



Legislative Assembly of Alberta

The 27th Legislature
Second Session

Standing Committee
on
Resources and Environment

Public Presentations

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Standing Committee on Resources and Environment

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Standing Committee on Resources and Environment

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Sierra Club of Canada	RE-169
Steve Herrero	
Carl Morrison	
Dianne Pachal	
Canadian Wind Energy Association (CanWEA).	RE-175
Greengate Power Corporation	
Dan Balaban	
David Huggill	
Dan Tocher	
Alberta Geothermal Energy Association (AGEA)	RE-181
Leigh Bond	
Don MacIntyre	

6:30 p.m.

Monday, November 2, 2009

[Mr. Prins in the chair]

The Chair: Good evening, everyone. I'd like to call this meeting of the Standing Committee on Resources and Environment to order. It is now 6:30. What we'll do is welcome everyone tonight to this meeting, and I'd like everyone at the table to introduce themselves. My name is Ray Prins. I'm the MLA for Lacombe-Ponoka.

Ms Blakeman: Good evening, everyone. My name is Laurie Blakeman. I'm the deputy chair of the committee, and I'd like to welcome each and every one of you to my fabulous constituency of Edmonton-Centre.

Mr. Jacobs: Good evening. Broyce Jacobs, Cardston-Taber-Warner.

Mr. Hehr: Kent Hehr, MLA, Calgary-Buffalo.

Mr. Taylor: Good evening, everyone. Dave Taylor, Calgary-Currie.

The Chair: Excuse me. Those members that are sitting in or are substituting for someone else at the meeting, please indicate that when you introduce yourself. Thank you.

Mr. Taylor: Yes. I'm substituting for Mr. Hehr, who has come along to take this in as a matter of interest, this first part.

Mr. Lund: Ty Lund, Rocky Mountain House.

Mr. Mason: Brian Mason, MLA, Edmonton-Highlands-Norwood.

Dr. Massolin: Good evening. I'm Philip Massolin. I'm the committee research co-ordinator, Legislative Assembly Office.

Mr. Boutilier: Good evening. Guy Boutilier, the MLA for Fort McMurray-Wood Buffalo.

Mr. Denis: Good evening. Jonathan Denis, Calgary-Egmont.

Mrs. McQueen: Good evening. Diana McQueen, MLA, Drayton Valley-Calmor.

Mr. Drysdale: Wayne Drysdale, MLA, Grande Prairie-Wapiti.

Mr. Weadick: Greg Weadick, Lethbridge-West, sitting in for Evan Berger.

Mr. Oberle: Good evening and welcome, guests. Frank Oberle from the constituency of Peace River, which is as far away as you can get from Edmonton-Centre, I think.

Mrs. Sawchuk: Karen Sawchuk, committee clerk.

The Chair: Thank you very much, everyone. I would just like to remind all members and people at the table that you don't have to touch the microphones. The *Hansard* people operate the on-off switches so that you don't have to touch them. The other little reminder is that if you've got a BlackBerry, keep it off the table because it does interfere with the microphones.

The first item on the agenda is actually the approval of the agenda

which is before us, and I would like to have a motion to approve it. Moved by Diana McQueen. All in favour? That's carried. Thank you very much.

This evening the committee is meeting to hear from groups who are presenting on issues within the committee's mandate as set out in the standing orders, particularly section 52.08(1): "A Policy Field Committee may hold public meetings on any matter within its mandate." So that's what we're doing tonight. The committee does not currently have any bills before it for review, so it is expected that the presentations being received this week are matters of general interest to the committee members within the scope of its mandate.

Our first presentation tonight is by the Sierra Club of Canada with respect to the Action Grizzly Bear campaign, and I believe Carl Morrison is the primary presenter. I'll ask you to introduce your panel members and just launch right into your presentation. You have about 20 minutes to make a presentation. We'll give you a little three-minute warning bell so that you don't go too far. Then once that presentation is finished, I'll ask committee members to pose questions, and you can answer them at your leisure. We have, I believe, until 7:15 for your presentation. Then we'll take a five-minute break and move to the Canadian Wind Energy Association. We'll hear them until 8:05, and then we'll go to the Alberta Geothermal Energy Association from 8:10 to 8:55 p.m.

I'll ask you to begin your presentation now. Thank you.

Sierra Club of Canada

Mr. Morrison: Thank you. My name is Carl Morrison. I work for the Sierra Club of Canada. With me tonight is Dianne Pachal, also with the Sierra Club of Canada, and Dr. Steve Herrero, professor emeritus of environmental sciences at the U of C. I hope to give most of the floor time tonight to Dr. Herrero, but before I do, I have a brief presentation I'd like to go through with you. A briefing document has been circulated, that I'll allude to.

First, I'd like to thank you for inviting the Sierra Club of Canada here tonight to discuss the legislative amendments needed to address the plight of Alberta's grizzly bear. I appear in front of you tonight on behalf of the Athabasca Bioregional Society; the northern and southern Alberta chapters of the Canadian Parks and Wilderness Society, who is represented in the gallery tonight; Defenders of Wildlife Canada; the Federation of Alberta Naturalists; the Jasper Environmental Association; UTSB Research; and, most importantly, the thousands of Albertans who comprise the membership of these organizations and the hundreds of citizen participants in Action Grizzly Bear.

I'd like to begin with a brief quote from Alberta's strategy for the management of species at risk. It's found on page 3 of your briefing document.

Wild species are a keystone to healthy ecological processes providing environmental stability, with a subsequent benefit to the economic stability of our province and the social and economic well-being of Albertans. This keystone role is reflected in the high value that the large majority of citizens place on conservation of species at risk.

Perhaps for no other species than Alberta's iconic grizzly bear does this statement hold more truth. That is why there is a growing and justified desire among Albertans to legislate grizzly bears under Alberta's Wildlife Act.

In 2002 Alberta's Endangered Species Conservation Committee recommended that the grizzly bear be listed under that act. Unfortunately, that recommendation has yet to be acted on. In the seven years since then, grizzly habitat has continued to shrink, and Alberta's grizzly population remains far below the threshold under which a threatened or endangered listing is warranted.

The Minister of Sustainable Resource Development has ordered an updated status review of the grizzly bear. We ask that you report to the minister, the cabinet policy committee, and the chair of the Endangered Species Conservation Committee the urgent importance of legislating grizzly bears under the Alberta Wildlife Act. In addition, we ask that you report the importance of expediting the Endangered Species Conservation Committee's review to ensure that listing can be accomplished during the spring sitting of the Legislature or, ideally, sooner than that. Not only are these actions desired by the majority of Albertans; they are also consistent with several existing government policies and strategies, which are detailed in your briefing document.

Recovery is achievable and desirable in Alberta. The illustration found on page 2 of your briefing package and behind you on the PowerPoint slide there highlights recovery strategies and the outcomes of potential recovery strategies proven successful in the U.S. These strategies can be implemented in Alberta, and that is why a listing under the Alberta Wildlife Act is needed to expedite and focus action on recovery.

That essentially wraps up what I'd like to say here. I'd now turn the floor over to Dr. Steve Herrero. Dr. Herrero is not here on behalf of the Sierra Club. He was invited to appear this evening as an independent expert on grizzly bear ecology.

Thank you.

Dr. Herrero: Thanks to each of you for making the time to be here today to listen. I'm an emeritus professor of environmental science at the University of Calgary and helped to form the Faculty of Environmental Design in 1971. We tried to bring together good science, creative ideas, and sustainability. I hope some of you know about our work. It seems like we're going to survive and, I hope, continue.

I've supervised a lot of students over the years, 63 different masters and PhDs. Supported by government funds, for many years I've had the opportunity to do research on carnivores – bears, wolves, foxes – and their interaction with human beings. It's been a great privilege to do that. I started the swift fox reintroduction project with Miles and Beryl Smeeton, which has been one of the most successful carnivore reintroduction projects in the world, right here in Alberta. That's why these little foxes have recovered down in southeastern Alberta in a great way. So we're very proud of that.

6:40

I've done a lot of research on bears over the years, and I'm just flogging these credentials to convince you that at least in some sense I'm an expert on bears. I'm the first Canadian elected to be the president of the International Association for Bear Research and Management, and I've also been the past chair of the International Union for Conservation of Nature's grizzly bear specialist group. I've published a whole lot of things on bears. My best known is a book called *Bear Attacks: Their Causes and Avoidance*, which has sold 115,000 copies. I never believed it, but it continues to sell and be in print and, at the same time, was voted by a group of my peers as the most important scientific work on bears in the last 25 years. Okay. So all that, like I said, is just to convince you that some of the biology stuff that I know about bears is probably reasonably accurate.

One thing is clear: grizzly bears have lost range in numbers from historic Alberta. In the old days the bears were right out there even on the prairie. In fact, around 1880 a Hudson's Bay Company trader named Isaac Cowie opened up shop down in the Cypress Hills, and in one year he took in 750 grizzly bear pelts, which he reported as a half-kill because there were extenuating circumstances. Surely all

those bears didn't come from the prairie of Alberta. Some came from Montana, but there were a lot of bears in Alberta, and they even made it on the prairie because of bison and because of berries along the coulees. By 25 years ago or so the range had contracted with the development of agriculture and then later forestry and oil and gas in the province of Alberta.

Next slide, please. These are the bad old days. This is down around the Crownest Pass. With totally unregulated hunting and human beings trying to establish themselves on the frontier here in Alberta, they shot what they could. The grizzly bear, with a low reproductive rate and a large body size and extensive land needs, is no match for human beings. If you run up against a human with a gun, the odd human may be injured. But in the long run we've shown a remarkable ability to extirpate grizzly bears.

Grizzly bear research involves a whole lot of things. It's anything but the lone ranger going out and looking at bears through a telescope. I used to spend most of my time raising funds for research. For one project I was heading up, the eastern slopes grizzly bear project, I raised about \$500,000 a year. I spent a lot of time doing that, but the bonus of that time was getting to know the different people and to explore their interest in grizzly bear management. They range from off-road recreational vehicle users right on through to mainstream conservation groups and ranchers. So grizzly bears cut a wide swath in the province of Alberta because they touch a lot of people's lives in different ways.

One of the things our study showed us was that almost all grizzly bear mortality in the province has been human caused. It's almost an amazing figure: 627 of 639 reported grizzly bear deaths were human caused. It highlights how challenging it is for grizzly bears to live to old age. They have to have the conditions right in order to do that because they wander over a large area trying to meet their needs, and then they run up against situations in which they can get in trouble. The other big thing we found was that 85 per cent of 462 mortalities were within 500 metres of a road or backcountry development or 200 metres of a trail. In other words, the bears do best and survive best where there aren't a lot of people for them to get into conflict with.

There's going to be a little quiz on this afterward, so you can jot down whatever notes you want. I apologize for this, but this is the final results of our eastern slopes grizzly bear project, and it describes the reproductive parameters of grizzly bears in Alberta. These were in and around Banff national park in Kananaskis Country, and it compares the reproductive output of these bears with those in the Flathead, a very productive habitat in British Columbia and Yellowstone national park. The first thing you see is the age of first reproduction. Our bears just couldn't get it together to have offspring until they were eight years old. Well, that tells you right at the start that they have to at least live to be eight years old in order to be involved in reproduction. That can be very challenging for grizzly bears.

