



# **STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES**

**Hansard Verbatim Report**

**No. 45 – January 29, 2010**



**Legislative Assembly of Saskatchewan**

**Twenty-sixth Legislature**

## STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES

Mr. Tim McMillan, Chair  
Lloydminster

Mr. Buckley Belanger, Deputy Chair  
Athabasca

Mr. Denis Allchurch  
Rosthern-Shellbrook

Mr. Fred Bradshaw  
Carrot River Valley

Mr. Dan D'Autremont  
Cannington

Mr. Randy Weekes  
Biggar

Mr. Trent Wotherspoon  
Regina Rosemont

[The committee met at 10:00.]

### **Inquiry into the Province's Energy Needs**

**The Chair:** — Good morning. I'd like to welcome everyone to the 18th day of the meetings of the Standing Committee on Crown and Central Agencies, the inquiry into Saskatchewan's energy needs. I'm Tim McMillan, the Chair of the committee. I would also like to introduce the other members: Mr. Weekes, Mr. D'Autremont, Mr. Allchurch, Mr. Bradshaw. And today we have, substituting in, Ms. Morin.

All the committee's public documents and other information pertaining to the inquiry are posted daily to the committee's website. The committee's website can be accessed by going to Legislative Assembly of Saskatchewan website at [legassembly.sk.ca](http://legassembly.sk.ca) under "What's New," and clicking on the Standing Committee on Crown and Central Agencies.

The hearings will be televised across the province on the legislative television network, with audio streaming available for meetings outside of Regina. Check the website for information regarding locations, cable companies, and channels. The meetings will also be available live on the website with past proceedings archived on the website as well.

Before we hear from our first witness, I would like to advise witnesses of the process of presentations. I'll be asking all witnesses to introduce themselves and anyone that may be presenting with them. Please state your name and the position within the organization you represent. If you have written submissions please advise the committee, and these submissions will become public documents and will be tabled and posted to the committee's website.

The committee has asked all submissions and presentations to be in answer to the following question. The question is: how should the government best meet the growing energy needs of the province in a manner that is safe, reliable, and environmentally sustainable, while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes with time set aside to follow for question-and-answer. I will direct questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in debate and witnesses are not permitted to ask questions of committee members.

I would like to remind witnesses that any documents tabled or presented to the committee will become public documents and will be posted to the website.

With that, I would ask our first presenters to please introduce yourself and go ahead with your presentation.

### **Presenter: Alliance Pipeline**

**Mr. Straquadine:** — Thank you, sir. My name is Tony Straquadine. I am the manager of government affairs for

Alliance Pipeline. I'm based out of Eden Prairie, Minnesota. And it's my pleasure and honour to present in front of the committee today; appreciate that opportunity. Joining me today, based here in Regina, is Tim Dacey, who is Alliance Pipeline's operations general manager for our pipeline here in Saskatchewan as well as North Dakota and Minnesota.

My presentation is available in hard copy in front of you. I'll try and speak to it, keeping within the time frame, etc. I've also had the opportunity to briefly review the interim report that the committee has done and all the hard work and hearings that you've done last year, and look forward to the end result that you provide to the province as you complete this effort.

Clearly what I'd like to speak to is some of the options and benefits that can help answer the question that the committee has brought this inquiry forward about, building into that what the role of Alliance Pipeline could be to help serve those energy needs within the province, as well as the opportunity to serve others within the province itself.

Clearly our slide 3 within our presentation has the standard forward-looking statement. I won't go through that in detail. I think many of you have seen those in the past. You're also likely intimately familiar with your question on why we're here today overall. And I think, consistent with perhaps one of your speakers from yesterday, what I'd like to offer is a solution to the energy needs for the province both in the short term and the longer near term as technology develops.

Is natural gas serving the provincial needs itself? Natural gas is a safe, reliable, environmentally sustainable, and abundant energy source that's a Canadian resource itself. Natural gas is the cleanest fossil fuel, highly efficient not only for space heating as necessary on wonderful days like today, but also for power generation needs. I think it's efficient overall. It has fewer emissions of sulphur, carbon, and nitrogen than other fossil fuels. It also has a lower emission intensity than other fossil fuels itself as well, and it serves well to complement or backstop, if you will, other renewable or intermittent energy sources.

It is abundant. It is a Canadian energy source today and it's being found in pretty prolific new exploration and production plays either in the Horn or the Montney shale formations in Alberta and British Columbia itself. So there is quite a bit being found. I think the projections were estimates of 50 trillion cubic feet of natural gas available from the Montney shale in British Columbia and Alberta and up to 500 trillion cubic feet in the Horn River Basin in British Columbia.

That doesn't factor in the Bakken shale which is part of the, obviously, the Williston Basin which is Saskatchewan, Manitoba, and North Dakota itself, recognizing that there is associated natural gas in that energy production in those fields. We believe it's a great opportunity to serve the near term as technology advances relative to either renewable technologies or as carbon capture and sequestration or other technologies becomes commercially viable overall.

Alliance Pipeline itself is an interprovincial, international transporter of natural gas regulated by the National Energy

Board. We utilize the best available technology in our system itself. We're probably the newest highest technology, long-line pipeline system. If you'll forgive my using US [United States] metrics, I would consider us a 2,400-mile-long truck. We don't own the product that we transport to market. We simply move it for a fee.

We're 100 per cent full every day, which allows us and members of our team, like Tim and operating folks, the ability to really have the sweet spot of efficiency in our system itself. We utilize the highest efficiency natural gas turbines to push the gas down the system itself.

Clearly our focus is first and foremost on safety. Transporting an energy product from the production area to a market requires safe operations itself. We utilize state-of-the-art monitoring techniques. We've run what's known as smart PIGS [pipeline inspection gauge] or in-line inspection programs, monitoring our pipe, which is a buried pipeline. We have ongoing protection methods. Our technicians, in working with the various one-call or call before you dig groups, in the province or in the States is very important to us.

We also are open to providing access to the supplies that we move to market along the way. That's a concept outside of the province of Saskatchewan known as open access, where we will work with local distribution companies or end-users to deliver gas along the way. Today our primary terminus is the Chicago market where we move close to 1.8 trillion joules a day of energy or 1.6 billion cubic feet of natural gas through the system itself.

You have a map of our system coming through the province. We originate northeast British Columbia, terminate in Chicago, as I mentioned. Each of the little triangles along the way is a compressor station where we have a compressor unit that pushes the gas down the system. Typically we have workforce at each of those compressor stations. We also have offices here in Regina as well in Kerrobert itself.

As you see on slide no. 8, really gives you the profile of Alliance Pipeline in Saskatchewan where we have 22 employees or, as we term each other, employee partners, in that we're committed to the success of the company and the company's mutually committed to the employee; 934 kilometres of pipeline. We recognize the privilege that we have to put the pipe through landowners by negotiating easements to access and install, construct, operate, and maintain our pipe.

We also have in the four compressor stations here in the province . . . First off let me point out that there's an error on this slide. This slide is correct but in your written material you show Irma as one of the compressor stations in Saskatchewan. Our Calgary office hasn't quite figured out the geography yet. So it is Loreburn is the station there, so I apologize for that. It is correct on the slide that's projected here.

Each of those stations operates a 33,000-horsepower, high-capacity, if you will, or low, dry emissions GE [General Electric] natural gas turbine. We've built on to that, through an affiliate, a waste heat power generation. I do recognize that it was referenced in, I believe, some of the SaskPower presentations in your interim report, page 12 of the interim

report, that speaks to these stations. These are stations that utilizes the waste heat that's generated by the simple cycle compressors we have pushing the gas, but it does that without utilizing incremental water or steam drive. It's a closed loop system that utilizes an organic Rankine cycle to generate that electricity.

Those stations, each of those four stations today are generating over 5 megawatts an hour of power that we believe, and I would also argue SaskPower would believe, is a greenhouse gas avoidance. It's electricity that's being put on to the grid without incremental or new greenhouse gases itself.

Also of note, we just picked out the property tax value that we pay here in the province, which is \$5.3 million. That clearly doesn't count any income tax or PST [provincial sales tax], etc., that the employee partners might have, or other things like our community investment programs where we're active in giving back to the communities — finding good charitable causes in which we can help to contribute to itself.

What's the advantages that Alliance brings? Well it's new technology. We were built and put in place in 2000. We're continually evolving, working closely with General Electric in helping them to improve the performance of their equipment that we own and operate. We have a highly skilled, motivated workforce that's focused again on pipeline safety and efficiency. How do we move the maximum volume of energy to the market, recognizing that's how we best serve our shippers which own the gas itself?

Clearly safety is the key concern. We've been recognized as a WorkSafe achievement certificate here in Saskatchewan.

Alliance is uniquely positioned in that, as you recall the map, we come through the province taking gas from British Columbia and Alberta and delivering into Chicago. We cross, several points along the way, the TransGas system, and have been in variety of discussions with TransGas on how might we best serve or mutually serve what the provincial needs might be.

There's obviously some great ideas that we have on how we can do that, again recognizing natural gas could be the transition fuel to a carbon-constrained future. I believe we offer a low-cost approach to this.

One of the other notions that we've talked about that while we exit the state in the southeast corner, clearly in the Bakken formations, the opportunity to pick up gas there to export that, but we could correspondingly offset and deliver gas on the north side of Regina into the TransGas system. So there'll be a net displacement of energy but the Saskatchewan energy essentially will be still in place. So it's not one that it's an export only market on Alliance Pipeline.

As I mentioned, 1080 terajoules of energy we move on average through our system. Clearly we run best this type of a day. The deepest, darkest, coldest night of winter, our system performs best. It's always great to have days like this.

But again we have the opportunity to serve a variety of places, whether it's load centres in the city of Regina or into the Regina storage fields that TransGas operates. We look to partner with

TransGas to be able to do this, to be able to serve them as far as what their markets are, as well as how we might be able to serve producers in the Bakken formation itself. And recognizing we bring a significant volume of gas through the province, again heading to that US market, Saskatchewan does have some production. If there's ways we can augment or support delivery to markets with TransGas, we certainly look forward to that opportunity.

So I think the last slide here, or second to last slide, is that we believe there are opportunities. We have working relationships with TransGas. We engage them on a regular basis on how we might be able to serve some of their needs. Obviously SaskPower, through our affiliate and the power generation we have at our four stations operating here in the province. And we're eager to help natural gas become part of the solution to a carbon-constrained provincial energy needs itself. Again, there's an abundance of energy in Canada. How can we help to support that?

So with that I think Tim and I are both available for questions. I'll kick all the hard ones to Tim and see what we might be able to do, but thank you again for the opportunity today.

**The Chair:** — Well thank you very much for your presentation. If our committee members have some questions, we'll go into question-and-answer. Mr. D'Autremont.

