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(9:07 a.m.)

CHAIRMAN:

Q. Good morning, everybody. I understand that there are no preliminary matters.

MS. GLYNN:

Q. No preliminary matters, Mr. Chair.

CHAIRMAN:

Q. And we have a presentation. Minister Darryl Shiwak, is that correct, sir?

MR. SHIWAK:

A. Yes, it is.

CHAIRMAN:

Q. Does he -- he doesn't need to be sworn?

MS. GLYNN:

Q. Yes, he does.

CHAIRMAN:

Q. Does he need to be sworn?

MS. GLYNN:

Q. Absolutely.

MR. DARRYL SHIWAK, SWORN, EXAMINATION-IN-CHIEF BY MS. GENEVIEVE DAWSON

CHAIRMAN:

Q. So I'll turn you over to Madam Dawson, I presume.

MS. DAWSON:

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Q. Thank you. Now, Minister, I'm assuming I'm pronouncing your name right? It's Shiwak?

MR. SHIWAK:

A. Shiwak, yes.

MS. DAWSON:

Q. Okay. Do you want to tell the Board a little bit about your own personal background, your education and so on, where you're from, that kind of thing, please?

MR. SHIWAK:

A. Well, I'm Darryl Shiwak from Rigolet, Nunatsiavut, on the north coast of Labrador. Born -- not born in Rigolet, but born in Northwest River, not by choice but when we -- back when I was a baby, we had to -- parents had to fly to Northwest River to have babies and fly back in, so I was going to say born and raised in Nunatsiavut, but same thing. Rigolet is a small community, just over 300 people, typical of most of the communities on the north coast except for Nain and Hopedale.

My education, I did K to 12 in Rigolet then went on to university, did first year in Corner Brook and did my degree out here at MUN St. John's, Phys Ed teacher. Went back

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teaching in Hopedale and Nain, great experiences. I think I learned after that though, teaching is a bit of a challenge, so -- and I always challenge myself to do different things, so I moved on and then went into recreation, worked in Voisey's Bay and then this came up.

We formed a government after LA and decided to take a shot at running for our government. The way it works in Nunatsiavut, each community has elected officials, depending on the size of the community. Rigolet has one elected official and one mayor, for example, and Nain has two elected officials and a mayor. And all these people who are elected sit on what we call our assembly, which is located in Hopedale.

There's 18 members right now, including the President, Ms. Sarah Leo. We meet six times a year and we travel into Hopedale and sit and then that's where we do our -- same as out here, we do our legal requirements, but on a daily basis, I'm either working out of Rigolet or I could be travelling to any of the different communities or for business like

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this, I can travel in to St. John's or anywhere at all.

My portfolio right now is Minister of Lands and Natural Resources. So anything that has to do with mining to wildlife to energy issues like what we're dealing with here today usually fall under what I do. For example, one of the things that we're working on right now is we're travelling to all of the north coast communities and we sit in front of the people. We open ourselves up to the people and we have what we call a wildlife consultation. We talk about different wildlife issues and they actually tell us what we are doing good and what we should be doing better. So then we take that back and we just create our policies based on what the people actually tell us. This is an example of some of the typical things we do.

I've been actually around since the beginning, 2006. Me and Dan Pottle, he lives -- he's our member for Canadian constituency. He lives out here in St. John's. We were the two longest serving members on Nunatsiavut Government, been around since the beginning.

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I've served as Minister of Culture, Recreation and Tourism, Minister of Education and Economic Development, First Minister and currently Minister of Lands and Natural Resources.

So I've seen many of the issues that face the north coast, face Nunatsiavut, and I've experienced -- growing up there, experienced a lot of the issues as well. So I know most of the issues, and I guess that's why they have me appear in front of you today to kind of present those issues and try to make a case or try to give you a picture of where we're coming from by this submission, try to clarify, I guess, the points we're trying to make in this submission, why they are important and I guess just for a bit of clarity. So I think that's fine.

MS. DAWSON:

Q. That's good.

MS. GLYNN:

Q. Minister Shiwak, if you could just speak into the mic, move the mic in a little bit closer to you perhaps.

MR. SHIWAK:

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A. Either one?

MS. GLYNN:

Q. Either one, both are working.

MR. SHIWAK:

A. Okay. I'll sit back here.

MS. GLYNN:

Q. Thank you.

MR. SHIWAK:

A. Okay.

MS. DAWSON:

Q. Minister, some time ago, you filed a report with the PUB and do you adopt this report as part of your testimony?

MR. SHIWAK:

A. Yes, I do.

MS. DAWSON:

Q. Now there's a few issues within -- the report is self-evident. I'm not going to ask him to read all of it. But, I will ask you to talk about a few key points that are in the report. There is -- at line 136, if you would bring that up, Ms. Gray? Line 136 of the report -- and each -- well, we tried to number each, but that particular line talks about the average income in the different communities in

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Nunatsiavut and I'm going to ask you to just review that chart that's in front of you and talk a little about the income and what that means to the community, what -- put the income in some perspective for us as it relates to energy costs.

MR. SHIWAK:

A. Okay. If you refer to that chart, you'll see there's listed for Nain, Hopedale, Makkovik. Rigolet and Postville are not on it. So those numbers may be a bit higher than they should be, just for the fact that you're missing two communities. The unemployment rate in those two communities that are missing are quite a bit higher than the other communities. So what you're seeing there may be a little bit high. Having said that, they are lower than the rest of the province.

Typically in the communities, you do have a high unemployment rate. Those who are employed, and may be at the time of this survey, were probably working as part of the project or part of a community project that will give employment for so many months. But typically, most of the people in the

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communities are off for most of the year, and a lot of it is not by choice. They get the work when they can. They make the money that they can and on what they make, they try to make a good living, but I guess, the cost of living in the communities -- when you think about costs of living in the communities, you have to think about it as an overall picture, not just cost of going to the store and buying groceries or cost of paying your cable bill or your phone bill or your hydro bill. Everything comes into play, especially on the north coast of Labrador. The cost is so high.

Just for example, your transportation costs. Unless you travel for work or if you travel for medical, which is again covered, you typically don't see many people travelling outside of Nunatsiavut or travelling community to community. Most people in the communities cannot afford to do that. It's just too high. So you do see a lot of people just staying within the communities, unless, like I say, they travel for work. It's just too high. There is a bit of a relief in the summertime when you have the ferry service, but again,

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that cost is not cheap and that service is only there for about five months at the most. It's actually ending right now. So transportation is very expensive. It's part of the costs.

We also have the cost of hydro is very -- in the summer months, it's not too bad. It's like anywhere, probably anywhere else in the province and it probably looks really reasonable, but as the months get colder and as the weather gets harsher, it rises really fast. And in the very cold months, when you get down to minus 40, minus 50, the cost of Hydro really escalates and it's either because of people are using more heat, electricity within the homes, or they are burning more oil. Again, everything -- the bill keeps going up.

(9:15 a.m.)

The cost of oil in the communities is not cheap. Actually, this year, we feel really fortunate because of the cost of oil. We're fortunate because the cost of oil is froze at $1.34. Typically it's over $1.50 within the communities and this year, even though that's

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a very high price, people are saying "Thank God" because it's something that we're not used to, even though it's still quite high. So, it's kind of a funny thing. But the cost of fuel or the cost of electricity within the communities is quite high.

We also have the cost of food. Bringing food into the communities is quite costly, but what you're seeing is a lot of the businesses are switching to electric heat. As the electric bill gets higher, that's put onto the cost of food and that goes up as well.

So when I say when you look at that income there for Nain or Hopedale or Makkovik, you have to realize that it's a very limited income that they have, families have to make a judgment call because you have to base that against all these other costs that you have within the communities, and if you have a rate hike for Newfoundland and Labrador Hydro, it adds an extra burden.