Let's skip to the one that says Litter Interval in Years. That's how often it was in between the time that these bears had young. In the Flathead they were having them on an average of every 2.8 years, but in the Bow River watershed we were only having them every 4.4 years, and so it goes.

Our population, however – that last little thing with the squiggly line at the top is the Greek letter lambda. Those represent the reproductive rate. How fast is the population increasing or decreasing? In the Bow River watershed we did have a slight rate of increase, but that was for results of a very special thing. We were able to keep adult female grizzly bears alive 15 out of 16 going into the next year. That was after 11 years of study. Then, sure enough, things started to fall apart in 2006, the year after we finished the

study, so we don't have hard data, but the reproductive rates slipped below one in the three years afterward. All this is to say that grizzly bears are slow at reproducing. They're not like deer or elk or moose.

The next slide. This is going to be impossible to read, so I will tell you what it says. It lists all the different causes of death, and in the end it sums them up. This is for the province of Alberta from 2000 to 2008. Here again 204 of 217 known grizzly bear deaths were human caused. All the black lines on the left just indicate the different causes.

Next is a simple model for how grizzly bears die and how grizzly bears survive. If you take the frequency of encounters with human beings and you also take the lethality of encounters, then you get the rate of human-caused deaths. If all humans have guns and they're willing to shoot, then you usually have a lot higher lethality than if humans are carrying pepper spray or if humans are doing something else that's not going to be potentially lethal. Then that, of course, feeds into the population growth rate. So that's a very simple model for how grizzly bear numbers interact with human activities. You can up the survival of grizzly bears by decreasing the lethality and by decreasing the frequency of encounters.

Next, please. This is a series of three slides on loan from Gord Stenhouse, who's in charge of the Alberta government's grizzly bear project. It's a very important project, a very, very well-designed and very scientifically rigorous project, one that all Albertans can be proud of. His mandate is to count grizzly bears in Alberta. It sounds easy, perhaps, but in fact counting grizzly bears has been very challenging because they're a cryptic species that often hide in the woods. They occur at low population densities, so there aren't very many, and they're difficult to see or catch.

Well, along came a bright young man out in Glacier national park in British Columbia, about 15 years ago now, who figured out that we don't need to catch grizzly bears or see them. All we need to do is get some hair from them, and from those hair follicles we can get a DNA fingerprint. It's just as good as having captured a whole bear only we do a whole lot more of it. What the gentleman in the upper right, Grant McCutcheon, is doing is stringing up barbed wire about knee high. On the left you see a grizzly bear going over this barbed wire, and they almost always leave some hair.

Well, some bears don't like to leave hair, or they are otherwise cryptic to count, so supplemental techniques are used to get those bears: collections of grizzly bear droppings, which we can also get DNA fingerprints from, so that you can check and see if you missed any animals with the hair snares, or you can simply take a look at grizzly bear rub trees. They rub their hair in order to get some of the shedding hair out, and you can get DNA fingerprints from that. So there are three independent times.

6:50

This work has given us both the numbers of bears and also the distribution of bears. Those little metallic blue-black things are places where grizzly bears have been found since 1988. The traditional distribution of grizzly bears is shown in the brown. What the research has shown is that we don't have, really, as many grizzly bears as widely distributed as we thought we did. You will remember how far down that is from what was originally the distribution in Alberta.

This is the figure that – oh, darn; those numbers don't shown through. Like I say, these are on loan. The research is first-rate, but the graphics are not. Suffice it to say that there is a distribution of about 700 different grizzly bears, if you add up all sources, in the province of Alberta, some of those in Banff and Jasper national parks, but not all of those there were counted. What we see is that the range of the grizzly bear in Alberta has been shrinking and

shrinking. They're literally pushed up against the western boundary of the Canadian Rockies in the places that are rough and rugged enough for them to survive. Without action those populations will continue to be restricted to a very, very narrow band of habitat in which it's rather difficult to support bears.

Now, the IUCN suggests that populations of 50 to a hundred adults are at high risk of extinction. We don't want to go there. Where we want to go is to stop them at the threatened level. IUCN suggests that the population levels for those are around a thousand individuals. Alberta is below that, and action is needed. It's a really simple equation. If we wish to have grizzly bears into the future, we need to be able to manage the mortality and protect the habitat. These are the traditional bulwarks of wildlife management. But for a species like the grizzly bear they're very, very difficult to attain because of the variety of land uses that humans legitimately want to put on the land. So many of them challenge the grizzly bear in terms of survival.

That summarizes my presentation. We look forward to whatever questions you may have.

The Chair: Well, thank you very much, Dr. Herrero, for a very interesting presentation. I have a list of questioners, and they can ask their questions to any one of the three presenters. I'll start with a government member and go to an opposition and back to government and then opposition and so on. Thank you very much.

We'll start with Mr. Frank Oberle.

Mr. Oberle: Thank you, Mr. Chair. Dr. Herrero, thank you very much for your presentation and, indeed, to all of you. I have a couple of questions for you. First of all, my understanding of the numbers is that I think the government study says 581, and it does not include Jasper or Banff national parks, the Swan Hills area, or northwestern Alberta, including the Chinchaga region. So there seems to be a little confusion around the numbers. I'm not sure if there is or if that's relevant.

I think I should tell you that my background is in forestry, in broad landscape management. I'm interested in what your view of the solution to habitat management is. I understand the issue of doing something about the mortality of grizzlies, but about habitat management do you believe that there is a way to integrate human activity on the landscape and grizzly bear habitat protection, or is it a question of protection of that habitat and the elimination of human use on that landscape?

Dr. Herrero: Certainly good questions. Your forestry background is showing.

Mr. Oberle: Usually it's not a good thing when my background is showing.

Dr. Herrero: The best way to maintain grizzly bear habitat is by meeting the basic requirements that they have. Obviously, it has to be productive of food, safety, and shelter. The safety is probably the hardest one to attain because of the known effect of human access on grizzly bear habitat. It's not that grizzly bears can't adjust to human beings; it's that human beings have a harder time adjusting to grizzly bears. In the worst-case scenario for the bears it results in mortality of the bears.

It's maintaining acceptable survival rates that's the tough thing. Even in Banff national park right now the survival rate has slipped below sustainable levels. But Banff is a very developed landscape, and I think things will eventually improve there. Right now we're having a huge problem with CPR trains. That, hopefully, won't be the problem in much of Alberta.

I do want to comment briefly on the numbers that you brought up. The figure 581 is good as far as it goes. Of course, you want to know how many are left in the rest. I talked to Gord Stenhouse just before coming to make sure I had the latest in the provincial research, and he feels that the total number will probably come out around 700. There's a little more included in Jasper and Banff than perhaps you have been made aware of. Suffice it to say that the number, I think, his guesstimate, is around 700, adding some to the 581.

How do we maintain grizzly bear habitat? We certainly don't need to keep human beings off the landscape. It's been demonstrated over and over that you can have them on and you can have them on with reasonable safety if they only pay attention to how to keep themselves from getting injured and how to keep from injuring the bears. But you can't just have unregulated, unplanned development because the grizzly bear mortality just goes right out the way.

Ms Pachal: Maybe one observation that will help answer the question, too. Currently in Alberta the highest density, where the most grizzly bears are today, also coincides with the largest block of legislated parks and protected areas in the province. That's the whole Willmore, Jasper, Kakwa, Solomon Valley set of parks that has the largest number of bears.

Certainly, as a conservation group we see it as a two-pronged approach. There are some places that are outstanding grizzly bear habitat and have other values that are worth going into the park system. Indeed, the provincial government's plan for parks points out the importance of parks and other legislated protected areas for retaining biological diversity. For the case of the southwest corner of Alberta, where you've got the Castle special place, not only is it good grizzly bear habitat; it supplies a third of the water for southern Alberta. So you can make gains not only for grizzly bears but for the water supply as well. That's one part of the two-pronged approach. The other is how you manage industrial activity in the landscape and reduce the amount of open roads.

Mr. Oberle: Thank you for the answer.

The Chair: Thank you very much.
That answers your questions, Mr. Oberle?

Mr. Oberle: Yeah.

The Chair: Thank you.
We'll go next to Mr. Brian Mason, please.

Mr. Mason: Thank you very much. In terms of the current range of the bears I'm interested in whether or not there's a conflict with agriculture specifically, you know, cattle and that sort of ranching.

Dr. Herrero: We've been pretty lucky with grizzly bears because we have wolves to compare them with, which are a lot more challenging for ranchers. I've worked with the ranching community in southern Alberta for at least 30 years. I'm trying to integrate grizzly bears and ranching, and it's totally possible. The Nature Conservancy of Canada, of which I've sat on the board for eight years, has literally bet, oh, probably a hundred million dollars altogether on supporting ranching in southern Alberta because it is compatible with carnivore conservation, certainly with grizzly bear conservation. As you move into more settled landscapes, however, into the white zone, it becomes increasingly difficult to imagine grizzly bears on those kind of landscapes. Where we have most of the challenges are in transitional landscapes where you have sort of

ranchettes or small-scale recreational developments, and you get people who haven't spent their entire lives and the lives of their forefathers learning how to live with grizzly bears.

I think that's about what I'd like to say on that one. It's quite possible.

The Chair: Any other comments?
Does that answer your question, Mr. Mason?

Mr. Mason: Yes.

The Chair: Okay. Then we'll go next to Mr. Broyce Jacobs.

Mr. Jacobs: Thank you very much, Mr. Chairman. First of all, I represent a constituency in the deep south, and I happen to represent the constituents up around Waterton park and Glacier park. Just for your interest I also own a ranch in that area, and I guess my main qualification to comment today is that I have fed a lot of grizzly bears with my cattle, and so have my neighbours who live in the area.

7:00

First of all, I guess, we probably don't agree with your numbers on the grizzly bears that you say are out there because we believe we have that many grizzly bears in southern Alberta.

Secondly, personally I don't have anything against the grizzly bear. I actually enjoy watching the bears. They come within a hundred yards of my living room window invariably, and I can at any given time count up to six and seven grizzlies. Twenty years ago I never ever saw that, but we're seeing that more and more all the time, so logically we conclude there are more bears on the landscape than does Sierra Club.

I guess Mr. Mason probably touched on my question, and I really didn't think you answered it adequately for the benefit of my constituents. If we want to coexist with grizzly bears, in my humble opinion, we have to find a way to compensate ranchers for the kills. You blame it on the wolves, but I'm here to tell you that bears, grizzlies, also kill a lot of cattle.

You also said the Nature Conservancy spent \$100 million. You sort of suggested that that was to help grizzly bears. Basically, that was to purchase land, ranchland, which they then put a caveat on to restrict development. So I suppose from your point of view that restricting development would help grizzly bears. I don't see any evidence of that either. The bears seem to exist very well with development. Could you please comment further on the issue we have with ranchers suffering large economic losses not only to wolves but also to grizzly bears?

Dr. Herrero: Well, you do have some concerns to voice there, and I'll be happy to address them. I wish we could sit down with a drink in hand and discuss them because I do think we could probably make some progress.

Let's see where to begin. Go ahead, Carl, if you want.

Mr. Morrison: I might just interject with a comment here. The figures that you guys see as far as grizzly bear counts go aren't those of Sierra Club of Canada or any other conservation organizations in Alberta. Those figures are coming from the best available science we've ever had in this province regarding grizzly bear populations, and that's research sanctioned by the government.

