agree with you.

Mr. Dennis Bevington: The studies show that they can ship it there at a saving, compared to fuel oil.

Mr. Bill Eggertson: Yes. If it is cost effective or even slightly subsidized, then go for it.

Mr. Dennis Bevington: It's cost effective.

Mr. Bill Eggertson: There is no reason to use oil in that situation.

Mr. Dennis Bevington: But is there a federal program that can help with this? That's my concern.

We have a need in the forest industry for the sale of more of their products. This is a waste product from the forest industry. We have a ready market right across the country for people who burn fuel oil right now. I don't think you could make the case for a natural gas pipeline that would be cheaper than wood pellets, but I think it is very much the case right across the country wherever you burn fuel oil.

Mr. Bill Eggertson: My understanding is there are direct and indirect subsidies for the transport of oil to the north. Why not have direct and indirect subsidies to transport wood pellets to the north?

Mr. Dennis Bevington: Is there a federal program promoting that?

Mr. Bill Eggertson: I'm not aware of one. I'm sorry, but it's not my field of expertise. I don't know about transportation subsidies, but it's certainly something this committee could investigate and recommend.

The Chair: You have two minutes left, Mr. Bevington.

Mr. Dennis Bevington: Okay. I think that solar clearly works up north. There are many examples of it, as you pointed out. I think we're trying to find some answers on how to make the transition.

The problem we identified in the north for putting solar on buildings is that the utility companies in the small isolated grids do not want solar on the buildings, because it takes customers away from their diesel generator sets. Perhaps you could talk a little about what's needed there.

● (1610)

Mr. Bill Eggertson: You are correct. Engineers despise distributed generation because it messes up their load profiles; engineers like predictability.

One of the reasons for the high subsidy of solar PV in Ontario is because Ontario is now a cooling load province. We need more electricity in the middle of summer than we do in the middle of winter, and the best technology for generating electricity at noon during the summer months is solar PV. That will stop Toronto from blacking out in four years; that's why the province is throwing millions of dollars into it.

If it works in the Arctic, and it does, at all of the sites I've seen.... We were involved with the Weledeh school. There solar displaces I forget how many barrels of oil for the high school in Yellowknife, and it works extremely well heating air. It's not even heating water, which is a more practical approach. We've argued that like Cyprus, like Malta, like Israel.... Many countries have solar laws that you must use solar if it makes economic sense.

Mr. Dennis Bevington: There's just one last thing. Are there any small biomass generating systems that you want to promote here for isolated communities?

Mr. Bill Eggertson: There are quite a few. As you say, as long as you've got the feedstock—

Mr. Dennis Bevington: Are they generating?

Mr. Bill Eggertson: Yes.

Mr. Dennis Bevington: Could you give an example of one in Canada that would be viable for a community of 200 to 300 people?

Mr. Bill Eggertson: I can get back to you with the specific brands and companies. I'm aware of probably 50 that sell small systems, meaning between one kilowatt and 10 kilowatts, and there are probably more. You can build them modularly, and those systems would be able to generate the majority of the electricity for those communities. Again, do you need electricity or do you need heat?

The Chair: Thank you very much, Mr. Bevington.

I had Mr. Payne and Mr. Duncan. Did you want to split your time?

We'll go with Mr. Payne, and if there's some time left, we'll go back to Mr. Duncan.

Let's go with Mr. Payne first.

Mr. LaVar Payne (Medicine Hat, CPC): Thank you, Mr. Chair.

I'd like to welcome you on behalf of all of my colleagues, Mr. Eggertson.

You'll have to forgive me, because I'm not sure I've heard of the Canadian Association for Renewable Energies. I'm wondering if you can help me out in telling me a bit about the organization, what you do, where you get your funding, and what your outcomes are.

I'll let you work on those for a moment.