Looking for most families within Nunatsiavut for looking at a Hydro bill, it's not simply looking at your monthly bills and saying, tick it off and I got to pay this.

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It's quite a big thing. The hydro bill on the coast is a big thing. It's considered part of a daily life that you have to make a judgment call on. If you go to pay your hydro bill, probably something else is going to sacrifice, whether it's your home oil, whether it's your food, whether it's other necessities of life, because people simply don't have the means to pay for these other things when you have to pay for hydro.

And you will see some families without hydro just because it's -- they need the wood to burn, they need the food, to put the food on the table. In a lot of instances, you have families making a choice of not eating at a particular time. Parents might not eat, just so the children can eat. It's about choices and that's what I say, you have to look at the bigger overall cost when you're thinking about the cost of living in the communities, especially when you have very low income, like you're seeing in front of you.

MS. DAWSON:

Q. Now you did mention when you were just speaking about wood. Do you want to speak a

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little about the availability of wood in these communities as a fuel source?

MR. SHIWAK:

A. Typically what you see, just over half of the communities in Nunatsiavut, they burn wood as a heat source. If you look at the communities of Rigolet, Makkovik and Postville, getting wood is not such a big thing because you're in close proximity to the wood and it's an everyday thing, you go out and cut your wood and it's quite convenient. But if you go into Hopedale and Nain, the availability of wood becomes more scarce. You have to travel quite far on snowmobile to get to the wood and again, going back to the income, most of these families cannot afford to purchase snowmobiles. Most of these families don't have the ability to go out and get that wood. So what you're finding is a lot of families don't have wood in the communities. Some of the more well-off ones do, but most of them don't. They rely on either family members or other people to get them wood, and a lot of times, that's not there. So then if they're burning wood, they're relying on something

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else, either relying on electric heat or they're relying on oil, home heating. And again, a lot of them can't afford to buy that oil heat or if you were to bump up -- those relying on electricity, if you were to bump up or put a rate hike on that, they simply can't afford that either.

So you will find families going without heat. You will -- typically if you walk into a home of which I'm talking about, you probably would see the oven open, getting the heat from the oven. You would see -- I've heard and I've seen cases where people have broken down their steps for wood, the steps that you have on your house, yes, or the walls within the house to have heat for the family. These are because -- a lot of it is because of income and having choice of what to buy and what to do.

If you think about Muskrat Falls, for example, there is a lot of wood coming out of Muskrat Falls. I guess some of the crumbs that we do get from Muskrat Falls for the north coast is we have access to the wood. So we do get that wood up into the most northerly

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communities, Nain and Hopedale. It does not last very long. It's very expensive to get that wood up there and we are the ones paying to get that wood up to the north coast of Labrador.

So that helps a bit, but the home heating, the wood heating is a necessity, but it's a challenge for most people and if you're not burning wood, everything else is quite expensive.

MS. DAWSON:

Q. Do you want to tell the Board a little bit about the power supply and any -- you know, it's dependability, whether it's -- you lose the power very often or how does that work in these communities?

MR. SHIWAK:

A. In all the communities, it's diesel, diesel generators, diesel power plants. We're very thankful to have them, even though that we think that they could be better. It's typical for the communities in Nunatsiavut to experience power outages and people are -- when the winter months come around, they kind of expect it, especially when you have storms

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and they expect when the power goes down, depending on what causes the power outage, that you could be looking at a power outage for maybe a day or two, just because you're isolated and the power crew has to come in from Goose Bay or wherever to fix that. Those things are expected.

But the problem with the diesel power plants is they're on a very limited capacity. We know that there have been investments made into Nain and Hopedale in the last number of years to upgrade or put extra power in those communities. We know that there's extra things put into the other communities, but right now, the amount of power that's going into the communities is only looking at what exists in the community today. They are not there to -- they are not put into the communities for future or for advancement in the communities. If you have anything big happening, say if something big happened in one of the communities, the power just isn't there.

I don't know if you know about Makkovik. Makkovik is where our major fish plant is,

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processes turbot and crab. In the summer months, when that plant is going, they can only use portions of the plant because the diesel generator cannot supply the community and supply that full plant at one time. The power going into those communities is there just to keep the community going for now and it's at a very huge investment, I understand, from Hydro. They probably should be looking at a way to supplement that power so that you do have extra power to the communities. There are probably ways of making it cheaper for the communities, I don't know, but it's just very difficult with a diesel generator to -- for the community to advance because there's no extra power to advance. So there's got to be -- from the community perspective, we need -- you have to look at different ways of increasing that power, making it more reliable, making it more affordable and it's probably looking at alternate sources of power.

As I said in the beginning, we're very happy to have the power. Everybody is happy to have power in the community, but it's a

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diesel generating power plant and it's -- some of the communities, mine for example, Rigolet, the power plant sits right in the middle of the community, right next to a clinic. You do see the power plant and you do see the smoke stacks and you do see the black soot that comes out of the power plant and it does fall on the community, including the clinic, which sits around that power plant. They're not the cleanest forms of energy. They're probably, as I understand, needed in the communities. We probably cannot do without them. There's no plans to put a hydro line into any of the communities. So we do need the diesel generating power plants, but you have to understand that these plants need something to subsidize them because our communities are growing. Unlike what you might hear from the Provincial Government, the communities are going to grow and they are going to advance. But we need the power, we need the form of power to able to do that, especially for the people who can rarely afford it.

MS. DAWSON:

Q. Minister Shiwak, I want you to touch a little

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bit about the impact of the undertaking of Muskrat Falls on the communities.

MR. SHIWAK:

A. Well, if you're talking about the impact from a power point of view?

MS. DAWSON:

Q. Yes.

MR. SHIWAK:

A. There's no impact because we are not getting any power from Muskrat Falls. There is an impact from a perspective, a community perspective that you do -- you sit in Labrador, on the north coast, that in your communities, like I said, you have the diesel generating power plants, very costly, very costly to run them, very costly to maintain. You have a mega project that sits just outside of your claim area, pretty much in a community to the east. The only thing that's coming from that mega project are pollutants, number one being methylmercury. It's very frustrating to see.

It's very frustrating to see that you do have all these issues with power. You do have a company like Newfoundland and Labrador Hydro

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going for a rate hike within the communities, but you also see that this company, Nalcor, is building a major mega project in Labrador next to you; the power is going elsewhere and we're having these issues with power and with other things and the only thing they're going to give you is pollutants into the water that we have to deal with for decades to come. I guess it's very frustrating. It's an argument that we are having -- we are bringing to the governments that they need to address.

We know that it's probably not feasible to bring power lines in. We would love to have power lines coming from Churchill Falls into our communities, but we know that it's not feasible. It's not going to happen. But the consideration should be there that if you're -- if you can do a mega project for power for other parts of the province or for Nova Scotia, wherever that power is going to go, you must be able to look at different ways, alternate sources of power within the communities that helps with the diesel generating power plant to ensure that these communities have affordable energy, reliable

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energy and that allows for the communities to grow.

The north coast of Labrador, we're isolated. We're -- in the wintertime, you fly in and you fly out. In the summertime, you get a ferry. You can get your truck on there sometimes. So, it's -- we're very proud of where we are and we're proud to be Inuit and be on the north coast of Labrador, but we're also proud to be part of this Province, and if you -- we expect to be treated like that. We expect to be treated like any other part of this province and yeah, it's -- the more thought and people need to sit down and talk about the power and what's realistic and what should happen within the north coast of Labrador.

(9:30 a.m.)