[10:15]

**Mr. D'Autremont:** — Thank you very much. Very good presentation. I noted your comment there on the property taxes of \$5.3 million that comes from Alliance Pipeline, a private corporation, and you also mentioned as well some of the other taxes that you would be paying — you know, PST, GST [goods and services tax], income tax. I'm assuming you would be paying capital tax on your equipment.

Would you have roughly any idea about what kind of taxes the corporation might be paying in Saskatchewan? Because we've had the conjecture by some of the presenters that private corporations are simply in it for a profit and return nothing to the province of Saskatchewan. So if you could give us some indication as to what kind of a return Saskatchewan gets from Alliance Pipeline.

And a second point on that, you mentioned 1,058 landowners. Do some or even all of those landowners receive a lease payment for your property, your operation going through their property, or for at least the sites where you have surface facilities?

**Mr. Straquadine:** — To answer the tax question, I don't have the detailed breakdown. Clearly we just looked at the property tax numbers for purposes of this presentation. We can get further detail, if that would be of importance to the committee, and submit that later.

I do understand that we do pay fuel tax on the compressor fuel that we use to move the natural gas through our system. Tim, do you want to . . .

**Mr. Dacey:** — Yes, we pay approximately \$1 million dollars a

year throughout Saskatchewan for the fuel tax. And to your point, we do pay taxes for our facilities that are above ground on landowners' property. We also do make access payments when we need to get into those facilities to do maintenance or operating tasks, so the landowners are definitely compensated for that inconvenience.

**Mr. D'Autremont:** — Thank you. I believe Alliance Pipeline is also the owner of NRGreen Energy or at least in partnership. I'm not sure what the corporate structure is there. How many locations do you have that are producing cogeneration and what system are you using?

**Mr. Straquadine:** — NRGreen Power is an affiliate of Alliance Pipeline. It is a similar ownership, so we're a related entity if you will. NRGreen operates the four stations of waste heat power generation here in the province itself, utilizing a proprietary organic Rankine cycle system that's manufactured by Ormat. It is a closed-loop system itself. Those are the only four systems that we've been able to commercialize across our system.

Clearly we've been trying to work on some other projects outside of the province where we have other compressors, but as yet we've not had the forward thinking of utilities to pick up that power to really see the value and recognize that, while it's distributed energy in local areas — not a lot of transmission upgrade is required — it's energy that again can be provided with avoidance of new greenhouse gases.

**Mr. D'Autremont:** — Thank you. Is Alliance involved in any other electrical generation sites other than the NRGreen ones? And have you looked at what the cost of generation would be using natural gas?

**Mr. Straquadine:** — We don't do any electric generation other places. And Alliance, it's all done through the NRGreen affiliate that manages that. So as far as what other business and what pursuits they're doing, I can't speak to that personally from the Alliance perspective today.

**Mr. D'Autremont:** — Thank you.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — They say that there's two things you won't escape in life: death and taxes. So it's just a fact of life for absolutely everybody. So I certainly commend the Alliance Pipeline for being a good corporate citizen in Saskatchewan and good for business. It's part of business. And just to re-emphasize that, and it's really not a political debate. It's just a fact of life. Business is business. You have those costs. And one of the things that I wanted to confirm today, Alliance has no plans to get into the electrical generation business so to speak. Is that correct?

**Mr. Straquadine:** — Alliance Pipeline, no, sir.

**Mr. Belanger:** — And looking at the pipeline itself going in from BC [British Columbia] into Alberta and into Saskatchewan and on to the States, in trying to meet the future demands for energy as a province . . . And I'm very pleased that you are working in Saskatchewan. And we absolutely love the

word profit, because profit certainly denotes economic activity and jobs and everything moves forward.

But if there is a . . . Is there any kind of agreement, whether it's a pricing agreement or partnership agreement, that would prevent you from using more natural gas in Saskatchewan for meeting our electrical needs as opposed to shipping it to the States? You know, I'm saying in terms of your strategic partnerships, so if you had a choice . . . Or do you have a choice to spend more of that natural gas here in Saskatchewan than exporting it in the event we need it for electrical generation?

**Mr. Straquadine:** — From a business context, and recognizing that Saskatchewan's laws and regulations are different from Alberta or in the States where we do have the notion of open access — where if a utility owner or an end-user comes to us and say, we would like to have natural gas delivered at this point, where we negotiate that directly with them and then point that end-user back to the shipper to negotiate and secure the supply — there's nothing that would prevent us from having the interim deliveries, obviously recognizing that the supplier ultimately is the owner of the gas, the shipper on our system. We just serve as the transporter.

Can we take that truck, stop it along the way, drop off on the side of the road? Yes, subject to working out the safety and design elements and recognizing that that shipper, ultimately it's their product, that we're making that delivery for them.

So as I mentioned, we are open to work with TransGas relative to serving them in their role as that local distribution provider within the province.

**Mr. Belanger:** — So your primary role then is to ship gas. You don't develop the gas fields. You don't buy it. You don't trade it. You don't . . .

**Mr. Straquadine:** — No, sir.

**Mr. Belanger:** — You just primarily ship it from one point to another, and it's up to your user as to where they want it shipped. Is that correct?

**Mr. Straquadine:** — It is, and we will bring back those ideas to those shippers at times to say that there's a market here that you potentially could serve. It may save them shipping costs on the system ultimately, that they can make an interim delivery along the way. But we are by . . . Federal regulation, you know, defines what we do — which is not play in the energy market as far as trading or owning gas or things like that. It's a matter of, we provide that transport for a negotiated fee.

**Mr. Belanger:** — Now you would . . . In essence, in trying to meet some of the future demands, natural gas is a great option. And given the complexity of how we distribute gas throughout Saskatchewan, has Alliance looked at other routes or other alternatives in terms of where you would like to deliver gas for your customers? As an example, northern Saskatchewan. Or is it just not feasible? Because obviously the value of natural gas versus coal in terms of greenhouse gas, there's no comparison. Right? So if you branch out to other regions, underserved regions, is there any value, is there any strategy involved from your perspective?

**Mr. Straquadine:** — Today I think the answer is no. If there's the opportunity to work with TransGas, that they could identify the market that they would serve locally. Because today, again, being that interprovincial pipeline, we don't look to explore or expand to serve specific markets. It's who are those end-users that want to access the gas that we move through the province.

**Mr. Belanger:** — My final question . . . And excuse me because I'm just a hockey player dabbling in politics here, so don't mind the simple questions. I've got to understand this. But my final question is, in terms of a vast number presenters this . . . but the value of the reduction in harmful emissions of gas versus a coal-fired plant, do you have a number that you would share with us in terms of the net value? And make it as simple as you can.

**Mr. Straquadine:** — I don't have a value equation per se. I do have more of an anecdotal or conceptual approach. And this was based on a study done by the U.S. Energy Information Administration, which is essentially a non-partisan agency studying the energy markets and they publish a variety of reports. They looked at Midwest US electric generation and coal today which is the primary . . . over 50 per cent obviously is coal driven. If you were to displace 40 to 50 per cent of that coal today, replace it with natural gas-fire generation, you could potentially reduce your emissions, GHG [greenhouse gas] emissions, to 1990 levels. So just by doing that simple offset.

I've not done the valuation side. I'm not an economist by training so I can't speculate on what the value of that might be. But if a priority is to look at GHG reductions, certainly natural gas becomes again that transition fuel or a priority.

**The Chair:** — Ms. Morin.

**Ms. Morin:** — Thank you very much for your presentation. So contrary to the version from across the desk from my esteemed colleague as to the concerns that were raised yesterday about private corporations being involved in the delivery and production of energy, the concerns raised were around the Crown corporation that we have, which is SaskPower and how the energy, I mean the power production that comes from SaskPower in terms of the returns to SaskPower end up staying in the province. So I just wanted to clarify the concerns that were raised versus the big, bad, private business person that's going to come to Saskatchewan, because that's not the case. That's not the sentiment that was raised at all.

So we're very glad to have, as my colleague already said, Mr. Belanger, that we're very happy to see a very successful business in the province. Obviously that bodes well for both the province and for the business itself. So just to, I guess, just to encapsulate what your presentation was here today, your company is able to transport natural gas into the province if needed on our behalf. And also in the same token, is able to transport natural gas out of the province if we want to use that method for export. Is that essentially what your presentation was for us here today?

**Mr. Straquadine:** — Yes, and focused on natural gas being that efficient fuel that can serve the provincial needs ultimately. We are one way in which to deliver that or provide incremental energy, yes, ma'am.

**Ms. Morin:** — Okay. Thank you very much. I appreciate your presentation. Thank you.

**The Chair:** — Mr. Weekes.

**Mr. Weekes:** — Thank you, Mr. Chair. Thank you very much for your presentation and appearing here today. As I was mentioning just before we started, your competitor has pipelines right running by my house so some of my questions might be concerning, relating to that. But just in general, what is the life expectancy of a pipeline?

**Mr. Straquadine:** — Tim?

**Mr. Dacey:** — We like to think we have a 100-year pipeline so we, as Tony alluded to earlier, we do various operations and maintenance tasks on that pipeline. So we're here for the long term. We put the facility in the ground. The asset in the ground. We want to maintain and operate it so that it does last for 100 years. So that's how we approach it and that's what our expectation is.

**Mr. Weekes:** — Here comes my question relating to my house. Very safe, very good record for safety, but I assume there must have been leaks at some time in the . . . You or your company or other companies, what's the . . . Technically, how do you find those leaks and how do you deal with those types of safety issues?

**Mr. Straquadine:** — Tim, do you want answer that?

**Mr. Dacey:** — Yes certainly. There's a number of ways we do it. Our line is remotely monitored. It has leak detection up and down the entire length of the entire system. We do very extensive maintenance programs every year. We fly the line on a monthly basis. We do leak detection surveys constantly every year. We monitor the condition of our pipe through ILI [inline inspection], intelligent pigging operations. We have employee partners out in the field working on the facilities on any given day. So it's a combination of things. It's a great question. Natural gas transmission is one of the safest transmission industries in the world and there's a lot of due diligence that goes in behind that operation.

**Mr. Straquadine:** — If I may add. To me the bottom line is, the shippers provide the gas that we move to market for them. We have a very low percentage of what's termed lost and unaccounted for gas, which typically pipelines have an account for, for leakage or other things, meter errors, etc. Ours is very, very low relative to our other competitors in the industry. So that to me is likely the best indication of a safe and tightly maintained and managed pipeline.

**Mr. Weekes:** — Thank you. I'll sleep well this weekend when I go home. Just on the long-term business plan and in natural gas industry in North America, Mackenzie Delta, that seems to be inching forward bringing natural gas from the North Slope in Alaska. Without asking you to divulge secrets, but are you involved in that in any way or will you be potentially hooked into that system, if and when it's built?