As far as compensation programs go, I think there's value with that, too, but there needs to be a dedicated budget for grizzly bear recovery in the province to support those sorts of programs. The

complete lack of dedicated funding in the province does not reflect the value Albertans put on conservation of species at risk.

Dr. Herrero: Yeah, compensation programs are certainly something that conservation groups have tended to support. Especially if they're well managed, they can serve both the ranchers' needs and also the state's or the province's needs, so to speak, for efficient use of funds.

As to the numbers game, like Carl says, this is the best available science in North America. I am very proud of the province of Alberta for having committed itself to some of the best research that has been done estimating grizzly bear populations anywhere in North America because anything less than this would be torn to shreds for the lack of value that it has.

Of course, any scientific project is not necessarily going to have all the answers unless it's designed to include every single chance of bears. It is of course possible that in some areas there may be increasing populations that the surveys have missed, but it's hard for grizzly bears to resist these scent lures. Everywhere they're set, they're moved regularly; they're at a pretty high density. When you combine it with rub trees and scat analysis, analyzing the droppings, like I say, the technique has been proven to be scientifically very rigorous. But, you know, I'll grant you that there's no question that we aren't necessarily going to catch all the bears or even that locally we won't have made some mistakes. I say that "we" quite liberally. Like Carl said, it's not the Sierra Club; it's not the University of Calgary. This is the government of Alberta's research and just a little preview of where the findings are unfolding, which will be out next year.

Thanks for your questions.

Mr. Jacobs: Thank you very much.

The Chair: Thank you very much.

Next is Mr. Kent Hehr.

Mr. Hehr: Well, thank you very much, Mr. Chair, and thank you very much for coming on in tonight and giving your presentation. My question is around – I believe the minister has put in place a bear recovery plan – what your comments are on that and what you see as adequate funding. Is the funding adequate for this program going forward? What is the status of that? Where would you like to see it? If you could enlighten me on sort of where we are with that process.

Mr. Morrison: You're correct. The Minister of Sustainable Resource Development did accept the grizzly bear recovery plan, but with that acceptance it doesn't translate to funding for grizzly bear recovery. As it stands, as I mentioned, in Alberta there are zero dollars dedicated to grizzly bear recovery. The recovery plan outlines an itemized budget that's required for the plan to be put through its paces. Currently, without those funds dedicated, there simply isn't a guarantee that grizzly bear recovery is going to receive the funds from year to year that it requires to be successful. I think it's a strong point, and, as I alluded to before, this doesn't reflect the value that Albertans put on the conservation of species at risk and, in a large part, grizzly bears.

Mr. Hehr: Thank you.

The Chair: Thank you.

Does that answer your question?

Mr. Hehr: Yes.

The Chair: Okay. Thank you very much.

The next is Mr. Greg Weadick, please.

Mr. Weadick: Thank you very much, Chair. Being a city slicker, I haven't fed a lot of grizzly bears, so I'm speaking more from the . . .

Mr. Oberle: You could.

Mr. Weadick: Yeah. I could feed a couple, probably.

In looking at the map that we saw in there, it appears to me that the grizzly bear population in Alberta represents the eastern edge of a significant range and a significant population. It seems to me not good management to try to manage an entire species based on one thin edge of a very large range. So what I'm asking you is: wouldn't it be better to look at the grizzly bear population from a B.C. and Alberta or a western perspective? We could see some reduction on this side of an imaginary border, but because of there being less activity on the other side and a wider range, we could be seeing some of those bears moving into that area. Our population numbers generally are good, but they may not be as good along the fringe. I'm asking if you have information like that or whether we should be doing this in a more holistic approach than trying to protect a narrow band of habitat and species.

Dr. Herrero: You're right on. It is important, the exchange of individuals coming in from B.C., and integrated management is ultimately what you want. We tried to work on that with the eastern slopes grizzly bear project. We worked co-operatively getting our population estimates across the B.C. borders and were evolving a co-operative management scheme. That's still happening, but it's got to happen all along the range of the species. It is important, and we can't rely on B.C. just to prop up Alberta populations.

On the other hand, we can't ignore them because they are part of the population units, which brings me to the point of: what are the population units, which is really what we need to be managing? There's a big number of bears north of the highway 16, as Dianne mentioned, in the Willmore and in Jasper national park and in the Kakwa, but as you go further south, there are fewer and fewer bears. What research is showing is that the east-west highways – the highway 3, the highway 1, highway 11, and highway 16 – the bears aren't crossing those highways very well. Some of them – I think the 11 they're probably crossing very well. The highway 3: we haven't had a female grizzly bear cross it successfully and establish a new home range in over 10 years. So the population units are being formed along the east-west highways dividing them and exchanging, where it does, with B.C. In some cases the B.C. exchange is significant, but in others the Rocky Mountains are a formidable barrier to dispersal.

Yes, what you raise is very important and has to be factored in.

Mr. Weadick: Thank you.

7:10

Ms Pachal: Yes, and I can provide the update. You're talking about what is known to the scientists as the western Canada grizzly bear population. Nationally that whole population is of concern, and it has been suggested that it be listed as a species of special concern under the federal Species at Risk Act. You can't assume that the rest of the population is doing well. Hence, the whole population, including Alberta's, would be part of that listing as a species of special concern.

Also, I want to add that from Alberta's perspective the Alberta wildlife policy, which was developed through the input of Albertans, makes it clear that Albertans do want to maintain the abundance and diversity of wildlife in the province. That includes grizzly bears even though grizzly bears occur elsewhere, like Montana and B.C. If you think about it, Alberta is not an island. Many species here, especially when they're large-ranging species, also live someplace else. If we said that those other places can maintain the populations, that we don't need to, you wind up with extirpation of species out of the province.

What Dr. Herrero pointed out in the range shrinkage. A lot of the range shrinkage has occurred within the last three decades, and it's been rapid. Certainly nationally, looking at the western Canada population, we're seeing what people are starting to refer to as a wave of extirpation headed west. Alberta is the concern, not just for citizens here in the province and our Wildlife Act saying that we want to maintain this species – that means bring them above a thousand adults in the province here – but also what's happening here is a concern nationally because it's the leading edge of the extirpation.

The Chair: Thank you very much.

I have one question left, and that is Mr. Guy Boutilier. We have about four minutes to complete that question and answer. Thank you.

Mr. Boutilier: Yes. Thank you very much, Mr. Chairman. Certainly, there are a lot of experts in here. I'm intrigued by Mr. Jacob's comments and his experience and also, I might add, Dr. Herrero's. I have two questions. One – and this is on behalf of my constituents – I had the unfortunate situation of surprising a bear, a carnivore, and he certainly surprised me. I need some free advice: what the heck do you do when you run into that situation?

My second one is, though, on behalf of my constituents in the Janvier-Conklin area, where this past summer Sustainable Resource Development officials actually, from what I understand, shot 10 bears in an area which I believe was a landfill area. If you have the opportunity, could you provide any recommendations in terms of wildlife management in a situation like that? There were certainly many constituents in that area that expressed displeasure on the strategy or lack of.

Dr. Herrero: Yes. It had quite a press for a while.

First of all, with regard to safety around bears you all know that bears can be dangerous but that for the most part they're very nice animals to get along with, provided you can read their behaviour and not do the wrong thing at the wrong time. I do recommend my book *Bear Attacks: Their Causes and Avoidance*. Given a chance to plug it, why not? I can't, you know, explain everything to you in a minute, so I won't even try beyond saying that the book represents the results of 25 years of research on the subject, looking at both bear and human behaviour interacting with one another.

With regard to the landfill and the 10 bears that were removed who were hooked on garbage at the landfill, Alberta has very few spots now where human edible wastes aren't well managed. It has evolved over the last 20 years, and it's evolved to be a good situation but one that still needs quite a bit of improvement. There's no question that our leftover hotdog buns, hotdog ends, sandwiches, you name it: it's easy-to-digest calories for bears, and it can get them in trouble in a hurry because once they get used to it, they want more. So the fundamental way to address it is by making sure that our landfills are animal proof. If they have to be bear proof, they have to be sturdier than if they just have to be coyote proof or something.

The problem does go back to human beings. We have made a lot of progress, and we need to continue to make progress, I think, to attain the kind of relationship with animals where we're not just treating them as junk.

Thank you for your questions.

The Chair: Thank you very much for your presentation. I want to thank you for coming to our meeting tonight. That concludes the time that we have for the Sierra Club.

What I want to say to all groups but particularly yourselves right now is that this committee will provide a summation of all material received this evening, and we'll pass it on to the appropriate ministry in due time. We're not making recommendations. We're just accumulating information and passing it on to the right ministry. That'll be done by Dr. Philip Massolin. Thank you very much.

We will recess now for five minutes. We will reconvene at 20 minutes past 7.

Dr. Herrero: Thank you.

Mr. Morrison: Thank you.

[The committee adjourned from 7:16 p.m. to 7:21 p.m.]

The Chair: Good evening, everyone, once again. It's 7:20, so we'll move into the next part of our meeting tonight. The next group is the Canadian Wind Energy Association and Greengate Power Corporation. What I'll tell you first is that the committee is meeting this evening to hear from these groups who are presenting on issues within the committee's mandate, and for the record the mandate is in Standing Order 52.08(1): "A Policy Field Committee may hold public meetings on any matter within its mandate." So we're just asking questions. The committee does not currently have any bills before it for review, so it is expected that the presentations being received this evening are matters of general interest to the committee within the scope of its mandate.

What I'll first do is again ask committee members to introduce themselves, and then we'll go directly to the presenters. My name is Ray Prins. I'm the MLA for Lacombe-Ponoka.

Ms Blakeman: Thank you, Ray. My name is Laurie Blakeman. I'm deputy chair of the committee, and I'd like to welcome each and every one of you to the fabulous constituency of Edmonton-Centre.

Mr. Jacobs: Good evening. Brocyce Jacobs, Cardston-Taber-Warner.

Mr. Hehr: Good evening. Kent Hehr, Calgary-Buffalo.

Mr. Taylor: Good evening. Dave Taylor, Calgary-Currie, subbing in tonight, actually, for Mr. Hehr. It gets a little complex, but it means that for tonight, if anything comes to a vote, I have a vote and he doesn't. We won't take up any more time than that. I'll explain it later.

Mr. Lund: I'm Ty Lund, MLA for Rocky Mountain House.

Mr. Mason: Brian Mason, MLA for Edmonton-Highlands-Norwood.

Dr. Massolin: Good evening. I'm Philip Massolin. I'm the committee research co-ordinator, Legislative Assembly Office.

Mr. Boutilier: Guy Boutilier, MLA, Fort McMurray-Wood Buffalo.

Mr. Denis: Jonathan Denis, MLA, Calgary-Egmont.

Mrs. McQueen: Good evening. Diana McQueen, MLA, Drayton Valley-Calmor.

Mr. Drysdale: Wayne Drysdale, Grande Prairie-Wapiti.

Mr. Weadick: Greg Weadick, Lethbridge-West.

Mr. Oberle: Good evening and welcome. Frank Oberle, Peace River.

Mrs. Sawchuk: Karen Sawchuk, committee clerk.

The Chair: Thank you very much.

What I'll do is ask you to introduce yourselves. I believe that David Huggill from CanWEA will start with his 10-minute overview, and then I'll ask the others to have about a 10-minute overview of your project or your presentation. Then we'll go to questions, starting with a government member and then going to opposition and alternating back and forth.