Rate hikes aren't the answer. You're just going to burden families more and you're going to put them more into poverty than anything else. More thought needs to go into how the power is supplied and Muskrat Falls, again is just a frustrating thing that you do -- it's very frustrating for people on the

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north coast when you see what's happening and the cost of it, but you weigh that against the cost of putting energy into the communities and it's something that we just don't understand.

MS. DAWSON:

Q. I'd like for you to talk a little bit about how any rate increase would affect any commercial enterprises.

MR. SHIWAK:

A. Typically, I guess it's like anywhere else, if you have a rate increase on anything, including your electricity bill or your hydro bill, it has to come off somewhere and the people who pay for that at the end of the day is again those people in the communities making those wages. For example, in Rigolet, we have a Northern Store. They have just switched from burning oil to burning electricity. That electricity then has to come off that diesel generating power plant, which means that that power plant has to generate more energy, which means that Northern's price is going to go up because of that energy. That is passed on to the

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consumer. Northern, they can do that. They can switch to electricity and they can probably pay that bill. But we are the ones paying that bill in the end. If you have a rate hike, that rate hike is going to come off that again, again and we're going to be paying for that again. It's typically most families they cannot afford to do that.

If you aren't already set up as a business, it's very difficult for small business to grow in Nunatsiavut just because of the barriers and the cost of living on the coast, north coast of Labrador. It's very hard for small business start-ups. Small business is, as you know, one of the best community economic generators there is. It sustains communities. It's very hard for small business to start up on the north coast because of the barriers. One of the big barriers is the cost of electricity and the cost of heat and the cost of everything else. So again, if you have a rate hike, that puts another barrier in front of small business start-up and it puts a barrier to essential services happening within the communities.

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Again, I'm trying to make the picture of you have to look at this as an overall picture. It's not just about -- you just can't simply say it's putting up the rate to cover the cost of Newfoundland and Labrador Hydro maintaining these power plants. It has a significant effect on the day-to-day life of most people in the communities.

MS. DAWSON:

Q. That's all my questions. I don't know if -- I'll leave it open to others now if they want to take you through to anything.

MS. GLYNN:

Q. Hydro would go first.

CHAIRMAN:

Q. I guess I'll start with you, Mr. Young.

MR. DARRYL SHIWAK, CROSS-EXAMINATION BY MR. GEOFFREY YOUNG

MR. YOUNG:

Q. Yes, thank you, Mr. Chair. Good morning, Minister Shiwak.

MR. SHIWAK:

A. Good morning.

MR. YOUNG:

Q. I just have a couple of questions actually.

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It arises on page 11 of your -- you don't really need to turn to it. I think we can have a conversation just generally about it.

MR. SHIWAK:

A. Yes.

MR. YOUNG:

Q. But it's the accessibility to the majority of your residents with relation to energy efficiency programs and you've made a comment there and I just want to make sure I understand it. "Many facets of the takeCHARGE program are only available to private homeowners." There are -- just to give you some context. I understand major renovations, windows and major insulation projects would be, but are you aware that there's a number of other projects and opportunities that are available to tenants?

MR. SHIWAK:

A. To our understanding, when you say tenants -

MR. YOUNG:

Q. Yes.

MR. SHIWAK:

A. - that most of the -- a lot of the homes in Nunatsiavut are built through Newfoundland --

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not Newfoundland -- Torngat Housing. A lot of the programs that -- and this is our understanding because we don't run Torngat Housing, even though that money flows through the Nunatsiavut Government to Torngat Housing. Torngat owners or the people who have Torngat Housing, these programs aren't available to them, just because of this program of Torngat Housing.

Torngat Housing is, other than Newfoundland and Labrador Housing, is the affordable housing for people on the north coast. Even though we have to increase that, that's the majority of people, especially the low income people have Torngat Housing. We understand that a lot of these programs what you're referring to aren't available to those people.

MR. YOUNG:

Q. Yeah. My understanding is, and I can't give evidence here, I can only ask questions, but my understanding is that major changes, for example, thermostat or windows or insulation programs may not be, but other things would be, you know, pipe wrapping and insulation

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around hot water systems, that sort of thing. I think a lot of people in your communities would have taken advantage of those services. That's the testimony that's occurred here. Are you aware of that?

MR. SHIWAK:

A. I agree. I think when it comes to saving costs with regard to energy, you have to be able to maintain your home. You have to be able to have all those things that's available to you. But from our understanding, a lot of the communities, a lot of people in the communities don't really know that those programs exist or the ones that do, there are barriers. I understand that when they go to apply for these programs that they come up against barriers that they simply are too big. I could be wrong, but I think that it's too big for them to overcome. More work -- it's a good initiative. It needs to happen. But more needs to happen to get those people who we are referring to in the communities who simply can't afford to pay for all these costs. You need to do more to get into the community.

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Like I say, it's a good program, but more needs to be done to get into the communities. Fixing up your home and fixing up all these things are one issue.

In some of the communities, especially like Nain, a lot of the homes are not your typical home. A lot of the homes are -- there's real issues with them. A lot of it is due to the environment, the land that they're built on. There's real issues with mould. There's real issues with everything in those homes. We are addressing it with the Provincial Government through our retrofit program by putting more insulation in the home, clearing out a lot of the mould. We're cost sharing that program.

But to the typical person, to the low income person, a lot of the programs, what you're referring to, they either don't know about or they don't have access to, even though it may be offered, but more work needs to be done to get -- at the end of the day, we're all trying to do the same thing, but we need to do more work to get to those people because we're trying to save them money.

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We're trying to give them the money to use, what they have left, for everyday living.

MR. YOUNG:

Q. Okay. That's all my questions. Thank you, Minister Shiwak.

CHAIRMAN:

Q. Mr. O'Brien?

MR. O'BRIEN:

Q. No questions.

CHAIRMAN:

Q. Mr. Johnson?

JOHNSON, Q.C.:

Q. No questions for this gentleman, thank you.

GREENE, Q.C.:

Q. And I have no questions, Mr. Chair.

CHAIRMAN:

Q. Do you have any?

VICE-CHAIR WHALEN:

Q. No. No questions, thank you.

COMMISSIONER NEWMAN:

Q. No questions.

COMMISSIONER OXFORD:

Q. No.

CHAIRMAN:

Q. Well, I guess -- do you have anything further?

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MS. DAWSON:
Q. No, no.
CHAIRMAN:
Q. I guess then we are adjourned.
MS. DAWSON:
Q. Well, no, wait, we've got another witness.
CHAIRMAN:
Q. Oh, I'm sorry. I thought you were going to -- oh, I beg your pardon.
MS. DAWSON:
Q. No, we have a -- if we could have a small adjournment so we can switch over the podium.
MS. GLYNN:
Q. Absolutely, yes.
MS. DAWSON:
Q. But -
CHAIRMAN:
Q. Oh, I thought you were -
MS. DAWSON:
Q. Oh yeah, no, I have another witness.
CHAIRMAN:
Q. Okay. That's Mr. Henderson?
MS. DAWSON:
Q. That's correct.
CHAIRMAN:

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Q. I'm sorry, yes. Okay.
MS. GLYNN:
Q. So we'll take a couple of minutes to change.
CHAIRMAN:
Q. Yes.
(BREAK - 9:38 a.m.)
(RESUME - 9:46 a.m.)
CHAIRMAN:
Q. Okay, I guess we're back to you, Madam Dawson.
MS. DAWSON:
Q. Mr. Chair, our next witness is Mr. Chris Henderson and Mr. Henderson should be sworn, I guess, or affirmed.
MR. CHRISTOPHER HENDERSON, SWORN, EXAMINATION-IN-CHIEF BY MS. GENEVIEVE DAWSON
MS. GLYNN:
Q. Ms. Dawson, I'm going to jump in again too, as there is additional information that has been filed by Mr. Henderson and we're going to enter that as Exhibit No. 5.
MS. DAWSON:
Q. Okay.
MS. GLYNN:
Q. We'll have that done at the outset.
MS. DAWSON:

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Q. Okay. Mr. Henderson, I just want to take you first to page ten of your report, which is -- and we'll start with line 241 and it's page ten of your report that just talks a little bit about who you are. So we'll start there. Do you want to explain to the Board what you -- your background first, and then we'll tell them about what you're doing here, but your background in general, please?
MR. CHRIS HENDERSON:
A. Be pleased to. For the last 25 years, ladies and gentlemen, I've worked in the spheres of environment and energy across Canada. For the last 20 years in particular, I've worked very closely with indigenous communities across Canada in virtually every province and territory, acting often as clean energy advisor to indigenous communities, First Nations, Metis and Inuit communities.
In that time, I've been involved with converting diesel systems to renewable energy systems, from diesel to diesel wind hybrids, to hydro power systems and also to solar power. In the course of doing that work, I come at it from an economic and an energy

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perspective and a community perspective, so a sustainable development approach. I try to make sure that the innovations one introduces are workable, in terms of the economics that are at play; that power reliability and certainty exist, but also looking to introduce more robust energy systems that reduce costs and have lower environmental impacts over time and have the involvement of the community.
So my work is as a clean energy advisor across Canada and remote, isolated communities have been a major focus of my work over that last 20-25 year period.
MS. DAWSON:
Q. How long have you been doing some work for the Nunatsiavut Government?
MR. CHRIS HENDERSON:
A. Approximately two years.
MS. DAWSON:
Q. Okay. And what about other northern communities? Do you want to tell the Board about your experience with other northern communities?
MR. CHRIS HENDERSON:
A. Sure. In the northern Quebec region of

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Nunavut, I currently advise both the Makivik Corporation and the KRG Government in Nunavut, as well as we're doing a hydro for diesel replacement in the community of Inukshuak, which is a seven and a half megawatt project replacing 100 percent of diesel heat power in that community. The feasibility is complete and we're in final negotiations with Hydro Quebec and the Quebec Government.

In northern Ontario, I am the federal advisor to the Government to involve a conversion of 20 out of 23 remote communities off diesel to transmission. I've been involved with northern Manitoba in the community of Lac Brochet and Barron Lake, which is looking at a hydro project for diesel, and a number of coastal communities in BC as well that are remote, looking at different innovations of the power system, including more efficient diesel systems. And finally, I've advised Yukon Energy and the territory there in terms of their innovations for remote communities, of which there are not too many left in Yukon, but there are some.

MS. DAWSON:

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Q. The Nunatsiavut Government is offering Mr. Henderson as an expert in the area of sustainable development and northern -- energy as it relates to northern climates. So that's sort of the purpose why he's here and I want to make sure that that's -- we didn't get involved in cost of service expertise, but Mr. Henderson's expertise is of a different nature than cost of service, but still an expert in this area, which is sort of, I would call it, sustainable energy, which is what he's mostly going to get into with respect to northern climates. So I wanted to make sure that the Board understood where we were with that. He's not going to be offering any kind of testimony -- and that's why we didn't put him in the cost of service experts because that's not what we were focused on. So, I want to make sure you understand that.

Mr. Henderson, you filed two different -- now, two -- one report and some additional information. The report that you filed with the Board was filed some time ago. It was in June of 2015 and do you adopt the contents of that report, that expert report?

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MR. CHRIS HENDERSON:

A. I do.

MS. DAWSON:

Q. And then there's some additional information that you filed just lately, which we've just named Information number -

MS. GLYNN:

Q. Exhibit No. 5.

MS. DAWSON:

Q. Sorry, Exhibit No?

MS. GLYNN:

Q. 5.

MS. DAWSON:

Q. 5. That's what I thought. So, that -- so do you adopt that evidence as well?

MR. CHRIS HENDERSON:

A. I do.

MS. DAWSON:

Q. Okay. So I'd like to now take you to the main part of your report and I want you to go through your report for the Board and just explain what -- the contents of it and what you'd like to leave with this Board.

MR. CHRIS HENDERSON:

A. Thank you. In this role, I act as clean

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energy advisor to the Nunatsiavut Government. The Nunatsiavut Government asked me to on a proactive basis two years ago to look at energy, the needs in the community, the costs of energy, and that's both electricity and heat, though as the Minister noted there's a linkage between the two, and identify their opportunities to both reduce consumptions through efficiency and conservation that were not being fully taken advantage of, and opportunities to reduce costs over the long term through renewable energy.

So that expert report first goes into a description of the energy realities in the region, which I won't dwell into because I think the Minister covered those off in fair measure. In the role that we've done, we have completed the Nunatsiavut energy security plan. It has been reviewed by Executive Council by the Nunatsiavut Government about two months ago. We're waiting for final revisions from the Government and that report will be available to the Public Utilities Board and the various stakeholder interests here very shortly. It is grounded in what is

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workable based on what's happening elsewhere in Canada, what potentially exists on the ground today. In the course of doing this work, which is reflected in the expert report, we consulted with Newfoundland and Labrador Hydro and the Public Utilities Board. I would note, and I would express appreciation that we found individuals from both those organizations forthcoming, they were helpful. There was a genuine desire to see what could be improved, understanding that things change over time and that we need to move forward. It's not a static point in time.

In the course of doing this work, I really would stress that, as the Minister did, this linkage between electricity and the rates related to it, which you are accountable for, and heat, in some cases homes in the region use electric heat and that is becoming more and more prevalent especially for public buildings as they are expanded and built, but the energy budget of residents is an energy budget for both space and heat. If one rises, there are impacts on the other side, and that reality in Nunatsiavut has to be appreciated.

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I mean, the average cost in winter months for heating a home in Nunatsiavut the residents bear is a little over $600.00 per home per month. It's not a small amount of money. When you add to that electricity cost, you kind of see what the energy budget looks like in a region where income rates are much lower than elsewhere in the province. So those factors have been pointed out too by the Minister, and I'll leave it at that point. I think what I would stress to the Board is that the work that Newfoundland and Labrador Hydro has done in the region is very genuine and very competent in many respects. There is a mandate under the legislation and policy of the province to provide power. There are consequences there sometimes with outages that occur, which is a challenge of diesel systems. In some places outages can last quite a bit of time, but there is where, I think, there is opportunity that would have an impact on the cost of the system for the system overall for the residents and even, therefore, to all residents of Newfoundland, given the rural subsidy, is related to how you over time

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reduce energy demand through conservation and efficiency and renewable energy.