[10:30]

**Mr. Straquadine:** — I think I can safely say we're not involved in either MacKenzie or other, the potential Alaska pipeline. However with any infrastructure, as a commodity hits a market, if there is transportation paths that it can take that are not constrained or that are efficient and affordable, that commodity will make its way to those routes. So uniquely, in fact I know one of our competitors has mentioned that, as some of this gas comes in, the Alberta infrastructure will likely absorb and disperse that gas to the various markets. And clearly Alliance is one of those. So as incremental energy comes in from new developments, new plays, will some of it potentially find its way to Alliance? Yes. Are we actively chasing those? No.

**Mr. Weekes:** — Thank you.

**Mr. Straquadine:** — Thank you.

**The Chair:** — Mr. Bradshaw.

**Mr. Bradshaw:** — Thank you very much and thank you for your presentation today. I just have a couple of actually very short questions. You have 1800 — how do you even say that, terajoules? — terajoules of energy per day going down the line. Has that line got any more capacity or is that, that is its maximum capacity?

**Mr. Straquadine:** — On the Canadian side of our system, that is likely the maximum capacity. We have, per the National Energy Board, a maximum allowable operating pressure which really drives the capacity that you can push through the pipe safely. And so the number recognized there is likely the actual.

Could we do some expansion? Yes. In between those triangles on our map, the compressor stations, we have put the valving in the ground for another compressor station so that you have less of a pressure reduction between each site which therefore we can likely expand — again depending on demand, how much commodity needs to move to a market. So we do have a less expensive approach to expansion by adding incremental compression along the way. We haven't had a request for us to expand that system from that side at this point.

**Mr. Bradshaw:** — Is there a difference, then, on the Canadian side of the pressure, say . . .

**Mr. Straquadine:** — It isn't that we have . . . We've applied for and really which we took a Canadian standard and asked for a special waiver in the US Department of Transportation, which is our safety regulator, to operate at a similar design pressure as what Canada has. That's created a slight sweet spot where we are certainly more efficient in the States as a result of that.

We're also in the process of connecting to and receiving some of the Bakken gas coming out of North Dakota. In the next few weeks that will go live. So there's, you know, incremental capacity there that we just have available as the way that US pipe was permitted.

**Mr. Bradshaw:** — Thank you. And just one more quick question here. I actually worked on pipeline a little bit back in my younger years and I know what a PIG is, but what is an intelligent PIG?

**Mr. Dacey:** — Essentially it's a PIG, a piece of equipment that you can insert into the pipe and, using the force of the gas pressure, move this tool down the pipeline. It has an array of sensors that actually attach to the interior wall of the pipe and as you push this PIG down the pipeline, it records what the metal features of the internals of the pipe are. So at the end of it, you pull the PIG out of the pipe and it's recorded all the data on the pipe.

**Mr. Straquadine:** — It's like electronic measurement. It's simply they put a magnetic field on the pipe and then we're able to measure the deviations in that magnetic field and through the wonders of electronics and metallurgists they're able to determine what's the condition or what's the deviation or is there corrosion potentially starting, etc.

And so we've had a great result in our pipeline. We're probably one of the most measured natural gas pipelines in North America because we believe it's the right thing to do. We have tremendous data sets and we're able to share that with the regulators on how we own and operate this pipeline . . . [inaudible interjection] . . . If I may, the term PIG started when it was a pipeline inspection gauge. And it didn't hurt that when you stuffed it in a steel pipe, it squealed. And interestingly as we were building and permitting the pipe, we had many landowners ask, well is that a way I can move my livestock to market? It doesn't work very well.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Yes. I just wanted to confirm the information that you gave me. And I apologize. We agreed to five minutes each, so that's why sometime we cut our questions short.

But in terms of the information that you shared in reference to the 50 per cent of the coal being reduced and actually reaching the 1990 levels of greenhouse gas emissions, was that specific to the Midwestern states or was there a specific area you're making reference to?

**Mr. Straquadine:** — It was specific to the Midwest power generation area. And actually I think it's the eastern Midwest was the energy information administration's study that was done. I can send the committee the slide that I'm referencing that I've used in other presentations which identifies that. I apologize. It's US-centric, but that's the data that I have available.

**Mr. Belanger:** — Now the other question, the flip question I had is that you probably don't get a lot of Christmas cards from the coal companies as a natural gas pipeline. But how is the relationship in the energy industry with the natural gas companies and all the affiliates with the coal sector? How do you get along?

**Mr. Straquadine:** — As I work with a variety of trade associations, both in Canada and the US, our opinion is likely we will need all of the above solutions for energy going forward as we focus on environmental responsible ways in which to serve the energy needs of our populations. We don't want to pick winners and losers.

Clearly that's why I reference, as technology evolves relative to

things like carbon capture and sequestration, it's important to recognize that there could be transitions from current day generation utilizing the vast resources of coal that might be available. We're not in an adversarial position. I'm not trying to pit one against the other. There's alternatives and options that need to be considered in serving the load population.

**Mr. Belanger:** — No, I fully appreciate that. But as jurisdictions try and grapple with this whole notion, like we obviously don't want the energy sector squabbling who's got the better energy because that doesn't fit anybody's need. However there's got to be some recognition the fact that if there is a transition . . . Let's say for argument's sake, that based on the carbon credits or the carbon tax or whatever the jurisdiction decides, enough of this greenhouse gas emission stuff; we need to deal with it. And the world is dictating basically what needs to happen. We have to respond to that because the customer is always correct, right?

And so we've done it with forestry where you have to have international certification of your forestry products that you're not clear-cutting, you're not bothering sensitive areas. And that's how the countries we export lumber to, that's how they got us to change our harvesting methods and ways.

Now I'm assuming that energy is going to be the same particular demand that they'll have of us. So the question I have is, given the Alliance Pipeline's affiliation with natural gas, is there a net gain or is there a net loss if we've done the shift from coal to natural gas, based on what you say is in your reserves and activity from the pure jobs perspective?

**Mr. Straquadine:** — From Alliance Pipeline's perspective today, I would say there we wouldn't realize a gain or a loss in that we're at capacity within the province or within Canada today. Would that create incremental market demand that might drive an expansion of Alliance or other pipeline systems serving natural gas from, again, the Canadian resources or US resources to those markets? Possibly. It all depends on how the regulations, the laws evolve, what the market demands are, and where we are technology-wise.

**Mr. Belanger:** — So from your perspective, you're talking about your employees. I'm talking about province-wide perspective. Like do you see any trends in . . . Like obviously more developments have more jobs attached to them. But the concern or the point I'm trying to make, that if all of a sudden coal becomes very unattractive and the public and the people that we export to say, no more coal-produced power over here; we don't want it. That was what the point was made. And it's hypothetical. I don't want these guys pasting that and sending it to Weyburn . . . [inaudible] . . . But anyway, is there enough of new job opportunities in the new energy such as natural gas to recover any potential loss for the coal generation opportunities?

**Mr. Straquadine:** — I'd have to defer to try and speculate on the question because I'm not clear on what the employment bases are within the coal sector versus as perhaps new cogen or natural gas fired electricity was to evolve in the province, on how that would be offset, since we're not in that energy business directly. So I must defer.

**The Chair:** — Mr. D'Autremont.



**Mr. D'Autremont:** — Thank you very much. Since Alliance is involved with NRGreen energy, which is a renewable source of generation, how does the costs of that kind of cogeneration compare with other alternatives? I don't know if you have any of those kind of figures but, you know, wind, solar, biomass, you know, our current coal or non-clean coal, clean coal, and other sources of energy — how does the natural gas and natural gas cogeneration compare?

**Mr. Straquadine:** — I think I've been able to review some of the study SaskPower has done in the past from their website where they have a variety of options of generation, and they do have some indicated costs within that study itself or within these web pages. And they show natural gas, combined cycle, combustion turbines, intermediate to baseload, generally in the 8 to 13 cents per kilowatt hour as far as . . . I'm assuming that's generation costs only, not layering in or adding in any transmissions costs or transmission losses.

I would say that waste heat power generation using the organic Rankine cycle, that our affiliate NRGreen has, is an expensive technology. It's probably closer into the mid range to the top end of those generation costs just because of the way those systems are done. But I think it does compare favourably within the range that's presented by SaskPower.

**Mr. D'Autremont:** — When you look at the costs of renewables and you take into account the costs of carbon which affects natural gas as well. I was just noticing last night on the Internet, we don't have a fixed price for carbon. Nobody knows for sure what it's going to break down as, but the carbon trading in Europe, the price per CO<sub>2</sub> per tonne has dropped from \$7 a tonne down to less than 10 cents. So right now it looks like the carbon credit market, it's doing the 1929 crash. So taking that into account, does that make natural gas cost-effective in comparison to other alternate sources other than our current use of dirty coal, let's say? Even though it may not be dirty; we scrub quite a bit of it.

**Mr. Straquadine:** — I guess I would speculate to say clearly, as there is a predictable price of carbon or of GHG emissions valued in the market whether it's through a cap-and-trade program or a tax program, however it might be managed, you're not going to see behaviours change overall in that a huge switch from one to another.

I recognize that there is a drive to put more renewables out there as far as wind, solar, geothermal, others, recognizing that as those renewables go on to the grid, the intermittent nature or unpredictable nature of some of those loads, you'll need to have a backup. It's easier to use a natural gas backup as far as being able to fill the gap that renewables aren't able to cover as a baseload.

But I think from your question perspective, until we see a more predictable price, we're not going to see huge transitions overall other than governments or entities deciding it's the right thing to do to move one way or the other.

**Mr. D'Autremont:** — Okay. Thank you.

**The Chair:** — I just wanted to maybe . . . I don't know if you have a comment or not, but we've heard from a couple

presenters about a transition in the truck fleet and potentially the car fleet to natural gas. Being that you're in the transportation business of the gas, is there any pie-in-the-sky modelling where your distribution network gets branched substantially? Or any comments on that?

**Mr. Straquadine:** — I'd be certainly welcome to offer a few comments. And one, I believe, was referenced in some of the minutes that I've reviewed from the committee, in that there is a reference to T. Boone Pickens who has an idea and in fact ran a big, a multi-million-dollar ad campaign in the US, still is active in trying to drive legislation to help to transition the fleet, over-the-road trucks, to natural gas. Natural gas vehicles are available. The technology's well proven, very efficient.

[10:45]

The idea that Pickens has tried to push was, let's have a natural gas fleet for the over-the-road trucking side of things. Fuel stations are only required every probably 3 to 500 kilometres or even further apart, likely are available today. I know in the US again you can dial up on the Internet and it'll tell you where the local . . . where you can go and potentially fill your natural gas vehicles. Honda makes a Civic that's natural gas today. It's admirable. He also looks to the potential to have plug-in hybrids for day-to-day transportation for our vehicles itself.

But I think that is a way in which to immediately address the issues of, how do you take this fleet that's running today on diesel primarily and transition it to a more efficient fuel? And that would be natural gas.