Go ahead, please, Mr. Huggill.

Canadian Wind Energy Association Greengate Power Corporation

Mr. Huggill: Thank you very much, Mr. Chair, and thank you for the opportunity to be here. My name is David Huggill. I'm the western Canada policy manager for the Canadian Wind Energy Association. I'll be referring to an acronym, CanWEA. We're sort of starting from the macro and moving down to the micro. I'm going to provide an overview of the wind industry from a Canadian and Albertan perspective, and then we'll get into Greengate's project-specific presentation.

Very quickly about the Canadian Wind Energy Association. We're a not-for-profit trade association. We advocate on behalf of wind. One thing that I want to stress at this point is that we advocate on behalf of our members for sustainable and responsible wind generation. We are not advocating a replacement of all generation sources by wind, nor are we all wind at all times in all places at all costs. So I just want to sort of lay the groundwork from that perspective.

We do have a very diverse group of members around our table, everything from, obviously, the turbines and the manufacturers of the bits and pieces that go into a wind farm, but we also have project developers and the various aspects of getting a project up and running. Our goal is to become sort of the leading source of accurate information on the wind industry in Canada.

The next few slides just provide a few statistics. I guess the theme that I'd like you to really focus on is that wind, I think it's fair to say, is no longer flavour of the month; this is a very real and significant industry. The growth continues to be exponential, and it continues to be sustained over some very difficult times, both economically and otherwise. Again, these are just statistics. I don't need to read them out loud. I think the first bullet there is quite interesting. We're now talking about an industry that can talk with the big boys in the trillions, and I think that's an important part to focus on.

That's a map of installed capacity as of July. I can tell you – I've just joined you from Vancouver – that the first operational wind farm is now up and running and fully commissioned in British

Columbia. They're anxious for me to have that map changed, and it will be very soon. The other point that I'd like to draw to your attention on that map is that up until December of last year Alberta was actually the leader in installed capacity in the country. With the help of our members such as Dan – and Dan is with me here tonight – we'll be able to assume that leadership role in the near future.

Very quickly, a snapshot of where the wind industry is in Canada. Again, there are some statistics there. We're anticipating that the growth will continue to be sustained. The last bullet there is talking about the 12,000 megawatts that could be achieved if various provincial targets are met. I just ask you to keep that number in the back of your mind. It'll sort of come back to play in this presentation.

Moving quickly to an Alberta perspective, it's generally considered by those in the industry that Alberta is the birthplace of utility-scale wind. It was sort of born in the Pincher Creek area, continues to be the focus of the industry in Alberta. We are starting to see some projects prospected and now moving forward outside of the southwest corner of the province, and that's particularly important when it comes to system reliability and addressing the issue of variability with wind generation. It's significant and has been recognized as an important aspect going forward by groups such as the Alberta Electric System Operator, which is moving to move some of that forward as well.

Again, going back to a point, I started off by mentioning that CanWEA is interested in sort of being a balanced and a collaboratively focused working group, and we have provincially active caucuses. Certainly, the Alberta caucus is one of the more active. The marketplace dictates that, and you can see there some highlighted activities that we want to focus on in the near term. I would suggest that the fourth bullet there is primarily why I'm here tonight, just to provide you some facts and figures on the industry and provide you an opportunity to ask us some questions.

Getting into some of the economic attributes of our generation source, again, I'm not going to read them all off, but I would like to, you know, mention a few and draw a few to your attention. I think it's important to recognize, particularly in this province, where we certainly feel the fluctuation in prices, that our fuel source is free, it's consistent, and it certainly provides the certainty which I think is one of the main drivers that you see globally for the industry going forward. The future carbon market, I think, is also important to recognize because that will provide a further economic leverage going forward.

It's interesting working for a national association. As I said, I'm responsible for western Canada. I'm, thankfully, based in Alberta, and it's quite gratifying and very important to recognize that the numbers that the association uses in other parts of the country are based on what we see in Alberta. They're not sort of a loose, speculative number. These are actual numbers. You can't ignore the fact that the MD council of Pincher Creek received over 1 and a half million dollars from four companies with respect to the revenue, with \$4,000 a megawatt annually going to landowners. Generally, these are all aggregate numbers. Every deal is unique, but this is sort of what the numbers are settling out at. I think that with respect to the property taxes, \$9,000 per megawatt installed is important as well because, again, these are real numbers. They're not what we think is going to go into the coffers of municipal revenues around the province.

7:30

Again, some numbers. These, again, are aggregated. They're significant, and it's important to recognize the synergy with our industry to rural-based and agriculture-based sectors.

With respect to some of the social attributes of where we're at, the

important part there, again, is the last bullet. We are off-the-shelf technology. This is available and deployable right now. This is not requiring any significant research and development dollars or time. Certainly, the advance of technology will help in terms of efficiency, but we're available, as I say, right now.

Environmental attributes. No emissions, no waste, no use of water, and an extremely small footprint on the landscape. The important part there is that the amount of land used for a wind farm is consistent with all agricultural practices. Contrary to what you might have heard, you can grow specialty crops; you can graze any form of livestock. It doesn't take away from the use of the land going forward.

Again, some challenges that we've seen across the country. With the advent of a very robust and very pro-renewable regime in the United States we now know that Canadian dollars are leaving Canada and Alberta to go to the United States. That's something that we're interested in changing in the near term.

I asked you to keep 12,000 megawatts in mind. That's what the rest of the country is looking at. In this province alone there are 12,000 megawatts of wind in the queue. There are a variety of reasons for that, but it certainly is a clear indication that there is interest in a significant amount of investment in the industry going forward.

We've got a great wind resource. We've had some excellent and very encouraging signs from the government. Certainly, the provincial energy strategy is going to provide us an opportunity. We'd like to put some tangible solutions on the table. We also are very encouraged by AESO's look at significant infrastructure development in the southeast that will, again, help with that geographic diversity.

Thanks, and I'll turn it over to Greengate.

The Chair: Thank you very much.

We'll turn it over to Greengate Power. You can introduce yourselves as well. Go ahead, please. You have 10 minutes.

Mr. Tocher: Good evening. Thank you for having us. I'm Dan Tocher. I'm the vice-president of stakeholder relations for Greengate Power.

Mr. Balaban: Good evening. I appreciate the opportunity to chat with you folks tonight. My name is Dan Balaban. I'm the founder, president, and CEO of Greengate Power. If you could just give me a moment to switch presentations here.

What I was hoping that I could share with you tonight is to provide you some background about our company, Greengate Power Corporation. I'd also like to share with you a vision that I have for Alberta. I think we have the opportunity for Alberta to become North America's wind energy leader. I'd like to discuss that vision with you, why I think it's important for the province, some of the barriers that I've seen as a developer actively trying to develop wind power in this province, and some proposed policies that I'd like to suggest. I'm not going to get into too much detail on any of these items, but food for thought, anyway.

A little bit about Greengate. We're a private wind energy developer. We're based in Calgary. What we basically do is that we take a raw piece of land and do everything that's required to that raw piece of land to get it ready for the construction and financing of a wind power project. We have 1,550 megawatts of wind power projects under development right now in the province. Our focus has been to try to identify projects in areas that are close to existing transmission with available capacity. Obviously, we focus on high-

quality wind resources. Our projects are geographically diverse across the province. We're not just focused on the south. We have a number of projects that we're developing in central Alberta as well. Were we to build out the entire portfolio that we have under development, that would represent over \$4 billion of investment.

Right now we're planning on commencing construction on Alberta's largest wind project in the first half of 2010. It's called the Halkirk wind project. It's 150 megawatts. It represents a \$350 million investment. It would provide a clean source of power for over 50,000 homes. It would reduce annual greenhouse gas emissions in this province by 300,000 tonnes per year, which is equivalent to removing 60,000 cars from the road. Just to be clear, this is a project that's being developed in central Alberta. It's about 50 kilometres east of Stettler, so we've explored an entirely new area of the province and have found some amazing potential.

I think that Alberta has the opportunity to become North America's wind energy leader. I think we have a number of things in our province that are working in our favour right now in order to allow us to achieve that objective. For one, we have a world-class wind resource. We have among the best onshore wind resources of any place in the world. This doesn't just apply to southern Alberta; this is something that applies across the province. Southern Alberta is the birthplace of utility-scale wind in Canada, but there is definitely potential in other parts of the province.

I actually had a European wind developer come visit me earlier on in the year. I took them on a tour of a couple of our project sites, and the way they described our landscape and our wind resources: we have an ocean of land. In Europe they have a real challenge in terms of siting wind power projects in relatively densely populated areas. It also applies in other parts of Canada. Ontario is having a difficult time with that issue right now, but in Alberta we are fortunate that we have an ocean of land, relatively low population density outside the core areas, and a wonderful wind resource.

We're also the only deregulated power market in Canada; therefore, we're not reliant on a utility or provincial government to procure power. We have a free market, and so long as a project can get permitted and connected into the grid and justify its finances, a developer like me has the opportunity to build. That's a phenomenal advantage that we have.

The other thing that I've found in Alberta is that we just have a generally open-for-business attitude from the landowners and farmers that we deal with on a daily basis to the financing community to our government. I think we have an attitude that's very pro-business, and I think that is very encouraging for investment.

Why should we become North America's wind energy leader? I think it's strategic to Alberta's interests for a number of reasons. For one, wind energy represents one of the largest opportunities in the world for new economic development. As David mentioned, it's been projected that there will be \$1 trillion worth of investment that goes into the wind energy industry globally between now and 2020. I think Alberta can own a big chunk of that opportunity.

Wind energy brings tremendous benefits to rural Alberta. In the case of our Halkirk project, which is just one of 10 projects that we're developing – it's the first; it represents about 10 per cent of our overall plan – the Halkirk wind project would provide about \$750,000 per year to the landowners that are part of our project. It would provide in excess of \$2 million per year in additional tax revenue for the county of Paintearth, which is where we're developing the project. It would create 100 to 200 full-time jobs during construction and four to six full-time jobs during the ongoing operation of the project. I think it's important – it can't be emphasized enough – how much of an economic benefit wind has to provide to this province.

Additionally – and it’s obvious – there’s an environmental benefit to wind power. I think wind energy has tremendous ability to improve Alberta’s environmental performance. It’s no secret that we’re a target around the world. I think we have the ability to start having some very positive messaging around our environmental performance.

7:40

To put it into perspective, about 44 per cent of the greenhouse gas emissions in Alberta are as a result of power generation. Only 32 per cent of our greenhouse gas emissions are as a result of the oil sands sector. In order to improve our environmental performance in the oil sands sector, it will require a significant amount of research and development investment. But if you look at the overall opportunity, the opportunity is in the power sector. I believe the best short-term opportunity for us to reduce our emissions is by focusing on the power sector because we have proven, cost-effective, and reliable energy sources like wind that can drive that environmental performance and hopefully turn the message about Alberta from a negative one into a very positive one.

As a wind developer developing projects actively right now, some of the barriers that I’ve seen. I’ve seen a lack of provincial support relative to other jurisdictions around the world. What I mean by that is that just about every jurisdiction in the world is actively promoting and incentivizing the development of wind energy. There’s global competition for capital, and if we’re going to be successful in securing that capital, we need to make sure that we’re competitive with other jurisdictions. We have a relatively cumbersome regulatory process. I’ve been working through the regulatory process to get a wind project permitted for a while now, and while I sympathize with the regulators, there’s room for improvement.