Mr. Bill Eggertson: It was formed in the late 1990s. Originally it was to be an umbrella group for wind energy, the solar industry, SESCI, earth energy, and groups like that, because they were all pushing their own specific widgets or technology, and there was the need for an umbrella, an overarching group, to push renewables as a concept, as opposed to pushing, for instance, wind turbines. It was to be one for all and all for one, or whatever the saying is.

We have been financed in the past with members who agree with the approach. The trouble is that many companies are into wind only; they don't cross technology. You don't push both wind turbines and solar thermal. Those were the only types of members we had, so we were supported through contracts for writing.

I think we are still the largest news service in the country on renewables in Canada, but a lot of our income now comes from offshore. We do reports for U.S. and U.K. clients on the energy scenario in Canada. We use our contacts with the renewable energy sector to say what the market opportunities are in this country, where you should move into, where you should stay out of, what the incentives are, and what regulations are good or bad for investors coming in.

We are in a restart mode, because I was gone for two and a half years with the U.K. government, on climate change. I've just recently come back. During that time the organization went somewhat into limbo, so we're now reactivating it, along with some other services.

Mr. LaVar Payne: Are you providing reports to these other organizations on investments and opportunities?

Mr. Bill Eggertson: We're doing that, and reporting on regulations, good and bad, and what the trends are. Our newsletter was called *TRENDS in Renewable Energies*. We pick up what happens at the International Energy Agency. We pick up what happens at the U.S. Department of Energy that has an impact on Canada. We get a lot of the reports that analyze, from the Conference Board through to the C.D. Howe Institute. These are some of the recent ones we've done. We get the reports and we do the critical analysis of what this means for renewables in Canada.

Mr. LaVar Payne: You talked particularly about the use of solar, geothermal, and wind energy in the north. I was just thinking about those. What kinds of cost differences would you see in installing those renewable energies in the north versus in the south?

● (1615)

Mr. Bill Eggertson: If you can get the equipment up north, it's cheaper to install.

I lived in downtown Ottawa. We wanted to put in a geothermal loop before we moved out of the city. There wasn't a single driller who would come into the city with a drilling rig in order to install it. They were afraid of the city officials.

Up north it's far less of a problem. You do get some unique problems installing ground loops north of 60 if you're getting into permafrost issues, but there are many geothermal loops up there. Solar thermal goes above ground. You literally take up the metal racks, you take up the plastic coils and the glazing sheet, you use a wrench, and you put it into the ground. It stays there. It's there forever.

Wind turbines have a slight maintenance problem in cold weather. They now have heated blades for cold climates so that you no longer get icing on the blades.

Getting the technology up there, shipping it up, is frequently a problem, but you ship everything else up north of 60 and you use ice roads or barges or whatever.

Getting the labour up there is frequently a problem. Do you have to import southern labour? Can you train northern labour to do it?

Maintenance can be a problem, again, if you don't have the correct people up there to fix whatever problems occur.

Mr. LaVar Payne: You did touch a bit on the maintenance aspect, and in terms of these alternative energy forms, one of the questions I would have, particularly for the north, is about reliability. Obviously when you're up in the north in the middle of the night and something goes wrong...then what?

Mr. Bill Eggertson: Mistakes happen.

Twenty years ago, the technology was far more vulnerable or fragile than it is now. You ow have what is called a plug-and-play solar module. You can take it out of a suitcase, throw it up on your roof, connect it in, and it's ready to generate electricity. You need the inverters and a large number of other components.

In terms of reliability, for the inverters on my house, the mean time between failure is 150 years. The panels that I have on my roof are rated for 15 years at a 5% efficiency drop. If at any point in 15 years the efficiency drops more than 5%, I phone the dealer and tell them to swap it. They are very reliable.

Let's just take solar electric right now. They are rated for hail impact, so you can have big chunks of ice dropping on them. They're tested. Having the right amount of sun in the north can sometimes be a problem. It's not as good as it is in the south, but with solar thermal, if you're heating water.... Why do all Canadians in southern Canada with a swimming pool not have solar water heating for their pools? It's has the lowest cost, yet people put in gas heaters for their swimming pools. We've never understood it. We don't pretend to understand why northerners, who probably have more excuse for not going with renewables than southerners have....