The Take Charge Program is a good program. It's been well intentioned and it has a number of positive parts. However, it also is not a holistic community energy planning or holistic individual residence or facility energy efficient and conservation program. I'll give you a comparison. If you go to Manitoba, Manitoba has a system called PAYS, Pay As You Save. In Manitoba virtually any business, institution, or community home owner can go to the provincial utility of Manitoba Hydro and say, look, I'd like to renovate all these aspects of my home, windows, and major appliances, building systems, building envelope, and I will access a fund from the utility to do that, and as I save, and that has to be part of a plan with the utility, then that money that was used for those initiatives is paid back, and once it's paid back, then I'm free and clear. What programs like Manitoba have done is take a holistic approach to a home, but more importantly for communities like isolated

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communities on the North Coast, you want a comprehensive community energy planning approach and that's what I think you will see when you see the Nunatsiavut energy security plan tabled. It's trying to say, look, can you look at the community of Nain, Hopedale, or Rigolet, or Makkovik, and see how those communities are using energy and reduce energy together with them. So what I would point to in the testimony, and also in the additional material, is things have changed. There is a report that we were privy to that was commissioned by Newfoundland and Labrador Hydro in 2009, looking at various forms of renewal energy in the region, and concluded at that time that while there was some more wind energy monitoring being done, there wasn't much potential in solar, there wasn't much potential in geothermal bio-mass, and some of that is definitely factually correct, there's not much potential in geothermal, for example. However, 2009 is six years ago and things have changed. I mean, in that 2009 report, it was said that if solar power costs come down, they should be considered. Well, in the last six

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years they have come down now almost 65 percent for solar panels, control systems, and converters/inverters, and as a result, elsewhere in Canada in Northwest Territories, in Northern Ontario, in BC, you see large scale conversions of systems that are remote into solar power with solar storage. Solar panels will come down a further 20/25 percent in the next two/three years, and so storage costs are going down which allows both backup capacity for solar power. That's an example of how renewable energy should be looked at more assertively.

There was a report commissioned by the Newfoundland Government in 2014 to look at these issues again. We do not have the final report yet, it's not available, we look forward to it. So the simple point that we would make here is that part from the reality of energy in the North Coast communities which is challenging, given the economic situation and the link between heating and power, is that we believe that there is greater potential for a more holistic community energy planning approach and a more holistic home

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energy efficiency and conservation approach, which does require new tools. It may require, for example, an investment fund that has a pay back mode that could be commissioned on the part of the utility potentially with the Provincial Government as it is, for example, in Manitoba. We do believe that certain forms of renewable energy have changed in both the reliability, the performance, and the economics in the last six years that has led other jurisdictions with remote communities in Canada and elsewhere in the world to start installing them because they're working better.

If you go to Colville Lake in Northwest Territories, you'll see a large solar ray that covers a property about twice the size of this building footprint that is now generating over 60 percent of the power requirements in Colville Lake. Northwest Territories didn't do this happenstance. They did it because it made sense. If you go to Northwest Territories and you look at the EKATI Mine, three years ago they installed three wind turbines at that mine. This is a perfectly

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private operation, they look at full cost accounting. They worked so well, they installed three more this summer. In addition, there's opportunities to be innovative here in the context of newer technologies. People are well aware of the wind hydrogen system in Ramea Island, but if you look in a northern community like Salluit, the Xstrata Mine in Nunavik in Northern Quebec, there you had a wind deal system installed a year and a half ago which involved a major contribution on the part of the Federal Government, in fact, covering almost 60 percent of the cost to recognize it was a cost factor that should not be borne by rate payers in the province, but because there was innovation potential there, you could see how wind diesel systems could work that's not up and operating.

So there's opportunity both for conservation with holistic approach community-wise and building-wise, building on Take Charge as a start and go further. Two, it's an opportunity to look at renewable energy because renewable energy technologies are

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becoming more effective and more cost effective. Thirdly, it's an opportunity to look at innovation in systems because there are supports, including a partnership with the Federal Government. Those are opportunities we believe should be part of the system for Nunatsiavut that do have an impact on rate payers over the medium to long term and also home owners in the region and businesses.

(10:00 a.m.)

Finally, even with diesel systems there's opportunity through innovation. If you look at Innovus Power in California, diesel systems operate, for technical terms, at a certain speed pretty regularly that consumes a certain amount of fuel, diesel fuel, and the amount of consumption is not as responsive. So you're using this much power, let's say the number is 100, and the next five minutes it drops to 50, the diesel system can adjust, so you're using fuel that is not needed and costs money. Variable speed motors that are much more akin to a control system that operates, like, on the grid, is much responsive minute to minute to changes in demand can reduce diesel fuel

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consumption by 30/35 percent. Innovus is now being installed by BC Hydro in a remote community on their coast. So that's a final point I would point to in opportunity. So the Nunatsiavut Government has taken a proactive approach with this and said let's look at how, in collaboration with Newfoundland and Labrador Hydro and the province, and potentially also the Federal Government, there's opportunities to be more creative that fundamentally is still rooted economically. One has to make sure that; one, the systems work, they're reliable, and two, they're done with a real sense of how it impacts the economics particularly on the rate base. So that fundamentally is a summary in terms of what expert testimony we offer, but it's rooted in a year and a half, two year's work of work in the region in consultation with the province and Newfoundland and Labrador Hydro and the Public Utilities Board. We believe that would have a positive effect on both the region and its residents and businesses, but also on the whole management of utility systems and rates for the province.

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MS. DAWSON:

Q. Mr. Henderson, have you yourself visited these communities, have you gone up there and seen what Newfoundland Hydro has in these communities in the way of both - in particular, the diesel plants? Have you visited those?

MR. CHRIS HENDERSON:

A. Yes, I have. I visited three of the five communities, and particularly focusing on Hopedale and Nain which have gone through diesel upgrades recently in response to demand. I met both with Newfoundland and Labrador managers in Goose Bay who manage the North Coast communities, and I met with the operators in the communities in the ones that I mentioned, and the individuals who actually manage the upgrade process.

MS. DAWSON:

Q. And are the diesel generating plants sort of state of the art or are they behind or where are they in relation to what you would like to see there?

MR. CHRIS HENDERSON:

A. I think the diesel plants are okay relative to

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where the state of the art may have been three to five years ago. I think the opportunity for water jackets, the opportunity - that take the heat from the diesel plants to use it to heat other buildings, the opportunity to blend in renewables into those facilities, even small scale renewables, and the opportunity for more advanced diesel systems have not so far been part of the capital program for the utility. I believe that it would make sense for the province and for the region to look at that into the future.

MS. DAWSON:

Q. And would all of this, both the renewable energy and the conservation that you're talking about, would that lower sort of the rural deficit as you know it?

MR. CHRIS HENDERSON:

A. I would say the most important thing to have an impact on the rural deficit for the North Coast communities is energy conservation and efficiency before renewables. Two years ago, you can Google it, I wrote a book called "Aboriginal Power", which looked at renewable energy in the indigenous communities across

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Canada, and it has a very extensive chapter on remote northern communities. In that chapter, there's an energy ladder you should follow in remote communities. The seventh step of the ladder is renewable energy. You don't step on a ladder on the seventh step, you got to climb the first six. Energy conservation demand peak load shaving, energy efficiency, combined heat power, are some of the earlier steps on those ladders. Effectively, what we've seen so far for the Take Charge Program is there's been half of the first step on energy efficiency introduced. There could be more work done on peak load shaving. If you can get that peak down so that you don't have to put in another diesel motor on a string of three or four you might have, that can have a big impact on efficiency and cost. That requires a community energy plan and a closer management between demand and supply. That has potential. That's the first step. You just simply don't turn the motor on, the third motor on, or the second motor on. The second step is conservation by behaviour practices. I believe more can be done there by working in

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partnership with the Nunatsiavut Government. That's a behavioural social process, not a technical process of simply replacing an incandescent bulb with a LED. It requires use change, which requires more education. Thirdly, you can have efficiency. I believe some of that program is in place, but more could be done with a comprehensive approach. Those are the ones that would have the biggest impact on cost and communities. That takes a bit of time and investment as they're doing in other parts of Canada, but it's not crazy money or complicated. It requires planning, and what people will find with the Nunatsiavut energy security plan, we're proposing how that be done in collaboration between the Nunatsiavut Government, local communities, and the utility and the province in doing so. Renewable energy - so work on energy conservation efficiency test to have a shorter pay back period anywhere from a year or two, to four or five years. That's the kind of time line, I think, all rate payers of the province would appreciate. Renewable energy, I'll be honest, takes longer. I mean, if one

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were to introduce a solar storage system now, you may be looking at a pay back rate that may take six to nine years to do, but as the costs come down, the pay back rate gets faster. So we believe that should be part of the ongoing monitoring of energy innovation for the region. So short strokes are go first to energy conservation, don't even use that, and energy efficiency which requires more substantive programming, and then to renewable energy, but be very judicious about which renewable energy projects to do first, and I think I can firmly say from what I've seen of the Nunatsiavut Government they are very open to working with partners on that.