So that's his vision. There is some legislation I know that's trying to work its way in Washington to drive some incentives for natural gas vehicle fleet transition. But it would be new trucks. It wouldn't be retrofitting existing vehicles. That's just not really practical when it comes down to it.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Yes, again a couple of more questions. Is it realistic, given your experience in the industry and pipeline transmission, to think that the greenhouse gas carbon tax is going to stay at, as Mr. D'Autremont suggested, at 10 cents? Or do you really believe that there'll be a higher price on the carbon tax that's coming down the pipe? How does industry feel about where that's heading?

**Mr. Straquadine:** — Again to speculate, in order to change the behaviours which within industry or to drive either incentives or investment and new technologies, it will likely require a higher carbon tax or a higher hurdle under a cap-and-trade type program. If things remain the same that there's not seen as that obstacle that we have to recognize and overcome, I don't know that we'll see significant changes other than perhaps adding more renewable fuel or renewable generation on to the grid as people see some economics or some incentives related to those programs specifically.

**Mr. Belanger:** — So given that that scenario in terms of . . . Well I believe that the public in Saskatchewan and Canada are going to demand that we, as politicians, try and resolve this whole notion of greenhouse gas. And it's such a big problem.

What could one jurisdiction do? I think sometimes you've got to provide that leadership and the first journey always begins with a first step. And sometimes those steps come from unusual places and sources such as Saskatchewan. And I think we could actually lead this file.

So I think it's safe to assume that this whole notion of this carbon tax, it's going to be a reality. The big question is, what price is it going to be? And it's not going to be 10 cents. You know, obviously there's going to a lot more money attached to that.

So given that scenario, when you transport gas back and forth for your customers from different states to the different provinces, who in your agreement would actually get recognized for that carbon credit? Would it be the pipeline or the owners of the gas or would it be the jurisdiction? Has there been any discussion on that front?

**Mr. Straquadine:** — No, there hasn't been in detail. Certainly we've got some opinions that I won't share here. They're internal to our strategies.

But recognizing I can't debate tax policy or what the pricing should be overall for a given fuel or what's going to drive behaviours in general, I can speak to, as you mentioned, the Saskatchewan . . . the proposal, I think, it's Bill 95, relative to greenhouse gas emissions in the province. And I think there is some forward thinking, some great ideas that from an industry perspective we certainly embrace. And we look forward to working with the province, as industry's consultant on that Bill, as it moves through the legislature.

**Mr. Belanger:** — Thank you very much.

**Mr. Straquadine:** — Thank you.

**The Chair:** — Well thank you very much for your presentation this morning and answering our questions. It was very helpful to the committee. So thank you.

**Mr. Straquadine:** — Thank you.

**The Chair:** — Our committee will be recessed until 11 o'clock.

[The committee recessed for a period of time.]

[11:00]

**The Chair:** — Before we hear from our next witness, I would like to inform the committee that we've switched our agenda slightly. Mr. Dennis Lawson has agreed to go at 11 o'clock and the International Brotherhood of Electrical Workers will now be scheduled at 1. So I thank our presenter here for his co-operation. It fits everybody's schedule and shall work well.

I will advise the witness of the process of presentation that I will be giving to all witnesses. I ask they introduce themselves and state the position of the organization which they represent, if there is one. If you have any submissions, please advise the committee. Once this occurs, it will become a public document and will be posted to the committee's website.

The committee is asking for submissions and presentations that will be in answer to the following question: how should the government best meet the growing energy needs of the province in a manner that is safe, reliable, and environmentally sustainable while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes, with time set aside to follow for question-and-answer. I will direct questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in any debate and witnesses are not permitted to ask questions of committee members. I would also like to remind witnesses that any written submissions will become public documents.

With that I ask our presenter to introduce himself and please go ahead with your presentation.

#### **Presenter: Lawson Environmental Services**

**Mr. Lawson:** — Thank you, Mr. Chair. My name is Dennis Lawson. I am the president of a small local consulting firm, Lawson Environmental Services. I'm here today speaking for myself. Usually you will see me at meetings speaking for other organizations, usually natural history societies because I am an environmentalist. But I am an environmentalist that is not in the leastwise scared by nuclear power.

So I have a 12-image PowerPoint presentation to go over with you today. But before I do that, I should mention a couple of things. One, I do have some nuclear credentials. I was Environment Canada's uranium specialist for the Prairie and northern region for 20 years. I visited every operating uranium mine at that time. I met Buckley Belanger during that period because I was Environment Canada's spokesperson at all of the hearings for the new uranium mines. I was also on the committee that closed Uranium City, representing Environment Canada. And I'm still consulting today on the reclamation of the Gunnar uranium mine.

I guess, yes, the real pertinent thing is I led Environment Canada's review of Atomic Energy of Canada's concept for the deep geological disposal of reactor waste. I did that over a period of some 30 years. And I in fact led the last review by Environment Canada where we endorsed Atomic Energy of Canada Ltd.'s conclusion that the concept was safe. So the concept for disposal of radioactive waste from nuclear reactors has been proven.

I don't know what else I was going to say but that's enough. Oh, I know. One thing. There's one technical thing you need to know and I'll briefly explain that to you. Throughout the document, throughout the written submission that I would encourage you to read, I talk about used fuel. So I'm talking about Canadian used fuel and American used fuel. Used fuel are the fuel rods that come out of a nuclear reactor after three to five years of operation. When they come out of the reactor, only 5 per cent of the uranium has been burnt, so 95 per cent is still there to be burnt. I've called that residual uranium in a few places.

Of the 5 per cent that does get burnt, that ash that comes out of the burning of the uranium, shall we say, 1 per cent of it is what is called fission products and 4 per cent of it is what are called actinides. Plutonium is an actinide. So if you're used to thinking of plutonium, wherever I say actinide, you can substitute plutonium. But there are actually about a dozen actinides.

I guess the big point of my presentation is that our policies to date in Canada and the United States have been to just have the fuel go through the reactor once. So the fuel that we're proposing to bury, the used fuel we're proposing to bury in northern Ontario, still has 95 per cent of the usable uranium in it, so actually burying a resource.

The Americans are on the cusp of deciding to reprocess their fuel. That means they're going to try to burn all of it. They're going to try and take it out of the fuel. They will only bury the fissile product, which means that their repositories are reduced in size by about 90 per cent and they get now 95 per cent of the energy out of the uranium. So the Americans are about to do that, and they may be talking to Canada about it. And with that, I might as well begin my presentation.

So here's the question that I posed: what should Saskatchewan do to prepare for the 2020 re-evaluation of nuclear energy? I wanted to give you my advice on this. Here's the conclusion, my conclusion — and I'll try to substantiate it as we go along — is that you should create an office of nuclear power, high-level radioactive waste, and the hydrogen economy.

The main reason for going nuclear now, in the face of everything you have heard, is to produce hydrogen, to move from an oil economy to a hydrogen economy. So we need that office because of this opportunity to move into nuclear power and the geological disposal of reactor waste sometime before 2020 in co-operation with the United States and Ontario.

Here's the bottom line message: if we don't do this, Ontario will. Case in point, consider Warman refinery. What happened when we rejected the Warman refinery? It was built the next day in Blind River.

So we should focus on renewable energy, natural gas, clean coal, and smart electrical grids until 2030, unless this opportunity to work with the United States comes up. And we don't need to go nuclear until about 2050, when we need to go to hydrogen. And in fact there are advances in wind and solar, we will never need to go nuclear.

So as an introduction, the purpose of the submission is to cast aside anti-nuclear rhetoric. I'm not going to engage in any of that at all. I'm not going to be pro-nuclear, but I'm going to be neutral. I'm going to try to take an objective look at nuclear. The anti-nukes sit on a one-legged stool. The pro-nukes sit on a two-legged stool. Your objective is to build a three-legged stool. That's the way I look at it.

So my purpose is to examine the full range of possibilities for nuclear power in Ontario. Actually that should have been nuclear energy. And the options I'm thinking about are nuclear power and the burial of reactor waste. I'm not looking into a test reactor. I've excluded that from the presentation.

The objective is to identify viable nuclear energy options for Saskatchewan. For me those are power reactors and repositories for the burial of reactive wastes.

So another bottom line here, in terms of your policy deliberations for both parties, don't paint yourself into a corner; don't back yourself up against the wall. Have a policy that allows you to consider repositories and power reactors. Because the Americans could be coming to you in the next five years offering to pay for everything, and if you don't take up the offer, Ontario will.

So nuclear is safe and it can be cost-effective. Radiation can be safely contained. We have an international consensus on that akin to the Panel on Climate Change. We have reports that are called BEIR reports from the United Nations — the Biological Effects of Ionizing Radiation. They assure us that radiation can be safely contained. That is confirmed by the International Commission on Radiological Protection. People will be talking to you about individual studies that show some possible effect, and these have all been reviewed by these two groups. And the consensus still is that radiation can be safely contained at nuclear facilities.

That being said, we still need to monitor those facilities to make sure that the radiation is contained on site. That being said, we still need facility-specific research in Saskatchewan to confirm no health effects and no ecosystem concerns. And we need to avoid cost overruns. We need to closely look at what happened in Ontario, and that has to be a close look because there is many, many conflicting ideas on to why Ontario spent so much money building their latest reactors. And many fingers are pointing in many directions, and so we need to look at that carefully.

So before we go nuclear in Saskatchewan, we need full cost accounting and we need contingency planning before we move ahead.

So just a few words on generating electricity, hydrogen, and nitrogen. Nuclear reactors can produce electricity. They can produce nitrogen. They can produce hydrogen. We can wait and have small, modern, inherently safe nuclear reactors or we can use large conventional reactors. Whichever way we go, it really doesn't matter. The large reactor can always be used to produce hydrogen and you'll always be able to sell the hydrogen. After oil runs out — that means after it becomes too expensive to suck out of the deeper regions of the earth any more — and the biofuels cannot meet the demand, hydrogen fuels become viable. This should happen by 2050.

By 2050 the projections from the aviation industry are that we will have hydrogen-powered aircraft carrying thousands of people. They will be fuelled by liquid hydrogen, just like right now the space shuttle is fuelled by liquid hydrogen. This won't happen earlier because prior to this we'll be using biofuels, and we'll be using lightweight composites, and we'll be going to more designs.

So if we're going to go nuclear, we need to move to nuclear while we still have cheap power from coal and natural gas because we need that power to build the nuclear reactors and to produce the hydrogen. Now this is why we're able to go ahead

with wind right now is because we have the cheap power from coal and natural gas to build the wind turbines.

This is why Denmark can go to 20 per cent wind because they can import nuclear electricity at the flick of a switch from their neighbours. The only reason they can go to 20 per cent wind is because they've got nuclear for a backup. Germany has no nuclear power, or is moving towards no nuclear power, simply because they can import more than 50 per cent of their power from France where it's generated in nuclear reactors. So you have to be careful about all these numbers.