Mr. LaVar Payne: If you're using solar north of 60—and of course there's quite a period of time when they don't have a bunch of sunlight—what is the recommended backup system in terms of providing heat and electricity?

Mr. Bill Eggertson: If your solar was for electricity, then you could use what Mr. Bevington is talking about, a backup generator. It could be a gas or diesel generator or it could be a wood-pellet generator. You don't need electricity between, say, 10 o'clock at night and seven o'clock in the morning, so you shut off the generator. You run it only in the dark parts of the winter when you need the electricity.

You can use wood generation. You could use small hydro, depending on how close you are. They're coming out with fuel cells, which we've argued is a renewable energy source as long as the hydrogen in the fuel cell is stacked from a renewable energy technology and not from fossil fuels, but that's a semantic issue that we have.

That's just for electricity. If it's for heat and you have highly insulated buildings, the heat that you are generating from a geothermal or solar thermal or biomass thermal source should be able to be retained in the house or the building for most of the day.

Mr. LaVar Payne: Okay, and if you—

The Chair: That's about it, Mr. Payne. Believe it or not, we're at the end of our time. I'm sorry, Mr. Duncan; we will come back to you.

Members, I think we will have time for three more questions. We'll go to Mr. Russell. Then I think we have Mr. Duncan, and I have hands up from Mr. Clarke and Mr. Rickford as well. You can figure that out. Mr. Lévesque will have a short question as well.

Let's go to Mr. Russell. This is a five-minute round.

Mr. Russell, go ahead.

Mr. Todd Russell (Labrador, Lib.): Thank you, Mr. Eggertson. It's good to have you with us this afternoon.

I must say some of the statistics you presented were quite illuminating, I suppose. The energy mix and what the energy is used for are similar in a northern context to a southern context, but you say we should all be looking toward using more renewables within that energy mix.

Should the federal government, which has primary responsibility at least in the territories, employ different strategies in terms of incorporating renewables in a northern energy mix, as opposed to some of the strategies that have been applied in the south? They don't always jibe, given geography, shipping issues, and things of that nature, so should we employ some different strategies in terms of encouraging people to move into the renewables, but more so in the north? Could you identify one or two barriers to the renewable energies that would be specific to the northern context?

I just want you to comment on the mining industry. It's had ups and down, but it's seeing some increase. There are many proposals on the table for various types of mining enterprises in the north. How do you see the renewables mix with the industrial sector, if you want to put it that way, such as the mining sector, as an example?

If you could answer those questions, I would appreciate it.

● (1620)

Mr. Bill Eggertson: As a first quick point, I hope the data from the Office of Energy Efficiency are accurate. You're right; I was very surprised at how well northern homes showed. It was not the stereotype I was expecting, but we've used the data for years, and we assume they are reasonably good. I couldn't crunch the commercial data because they group the territories with B.C., so that would have made it meaningless. I could only do the residential market for this. Anyway, I hope the data are correct; they're probably not wildly incorrect.

We've always tried to differentiate between the north and the south. We've never gone at it aggressively; we've always promoted a pan-Canadian approach, because it is Canada, and we hate getting into the debate we sometimes get with Alberta versus the non-energy provinces. We try to avoid that issue by simply saying it should be right for Canada. We have broken with our own policy on occasion to say “northern and remote”, so we group them together. We've never looked at north of 60 as a geographical border. To us, if you're away from the GTA, you're off the electrical grid. You've got the same problems in southern Pelee Island as you would up in Nunavut or anywhere else.

Should there be a differentiation? I think you unfortunately have to have a differentiation. I would not like it as a Canadian, but you have to.

Again, looking at the energy from an energy security point of view, as well as the GHG, the greenhouse gas emissions—I'm very much into climate change—if you can cut down a tonne of carbon anywhere, I say go for it. To me, it's a national priority that the federal government, like the provincial and municipal governments, should be heavily involved in.