MS. DAWSON:

Q. Do you have any idea what would work better in these different five communities with respect to, let's say, renewable energy?

MR. CHRIS HENDERSON:

A. Well, if you look at the community of Nain, which is the largest community, I believe there is potential both with solar and potentially some with wind, and the same in Hopedale. In Makkovik, there's a potential

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small hydro facility which would be very helpful because, as the Minister noted, the fish plants need that supply to operate full tilt. In Nain, for example, I can share today which is a gift to my--marks as testimony (phonetic), I've secured an arrangement with the Solar Energy Society of Canada to have solar energy systems donated to the Illusuak Cultural Centre, which is being built in Nain right now, free of charge as part of a demonstration to bring renewable solar power into that community. The Nunatsiavut Government also secured federal funding to provide solar hot water system, again with federal support to buy the equipment and install it for the Illusuak Cultural Centre. So what I would say is that I believe solar energy with storage has the greatest potential for renewable energy in the region, but potentially some wind integration in a couple of communities and maybe hydro in one other community. We did conduct, as part of our energy security plan, a look at biomass power. While the Minister noted biomass is a challenge because of the distance people have

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to go to get wood biomass, the community of Postville is an exception because its had a lumber mill and it's in the lower part of the North Coast which has more biomass reserve. We have done some work for the Nunatsiavut Government with Natural Resources Canada, have identified some biomass potential for biomass generation and heat in Postville, which we believe has potential. So solar in all communities, wind potentially in Hopedale and Nain, potentially some small hydro in Makkovik, and potentially some biomass in Postville.

MS. DAWSON:

Q. Now the additional information you filed with the Board, is there anything you want to add to the additional information that we provided?

MR. CHRIS HENDERSON:

A. Thank you for that question. What I tried to do, and I apologize that you recently received this, because I want to give something to the minute, what I'm pointing out there is how other jurisdictions are moving very quickly across Canada because things are changing

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quickly in terms of technology and cost, even when diesel fuel rates have gone down in the past couple of years which is very appreciated by the region. What I would note is that the Government of Newfoundland and Labrador, along with most other Canadian governments, including Ontario, Nunavut, Manitoba, Saskatchewan, Alberta, BC, Yukon, and NWT, I think Quebec was the only one who didn't sign up, but will eventually, they signed off at the premiers level a natural energy strategy. A specific provision in the natural energy strategy was to look at sharing and collaboration on off grid innovations for energy other than on the matter I've been speaking to, and given that other communities are engaged with this like the Northwest Territories, as I mentioned, and Northern Quebec, I would note that should part of the direction here be to look at renewable energy and energy efficiency, there are potential collaborations across Canada, and in addition the Government of Newfoundland and Labrador signed on to that. I would also note that the Government of Newfoundland and Labrador had

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also made a commitment to a net metering policy, so to my example in Nain with the new cultural centre being built, which we secured support to put in solar panels free of charge to the residents and to the rate payers, if they generate electricity that is not needed, that actually would be able to be sold back into the Nain local power grid and that's a policy that we're waiting for details on. So what I'd start to do with this additional information is to point out that there's innovations going on with off grid energy across Canada, and collaboration has potential.

MS. DAWSON:

Q. You used the word "net metering policy". Could you just elaborate a little bit about that?

MR. CHRIS HENDERSON:

A. Yes, thank you. The Minister of Natural Resources of Newfoundland announced a net metering policy earlier this year, and what that says essentially is that home owner or a small business, or government in this case, the local government, could generate renewable energy for their own use as long as the

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building systems allow that, and if they don't need that power at the time, they could sell that back to the provincial grid, or in this case the local grid in this case specifically in Nain. There's a framework that has to be developed along with the provincial utility and the PUB. So when that policy is established, in circumstances where a business or in this case the Government of Nunatsiavut puts up the solar power system, by way of example, there's another local source of power that can help reduce the diesel demands and the risk is taken, though, by the people who put that power - those new energy systems in place. We're looking forward to that policy being developed, the net metering policy. We don't know the details yet.

MS. DAWSON:

Q. And could you elaborate a little more about what was referred to as the off grid policy or the new initiative announced by the Government of Newfoundland?

MR. CHRIS HENDERSON:

A. It wasn't so much a new initiative, but an initiative on the part of all premiers as part

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of the national energy strategy to improve collaboration on energy innovation for remote off grid communities, and the examples I gave in the additional information are among some of the innovations and there's others. So the governments agreed that they would collaborate together in this process. We believe that, to be frank, more collaboration from Newfoundland and Labrador would be beneficial for Newfoundland and Labrador. I noted in the brief, there's been two major events in the last four or five months in Yellowknife, Northwest Territories, and in Fairbanks, Alaska, where there were representatives from most Canadian provinces and territories with remote operations again sharing what works better. There is the opportunity to learn from others, and so if one finds what Manitoba Hydro eventually does with their four remote communities, one doesn't have to start at ground zero, one can use technology assessment, economic modelling, and installation experiences from elsewhere to inform how it might work in Nunatsiavut; how, for example, could the experience in Fort

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Simpson or in Liard or in Colville Lake in Northwest Territories work for Nunatsiavut should they look at solar power.

MS. DAWSON:

Q. I think that's all my direction for you. I don't know if anybody has any questions.

(10:30 a.m.)

CHAIRMAN:

Q. Mr. Young.

MR. YOUNG:

Q. Yes, I do. Thank you, Mr. Chairman.

MR. CHRIS HENDERSON - CROSS-EXAMINATION BY MR. YOUNG:

MR. YOUNG:

Q. Good morning, Mr. Henderson. Geoff Young, Newfoundland and Labrador Hydro. Just a couple of areas. It was a very interesting presentation this morning. I'm just wondering because of the discussion you mentioned a couple of times in your presentation that you were aware of a fair bit of consultations going on with government, Hydro, and the Board, are you aware of the wind testing and meteorological testing in Nain?

MR. CHRIS HENDERSON:

A. In Nain and in Hopedale.

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MR. YOUNG:

Q. So you're aware that has been going on?

MR. CHRIS HENDERSON:

A. Yeah, but let me give you a specific because when I was both in Hopedale and Nain, I went to the anemometers.

MR. YOUNG:

Q. Right.

MR. CHRIS HENDERSON:

A. One wasn't working.

MR. YOUNG:

Q. Okay.

MR. CHRIS HENDERSON:

A. The Nain system, there were two sites in Nain, one on the bluff, one near the station. I went to the monitoring computer and asked the operators do you know what that is, and they said, no. So what I have not seen, the wind energy data, so I was concerned the systems were installed that weren't seem to be monitored. One system has been taken down since, as I understand. I'll say, though, knowing wind energy in remote communities pretty well, I don't expect the wind is going to be fantastic, to be honest with you. It's

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variable speed wind, so it's not a consistent wind that could help the system. We might find that with some energy innovations and wind energy that wind has potential there, but as I mentioned in my remarks, wind wouldn't be where I'd go first.

MR. YOUNG:

Q. It occurs to me when I think of Nain, it's a larger community, so it might be sort of an obvious target, so storage, I suppose, might be the opportunity there if wind is not - you have capacity factors.