[11:15]

Okay. So here's the timelines as I see them. You've heard about all of these things from other people. I've just put them into a timeline for you.

Right now, 2010, we've got dirty coal. We've got natural gas. We've got wind and solar — we're planning to double wind — and we've got hybrid cars. I drive a Prius. We have no clean coal. We have no smart electrical grids. We have no nuclear power.

By 2020 natural gas will reign, mainly because of the huge volumes of natural gas that we're getting out of shales. United States will probably be a net exporter of natural gas at that time, and we will be importing more natural gas from the United States than we produce ourselves. We'll have clean coal, hopefully, if Saskatchewan goes ahead with its projects, and smart electrical grids will be starting to emerge in the United States. We'll be expanding wind and solar, and we'll have battery electric cars. Still no nuclear power.

2030, we're starting to think of a smart electrical grid or we've started to install one. We're starting to recognize the possibility of nuclear power.

2040, oil and biofuels around the world are starting to be replaced by hydrogen from nuclear reactors.

2050, we in Saskatchewan may have decided to go to nuclear power simply to create hydrogen. We'll have hydrogen-powered planes. We'll have trains, trucks, and ships. We will have battery-powered cars that are recharged by atomic electricity. And I have a list of references. You can go there. You can see these things. They're substantiated in the scientific literature.

So if Saskatchewan goes ahead with nuclear, we need to do it through volunteer nuclear communities. That means communities that have been informed about all the risk, all the dangers, all the costs, and they will have decided to host nuclear reactors because they see it's part of their sustainable development. We can talk about sustainable development later. I'm not going to go into my definition right now.

So in southwestern Saskatchewan we could have coal being created into synthetic gas. This is using the nitrogen produced by our nuclear reactors. Northwestern Saskatchewan, we could have electricity sent to our own tar sands or to Alberta tar sands. It's too far to transmit steam. They need their own nuclear reactors for that.

Central Saskatchewan, we could have electricity from reactors going to potash mines. Northern Saskatchewan, electricity for uranium mines and a possible volunteer repository for reactor waste. This is a repository that the Americans are paying for, and we're taking a profit of 10 to 20 per cent off of it. That's how we opened up Uranium City.

So the whole thing boils down to continental policies. I think Dr. Wilson from the University of Regina told you this was the whole key to clean coal and gas.

Five minutes? Okay. I'm going to just speed through the rest then.

Our current policies call for these once-through fuel cycles. That's where we only burn up 5 per cent of the uranium. The US nuclear policies are changing. President Obama, for political reasons, had to close the Yucca Mountain repository. The Americans now have nowhere to put their reactor waste. They have committees working on this. One of the solutions is for them to reprocess their used fuel. That gives them a volume reduction of up to 90 per cent.

This residual uranium and the actinides that I've talked about could be burnt in reactors. It will be burnt in the US. It will probably be burnt in Ontario. The question is, will it be burnt in Saskatchewan?

The useless fission products from this reprocessing could be buried deep underground in these smaller repositories. That will happen in the United States, will probably happen in northern Ontario. The question is, will it happen in northern Saskatchewan?

The whole benefit of this is we get improved long-term nuclear non-proliferation. Once we've done this, there's no more plutonium has come out of the uranium for northern Saskatchewan to make bombs. Deep geological disposal should occur in the pristine rocks of the Precambrian Shield, not in sedimentary rocks and not in closed uranium mines. I've given you the reasons for that in the paper.

There are political, social, and economic pressures to manage this used fuel in the province of origin. That means that the Ontario used fuel is going to be buried in northern Ontario. Quebec and New Brunswick will send their used fuel to Ontario for burial. No used fuel from Eastern Canada is going to enter Saskatchewan, so let's stop talking about it. The only burial of used fuel that we could possibly entertain in this province is that from the United States. The choice for us is, do we let the Americans bury it along our border or do we take it from them and bury it in northern Canada?

Final point, this is kind of esoteric. Canada should stop selling uranium. I put that in for my anti-nuclear friends. Canada should lease uranium to foreign countries and take responsibility for return of the resulting used fuel. The used fuel could be reprocessed in the United States. The residual uranium and the actinides could be fully burnt in the United States and Canada. Again, it will be done in Ontario. The question is, do we want to do it in Saskatchewan? The fission products will be buried in the Precambrian Shield. Again, Ontario will do it. Is Saskatchewan going to do it?

We need this concept to go to the United Nations. We need Canada to take it there because we need everybody to be doing it. So, conclusion . . . Have I got a minute?

**The Chair:** — Yes.

**Mr. Lawson:** — Okay. Saskatchewan could go nuclear any time over the next 20 to 50 years. It all depends on changes to US nuclear policies. All level playing fields tilt towards the United States. We need to consider deep geological barrier of the US fission products in northern Saskatchewan and/or Ontario. Canada needs to bring the two provinces together or Saskatchewan needs to bring everybody together.

We should create a small office of nuclear power high-level radioactive wastes in the hydrogen economy. Why? Because we need to engage in bilateral negotiations with Ontario and Canada over doing this. And we need someone to foster, assist, and participate in the following multilateral negotiations between Saskatchewan, Ontario, Canada, the United States, and the United Nations.

Here's the take-home message. There's one more take-home message. Is there a nuclear bonanza via the United States that should be shared in some equitable manner by Saskatchewan and Ontario, i.e., disposal of fission products in northern Saskatchewan at cost plus a profit of whatever you can negotiate? Will the US finance a nuclear reactor for us and will they provide us with the nuclear fuel to run that reactor at cost to them, essentially free? Bottom line, if Saskatchewan doesn't do it, Ontario will. So the real bottom line is: in your policies, don't paint yourself into a corner. Give yourself room to talk to Ontario, Canada, and the United States. Thank you.

**The Chair:** — Thank you very much for your presentation this morning. We do have a couple questions. Ms. Morin.

**Ms. Morin:** — Thank you, Mr. Lawson, for appearing before the committee this morning. I'm curious if you could just elaborate on one of the comments you made in your presentation. And you're saying that Saskatchewan could go nuclear in terms of having nuclear reactors depending on, here's your quote, "depending on changes in US nuclear policies." Could you elaborate on that a bit?

**Mr. Lawson:** — Okay. President Obama, as part of his election victory, got four votes from Nevada by promising to cancel Yucca Mountain, which is the nuclear repository for the United States. Yucca Mountain had been decreed by George Bush, against objections from the state of Nevada. The state of Nevada was not a happy camper with Yucca Mountain — never has been, didn't want it. Obama shut it down, so now they have no place to go to put their used fuel. They're being stored at 130 locations around the United States, and they're stored there until committees report to Obama on what to do. What they are likely to say is reprocess the waste because then we only need a storage facility that's 10 per cent as large as Yucca Mountain. Is that enough? I mean I can go on.

**Ms. Morin:** — No, that's good. So did . . .

**Mr. Lawson:** — Here, fully explained in the August issue of *Scientific American*. I left that out of my presentation but I'll

put it in. It'll be in the next version that you see. It'll be in the official record.

**Ms. Morin:** — Thank you. So I don't know if you can answer this question, but did former President Bush decree Yucca Mountain as the waste repository because there were no volunteer communities that wanted to take the waste? Is that what happened?

**Mr. Lawson:** — The United States did not have a volunteer community approach to the problem. They just took their geologists from the United States Geological Survey and said, where should we put this? They said, we've got a location in Washington. We got a location in Texas. We've got a location in Nevada. And the political people decided to go with Yucca Mountain but that was reversed by Obama.

**Ms. Morin:** — But there were no other host communities that you know of that were interested or are currently interested in taking that waste?

**Mr. Lawson:** — That approach has never been used in the United States. Nuclear up to that time was moving ahead in the same way as we were 20 to 30 years ago. No public consultation, technical specialists in government making all the decisions.

**Ms. Morin:** — Okay.

**Mr. Lawson:** — So that's changed in Canada, but it hasn't fully changed in the United States. It hasn't fully changed in nuclear but it could change tomorrow. It probably will change.

**Ms. Morin:** — Okay. And you also spoke about the necessity to have a waste repository, and you're advocating that Saskatchewan be one of those host communities to avoid burial of waste along the border. Can you just explain that a bit more.

**Mr. Lawson:** — Well the Americans have to figure out where to bury this nuclear waste. They're not taking it to Yucca Mountain any more. The best place to put it is Precambrian rocks. They've got two areas of Precambrian rocks where they can bury it. One is south of Manitoba along the border — these Precambrian rocks exist along the border — and in, I think, in the state of Vermont where there's an extension of the Precambrian rock in Canada that comes down to the United States.

So the Americans have to bury it somewhere. They want to bury it in a remote location. They will probably bury it somewhere near the Canadian border. So the thing is, do we have them bury it south of the border, or do we bury it north of the border at their expense? And away north of the border, in northern Saskatchewan or northern Ontario, we know it can be done safely. We need a host community, and we need an environmental impact assessment to confirm the conceptual disposal of the waste. Scientifically that's not a problem. That was the final conclusion of Canada, was that we could bury nuclear waste, but we had done an incredibly poor job of telling the public about that. And we had done an abhorrently imperfect campaign to advise First Nations and Métis. And it was likely their lands where we would be disposing of this waste.

**Ms. Morin:** — Thank you very much. I'm going to see if I can get back on for a few more questions, but that's my time.

**The Chair:** — Mr. Weekes.

**Mr. Weekes:** — Thank you, Mr. Chair. Thank you very much for your presentation. I just note with some interest, you're talking about reprocessing spent fuel rods and you're saying that it soon will be possible to take 95 per cent out of the . . . clarify that you're saying nuclear reactors, we'll be soon be able to take 95 per cent of the fuel out of the rods and leave 5 per cent versus the reverse that is going on today?

[11:30]

**Mr. Lawson:** — Yes, that will require some research and development. Let me elaborate on that.

So when the fuel rod comes out of the reactor, it has only burnt up 95 per cent of the uranium that could be burnt. It won't burn any more because the fuel rod is cluttered up by these fission products and these actinides. So to burn up the remaining 95 per cent, we have to reprocess the fuel. That means we have to dissolve it in acid. We've got to take out the good uranium, put it in the new fuel rod. We can also take out all the actinides because they can be split to generate nuclear energy.

So we can take that fuel rod and put 99 per cent of it back in another reactor and reburn it, and only 1 per cent of the material, the fission products, have to be buried. So currently it would take four, five, six passes through a reactor to burn up all of that. So you'd have to put it in, burn up 5 or 10 per cent, take it out, reprocess it, burn it again. And depending on how well you do that, you might get 60 per cent of the uranium burnt. You might get 70 per cent. You might get 80 per cent. But you could get up to 90 per cent.

But during that period of time, you're dealing with plutonium that is the stuff of hydrogen bombs. So you have a proliferation threat at that time. Those facilities have to be secure. That's why I'm not proposing that we do it in Canada. We let the world police force of the United States marines look after that.