The other thing I want to just clear up is a misconception. Transmission is not a short-term barrier to the advancement of wind in this province. There are over a thousand megawatts of wind that could advance today without any new transmission being built. That’s not to say that transmission is not important. It is. It’s important for the long-term health of our economy, but it’s not a barrier to the short-term growth of wind.

In terms of our proposed policies what I suggest we do in Alberta is that we implement a clean energy standard. This has been a policy that’s been very successful in the United States, including Texas, which has a very similar market to Alberta. This is a standard that can apply not just to renewable sources of energy but other non greenhouse gas emitting sources like clean coal. Basically, what it involves is setting a target. Set a target for utilities that 2,000 megawatts of the power that’s consumed in this province needs to come from renewable or nonemitting sources. This would result in reducing greenhouse gas emissions by 4 million tonnes per year, be equivalent to removing 800,000 cars from the road, and would result in excess of \$5 billion worth of investment.

The other policy that I suggest is that we do a review of our regulatory process to identify areas where we can streamline it so it makes the job of developers like me much easier in this province.

Thank you.

The Chair: Thank you very much.

We’ll go directly to our questions, and we’ll start with Mr. Greg Weadick.

Mr. Weadick: Thank you very much. Being from southern Alberta and Lethbridge, which is kind of the centre for what’s been happening, I appreciate you guys coming out today. I’ve been approached by a group in southern Alberta, and their major concern that they

brought forward was that as a province we really don’t have a clear policy around wind energy to kind of steer the long-term development. Can you maybe just speak a little bit to that? Do you see benefits to us developing sort of a policy around wind generation, around maybe the regulatory processes involved and how we might be able to do that?

Mr. Huggill: Yes. The short answer is: absolutely. There would be a huge upside, and it’s one of the targeted areas that we’re going after. There’s a lot of upside to that just in terms of, to your point: wind is really new. I mean, when you start to get down to a lot of the MD councils, the districts, they don’t have land-use bylaws that accommodate this particular kind of development, so from CanWEA’s perspective, we’re very interested in that.

It’s important to recognize, however, that there is no one size fits all. There is not a template. There is not a recipe book. Dan and Dan don’t have a binder that says: if we do this, we can get a successful wind project in place. The nature of the industry is such that it takes a lot of on-site development, and it’s very unique to the siting of the project itself. We’re going to and have begun the conversations with the various agencies to do exactly what you’re suggesting, and any direction from this committee would be terrific just in terms of how to expedite that and how CanWEA can play a role in providing that.

Mr. Weadick: Final question. How do you see us approaching bringing the actual industries into our province, not just the wind energy but the companies that develop the programs, develop the research, build the units themselves, maintain them, and manage them? Is there a potential for Alberta to get into that game and bring some of these companies into Alberta?

Mr. Huggill: Yes, and it’s occurring now. Lethbridge College just won a national award for their turbine technology program. The supply chain end of the industry is one of the principal drivers of the Obama administration’s sort of direction on renewables, and the last hundred members of CanWEA have all been on the supply chain side looking directly at that. How do we accomplish that? How do we stimulate that? To Dan’s point that he made in his presentation, long-term stability is what investment and the industry are looking for. A RES, renewable energy standard, or portfolio commitment would send a clear message and commitment that there is – we’re talking about, as you can imagine and as you know, significant dollars in terms of investment, and anything that gets away from a boom-and-bust procurement process or addresses that whole issue of uncertainty will help, you know, deal with that and allow for the industries to start setting up.

Mr. Weadick: Thank you.

The Chair: Thank you very much.

Mr. Kent Hehr.

Mr. Hehr: Well, thank you very much for your presentation. I know I have learned a lot. My question is more around incenting the marketplace. I’m somewhat familiar with what Ontario does, and although there are differences in whether it’s a regulated or a deregulated market and some other things of that nature, I was just wondering whether you guys have given any thought to what incentives would work here in Alberta – what number, what target, what they have – or whether you guys have an actual policy framework in place of what you think would work in Alberta.

Mr. Balaban: If I could answer that. Ten minutes wasn't a lot of time for me to get into the details, but . . .

The Chair: You've got about 20 minutes left in total, so go.

Mr. Balaban: What I would suggest is that a clean energy standard is probably the most appropriate for the type of market that we have in Alberta. We have a deregulated market. Unlike Ontario, we don't have the province buying power. What they did in Ontario is that the province is essentially guaranteeing fixed prices for all wind power developers. We don't have a market mechanism in Alberta to do that.

What Texas did, which has a very similar market to Alberta – it's an oil and gas based economy, deregulated power market – is that they set a goal that 2,000 megawatts of the power that is consumed in the state of Texas needs to come from renewable energy sources. So that doesn't require the province of Alberta to actually put up any money. What it does is basically set a strategic objective for the province, and we can allow the market mechanisms that are already in place to allow us to achieve that objective. What it would do is that it would put a value on renewable energy projects versus other types of projects.

It doesn't need to be limited to renewable energy. We're trying to address climate change in this province, and that doesn't need to just come from renewable energy sources. That can come from any sources of power that do not emit greenhouse gas. I think it can apply to clean coal, if you will.

What it would do is deal with an issue that we have in our province as well, which is a lack of ready ability for power producers to secure long-term contracts. Without long-term contracts it's difficult to get financing for projects. If we had a clean energy standard, as I describe it, it would force utilities to offer long-term contracts to renewable energy companies so that they could meet the strategic objectives set by the province.

Lastly, it would create tremendous economic benefits for the province. A 2,000 megawatt target would create over \$5 billion worth of investment.

Mr. Hehr: Thank you.

The Chair: Thank you very much. Nine questions in total.

Mr. Denis: I just have two, actually, Mr. Chair. First of all, thank you for your time and presenting to us at this rather late hour. I appreciate some of the comments you made about the benefits of wind power, especially when we're trying to green our economy. However, we know that the wind doesn't blow all the time. We also know that there are different geographic areas that are more suitable for wind power than others. I think Dan's comment was: geographically diverse.

Just a question to Dan here. You mentioned to me that transmission wasn't a barrier in the short term. How do you define short term?

Mr. Balaban: By short term I mean the next three years.

Mr. Denis: Okay. So beyond that, would it be fair to say that a more integrated transmission system would allow for more wind development in Alberta?

Mr. Balaban: Absolutely.

Mr. Denis: Thank you.

The Chair: Okay. Next is Mr. Dave Taylor, please.

Mr. Taylor: Thank you, Mr. Chair. I have a couple of questions, too, if I may. Full disclosure up front, I'm very sympathetic to what you're trying to do – very sympathetic – but I have to play devil's advocate here because we do hear and we do know that the wind doesn't always blow. So if the province of Alberta, whether it was through a clean energy standard or whatever mechanism we might use, were to get solidly behind wind energy, what do we do when the wind isn't blowing? What's the best way to offset that generating capacity when the wind is not blowing?

7:50

Mr. Huggill: You're right. The wind doesn't always blow. The wind doesn't always blow in the entire southern portion of the province. That was the point I was making earlier. Geographic diversity is fundamentally important. Just because the wind isn't blowing in Pincher Creek doesn't mean it's not blowing in Cardston or at Lethbridge or up farther as we get out of the southern region. Again, that's based on statistics coming from European countries, who have significantly greater amounts of wind penetration rates on their systems. The data is actually very succinct in identifying that diurnal and seasonal fluctuations of the power generation and the wind are smoothed when you start to increase the geographic diversity.

You'll hear a lot of people suggest that, well, for every megawatt of wind you have to build a backup of natural gas. That's actually not the case, and that's particularly important when you start looking at the operation of the system. That's why the work that we do collaboratively with the Alberta Electric System Operator is significant. It's not just a case of groups like Greengate building a wind farm and plugging it into the system in terms of status quo. You have to change the way you operate your system. It can be run reliably, safely, and very economically.

Alberta is leading the way. I mean, at the start of next year this is going to be the first jurisdiction in the country that has forecasting as part of a centralized service available to both the industry but also to the marketplace, and that's significant. Again, I think it's a nod to the AESO in terms of their recognition that wind is here to stay and that you're going to see increasing amounts of penetration go forward.

That's the answer from CanWEA's perspective. I don't know if Greengate has a . . .

Mr. Balaban: I would agree with what David said. There are a number of tools and mechanisms that the AESO has been putting into place, and I think those are smart and sensible.

One other point I'd like to make is that if you look around the world, there's certainly not the expectation that we can replace 100 per cent of our power generation with wind power. If you look at jurisdictions like Denmark, it's been seen that they can reliably integrate up to 25 per cent of their total power generation from wind sources, and that's how I came up with the 2,000 megawatt number. We have about a 10,000 megawatt peak load. We have about 500 megawatts of wind operating today. Implementing another 2,000 megawatts would take us to 2,500, or about 25 per cent of our total peak load.

Mr. Taylor: Okay. Just tying this into the misconception that you put up in your presentation that transmission is not a barrier to the short-term growth of wind energy in Alberta – and I think in answer

to Mr. Denis's question you defined short term as about three years – on the other hand, since it takes some time to develop all this, is it necessary that we go hog wild on building a massive upgrade to transmission capacity right across the province, or are these things that, in your view, can be phased in?

Mr. Huggill: Well, from CanWEA's perspective the southern needs application in the southwest corner that was approved by the AUC is actually exactly that; it's a phased approach. With respect to infrastructure that's required in that geographic area, that's already sort of the mindset that's going forward. I think the question is obviously one that's more appropriate that the system operator address, and it's not unique to wind. There is, I think, an overriding recognition that significant investment in reinforcing the infrastructure just to maintain the economic viability of the province going forward is required now for the very reason that you identified. It takes a long time to get this stuff, you know, on the ground and strong, so we need to start having the conversations now.

Mr. Taylor: Thank you.

The Chair: Thank you very much.

Mr. Balaban: If I could just add one point there. I think that in addition to looking at long-term transmission plans, there should definitely be a focus to try to get everything we can out of the existing infrastructure that we have in place. I think that in this province we're quite focused on building new transmission. Like I said, I have no problem with that, but I think we should also be focused on trying to make the most of what we already have in place.

Mr. Taylor: Thank you.

The Chair: Thank you very much.

Mr. Frank Oberle, please.

Mr. Oberle: Thank you, Mr. Chair. I'm going to ask a whole bunch of questions. I don't want you to answer them all; I'd just like to guide that, if you could talk for a couple of minutes.

First of all, you can find people who would criticize Denmark's experiment, they would call it, in wind energy and that from a cost perspective or a reliability perspective there are definite problems. Whether that's true or not, there are challenges to integrating wind energy into a grid and limits to economic feasibility of wind power. Given that or if you agree with that at all, what does Alberta's wind power look like in the near-term future, and I mean 10 years? How much wind power can we reasonably expect to generate and deliver to customers? Where is it going to be located? How is it going to be generated? Are we looking at the continued development of wind farms? Is microgeneration going to play a huge part? Those kinds of things.

Are there technological hurdles to getting there? Are there any transformative technologies in the works that will aid that? Right now in the Peace River constituency it doesn't seem from any of the studies that I've seen that wind is going to play a big role there; yet Grande Prairie, maybe. Are there systems like pump hydro that are starting to emerge in Europe? Is that feasible in Alberta given our terrain? It looks to me like it would be just a no-brainer, but nobody seems to be talking about it.