MR. CHRIS HENDERSON:

A. Right. Yes, sir, storage of wind or solar, I mean, if you look at a company like Enerstore in Canada, which is one of the leading storage companies in the world, their battery costs are expected to reduce by 40 percent in the next two years. They're a partner with Tesla. When they announced the partnership with Tesla to do a home storage system for the home, they received an order within 90 seconds across Canada for that, by way of example. So the storage example is key. So you've got these two vectors that have changed since you last

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looked at this in detail in 2009 in the solar. One is that solar rays, the converters, inverters, and the panels and the racks have come down in cost by over 60 percent. Solar storage technology proved to be robust and now is driving cost down. That's why I would probably put solar at the top of the list as the potential to look at that can drive down diesel. If we can shut off one of those engines to cut off the peak load, that has definite impact on the cost structure of diesel.

MR. YOUNG:

Q. And you mentioned also the opportunity get some federal funding, and, of course, Ramea is an R & D project.

MR. CHRIS HENDERSON:

A. Exactly.

MR. YOUNG:

Q. You sound like you're familiar with that?

MR. CHRIS HENDERSON:

A. I am. I think it's an intriguing system. It certainly is very innovative, given it's both wind and hydrogen in the system.

MR. YOUNG:

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Q. Uh-hm.
MR. CHRIS HENDERSON:
A. Here I would still - we will need the diesel systems on the North Coast in certainly my projection of time, and you need them for backup. The key thing is to reduce the amount of diesel capital you have there, so can you have one or two motors rather than three, four, or five - actually, it's only two with four, none with five. Can you reduce the amount of diesel fuel you consume? I mean, diesel fuel costs represents about 80 percent of the total systems cost currently. The rest being the capital cost of the system. So that's where a combination of efficiency, conservation, and renewables comes into play. It's quite conceivable, in my view, that one can probably reduce the diesel load by close to 50 percent, the demand consumption over the next five to seven years.
MR. YOUNG:
Q. With renewables?
MR. CHRIS HENDERSON:
A. With a combination of efficiency, advanced efficiency and renewables, but always go to

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efficiency first.
MR. YOUNG:
Q. I agree with that.
MR. CHRIS HENDERSON:
A. And conservation. That's where the numbers are the best. That requires a non-capital expenditure or a capital expenditure because there's a quicker pay back.
MR. YOUNG:
Q. You touched upon another interesting thing. We've had some experience with this, although we haven't had great success at all, I would add, and real logistical challenges; district heating is the word that we use, and you mentioned you had some knowledge of that for diesel plants. Essentially, just for everyone's understanding, it's recovering heat loss and using that.
MR. CHRIS HENDERSON:
A. Yeah, when you burn diesel in a motor, like a lot of motors, you create heat along with creating power or some form of energy. One can put waterjackets around these diesel engines and, therefore, you can use that hot water for space heating. So if you go to one

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of those plants, they're reasonably nice and cosy even in winter months for that reason. The challenge is - this is where community energy planning comes in, is that where the diesel plants are sometimes located, Rigolet is down in the middle of the community, but others are a bit away from the main buildings, and then you have to take that heat somewhere, so that means you have to ship it, you're in bedrock.
MR. YOUNG:
Q. Exactly.
MR. CHRIS HENDERSON:
A. And getting it from that site to another site is a problem. However, if you had certain community facilities that were being built nearby, so in Hopedale, for example, the recreation centre is not very far at all, it's about 150 meters from the diesel plant, that's being built now, so maybe, you know, waste heating from the diesel plant into the recreation centre is a possibility. That's a diesel based district, so that's combined heat power. The other district of combined heat power, though, is with biomass. I think the

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community in Postville, which used to have a lumber mill, the facility is largely still there, that has great potential. That's where you'll find very real interest in the Government of Canada to participate with that. Even district heating for homes can change. Part of our work in the energy security plan last year we conducted an assessment of district heating for homes. Here's an example, if you go into a smaller home, you may have a shed outside of it which a boiler. You put the wood into that, put maybe three or four logs for a cold night, it burns glycol or a certain kind of liquid that then goes in small little PVC lines that goes into the home. Now in the past, you could only do this with a home that had cement slabs. Well, the technology has now evolved to put those PVCs directly into wood frame homes with wood frame floors. You can actually buy the wood flooring with the PVC installed. We did the numbers on that, the pay back we think is around four years. Now that's on the heat side, but some of the facilities you have are using electric for heat, but heat is a reality

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for everybody in Nunatsiavut.
MR. YOUNG:
Q. Right.
MR. CHRIS HENDERSON:
A. So district heating has some potential in the region, but for the diesel plants, not a lot because of the nature of the geology and the nature of the community design, but probably would have looked at it for Hopedale.
MR. YOUNG:
Q. Our experience, as I mentioned, is somewhat limited, and the bedrock, the distances, the lead loss is the issues, yeah.
MR. CHRIS HENDERSON:
A. Right.
MR. YOUNG:
Q. One last thing, and it's in your additional information, I'm quite interested in this actually, is the variable speed diesels. I'm just curious what size units they would be, because there's one in BC that's being looked at, you said?
MR. CHRIS HENDERSON:
A. Yes, from 100 megawatts up to 10 megawatts.
MR. YOUNG:

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Q. No, kilowatts?
MR. CHRIS HENDERSON:
A. I'm sorry, from 100 kilowatts to about 10 megawatts.
MR. YOUNG:
Q. Okay.
MR. CHRIS HENDERSON:
A. It can be sized - they're sized differently. I can certainly be pleased to share additional information about the company. I mean, these are the kinds of innovations that we're just really looking into because you will have to replace the diesel system sometime in the next years, I would imagine, in the region, or expand, and the potential for variable speed systems - the challenge may be technically integrating the variable speed with the existing fixed speed systems.
MR. YOUNG:
Q. Right.
MR. CHRIS HENDERSON:
A. But doable, not - it's been done. It's just not the plant you have now, but it's not requiring a wholesale plant replacement either.

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MR. YOUNG:
Q. Okay, so you can add one of these units?
MR. CHRIS HENDERSON:
A. Yeah. You'd probably have to make some changes to control systems to allow them to be integrated with the current system.
MR. YOUNG:
Q. I can see the value of that if you were putting on that incremental system.
MR. CHRIS HENDERSON:
A. Sure.
MR. YOUNG:
Q. If you had two units on at sort of full load, looking at two more -
MR. CHRIS HENDERSON:
A. Right.
MR. YOUNG:
Q. Just that one and (unintelligible). It's interesting and something to look forward to. Thank you, Mr. Henderson, that's all my questions.
MR. CHRIS HENDERSON:
A. Thank you.
CHAIRMAN:
Q. Mr. O'Brien.

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MR. O'BRIEN:
Q. No questions.
CHAIRMAN:
Q. Mr. Johnson.
MR. CHRIS HENDERSON - CROSS-EXAMINATION BY JOHNSON, Q.C.:
JOHNSON, Q.C.:
Q. I did, and Mr. Young picked up on that because I think the diesel will be with us for some time to come, and as regards the development of that technology by Innovus Power of California, when was it developed?
MR. CHRIS HENDERSON:
A. About five years ago.
JOHNSON, Q.C.:
Q. About five years ago, and are the capital cost of these units - do you know much about the capital cost relative to what we've traditionally been using in the isolated communities in this jurisdiction?
MR. CHRIS HENDERSON:
A. They would be slightly higher, probably in the range of 10 to 12 percent higher than your current capital cost, but a reduction offset of that are up to 30 to 35 percent reduction in diesel fuel consumption.