But we could operate the reactors that are burning that fuel. And we could be burying the fission products, and the Americans could be quite happy to pay us to do that. Now this is kind of futuristic thinking. It's kind of a way-out thinking.

All I'm saying is, you as politicians may have this problem on the table tomorrow or before your four-year term of office runs out or into your next four-year term of office. So you need to start thinking about it, and don't back yourself into a corner by saying you're against disposal of radioactive wastes in Saskatchewan. Because you can make money, I hope. Ask me another question.

**Mr. Weekes:** — Well I just want to . . . It leads into, it's interesting that to the various arms control agreements that there is out of the old Soviet Union, there's nuclear weapons are being demilitarized or reprocessed to be able to be used in nuclear power plants. And I understand Canada is a leader in that process. Do you have some background on that?

**Mr. Lawson:** — Those nuclear weapons have one of these actinized plutonium. Those nuclear weapons are being refabricated and put into nuclear reactors and burned. All I'm saying is . . . What I'm talking about is doing it on a commercial scale with the entire used fuel rod.

Right now the Americans, the Russians, the French, and the British have got lots of experience in taking used fuel and extracting the plutonium because they want to build hydrogen bombs. What they don't have is the experience in taking out the plutonium and everything else that's useful and sticking it back in a nuclear reactor. They have to date pursued the nuclear weapons side of uranium, not the peaceful side of uranium.

**The Chair:** — Mr. Allchurch.

**Mr. Allchurch:** — Thank you, Mr. Chair. And thank you for your presentation. Under the slide, generating electricity, hydrogen, and nitrogen, you talked about small, modern, safe nuclear reactors or large ones. One of the biggest issues with uranium and Saskatchewan going forward with it was the cost and the cost of a huge one. Are you suggesting that the smaller ones could be fit into the system better than one huge, large one?

**Mr. Lawson:** — Well that's what I used to advocate, and I still do advocate it, only now I'm saying that by 2040, 2050, we could build a Jesus-big nuclear reactor and make hydrogen. We've been thinking only of generating electricity. We've got to move from oil to hydrogen at some point in time. The best way to make hydrogen is through nuclear reactors.

So I used to always think that the date for nuclear coming to Saskatchewan was next year. Now I see the date for nuclear coming to Saskatchewan as 40 to 50 years from now. And it's to produce hydrogen, not to produce electricity. Am I clear on that?

**Mr. Allchurch:** — Yes, you are. My next question is, if we were to go to, as you said, go to a large one, what would happen to the transmission lines as trying to get this electricity out? That's where there's also an added cost and a huge added cost.

**Mr. Lawson:** — Well you build the big reactor somewhere, then you study it thoroughly with SaskPower, and you design it to produce the electricity that your grid can take. And the surplus that your grid won't take, you make hydrogen and nitrogen out of it. And you ship the hydrogen away in pipelines; it doesn't go down an electrical grid. And the nitrogen goes to your sub-grade coalfields to improve the recovery of coal.

So you build the big reactor, but you design it to satisfy whatever electrical needs you can. But you no longer have to build it solely for electricity. You build it for electricity, hydrogen, and nitrogen.

**Mr. Allchurch:** — But if you don't have the costs for your transmission lines and you can go another route, you've still got a huge added cost of building the pipelines to transport the nitrogen out of that area, do you not?

**Mr. Lawson:** — You do. And that's not going to happen till 2040, 2050 when the rest of the world wants the hydrogen.

**Mr. Allchurch:** — So we can't even basically look at nuclear until there's a market for hydrogen?

**Mr. Lawson:** — Well you should be looking at it just a little bit before. The other thing is, why wouldn't you look at it if the Americans are going to pay you? The Americans are going to build this reactor for you. They're going to send you all the fuel. You're going to get all of the electricity and all of the hydrogen and nitrogen essentially for free. Why wouldn't you look at it?

**Mr. Allchurch:** — How do we know that United States is going to build it?

**Mr. Lawson:** — Well we don't know right now. All I'm saying is think about it and get ready to negotiate. Bear in mind the Warman example. If we don't do it, Ontario will. Saskatchewan people are very, very good at innovation. Unfortunately they're also very good at shooting themselves in the foot. All I'm saying is, here's an issue. You're the politicians, think about it, get ready. It's around the corner.

And the other message is right; you're right on it. If this opportunity to do things with the United States doesn't come up, we may never need to go nuclear. We won't be going nuclear till 2040, 2050. By that time there can be horrendous advances in wind power and solar power, and we may never look to nuclear.

**Mr. Allchurch:** — Well some of us are naysayers but not all of us are. But in regards to Ontario, right now Ontario has stopped with building another nuclear plant. And there again, it was because of costs or cost overruns. Is that true?

**Mr. Lawson:** — No. That was stopped by your good friend Stephen Harper in his effort to privatize Atomic Energy of Canada Ltd. It just threw up a flag that scared everybody away. Atomic Energy of Canada really couldn't make a commitment to build the chosen reactor because they were being privatized by your friendly national government. I'm non-partisan, by the way. I throw my spear at everybody.

Here's another point, an interesting point. Ontario right now is planning a disposal facility for their used fuel. If they get asked to ship it to the United States for the United States to reprocess and if they go ahead with that, then that means that their repository is 90 per cent empty and ready to receive fission products from the United States.

Again the bottom line — if we don't do it, Ontario will. Do we want to do it? I don't know. You're the politicians.

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you very much. A very interesting presentation. You mentioned in your presentation what was happening in Europe. What do you know of what's happening in Europe as far as new generation is concerned? Is there nuclear as part of the mix? We hear a lot about wind generation, and you mentioned Denmark, Norway, the North Sea. What's happening there with nuclear generation, new nuclear generation? Is it going ahead? Is it going backwards? Is there none? What's happening there?

**Mr. Lawson:** — I'm a member of the American Geophysical Union. That makes me a member of the American Institute of Physics. That means I get their monthly journal which I scan because it's very interesting. So what I know comes from there and watching television, I guess. Like, I kind of peruse *Scientific American* as well. I'm in retirement here. I no longer read the big journals.

Two things to say about Europe. Right now the competitor for the Canadian advanced reactor is a reactor by our good friends Areva. They are building their first new advanced reactor in Finland. They are four years behind, and they've been sued to something like \$8 billion by the government of Finland. So there's three reactor designs we can go to here. That one, as far as I'm concerned, is off the table.

The second one is all of these developments in Europe, where wind is forging ahead and solar is forging ahead, are backed up by the fact that France is producing 80 per cent of its electricity from nuclear and exporting that. And there are other nuclear reactors in other countries that are backing up the advances of wind in Denmark. So all of these energies go hand in hand. That's all I know.

**Mr. D'Autremont:** — Okay. One of the issues you raise is the opportunities to transport nuclear materials. We see from television, particularly in Germany, the demonstrations and the violent protests against the transport of nuclear materials from the generating stations in France or in Holland — I don't know about Belgium — but to Germany for storage. Won't that, if we were to go with the process you're talking about with transport from the US, wouldn't that be a similar difficulty here?

**Mr. Lawson:** — Yes. Let me just . . . I'll go into that a little bit too. That's a big issue, and it was a big issue in Ontario when they were thinking about their underground repository. And for that very reason, the repository in Ontario will be built close to the reactors and the fuel will only be transported over land. It won't be transported on the Great Lakes. Also it's not very far to move the nuclear fuel from New Brunswick and Quebec to Ontario, so that's the likely scenario. The used fuel in Eastern Canada will be dealt with in Eastern Canada.

Manitoba has a prohibition, a legislated prohibition against the transport of used fuel across Manitoba. There will be no movement of used fuel from Eastern Canada to Saskatchewan for disposal. So we can stop talking about that.

Now Ontario is well placed to take advantage of this offer from the United States. They've got some 20-odd reactors that they've got experience on running since 1970. They're close to probably 70 per cent of the American used fuel, very short transport distance into Ontario. They'll have this repository that's 90 per cent empty.

Saskatchewan is far removed from most of the American used fuel. And it will have to be transported long distances, and there will be some objections to that. So you're on target. It works for us and against us.

[11:45]

**The Chair:** — Ms. Morin.

**Ms. Morin:** — Thank you, Mr. Chair. Mr. Lawson, hydrogen can be produced in other ways other than through a nuclear reactor. I'm just wondering if you have any . . . if you know which means is more cost-effective. Do you have any actual, any cost projections on what, you know, whether hydrogen produced through a nuclear reactor is more cost-effective than the other methods that are available?

**Mr. Lawson:** — No. Any method of generating electricity can be used to take nitrogen or hydrogen out of the air or out of water. So it doesn't really matter. It's just that if you have a nuclear reactor, you've got this huge source of electricity in one place — it's not distributed over the landscape — and you can use it to commercially make hydrogen. You could be taking electricity off a grid that was running on 90 per cent wind and still make hydrogen out of your surplus electricity.

**Ms. Morin:** — Thank you. Then we're talking about Ontario, and you were saying that the reason that the Ontario reactors didn't go ahead is for political reasons. It's contrary obviously to what the Government of Ontario is saying. I mean the Government of Ontario is saying that it's because of the fact that it's . . . They were looking at a cost projection of between 23 and \$26 billion for the two reactors that they were looking at having built in Ontario.

Now those are the same size reactors that Bruce Power was looking at building here in Saskatchewan. So one could well assume that that would have been the cost projection that we could have been looking at here for the reactors that were built here. So given that we know we're looking at a substantial cost, and given that there's . . . I mean a private company like Bruce Power won't do that unless there is quite a bit of government subsidy. What are your thoughts on that?

**Mr. Lawson:** — Okay. Here's the historic background on things. National governments have always subsidized nuclear. It's been necessary because of the unknown liability of a nuclear accident. It has also been necessary because of the unknown costs of decommissioning, okay.

The Ontario government wanted Canada to pay the decommissioning costs, and that has been, always had been the case up to this point in time. Mr. Harper, our nuclear politician, said no. And he said, I'm privatizing AECL [Atomic Energy of Canada Ltd.]; deal with them as a private entity. We're not going to contribute to your nuclear reactor. And that's where things ended. That's my view of the world through my friends and my perspective, okay.

The big costs of nuclear is the hidden costs, the unknown cost of decommissioning and the liability of a nuclear accident. You will see that the Progressive Conservative Government of Canada has moved forward to increase the liability . . . [inaudible] . . . for nuclear reactors. I think it's gone up by a factor of 10 or 100. So they're moving in that direction.

**Ms. Morin:** — So knowing all of this, do you personally feel this is something that the people of Saskatchewan would be wanting to take on as a financial cost and liability into the future, given the circumstances?

**Mr. Lawson:** — Well like I say, we're not going to go nuclear

till 2040, 2050. So really, you know, can't talk about that. That's totally imaginary, okay.