And your third point was...?

Mr. Todd Russell: What would be one or two of the real barriers?

Mr. Bill Eggertson: Oh, it was the barriers. Thank you.

Mr. Todd Russell: Yes, and then I asked about the mining industry.

Mr. Bill Eggertson: Yes, then there was mining.

The biggest barriers for all renewables are cost or resource availability. Dispatchability means wind doesn't work at all if there's no wind. When people drive by the CNE in downtown Toronto, frequently the blades on the wind turbine are not turning. It becomes a bit of an embarrassment. It probably shouldn't have been placed there, because people say, “Look—it doesn't work.” In the north, you're right, during the winter you get very little solar insulation going in. You still get the wind.

Resource availability is a problem and the cost is a problem. I'm not aware of how much energy in the north is subsidized, directly and indirectly, but there is some type of subsidy, and if it is subsidized at all, it reduces the incentive, we can say, for that.

Very quickly, with reference to mining, the pulp and paper industry is, I think, the largest user of renewable energy in the world. I forget the amount of energy from our pulp and paper industry, but it's scads. Canada promotes the fact that they burn their own wood chips to generate electricity on site. They've already figured out how to do it. It's a no-brainer.

The mining industry is slightly different. Do what they did in Springhill, Nova Scotia: they flooded the coal mine and they use it as a geothermal heat source for the industrial park up above.

I'm not saying to flood the mine. Sorry, but—

The Chair: Thank you.

[*Translation*]

Thank you, Mr. Russell.

Mr. Rickford, go ahead.

[*English*]

Mr. Greg Rickford (Kenora, CPC): Thank you, Mr. Chair.

Thank you, Mr. Eggertson, for a great presentation. I have some specific questions around renewable energy. I know you're going to become excited about giving the answers, but I want you to speak slowly, because some of the questions are around other parts of northern Canada that are just as remote as those of our friends, with the greatest of respect, who are north of 60.

In the Kenora riding I come from, kilometre for square kilometre we have a critical mass of people living in isolated communities. We are looking more seriously at all of our options besides just establishing hydro lines into some of those remote communities. This is serious subject matter, and I know that at the very least my colleague Mr. Lévesque has a similar riding, with some of the same challenges and considerations.

I want to resist going into geothermal. I think my first question would be this: which of the renewables—perhaps in a ranking, to the extent possible—pose the fewest barriers to being brought to an isolated community?

● (1625)

Mr. Bill Eggertson: The very quick, facile answer is—

Mr. Greg Rickford: The very quick, facile, but slow answer is... yes?

Mr. Bill Eggertson: —solar thermal water heating.

Mr. Greg Rickford: You say it's solar thermal...? Is it geothermal, you say?

Mr. Bill Eggertson: No, it's solar thermal. Just to make sure that all your colleagues on the committee understand, there are various types, but the easiest way is simply facing a board toward the sun, with pipes, and running water through them.

Mr. Greg Rickford: We've heard about this at committee before, it seems to me.

Mr. Bill Eggertson: That is the simplest, cheapest, least-likely-to-have-a-problem technology to derive the greatest amount of energy for the work you put into it.

Mr. Greg Rickford: I'm sorry; there's solar thermal; then, you said...what?

Mr. Bill Eggertson: That would be my number one solution. Many people with pools go to Home Depot, pick up some black pipe, and throw it on their roof. They have a small pump, and as it's going through the pipe up on the roof, it's heating their pool.

Mr. Greg Rickford: Okay.

Number two, three, four would be...?

Mr. Bill Eggertson: The second one would be buying flat plate collectors, as they're called, which are slightly more sophisticated, but it's the same concept. You are circulating either water or—pardon my oversimplification—an antifreeze that circulates through there and comes back. The heat is transferred over to your drinking water so that there's no antifreeze in your water.