The one area I want to explore is, I guess, what Dan mentioned: the idea of incentives. We need to incent wind energy or create a renewable energy standard. I guess, maybe, Dan we have a slightly different definition of what a deregulated market is. But given that,

how would the government decide? Why should we incent wind power when we could look at clean coal or hydro or nuclear? Certainly, the last two probably on a per unit basis are more attractive in terms of power rate. Maybe I'm way off base there – I don't know – but I'm asking you what you would recommend that the Alberta government do.

So any one of you can take a shot at that.

Mr. Huggill: Well, I'll start. Specifically on sort of the last tranche of questions because, quite frankly . . .

The Chair: You don't have to answer them all.

Mr. Huggill: Oh, okay. Good.

With respect to other forms of generation, going back to a point I made in my presentation, our technology is available right now. Once a proponent has cleared the regulatory hurdles that are required in the province, they can be up and operating and putting power into the grid in 18 months, give or take, depending on the size and that type of thing. I think you'd be hard pressed to find any other generation source that can match that. Certainly, when you start to look at some – I mean, quite frankly, I think it's fair to say that other forms of generation do have a certain public stigma associated with them as well. Not that ours does not or is pristine, but one take on that aggregate, again, we can be putting power into the grid in probably the shortest term.

You know, you're absolutely right. Issues such as storage are being considered as part of the firming process to smooth wind coming on. You asked: how much wind is there going to conceivably be? For a number of years now there have been up to 12,000 megawatts of interest in the AESO queue, which is essentially the process that you need to get your commodity onto the grid, so essentially getting your commodity to market. That was in place while the AESO had a 900-megawatt threshold in place, so the private sector is very interested in this.

I think it's very important to put into the whole conversation the coming carbon market, regardless of what form it takes, regardless of what jurisdiction is sort of the first in. Again, I'm very proud to say that Alberta is the first one that's actually put a price on carbon, so we should absolutely be leading those conversations. But you are going to see other influences on the price of electricity that currently aren't captured in the province.

I think those will be important things for the government to consider going forward. Again, you know, that's the environmental attributes of wind: no water, small footprint, and no emissions or waste associated with the power generation form. That's from CanWEA's perspective.

Mr. Balaban: Generally, I agree with what David had to say. Just two comments that I'd like to make. First, your comment about incentivizing wind. I think my suggestion is deliberately described as a clean energy standard as opposed to a wind energy standard or renewable energy standard because I agree with you that there are other technologies aside from wind that can help us reduce the carbon footprint associated with our power generation. I think all should be considered as part of our clean energy targets. I'm not suggesting that this is something that exclusively benefits wind, although I do believe that wind is very well positioned to help us address the issue of the carbon footprint of our power generation. Again, it's a clean energy standard that I'm suggesting.

8:00

The other thing that I think is important to consider is that Alberta

is looking at becoming an exporter of power. We had a regulated natural gas industry in the mid-80s. It was deregulated and opened up a whole number of new markets for our natural gas and increased the amount of natural gas production in this province. I think power production is something that is analogous. There is a demand for renewable sources of power not just in Alberta but across North America, and I think we need to look at export capabilities, which would help us have a new commodity that we can sell across the continent and would also allow us to increase the amount of wind that we could specifically get on line.

Mr. Oberle: Thank you for that. I agree with that. Nor should we put all of our eggs in one basket anyway. There's a whole suite of technologies available to us.

Just one clarification, David: you said 1,200 megawatts in the queue?

Mr. Huggill: Twelve thousand.

Mr. Oberle: But you have 12,000 in all of Canada on your slides up there.

Mr. Huggill: That's my point. There's that much interest from the private sector, and we don't even have a system that requires that much power. It's not to say that there is going to be 12,000 megawatts of wind built in this province, nor is there an expectation that it should be accommodated. The point is that there is a very robust private-sector interest in developing this form of power in this province because we are deregulated.

Mr. Oberle: Okay. Thank you very much.

The Chair: Thank you very much.

We'll go next to Mr. Brian Mason.

Mr. Mason: Thanks very much, Mr. Chairman. Thanks very much for your presentation, gentlemen. It's certainly appreciated. I am looking at an AESO slide about the critical transmission infrastructure. They've added a triangular-shaped transmission system for wind in southern Alberta that would have a capacity of 2,700 megawatts, but as you were just saying, there's actually 12,000 megawatts in the queue, which would certainly be sufficient to meet anything we might need in the province. So what are the barriers that are in the way of developing wind power in a major way in this province? I'm not talking short term now. I'm talking about if we wanted to maximize the potential for wind power in our province and have it meet as much of our needs as we could. Technically and otherwise, what would we have to do?

The Chair: You have about two minutes.

Mr. Balaban: I would say first off that we need to provide a framework and a set of incentives that are competitive with other jurisdictions around the world. I think that is probably the number one issue that we face in Alberta. When Ontario is offering fixed prices for wind power at \$135 a megawatt hour, that's a very nice, simple way for banks to finance wind power projects. It's a lot more complex in Alberta, not to say that it can't be done. I think something like a clean energy standard would help.

I think that, you know, obviously, building out transmission longer term is important so we have a nice healthy backbone so we can connect projects all across the province; the ability to export our power so that we're not just generating power to serve our own

needs, so that we're able to generate power in Alberta that can be exported to other jurisdictions that require it; and I also think technological innovations. If we can figure out a way to viably store the energy that's generated from wind power – I'm talking about selling this long term – then wind power can satisfy a lot more than 25 per cent of our needs. Wind power in theory can be treated like base-load generation. It could be produced when it's needed to be produced. That technology is not viable today, but perhaps investments in R and D to get us there is something that we could look at.

Mr. Mason: Storing electricity has been the major stumbling block to the whole industry since its inception. Have you got some insight on how we would solve that problem?

Mr. Balaban: There are various technologies that are currently under development, none that are viable today. There's compressed air storage; there's battery technology; there's hydrogen conversion. There are a number of different technologies that are currently in active research, none of which are commercially viable yet, but the world advances at a very quick pace, and with the appropriate investment I'm sure we'll get there.

Mr. Mason: I have more questions, Mr. Chairman, but I recognize that we're out of time.

The Chair: I think our time has run out. It's 8:05. According to our schedule we'll have to take a break and move on to the next presenter.

What I want to do is thank you very much for your presentation and for answering these questions. You might want to catch some of these members outside afterwards if they have further questions.

At the end of the last session I said that we would provide a summation of information. What I should have said was that the committee will decide if they will do that at the end of Wednesday night.

Once again, thank you very much.

We'll take a five-minute recess, and we'll reconvene at 8:10.

[The committee adjourned from 8:06 p.m. to 8:11 p.m.]

The Chair: Good evening, gentlemen. We'll call this meeting back to order. The committee tonight is meeting to hear from groups that are presenting on issues within the committee's mandate as set out in Standing Order 52.08(1): "A Policy Field Committee may hold public meetings on any matter within its mandate." The committee does not currently have any bills before it for review, so it is expected that the presentations being received this evening are matters of general interest to the committee within the scope of its mandate.

What we'll do, first of all, is introduce ourselves for your benefit, and then I'll turn it over to you. My name is Ray Prins. I'm the MLA for Lacombe-Ponoka.

Ms Blakeman: Hi. My name is Laurie Blakeman, and I'd like to welcome you to my fabulous constituency of Edmonton-Centre.

Mr. Jacobs: Good evening. Broyce Jacobs, Cardston-Taber-Warner.

Mr. Taylor: Hi there. Thanks for coming out to talk to us tonight. I'm Dave Taylor, MLA for Calgary-Currie, substituting tonight for committee member Kent Hehr from Calgary-Buffalo.

Dr. Massolin: Good evening. I'm Philip Massolin. I'm the committee research co-ordinator, Legislative Assembly Office.

Mr. Boutilier: Good evening and welcome. My name is Guy Boutilier. I'm the MLA for Fort McMurray-Wood Buffalo, the oil sands capital of the world.

Mr. Denis: Good evening. Jonathan Denis, Calgary-Egmont.

Mrs. McQueen: Good evening. Diana McQueen, MLA, Drayton Valley-Calmar.

Mr. Drysdale: Wayne Drysdale, Grande Prairie-Wapiti.

Mr. Weadick: Greg Weadick, Lethbridge-West, replacing Evan Berger from Livingstone-Macleod.

Mr. Oberle: Good evening and welcome. Frank Oberle from the Peace River constituency.

Mrs. Sawchuk: Karen Sawchuk, committee clerk.

The Chair: Thank you very much.

Tonight we're inviting the Alberta Geothermal Energy Association to present. You will have about a 20-minute opportunity to make a presentation, and after that we'll have questions. What we'll do is go to government members first, then opposition, alternate back and forth. We have till about 8:55 p.m., so time yourself accordingly. Go ahead, please, with your presentation.

Alberta Geothermal Energy Association

Mr. MacIntyre: I will. Thank you very much. My name is Don MacIntyre. I'm chairman of the Alberta Geothermal Energy Association. On my left I have Leigh Bond, who's our past chairman; on his left is Dean Turgeon, president of Vital Engineering, our vice-chairman currently and one of our directors; Mike Roppelt from GSS Drilling and Geothermal.

Tonight what I wanted to do is spend just a few moments to educate you on what our technology is. It's not a well-known technology. It's certainly not as commonplace as, say, wind energy, which you just had.

Our association was founded in 2007. We're a nonprofit association that's member driven. In our association we have a very broad spectrum of participants. We have engineering companies, we have installing contractors, we have drilling companies, we have suppliers, and we have general-interest persons as well. Our mission is to prepare our communities here in Alberta for a future free of dependence on nonrenewable energy sources by advancing the deployment of what's known as earth energy, or geothermal heat pump technology, throughout Alberta.

I want to make a differentiation here because there are two technologies that are referred to as geothermal. There is a geothermal energy system that incorporates drilling very deep holes down into where the earth temperature is so hot that you can create live steam, which then powers a massive generator. That is not our technology.

What our technology is all about, really, is capturing the sun's energy that is stored within the top 500 feet of our Earth's crust and water bodies. That energy is replenished every day, and to give you an idea of the quantity of energy that is there, there is approximately 500 times more heat energy hitting this planet every day than we

humans consume in all forms. Heat pump technology, or ground-source or water-source heat pump technology, can capture that heat energy and use it and move it and reuse it.

To give you an idea of how heat pump technology works, every one of us in this room has probably got two or three of them in our home. Your refrigerator is a heat pump. The air conditioner in your car is a heat pump. The water cooler outside is a heat pump. All of these things work on the very same fundamental principles, that if you compress a gas, you elevate its temperature exponentially. If you then strip that heat away and decompress that gas, the gas will get very frigid. It's in a position then to absorb more heat energy. If you give it that heat energy and then bring it back around through the cycle and compress it again, you elevate its temperature and again strip the heat energy away. That's how your refrigerator works, your air conditioner. All heat pumps work on the same principle.

In our technology, for the uses that we are using it for, we have, as indicated on the slide, a refrigeration loop. It employs a compressor, some piping, and a decompressor. This refrigeration loop interacts with three other loops. There is what's known as a ground loop, which consists of piping down into the earth through which we will run a fluid. Here's an example of it right here. It's high-density polyethylene pipe. It's very similar to what's used in the natural gas industry in this province except it's a higher density, has a higher pressure rating, and is a more durable product. A loop like this will be 200 to 300 feet long, and we will insert it down into vertical boreholes into the earth and run through it a fluid containing an antifreeze compound that's going to interact with that refrigerant loop.