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JOHNSON, Q.C.:
Q. In your additional information, you indicated, as you've testified, that Innovus is working with several Canadian utilities, including BC Hydro and Northwest Territories Power to determine the feasibility of site demonstration, so what sort of work are they doing, just visiting the California operations, going through the figures, is that what it's consisting of up to this point?
MR. CHRIS HENDERSON:
A. They're looking actually at physical installation in BC some time in the next year.
JOHNSON, Q.C.:
Q. Okay.
MR. CHRIS HENDERSON:
A. So they're now in negotiation of that contract.
JOHNSON, Q.C.:
Q. All right, those were my questions. Thank you very much.
CHAIRMAN:
Q. Do you have any?
GREENE, Q.C.:
Q. Yes, Mr. Chair.

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MR. CHRIS HENDERSON - CROSS-EXAMINATION BY GREENE, Q.C.:
GREENE, Q.C.:
Q. Good morning, Mr. Henderson. You mentioned that you had met with representatives of Hydro in Happy Valley Goose Bay, and you also visited certain of the diesel plants, I believe, in three communities. You mentioned that the plants were okay for three to five years ago, but that they were not utilizing current initiatives, and I wanted to ask you what in your opinion are the top priorities that Hydro should be looking at to implement?
MR. CHRIS HENDERSON:
A. Let me, if I might, answer that in two ways. One about the diesel plants and then secondly about the communities. With respect to the diesel plants, I do believe that to the question asked earlier with regards to combined heat power and the waterjacket potential, I think there is some of that in one or two communities. It requires an integration between the diesel plant and community planning to be able to do that. I do think on the diesel plants, the main opportunities to look at, the response I gave

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to the last question, and that is on variable speed systems and better control systems, more advanced control systems and how diesel demand and supply is matched. The key thing with diesel is to not shut a diesel motor on. That's what you want to do, and that requires, as I said, peak load shaving and demand management. That's also behaviour based. I'll give you an example of a grid question in Ontario. In Ontario now, if you turn on your dryer at 7 at night versus 10 at night, you pay more. So in our home, we're a bit frugal, my heritage is Scottish and Indian, and so we're rather cheap in our family, so we don't turn on the dryers until 10 at night. Now you don't have that variable price -
CHAIRMAN:
Q. Which is cheaper, I've got to ask you, Indian or a Scotsman?
MR. CHRIS HENDERSON:
A. There's a big debate in our family about that, sir. As a Henderson, I'm a Scot, but you can see by my pigment, I've got a little bit of Indian as well. My joke, sir, if I might, is that I say I'm the real Indian because

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Christopher Columbus was looking for my people versus finding the Indians that were here in Canada, and one time one Indian fellow said to me, Chris, I don't mind that Christopher Columbus was looking for you people, I'm just glad he wasn't looking for the Virgin Islands. To that question, I mean, I think the management of the systems, I think the people in Newfoundland and Labrador Hydro are good, they're very committed, but the diesel systems on a controlled basis can be improved better, but that requires more investment. The challenge here is that I don't think you can look at the diesel power plants in isolation from the whole community, and the promotion of energy efficiency, so on the behaviour side if you can charge someone in Nunatsiavut less for cooking at 7 at night or 10 at night, which you don't want to, perhaps it's an education process. For example, that's not going to be done by someone knocking door to door from Newfoundland Power saying would you like an LED bulb, that's got to be people in the community saying if we do this, and we change our behaviour patterns on use, we may not need

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that motor shutting on at 7 at night. There's a more systemic approach to remote communities that is needed, that is behaviour based and conservation, that links demand with the actual generating system, and then looking at efficiency - secondly, efficiency, and then on renewables. So if I get to your question that what can be done by Newfoundland and Labrador Hydro strictly in the diesel plants, something on waste heat recovery and definitely something on variable speed motors, but you really aren't (phonetic) tapping the potential of the system without looking at the rest. I would not - that's not the way the energy security plan that the Nunatsiavut Government commission is approaching. We're approaching it on an holistic basis.

GREENE, Q.C.:

Q. And the final question, and it's not a legal question in terms of the Board's jurisdiction, but in terms of what you would like the Board to take into account and what are you hoping that the Board will ask or direct, or take into account, with respect to your evidence and that of Minister Shiwak?

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MR. CHRIS HENDERSON:

A. Well, I want to be truly respectful here, because first of all, I'm not from here, and, I mean - well, the first time I came here, and told me I was a CFA. I said, no, I'm not a certified financial analyst. I leave the Board to its judgment because you sat through the testimony and know the whole picture. However, what I do think, and I don't think this is offline from where Newfoundland and Labrador Hydro is, nor where the province is, I think that with a more holistic community energy planning process and the consideration and due diligence of technologies in efficiency, we can reduce the pressures in the future on island rate payers as a whole. However, I think the testimony given by the Minister, which is part of my expert report, I really think one needs to consider the unique social circumstances and climatic circumstances and community circumstances of people in the region of Nunatsiavut. Any rate cost share has a big impact on their livelihoods and wellbeing, that I know is going to be part of the PUB calibrations, but

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I think there's also opportunity to do collectively an even better job in the future.

GREENE, Q.C.:

Q. Thank you. Those are all my questions.

(10:45 a.m.)

MR. CHRIS HENDERSON - CROSS-EXAMINATION BY VICE-CHAIR WHALEN:

VICE-CHAIR WHALEN:

Q. I just have one. I'm interested in the energy security plan that you say is eminent. Is that plan going to be strategic in nature or action oriented?

MR. CHRIS HENDERSON:

A. It's both.

VICE-CHAIR WHALEN:

Q. Okay.

MR. CHRIS HENDERSON:

A. It includes a strategic approach that on an action basis proposes specific short term actions that in the next year or two have a lower capital cost impact. For example, I do believe that coordinated within the Nunatsiavut Government impacting on behavioural changes of energy can have a concrete impact on diesel consumption. It

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includes medium term, looks at specific renewable power opportunities, the ones I've mentioned like solar storage, potentially wind and hydro, and it looks at the longer term about the actual community infrastructure in the region, which can only occur over a capital cycle of a decade or two or more on how buildings are designed and how they are built to standard. So what we start to do is have a strategy plan that is also collaborative. We believe the plan we presented by the Nunatsiavut Government to Newfoundland and Labrador Hydro, the Public Utilities Board, and the province, to say, okay, how can we now make this a collective plan of all parties, and decide there, but some specifics are proposed in both the short, medium, and long term.

VICE-CHAIR WHALEN:

Q. That sounds like a valuable piece of work and I look forward to seeing it. Thank you very much.

CHAIRMAN:

Q. Sir, I must advise you to achieve non CFA status, the probationary period is between 20

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and 25 years.
MR. CHRIS HENDERSON:
A. Thank you, sir. I shall keep that under advisement.
CHAIRMAN:
Q. Thank you, Madam Dawson. I presume you are finished.
MS. DAWSON:
Q. Yes, thank you.
CHAIRMAN:
Q. I guess we now are adjourned until presumably Thursday.
MS. GLYNN:
Q. Right now, we do have a public presentation scheduled for Thursday. We will confirm as quickly as we can.
CHAIRMAN:
Q. Thank you.
(UPON CONCLUDING AT 10:47 A.M.)

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CERTIFICATE

I, Judy Moss, hereby certify that the foregoing is a true and correct transcript of a hearing in the matter of Newfoundland and Labrador Hydro's General Rate Application heard on the 30th of November, A.D., 2015 before the Commissioners of the Public Utilities Board, St. John's, Newfoundland and Labrador and was transcribed by me to the best of my ability by means of a sound apparatus.

Dated at St. John's, Newfoundland and Labrador this 30th day of November, A.D., 2015

Judy Moss

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