Mr. Greg Rickford: What would the third one be, then?

Mr. Bill Eggertson: I'm sorry; I missed wood stoves. They would probably be the absolute easiest and the least likely to go wrong, if you have wood.

Mr. Greg Rickford: I'm going to ask that question in a second. Let's just finish this list. After wood stoves...?

Mr. Bill Eggertson: So there's solar water heating, which may not be a big deal in the north for pools. Solar water heating for your potable water is logical, because you need that for 12% of your energy, but it doesn't work well in the winter.

Mr. Greg Rickford: We have an issue with pools in the north. So, wood stoves.... Let's move to the next one.

Mr. Bill Eggertson: Then you're probably getting into wind. That would be my guess.

Mr. Greg Rickford: You're saying wind before geothermal? I've done studies and worked as legal counsel on some fairly big files around wind power generation in northwestern Ontario, and I can say frankly that there are massive barriers there. We've done scientific breakdowns of square kilometres. There are waiting lists for 90-metre towers, which are absolutely disastrous. However, Red Lake has a geothermal municipal office, library, school, seniors centre, and now, thanks to Canada's economic action plan, a geothermal airport.

I'm sorry, I had to get that in somewhere.

To go back to Canada's economic action plan, in mid-January we announced $146 million to support renewable clean energy projects. They include solar, wind, tidal, and geothermal energies. I think Mr. Bevington was getting at some of the challenges and trying to look at them, and my next question would have asked about which is the easiest to maintain, which takes us back to LaVar's question to a certain extent.

My questions focus around wood pellets and geothermal. Those seem to be more viable renewable or alternative forms of energy than hydro lines. That's ultimately what I'm trying to get at. Thank God we have Canada's economic action plan there to help me understand what the investments are and what projects we have, but now we're drilling down—no pun intended—to see what kind of energy production is the most....

The Chair: Give us a short response, Monsieur.

A Voice: The action plan of Canada—

Mr. Greg Rickford: Besides saying that Canada's economic action plan is a great idea, what—

● (1630)

The Chair: Order.

Go ahead, Mr. Eggertson.

Mr. Bill Eggertson: Pardon me if I speak quickly. Differentiate between power, electricity, and heat. Geothermal heat pumps only provide heat.

Mr. Greg Rickford: That's an important distinction; that's correct.

Mr. Bill Eggertson: You were talking about wind at utility scale. I was talking about wind at individual scale—basically putting a 700-watt wind turbine on your house to power a 12-volt battery.

Mr. Greg Rickford: I appreciate that. I should have been more specific, because I was aware of that.

Mr. Bill Eggertson: There are different markets, and geothermal is not easy to maintain, but once it's installed properly, it should be good for a long time.

Mr. Greg Rickford: I have more questions. Can we go again?

The Chair: No, unfortunately, we can't. We're going to finish up here.

We have one last question. It will be from from Monsieur Lévesque.

[*Translation*]

Mr. Lévesque, do you have a question?

Mr. Yvon Lévesque (Abitibi—Baie-James—Nunavik—Eeyou, BQ): Thank you, Mr. Chair.

Mr. Eggertson, people are told that they have to stop using wood stoves, for example, because they produce a huge amount of atmospheric pollution. At the same time, it is suggested that they use energy from biomass. I do not know how far north that would apply, but certainly north of 60. But don't you think that just transporting that energy to the north will require as much non-renewable energy as it will save?

As well, I believe that there are a number of coastal municipalities where the tides are quite high. In Nunavik, for example, the tides reach 39 feet in some places. A number of countries use that. The ice does not prevent them from using the tides.

Today, with new technology, it is possible to have a solar energy system combined with wind energy that provides continuous power to heat the bearings. The problem with wind turbines in the north is that the bearings freeze up. When the turbine starts up again, the bearings overheat because there is not enough lubrication.

Do you know whether there has been a study on this?