When that refrigerant is in a decompressed state and comes in contact through an exchanger with this fluid, it's going to extract heat energy from this fluid, making it extremely cold. Sending that really cold fluid down into our earth forces the earth to put its heat energy back into this pipe again. It comes back up, and we just repeat this process over and over again. A project can have anywhere from three of these loops to 3,000 of these loops in the ground, depending on the amount of heat energy we need to move. Once we've captured that heat energy in our refrigerant loop, we can send it anywhere we want. We can unload it into a domestic hot water loop, we could dump it into the air stream and heat a building, or we could put it into water and pump it just as far as you want to go.

The earth temperature here in Alberta is pretty much stable. At the depths that we work in our industry, we consider anything from 20 feet to 250 feet down to have a fairly stable temperature, and around here that runs between 40 to 42 Fahrenheit. That might seem cold to you, but remember that we're not talking about temperature. We're talking about heat energy. We're capturing the heat energy that is there.

We actually have a facility in Port Hawkesbury, Nova Scotia, which I'll show you in a slide in a little bit, where we're pulling enough heat energy off the hockey rink to heat the entire building. There's enough heat energy in a sheet of ice to heat a building. You have to keep the sheet of ice frozen, you have to keep it hard, so you've got to keep pulling heat energy out of it so that you can always supply the building with heat energy.

In our situation here in this province, when it's minus 40 outside, that earth temperature I told you about earlier of 40 to 42 is stable. It doesn't change down at those depths. So we can send a frigid fluid down through piping into the earth, capture that heat energy, bring it up into the building or the industrial process or the barn or the agricultural process, and we can heat that process.

We can also reverse this process. If we have unwanted heat in an

industrial process or in a building, we can capture that heat energy by reversing our flow and put that heat energy back down into the earth. The exchange in being able to put heat energy down into the earth is a very efficient way of doing it because, if you think about it, on the very hottest day of the year, when our buildings are hot, we're trying to capture the heat in the building and reject it into the heat that's already outside. Trying to take heat and push it into heat is a very difficult process, and it requires a lot of electricity for the compressors to do that. Relatively speaking, if we take that heat and dump it into the cold earth, which is still 42 Fahrenheit, it's a relatively simple process and can be achieved with about one-third of the electricity. So in a cooling environment heat pump technology is extremely efficient.

8:20

We have various loop configurations that our industry is using. This is the typical vertical situation. Each one of those pipes that you see going down would be in a small-diameter borehole, 4 inches, 5 inches in diameter, running 200 to 250 feet deep. This pipe would be inserted down that hole, connected with a header, brought into the building, and connected to a heat pump, which is then connected to the heating and cooling distribution system in that building or in that industrial process.

We also have systems going in horizontally. In our province we install these below the frost line for obvious reasons. If you have a large land mass, this is a fairly inexpensive way to go. By and large, though, the previous slide is the majority of systems. They're going in vertically here.

If we have a body of water, we can also extract and reject heat energy into and out of that body of water. As a matter of fact, the Calgary Zoo project, I believe, is using the Bow River as its heat source, heat sink. In British Columbia and on both the Pacific and the Atlantic coasts you'll see a lot of water loops being put in. The Okanagan valley has lots of them in Okanagan Lake. They can be put into rivers, man-made ponds, very large dugouts, and so on. Water becomes your medium then for the source of heat energy and for the sink. Our practitioners are using things like trenchers, chain trenchers, backhoes, horizontal boring machines, but by far most of the work is being done by drilling rigs, which we are all very familiar with here in this province.

Here we have a typical situation, where the driller has drilled a hole to depth, and now he's loading the hole with this piping that I just showed you, and he's sending that piping down into that borehole. There is an extra pipe going down with this piping – it's called a tremie pipe – and through that tremie pipe we will pump a grout to provide an environmental seal to that borehole so that we do not have any cross-migration between aquifers, so that we don't have any surface contamination coming down that hole. In addition to the grout that we use, which is a montmorillonite clay – it's bentonite clay; it's actually edible, soluble clay – we also put in a very fine grit sand because we are trying to construct a heat exchanger in the earth. Clay is an insulator, sand is a good conductor, so we do mix the two and send them down. Our practitioners all use potable water for mixing this because we are putting this seal through aquifers that are drinking aquifers.

Here is a typical stainless steel lake exchanger being put into Okanagan Lake, and here's a plastic exchanger made out of the same high-density polyethylene pipe, in what are called pods, being installed down through the ice in winter and lowered down to the lake bottom.

Some of the innovations our technology has seen are like this one that I'm showing you at the University of Ontario on the Oshawa campus. This is borehole thermal energy storage. This is a campus

approximately the size of NAIT. These eight buildings are actually cooling dominant. Even though Ontario does see cold winters, like we do, there are so many computers, students, labs, and other things going on in these buildings that they need more cooling than heating throughout the year. That cooling process captures the heat energy out of the buildings, sends it down the piping 700 feet into the earth, into that grid that you see, and stores it there. In the wintertime, when they need heat, they start pulling energy up out of that grid to heat whichever portion of whichever building they have. What's not shown in this drawing is that if one building is requiring cooling and another is requiring heat, they don't have to go down into the storage system. They can capture the heat in the one building and send it over to the other building free.

One of our biggest buildings that we have going on is the new Manitoba Hydro building in Winnipeg. Manitoba Hydro is an extremely strong proponent of geothermal energy. They have a grant scheme that they administer in that province through our sister association, the Manitoba Geothermal Energy Alliance. Manitoba Hydro's new building is actually a gigantic solar collector. It has a high-mass thermal wall in the middle of the building behind all that glass, and its intent is to get as hot as it possibly can be with the sunlight all year long, capture that heat energy in that high-mass wall, pump it down into the boreholes in the earth.

This is the Port Hawkesbury community centre in Nova Scotia that I was talking about earlier, where they're capturing heat energy out of that ice and heating the town offices with it, heating the fitness centre and two other municipal buildings nearby. The cost of operation of this compared to the same building done conventionally looked like this: it's \$171,000 a year to heat and cool this building compared to \$380,000 a year with a conventional system. The system paid for itself in under two years.

In market penetration these are the numbers that we have currently. The big six manufacturers of heat pumps in North America are cranking out approximately 80,000 to 100,000 units a year. In Canada we've got 20,000 installations, and in our province we have 2,000 to date. On stream coming up, we're looking at about 200 projects.

Versatility. This technology does not have to just be used in cooling and heating. In fact, in Moose Jaw they have a sewage effluent heat recovery project, where they're taking heat out of the clarified effluent before it goes in the river so that the water goes into the river stone cold and doesn't impact the aquaculture there any longer. They capture that heat energy and bring it back into town, and they use it for public buildings. Industrial processes can use this. Cooling towers can use this as well to reduce the amount of water that they consume, the amount of fog that they produce, and the amount of electricity they use.

We have three initiatives that we've been involved in in the last two years. The first one is completed. There is a course at NAIT now called geo 101. It's an introductory-level course for installers that is five and a half days long. We are working with NAIT on a certified alternative energy technologist degree program. This will incorporate all eight or nine of the alternative technologies, including ours: wind, solar, and so on.

Right now we are in negotiations with Alberta Environment in conjunction with the Alberta Water Well Drilling Association to come up with a quality assurance program for our province because what you don't know is that all of that drilling I just talked to you about is completely unregulated in this province. All of the holes that our practitioners drill are unregulated. It means that they're not necessarily inspected, that there's not necessarily any record kept, and we are boring holes through aquifers every single day. That is a significant concern for our members and for the Water Well Drilling Association.

We have a proposal before Alberta Environment now for a request for a grant for \$357,000 over two years to develop a quality-assurance program that would require certification of these drillers, training for these drillers, a permitting scheme, and an inspection scheme for these drillers as well as a data acquisition system whereby we will know everything there is to know about what was done in those holes: what kind of pipe, what kind of fluid, what kind of antifreeze, where they're located, when it was done, who did it. If anything goes wrong, like a leak or a spill, we've got the data right handy so that we can go then and take remedial action. Currently none of that is in place.

It's a very important initiative that we've got right now. I would encourage this group right here to please plead with our Minister of Environment to approve that grant so that we can get this quality-assurance program going and not have any more unregulated drilling going on.

That is the end of my presentation. Thank you very much.

The Chair: Thank you very much. That's exactly the 20 minutes, so we'll go directly into questions. If you want to supplement some of your information answering questions, that's just great.

We'll start with Mr. Jonathan Denis.

Mr. Denis: I just wanted to say thank you for your presentation at this late hour.

Moving forward, what are some things that you have seen through some of the governments that you've mentioned to try to incent further geothermal usage throughout Canada?

8:30

Mr. MacIntyre: Some of the incentives that exist in our country are incentives for the retrofitting of existing structures. Our association's take on that is that if there's going to be any incenting, we would rather see incenting for new facilities rather than existing ones. The reason for that is that the cost of retrofitting an existing facility is much more than the cost of a brand new installation most of the time. In addition, an existing facility is going to have site-specific issues that we're going to have to deal with. All of the underground services are in the way. There could be many other things in our way, and we need to pretty much destroy that piece of property in order to put a system in. So from our point of view it makes more economic sense from a taxpayers' point of view to be incenting new installations and encouraging people to put in green technologies, not just ours but all of them. There isn't a province in this country that's really going forward with a lot of incenting on new infrastructure and new construction. We would like to see that done here.

Mr. Denis: Thank you very much.

The Chair: Thank you.

Mr. Guy Boutilier, please.

Mr. Boutilier: Yes. Thank you very much. Again, I echo the same comments of my colleagues. I'd like to ask you just two brief questions. One is: what is the average cost to an Albertan if they wanted to use this geothermal as the diagram showed? What would be the average cost?

Mr. MacIntyre: Are you talking about a residential installation?

Mr. Boutilier: That's correct.

Mr. MacIntyre: A residential installation is going to cost anywhere from \$30,000 to \$40,000 for a complete package for heating and cooling in that particular home.

Mr. Boutilier: And the return on investment is similar to what was used in Port Hawkesbury in terms of . . .

Mr. MacIntyre: You can't compare the Port Hawkesbury situation to a residential installation. Just to clarify, a residential installation of any mechanical system is the most expensive per square metre installation you can have, all right? There is an economy of scale in mechanical systems, not just ours but any mechanical system. For example, I just told you that a typical residence might cost \$40,000 to do. A small office building three to four times that size may only cost twice that much.

Mr. Boutilier: My final note is that you're trying to chase down the Minister of Environment, not Energy. Is that correct?

Mr. MacIntyre: The Minister of Energy has been very supportive of us thus far. However, when it comes to environmental protection, that does fall within the Ministry of Environment, and this quality assurance program is more geared towards that. We're concerned about the impact that practitioners of this technology are going to have on our environment.

Mr. Boutilier: Thank you, Mr. Chair.

The Chair: Thank you very much.

Mrs. McQueen: Thank for your presentation. I'm just wondering. Besides some that you've had, we've been watching the geothermal grow over the years, and it's slowly progressing. Can you talk a little bit about some of the barriers but, probably more importantly, how much you think that geothermal can expand in the Alberta market?