What I am saying is, if the United States government is going to back this, if they're going to build your reactor, pay you for the decommissioning costs, supply you with the used fuel, and if you can say . . . and they want to store their fission products in northern Saskatchewan and building the reactor is all part of that deal, why wouldn't you go ahead with it? You can't win the lottery if you don't buy a ticket. You have to take some risk. So if all the risk is going to be borne by the public of the United States, why wouldn't we go ahead?

If we know scientifically and technically that we can dispose of the waste and build the reactor and the Americans are going to pay for it, would we say no? Well maybe we would, but Ontario won't. So are you going to do it or is Ontario going to do it?

**Ms. Morin:** — Well my time is up again but thank you again for answering those questions.

**Mr. Lawson:** — Okay. I'm sorry for making all these political comments, but I think the room is empty and most of you are politicians and I'm just a technocrat.

**The Chair:** — I think you're the witness and we're asking for your comments, so please give us the comment you feel most appropriate. Mr. Belanger.

**Mr. Belanger:** — Yes. Some of the scenarios that you've unveiled, you know, the 40-year time frame, I'll be 68 by then.

But one of the issues that you raised in terms of the US looking at this and paying for it, and so again the what-if scenario is out there. So are you suggesting today that the American deal to the Saskatchewan public in relation to this issue is a much better deal than what we are currently investigating from Bruce Power? How would you compare the two deals?

**Mr. Lawson:** — Well I'm just saying the American deal is going to be on the table in 10 years and the Bruce Power deal doesn't make sense for 40 or 50 years. So how can you compare them? Okay.

**Mr. Belanger:** — The other thing is I . . . Just for purposes of people that may be watching this, two points I want to make. First of all, I got 22 per cent in my high school chemistry mark and it was multiple choice. So the 22 per cent, I probably fluked it off.

But explain to me the process of a nuclear power plant, like how it works. Obviously, you split the atoms and create . . . I understand that part. But to explain that in layman's terms for the public so they know, how in the heck does a nuclear power plant work? Like what is the process involved? As simple and as quickly as you can, please.

**Mr. Lawson:** — Okay. What happens in a nuclear power plant, you build it so there's a lot of neutrons there. Neutrons come from the nucleus of the atom, so they're big parts of the atom and they're floating around in space. And when they hit our Saskatchewan uranium-235, they split it into two parts and when that split occurs there's a loss of mass. And Albert



Einstein told us that mass equals energy, that mass goes to energy. So we split the atom, we convert uranium mass into energy.

Now some of those neutrons that are floating around, they get into the uranium-235 but they don't split it so they're taken up by the uranium-235. Some of them go into the uranium-238 and they stay in the nucleus and they make that. Uranium-238 becomes uranium-239, which we call plutonium.

After you've run the reactor for a bit, it won't work any more because there's too many of these fission products that are screwing things up and there's too much of these actinides around absorbing the neutrons, so you have to shut down the reactor, take out the fuel rod. Then you can reprocess things and the uranium you've gotten out you can put back in the reactor, you can put the plutonium back in the reactor, and this 1 per cent that's gone to fission products is truly a waste and you have to bury that.

**Mr. Belanger:** — And don't forget though, and correct me if I'm wrong, but Albert Einstein which you make reference to, did he not at one time say that man's greatest error was splitting the atom?

**Mr. Lawson:** — He may have said that. Most of the American scientists that worked on the Manhattan Project advised the American government that there were pitfalls and dangers to this. So no one worked on building the bomb without being concerned about it and raising those concerns.

**Mr. Belanger:** — My final question is, when you talked about the whole development of the nuclear option, to consider it and to have unbiased discussion, make an informed decision, I think the public is saying, yes we're looking at that. There's all kinds of issues of cost, the ownership question, the overruns potential, you know, the storage issue. All those have to be discussed.

When the whole notion, the project in Warman was turned back, I believe the government of the day at that time . . . Was that an NDP [New Democratic Party] government?

**Mr. Lawson:** — Probably, but I don't know.

**Mr. Belanger:** — I'm pretty certain it was. Now what would you say if the vast majority of people told you, look, we'd like to see the economy boom, we want to see Saskatchewan built, but you know, we just don't want that. Now what if the vast majority of people said that to you? As leaders do you think no, we're going to do what is right for you? And that's what happened I think at the Warman issue, that the government of the day was moving forward on this opportunity because the NDP introduced uranium mining, they introduced the milling of uranium, and the refining is one of the things that they were looking at. So they're not a little bit pregnant when it comes to uranium development. So this whole foolish notion that the NDP are anti-uranium, people need to park that silly little notion of theirs and say no, they were involved with these stages.

So one of the stages was the Warman project, but the people of Saskatchewan at that time said no, we don't want it. And any government worth their salt ought to consult and listen to the

people that they represent. They don't have to enter the debate or throw misinformation out. Many times the people are right.

**Mr. Lawson:** — The people are always right. And the people of Warman rejected the refinery, not the people of Saskatchewan. Now at the time there were two people who whispered into the ear of Canada. The anti-nukes whispered into the ear of Canada and said, let's go ahead with this hearing because we don't want it and it's going to be rejected. Ontario whispered into the ear of the federal government and said, yes, go ahead; these religious farmers that have a viable economy here are going to reject it and we have a volunteer community in Ontario ready to build tomorrow. Okay? So somebody shot themselves in the foot.

If you wanted to build that refinery, you didn't decree it was going to be built outside of Saskatoon in an area that already had a sustainable economy, was committed to religion and committed to dairy farming. You build it somewhere where the people want it. If that inquiry had of been some other place in Saskatchewan where the people wanted the refinery, it would have been accepted. It had nothing to do with the population of Saskatchewan. It had to deal with the local community. That's why I've said you need to go to volunteer communities to host nuclear facilities. You have to go to communities that said, we understand this; it helps our economic development. We're not afraid of it. We know that it's going to be monitored carefully; we're going to be part of the monitoring. We want to go for this. Okay. Then you have your inquiry, and it's local. The people of northern Saskatchewan decide what's going to be done at Uranium City, not Weyburn people. Sorry, Buckley.

**The Chair:** — Well thank you very much for your presentation and the questions that you answered. I think your answers were very direct and to the point. So thank you very much.

With that said, we will recess until 1 o'clock.

[The committee recessed for a period of time.]

**The Chair:** — Before we hear from our first witness this afternoon, I'd like to advise witnesses of the process of presentation. I'm asking all witnesses to introduce themselves and anyone else that may be presenting with them. Please state your name and, if applicable, the position within the organization you represent.

If you have written submissions, please advise the committee and these will become public documents and will be posted to the committee's website. The committee is asking for submissions and presentations that will be in answer to the following question. The question is, how should the government best meet the growing energy needs of the province in a manner that is safe, reliable, and environmentally sustainable, while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes with question-and-answer period to follow. I will direct questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in debate and witnesses are not

permitted to ask questions of committee members.

I'd also like to remind witnesses that any written submissions presented to the committee will become public documents and will be posted to the website for public viewing. With that I would ask our presenter to please introduce himself and go ahead with your presentation.

**Presenter: International Brotherhood of  
Electrical Workers**

**Mr. Collins:** — Hi. My name is Neil Collins. I'm the business manager of the International Brotherhood of Electrical Workers. I've also been president of the IBEW Local 2067 as well, sat on the board of directors of SaskPower from 2000-2007. I also served on the Electricity Sector Council, subcommittee vice-chair. I also was an appointed Uranium Development Partnership committee member, as well as I've been a SaskPower employee since July 1978 and served as station electrician in that capacity and a journeyman electrician.

With that, I appreciate the opportunity to come and speak with the committee here today. And we all talk about energy, and it's a product we cannot live without — especially wintertime in Saskatchewan as we've witnessed in the Coronach, Willow Bunch, and Ogema areas just these last few days.

A lot of individuals have brought forward information to you and to the public, that Saskatchewan should strictly utilize green renewable energy as baseload power. Others have brought forth nuclear, and some have stated possibly a combination of all sources of generation. Let me go over some of these possible generation sources.

In our sister locals in California, the International Brotherhood of Electrical Workers are working with Southern California Edison to produce solar electricity. The premise involves putting huge solar panels on the roofs of manufacturing buildings to capture the energy and then store it in a huge number of batteries located in the warehouse facility.

Another example of solar generation technology which is being considered is huge solar collectors that are located over approximately a 400-acre area in the southwest United States, and you run water lines through the collectors to produce steam and run them through a steam turbine generator, produce approximately 150 megawatts of power.

Currently the costs of these types of solar generation are quite expensive compared to current conventional forms of electrical generation. The concern with solar generation is, what do we do for generation when the sun doesn't shine? Solar's an opportunity for us that we should keep abreast of what is happening, especially in the southwest states. It is the utility that is leading this type of electrical generation in regards to solar panel and battery generation.

Wind generation has become the fastest new source of green renewable electrical generation. Presenters to you speak of the generation source as reliable, dropping in electrical cost, and environmentally friendly. Wind can be a small source of your generation mix, but it poses problems for us in Saskatchewan because of our own climate. During the cold snap in December

of last year when it was minus 30 degrees Celsius, we had no wind generation for various hours of the day.

Conventional wind generation, conventional wisdom states if you want to baseload wind generation, it has to be backstopped with natural gas generation. Simply put, when the wind doesn't blow, natural gas generation can be brought onto the electrical system in approximately 10 to 15 minutes. If this system of wind, natural gas baseload combination is utilized, you cannot say wind is clean because you must account for the natural gas footprint.

Currently our own Vestas V47 and V80 turbines that we utilize in SaskPower do not operate when the temperatures are below minus 31 degrees Celsius, when the wind exceeds 90 kilometres an hour, as well as when the wind does not blow. The question that needs to be answered is, when the temperature is below minus 30 degrees Celsius — like it happens in Saskatchewan and it happens in December of 2009 — where is the electricity going to come from when the wind farms cannot produce it?

A point of interest on green power is SaskPower currently offers its customers an opportunity to purchase green power at the cost of \$2.50 a month for 100 kilowatts. The debate isn't whether the customer is getting green electrons from our wind farms, but why are there so few SaskPower customers not interested in putting a minimum of \$2.50 a month on their bill for green power to show the corporation and the Government of Saskatchewan that they in fact support higher electrical costs associated with the generation of green power?

And currently — I actually just called today — I got the numbers actually from SaskPower that currently the people that are actually taking green power are 1,032 customers out of 455,000 customers. That is point two of 1 per cent who are actually wanting green power. Evidently that tells us that we like to talk about renewable power until we have to put a higher cost and pay for that.

Geothermal is an interesting generation source that is being used in various parts of the United States. Again I would caution the cost vis-à-vis current conventional electrical generation sources and who is willing to pay for the higher costing.