[*English*]

Mr. Bill Eggertson: *Oui*. Specifically with reference to wind turbines, there are now units that have heating coils in the nacelleand in the blades and in all of the parts that used to freeze up. You are using some of the electricity that you're generating to power electric coil resistance heating to keep the unit working even if you have severe cold, as in the Antarctic bases. Belgium has just implemented a brand new weather station down in the Antarctic. It is, I think, 50% wind-powered. They have recognized that it's a lot cheaper to put up wind turbines in the Antarctic than it is to bring the oil in from Australia, or wherever it comes from.

Regarding your comment about tidal power, yes, there's only really one tidal power site in Canada, in Nova Scotia at the Bay of Fundy. It has problems. The current trend right now is to use wave energy, whereby you put the turbines underwater, and if there's water flowing through, it drives the turbines. That's being tested in a large number of sites around the country, including off the B.C. coast, and they've just approved one in Minas Basin in New Brunswick or Nova Scotia. Those are very site-specific. You have to have a good resource; otherwise, or don't even bother with it.

I totally agree with you on what we call hybridization. Never rely on one wind turbine or one solar panel or one geothermal installation. Have as much of a mix as possible, so that you're getting both heat and electricity from a wide range. If the sun isn't shining, the wind should be blowing; if not, then you have to kick in your biomass generator.

That's why wind works so well with the hydro industry in Canada. When the wind is blowing—and they can tell five days in advance that the wind is going to blow in a particular spot—Hydro Québec and Ontario Hydro stop their dams from sluicing. They use the wind power. When the wind dies, they open the floodgates, and the electricity is generated by the dam.

Working together as a hybridized model is the best way to do it. It does increase your cost, but it increases reliability and performance and lowers the overall cost.

[*Translation*]

Mr. Yvon Lévesque: Currently, the energy in the north comes mainly from thermal plants. It costs a fortune to transport the oil used for heating and to run the plant turbines.

If wood is used, then that is another renewable resource.

I have heard that in Eastmain, on James Bay, there is a cogeneration plant powered by household waste. There are about 1,800 people in this town, and they produce enough household waste to power the cogeneration plant for about 18 hours a day.

● (1635)

The Chair: Okay. Could you give a quick response, please?

[*English*]

Mr. Bill Eggertson: I'll make two very quick responses.

Energy from waste is very much an energy source. The City of Ottawa has a major plant in which they are trying to divert as much of their garbage as they can to the generation of electricity. It is receiving a renewable energy subsidy from the Ontario government. It does work.

Again, I go back to saying that as long as you have a supply of wood to run your wood stove, then it works extremely well, but if you're, like many city dwellers, paying a lot of money to bring in wood from 50 or 60 kilometres away, the carbon and energy to get that to your wood stove overcomes the benefit of having that generation or that heat, no matter what it is.

[*Translation*]

The Chair: Thank you, Mr. Lévesque and Mr. Eggertson.

[*English*]

I've been informed that we'll have sufficient time to get to the other instructions that we need to this afternoon before bells go, as we're expecting, at 5:15.

Let's go to Mr. Duncan for five minutes. Go ahead, Mr. Duncan.

Mr. John Duncan (Vancouver Island North, CPC): Thank you, Chair, and thank you to the witness.

I think there have been some questions here that are not within the focus of our study, which is supposed to be on economic development north of 60. I'm going to try to bring it back there, in one sense; in another sense, maybe I'm not.

This government has decided to focus on the north a lot. We've had some very significant expenditures north of 60, including hydro, the Mayo B project, and the linking of the two grids in the Yukon. We've put a major expenditure into northern British Columbia, extending hydro transmission from Terrace up to Bob Quinn Lake, a distance of about 335 kilometres. All of this means that we're getting to a point at which it would be not that great a challenge to hook up British Columbia to the Yukon grid and the Yukon grid, potentially, to Alaska, which would accomplish a pretty significant thing.