Mr. MacIntyre: Realistically, if we were to look at more mature markets that have been using this technology for, say, the last 30 years, the most advanced market that I'm aware of would be Sweden, where 9 out of 10 new buildings are having geothermal systems put in. China has made significant inroads into this because they had a change in their building code two or three years ago requiring all public buildings, when engineered, to have both a conventional and a geothermal proposal put forward to them. As a result, China's installation rate has climbed now to 80,000 installations per year. There isn't a heating and cooling situation that I'm aware of where this technology cannot be used. So when you say, "How much market penetration can we have?" we can have it all.

From our point of view, if you take a cubic metre of natural gas and you burn it, it's gone. It's lost to you. There are industries in our province that use natural gas as the base component for value-added manufacturing of plastics and fertilizers. Every time we burn a cubic metre, we rob those industries of having that value-added ability with that natural gas. Given that natural gas is a declining commodity, in our opinion it only makes sense not to burn it anymore. Leave it for those industries that can bring value-added money into the Alberta economy, and come up with other technologies, like ours, that can do the job. And our technology can do the job.

The Chair: Thank you very much.

Mr. Taylor: Well, okay, let's pick up on that point. On the one hand, you're advocating that we stop burning natural gas to heat our houses. On the other hand, you're saying that it's really difficult to retrofit existing buildings because you're pretty much destroying the property to put one of these things in, and if we're talking about new builds, that's \$30,000 to \$40,000 right there for the system. I guess one of the things that I'm wondering is that if it's \$30,000 to \$40,000 per house if you do geothermal for a whole residential development, do you achieve the same kinds of economies of scale that you would if you were building a multistorey, multifamily building or something like that?

Mr. MacIntyre: Yes, you do.

Mr. Taylor: Okay.

Mr. MacIntyre: What you're talking about is a district system. District system costs per unit can come down to half of that. They can be very competitive with a conventional system. The advantage to district systems, of course, is that the developer, then, has the ability to treat that district system as an energy company. There are systems like this in the United States and other places around the world, where the developer owns a small utility, and they are actually selling the earth energy to the homeowners just like they're buying natural gas here.

Mr. Taylor: Okay. Realistically, you can't eliminate the need for natural gas in heating and cooling in a province like Alberta, but over what period of time can you reduce it significantly, do you think?

Mr. MacIntyre: Our industry right now is growing, with this year being the exception because of the downturn economically, but our industry up until this year had been growing at between 40 and 46 per cent per year. We're still a very small segment of Alberta's economy, but that is really only because we don't have artificial incentives propping our industry up here.

Manitoba, for example, is the hotbed of activity in our country. They have somewhere around 8,000 residences already on stream, and they're putting in somewhere in the neighbourhood of 500 to 800 per year in a very small province, but they are incented quite highly there, and they have district systems going in.

Realistically, now, this technology is not just limited to housing. There is an even greater market for this technology in industrial processes and in larger facilities. For example, in a typical hospital, because of the energy dynamics that are unique to hospitals, we know that we can reduce the operational energy bill by anywhere from 50 to 72 per cent in a hospital. That's a significant saving for the taxpayers. Other buildings like that, like hotels and so on, large buildings that have a lot of people movement and a lot of air ventilation systems, have massive energy dynamics in there, and this technology can take advantage of all of that.

Mr. Taylor: Thank you.

The Chair: Thank you very much.
Mr. Greg Weadick.

Mr. Weadick: Thanks very much. It appeared in listening that there are some pretty good uses for this. Are there any potentials for energy development? I'm thinking of either small energy as part of a residential or commercial building, where you're heating the building but also generating electrical energy, or on a larger scale.

Mr. MacIntyre: No. This technology does not generate any electricity whatsoever.

Mr. Weadick: Can the exchange of heat in two directions accomplish that, though? Is there the potential for that to happen, or is it simply for heating and cooling?

Mr. MacIntyre: No, there isn't. The only potential there is for energy movement and, say, an economic scenario is that there are a lot of facilities where there is excess heat energy that is currently just being exhausted to atmosphere that could be captured, could be pumped into a district system, and sold. Energy is a commodity, and it can be sold.

Just on that note, in British Columbia there are a number of very large developments of 2,000 homes or more that are a district system, and the district system is owned by a small-scale utility. There is actually no cost to the homeowner of the geothermal system. They simply pay like they pay now a certain amount every month for the energy that they consume. The entire project is financed, usually privately, and it's a good profit centre for a developer to have.

Mr. Weadick: Thank you.

The Chair: Thank you.
Mr. Brian Mason.

Mr. Mason: Thanks very much. I'm sort of interested in how this interfaces with district energy systems. Do you represent district energy systems as well, or do you think it's a separate thing? A number of years ago, about 12 years ago, I went on a tour of district energy systems in Sweden that was put on by energy Canada. I was very impressed with the capacity of those systems to heat and cool large urban centres, but your presentation seemed to focus on individual applications, one system per property. So I'm just curious about the relationship between district energy systems and geothermal systems.

8:40

Mr. MacIntyre: They're one and the same. It's really just the scale of the project that the individual or company or developer wants to participate in.

There is some growing interest from the very same companies that financed the district projects in British Columbia to come to Alberta and finance projects here. They're already in negotiations with some of our members to come here and finance large-scale housing projects, and I expect that had we not had the economic downturn we had, we would see some of them on board now. That is going to happen, though. It's just a matter of time. They are going to be financing these projects. They are very profitable to do. At the end of the day a house that is in that kind of development is going to pay less for their heating bill than a neighbouring development that's on natural gas.

Mr. Mason: Thanks.

Mr. Bond: About 15 per cent less.

The Chair: Thank you very much.
Mr. Frank Oberle.

Mr. Oberle: Thank you, Mr. Chair. I just want to ask a couple questions about individual residential installations. The amount of

money that you could save in heating costs is only attractive if it provides you some return on the capital that you employed to install the system in the first place. So what would be the payback period for a \$30,000 to \$40,000 installation on a private residence? How much would the savings be, and is that what is preventing the installation of these systems in individual residences? Is it just a prohibitive upfront capital cost?

The other question: is this a finite application? Do we lose heat in the ground and eventually this thing won't work, or is it a perpetual heat source?

Mr. MacIntyre: It is perpetual providing that it's engineered properly. We have a very narrow set of rules, Mother Nature's rules, that we must follow. The rate of extraction of energy must never exceed the rate of recharge by the sun or the sun plus what we're putting into that package of earth down there, that mass of earth. We have software developed in our industry that can model out 10 years, 15 years, and 20 years to make sure that over that period of time the design that we've come up with does not result in any significant net change to the earth temperature. Again, as I mentioned earlier, because a lot of what is being done is unregulated, there is no guarantee that that's what everyone is doing. But I do know that the responsible people in this industry are using that kind of software to model out like that. So this energy source is perpetual because it is the sun's energy captured in our earth and our water bodies.

Now, regarding the payback on residential installations, while commercial installations and industrial installations will see paybacks anywhere from two years to under two years, residential installations are a little bit different character, and I'm going to let Leigh Bond address that issue.

Mr. Bond: When you start looking at residential applications, for the ones that I worked out – I'm an accountant, so I've crunched the numbers up and down and backwards – your paybacks usually are in the five- to eight-year range, but there are some things that you've got to look at. For instance, half of your installation, usually, in a \$40,000 investment is \$20,000 out in the ground. In the U.S. and in Sweden that \$20,000 is considered an asset as opposed to an expense line item, and that asset, because it lasts hundreds and hundreds of years, actually appreciates in value. Where they've been keeping track in the U.S. for the last 30 years, that appreciation adds about 11 to 17 per cent value to a house. So if the house is worth \$400,000, the identical house with geothermal will be \$44,000 more in value. That asset is part of the equation that you've got to look at in that payback calculation. It isn't just the \$40,000 being written off as an expense over the life of the system.

The Chair: Thank you very much.

Okay. I have no further questioners, so I'll ask my own. You were talking earlier about the unregulated nature of drilling these boreholes and that there was no oversight of the drilling or the plugging of the holes going through aquifers. I had actually written that question down before you said that because my experience with this business is exactly that. You know, there are lots of positives, but that's a negative that would impact rural Alberta, especially where there are a lot of people drawing water out of wells for their domestic or farm use. What you've said is that you'd like to see some regulations or some legislation dealing with the drilling of these boreholes. Is there any precedent in other jurisdictions for these types of regulations or legislation, something that we can learn from as we move forward?

Mr. MacIntyre: Yes, there is. The government of Manitoba probably has the most thought through of the legislation that I'm aware of in our country. Of course, some of the European nations have an entirely different set of parameters because they have different geology and different problems over there than we do here. In our province drilling is a relatively simple thing to do, and we have drilling rigs on every corner almost, it seems, so everybody's got one.

As far as legislation goes, from our negotiations with Alberta Environment it wouldn't even take a legislative change. It simply needs to have a policy change in the regulations that currently exist, making the drilling of earth energy systems a regulated activity. Activity is the key word there. Once that was a regulated activity, if they would simply also make reference to a quality assurance program administered by our association, then immediately in this province, literally overnight, we would have some teeth and some regulation where our association's quality assurance program would then be required of all practitioners.

The Chair: Do you see this as a problem now with some of your installers? Well, you don't want to point any fingers, but do you see this as an ongoing issue?

Mr. MacIntyre: My company, Go Geo Global, is a consulting company. We get called in sometimes to solve problems. In this province we've been called in on, I believe, nine to date. Of those nine I believe eight systems have been remedied by members of our association out of the goodness of their hearts. Those installations were done by companies that have long since disappeared and pretty much left the scene and left the homeowner or the business owner holding the bag, so to speak. Had we had in place the regulatory framework that I just talked about, those things would not have happened the way that they did.

The Chair: Okay. Thank you very much.

I believe that Mr. Boutilier had another question.

Mr. Boutilier: Ever so briefly, Mr. Chair. Thank you. I recall about four or five years ago in the Ministry of Environment that, in fact, there was a celebration of an opening of a geothermal facility, a district in Calgary. I'm sorry; the name escapes me.

Mr. MacIntyre: Okotoks.

Mr. Boutilier: Around the Okotoks area. What was the name of that community? It was, I thought, quite innovative at the time.

Mr. Bond: That actually wasn't a geothermal installation. It was a solar hot water installation. It was 51 homes in Okotoks. They put solar hot water collectors on the roofs of all the garages and took that heat and put it back down in the ground and tried to store it.

Mr. MacIntyre: That's called a thermal energy storage system.

Mr. Bond: That's fooling with Mother Nature. We don't try and do that. We try and work with her.

Mr. Boutilier: Thank you.

The Chair: Okay. Are there any further questions?

If there are no further questions, then I want to thank the Geothermal Energy Association for their presentation and for answering the questions so succinctly. The committee will decide

in a couple of days, when we meet again on November 4, on the possibility of providing a summation of information provided and presenting it to the appropriate ministries, probably Energy and Environment, if that's your wish. I want to thank you at this time for your presentation.

I believe there are a couple of other things on our agenda. I guess the first question is: is there any other business the committee members wish to raise at this time for the good of this committee?

I don't see anything, so what I'll do is announce that the next meeting is Wednesday, November 4 – that's in two days – again from 6:30 p.m. until 9 p.m., committee room A. That's right here.

With that, I would ask for a motion to adjourn. All in favour? Carried.

[The committee adjourned at 8:50 p.m.]