I think it's important to recognize that we are also investing in some very significant infrastructure needs—perhaps not transmission, but highway infrastructure and work that will lead to highway infrastructure in NWT. We have invested a lot in energy-efficient housing in the north, particularly in Nunavut.

All of this is on the wavelength, I think, that energy conservation is important. Canada is a young country, and we're a large country. We have a lot of geography and not necessarily the infrastructure and transmission facilities in place that we need. From what I gathered from the early part of your presentation, you often have to have a grid in place to maximize efficiency from renewables.

With those comments in mind, do you see that this is going to be a major long-term benefit to achieving that goal?

● (1640)

Mr. Bill Eggertson: Your point about a grid being necessary is very important, which is why district heating works extremely well. District heating is the same as an electric grid.

We do worry about the source of the electricity if a B.C. line from BC Hydro goes up and covers most of the Arctic, because B.C. is now losing some of its hydro capacity and is having to switch to gas-fired electricity. The energy you lose going from, say, Victoria to Yellowknife is fairly significant. That is a bit of a semantic point. Is it renewable electricity getting up there, or is it coal-fired, gas-fired, or whatever?

We oppose gas being used for generation in Ontario. I did the study for the Suzuki foundation. If you were to have what we call a green therm standard, and you forced, by regulation, 20% of new homes in Ontario to install a green heat—that is, solar thermal, geothermal, or biomass thermal—we could displace one billion cubic metres of natural gas by 2020. Do you need a billion cubic metres of natural gas? Yes, I think you do. It's the source of electricity generation we worry about. Is it a good source—that is, a renewable source—or is it a fossil-based source?

The other point I want to pick up from you is that conservation is important, yes. To us, “Close the door, stupid” is what we say to everybody who complains about being cold. Then people have single-pane windows. Thank goodness that's a diminishing problem in Canada.

The Arctic seems to have proven that their buildings are energy efficient. Again, they don't use nearly as much energy as I thought they would. They are very well built. You can tighten those building codes and make it even lower. We have proven that you can get down to five kilowatt hours per square foot per year. We've proven that it can be done—with a sick obsession on my part, but it is possible to do. I think most Canadians can move a little bit closer towards that goal and reduce their need for heat.

Electricity is another problem. Make sure that everything is Energy Star rated. Make sure that you don't use electricity in peak periods. There are quite a few load demand issues that Canadians, I think, need to understand a little bit more. That would get us halfway to where we want to be.

Mr. John Duncan: Do I have time left?

The Chair: Actually, that's it, Mr. Duncan, unfortunately.

I need to get one point of clarification, if I could, Mr. Eggertson. This is on the question of scale. You talked about solar and wind potential for smaller communities in the north, but would you comment on the scale of backup power needed to complement it?

For example, let's say a small community might need 50 megawatts of power, and that capacity is there in wind and solar. Maybe that's not a small community, but let's use that as an example. How much would you need in diesel or other conventional sources to complement it during that time so that you would have a reliable or stable source of electricity? What's the scale of that complement?

Mr. Bill Eggertson: That is a valid criticism of renewable electricity. You are correct. If you need 50 megawatts for community X, you can put in 50 megawatts of wind turbines or 50 megawatts of solar, but you still actually have to have 50 megawatts of gas generation backup.

The Chair: It's one for one.

Mr. Bill Eggertson: Yes, it is, or you tell people to stop using power. You can use certain measures to do it, but the trick is that yes, you have to build the 50 megawatt gas generating station. You have to have the tanks of gas ready to go. Hopefully you'll never use them, or you'll use them very little, but you do have to have that dispatchable backup.

The Chair: Okay, that was the key point.

Okay, members, thank you very much for your indulgence.

Mr. Eggertson, I appreciate it. As you can see, it was a very popular topic, and I'm sure that it will serve to inform our study in a great way.

Members, we'll take a brief two-minute suspension, and then we'll resume our meeting. We will be in camera in the next section to consider instructions for the draft report.

We are suspended.

[*Proceedings continue in camera*]

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