I believe we should keep informed of these new technologies and possibly look for opportunities where there are developments in cost reductions — possibly federal government incentives such as the WIPPI [wind power production incentive] grants that we currently utilized in 2005 to build the centennial wind farm, which was a 150-megawatt project — and possible technological advancements.

A question that needs to be answered is again would we . . . What type of generation mix, or what part would SaskPower play in that type of a renewable energy strategy?

Nuclear power generation is an opportunity for Saskatchewan to grow just beyond electrical generation. The key to building nuclear reactors in this province would take a federal government decision to pay for a national transmission system, a grid system, because our current transmission system cannot support 1100 megawatts currently on that system.

Another key would be the agreement of the Government of Alberta to share the spinning reserve, and that's a requirement in case that plant trips off. If the plant trips off, that 1100 megawatts would need to come from somewhere and you'd have to stabilize the grid system. So in fact Alberta, if they were accepting some of that load requirement, would have to put generation on to actually stabilize the system. And according to NERC [North American Electrical Reliability Council] requirements, national electricity reliability council, you have approximately 10 to 15 minutes to start to stabilize that system.

Again I believe it's an opportunity for Saskatchewan not to look today but to look forward in 2020 and beyond. And it leads to the question, does the province of Saskatchewan want to be an exporter of electricity or do we want to be an importer of electricity? With nuclear we can leave into the debate and, regarding to importing power, into the discussion of purchasing electricity from the province of Manitoba. It has been discussed that the province could enter into long-term power purchase agreement, PPA, from the province of Manitoba. Manitoba would be willing to supply hydroelectricity for a price, and we would support employing Manitobans and creating wealth for subsidiary businesses that supply services to Manitoba Hydro. I'm not sure the strategy for Saskatchewan is to grow the Manitoba economy.

Another point to consider is, what happens when Manitoba has a low water year? Which province gets electricity? And in fact Manitoba has low water years where they ask SaskPower to actually export power to them.

Before considering Manitoba Hydro, why not consider hydro generation in Saskatchewan? There are hydro opportunities in Saskatchewan that should be considered. The question that needs to be answered is, who has the expertise in building and operating our current hydro generation facilities? I believe SaskPower should be the main participant, although I can understand a partnership agreement based on debt considerations.

Manitoba Hydro builds and operates its own facilities. They have made a decision that they're the experts and leaders in hydro generation in the province, and generate huge profits from the sale of that electricity. Why would they give that opportunity to grow their company and return the province to the customers and citizens of Manitoba to someone else? That is another question that needs to be answered. What is the growth strategy possibly for SaskPower in regards to hydro? And can SaskPower's expertise be utilized in a private partnership arrangement that could help everybody in a win-win situation?

There are other sources of generation that can be considered. Methane gas from livestock operations, methane gas from garbage dumps, wood chips from a pulp operation, straw and flax bales put through a boiler system, as well as coal gasification. I would only caution that there needs to be a lot of homework done on these forms of generation and the economies would need to fit into the picture for our province.

A question of interest would be, how would again SaskPower be involved or would it be strictly a power purchase agreement, a PPA, and SaskPower would be the off-taker of the power?

And possibly would there be some sort of subsidization?

The last point I will discuss is coal and gas generation. We are blessed with 300 years of coal reserves, and is a cheap, reliable fuel source. Both coal and natural gas leave a carbon footprint as we're well aware, and depending on the federal government's policy on carbon taxation, CO<sub>2</sub>, our province could be put into a very severe disadvantage vis-à-vis British Columbia, Manitoba, Quebec, and Ontario. The federal government must make a bigger commitment to funding clean coal technology in our province. Example, Boundary dam power station, unit 3, clean coal project, the cost is estimated to be approximately \$1 billion. Yet SaskPower will have to find 760 million of that cost and the federal government is putting in approximately 240 million.

This technology will be utilized across all parts of Canada and possibly the world, and 1 million taxpayers are going to look to achieve a success that would be similar to the first computer we had. Of course the costs will be higher. The costs will come down over time. And yet our province is looked at as footing the biggest cost in regards to a technology that could be utilized — not only federally. It also could be, if clean coal technology is proven, other provinces might look at putting in new clean coal units as well as globally. Again I find it hard to understand why the federal government has not been as financially eager to fund this project which would have federal and global benefits for many.

Coal currently represents approximately 54 to 58 per cent of SaskPower's generation fleet, and as such you can see the ramifications of a carbon tax that could possibly . . . \$30 a tonne. SaskPower produces approximately 12 million tonnes of CO<sub>2</sub>. The cost to the bottom line of the corporation would be approximately \$360 million. And that is a tremendous amount of money that SaskPower would not be able to afford without coming to the people of Saskatchewan. And I think that would be a serious debate that a lot of people would have a hard time in actually dealing with, and the corporation couldn't take that cost.

Natural gas is a quick fix for electrical generation when the price for natural gas is 4 to \$7 a gigajoule but, as we know, gas is a cyclical commodity. As soon as it begins to go up in price, generally it is SaskPower which eats the gas risks from the PPAs, power purchase agreements, in the hopes that the rate utility review panel will agree with an increase in electrical rates to pass through to the customers. Natural gas has some advantages, and they are low cost, low capital cost. The generation can be brought on very quickly, relatively as quick as you can order that turbine. Generally most times it could be 18 to 24 months.

[13:15]

The other benefit that you get in natural gas as well is that it can balance your grid system. Currently, as most of you know, most of our generation is in the South — Boundary dam power station, Coronach, Shand power plant — so putting gas generation in other parts of the province stabilizes the system. It helps with line losses as well as voltage stability. The only concern that would come about is, again, CO<sub>2</sub> emissions as well as the natural gas pricing risk. Natural gas generation can

supply some baseload power, of which it currently does, but its best opportunity is actually in peaking power since it can be dispatched in 10 to 15 minutes.

Fundamentally the discussion around energy comes back to who will supply it, how much you're willing to pay for it, are we going to lead the energy technology debate or just follow the pack? With Saskatchewan set to lead economic growth over the next 5 to 10 years, where is the power going to come from? Is the vision for SaskPower one of growth through partnerships, or is it a holding pattern of watching your asset decline possibly in value while other entities take market share of your generation away from the utility? At what point is SaskPower possibly losing shareholder value for the people of Saskatchewan? Is there a growth strategy for electrical generation to create value for Saskatchewan by exporting power? And fundamentally a lot of people have portrayed answers or possibly given solutions.

I'm very fortunate that I've worked for a great Crown corporation and we actually have one of the best balanced approaches in generation probably in Canada. We have excellent hydro that we utilize. Would I like to see more hydro? Yes I would. Am I a big fan of importing power from Manitoba? No I am not. I'd rather see the hydro generation here. I think that if you're caught in a bind and you have to do a quick fix, we export and import power on any given day all the time.

As I said before, I think clean coal technology is something that we definitely have to get our arms around. We definitely have to put forth. And again, most of you would understand that 1 million taxpayers vis-à-vis 32 million taxpayers, 270 million US taxpayers, it's a tremendous amount of funding that we are actually, I guess, picking up the gauntlet and running with it.

Wind generation can be a part of your mix, but again I would caution in regards to baseload power. It is not baseload power unless you backstop it with natural gas. Natural gas again, depending who's taking the risk, it's a cyclical commodity. I think in regards to solar, in regards to . . . that might be an opportunity for us. Again, we call Estevan — I grew up in Estevan — the sunshine capital of Canada. You know, there's some opportunities I think we should be on the . . . it should be on our cusp but I think we want to make sure that . . . Again, I would only caution. People talk about green power and cheap power.

I've given you some facts today that all it costs is \$2.50 a month and yet only 1,032 . . . And some of those customers are actually commercial customers, so that isn't even residential and encases all our customers. And it's sad when \$2.50, I mean, what's that? A cup of coffee. You know, if you believe in what you say . . . I have green power even though I'm a dirty coal generator type of guy with SaskPower coming from Boundary dam power station. When I sat on the board of directors of SaskPower I believed that, if we say to the people of Saskatchewan green power is to be part of the asset mix, then as a director I should support it — which I did and I currently still do.

I probably have given you more questions than I've given you answers and that was not my intent. Do I think that . . . I fundamentally believe that SaskPower has been a great utility

for all of us. I fundamentally believe that we should utilize its expertise, its knowledge, its skills and ability, and the people that you have in there to work with other businesses as we've done with ATCO, as we have considered with Husky, as we've considered with possibly other ventures. But I think the key is to make sure that the utility is well aware and well positioned to utilize whatever solutions, whatever partnerships we consider for the best interests of the people of Saskatchewan. Thank you very much, Mr. Chair.

**The Chair:** — Well thank you very much for your presentation. I have several questions. Mr. Bradshaw.

**Mr. Bradshaw:** — Thank you, and thank you for your presentation. Just a couple of things. Some of it you kind of answered actually as you went along while I was writing it down, so who knows? I'll maybe come back in after. But I was curious. Now we've heard conflicting reports throughout this committee, and this is on the wind power end of it, that at minus 30 the wind generators have to be shut down. Some people said, well no, they're using them up in the Antarctic and everything else, that they don't have to be shut down. Could you explain that one?

**Mr. Collins:** — Yes I can. Currently our Vestas — and those are the wind turbines that we have — they are V47s which is a little smaller unit and V80s are the ones we have in Centennial. Their operating characteristics are minus 31, as I said, and 90 kilometres an hour wind. They will actually shut those units down. They actually cannot, they will not produce electricity.

They are talking about new wind turbines that actually have better operating characteristics as you have mentioned that you could possibly utilize. Again all I would caution is I'd want to see it perform. Because the ones we currently have, when it's that cold out, they don't perform. And that's a huge problem for us. Now if someone comes and they says, gee we can do it at minus 40, maybe that's something we can consider. But even in Saskatchewan with your wind chills, you can get down to minus 50, minus 55. And as far as I know there aren't any in that operating characteristic.

But again, I'm not the expert in wind technology. All I can tell you is what I know here in Saskatchewan and what I've been informed with the rest of my International Brotherhood of Electrical Workers, the conferences that I go to. Hopefully that helps you a little bit.

**Mr. Bradshaw:** — Okay. Thank you. One more quick question on the wind turbines. I have heard — I don't know if it's true or not — but I've heard that they have to, when it gets very cold that they . . . you have to have heaters up in the . . . Is that true or not?

**Mr. Collins:** — It's absolutely correct. And for your hydraulic systems there are . . . they actually do take power. So they aren't just strictly a net generator of electricity. And in fact, if the wind isn't blowing and it's cold, there will actually be a load source and that will cause . . . Again, they actually will draw power from the system. When you in fact . . . When it's the coldest, you need the power to come to the people of Saskatchewan. So that is a true statement.

**Mr. Bradshaw:** — Okay. One, I guess another . . .

**Mr. Collins:** — That's okay. I'll answer whatever . . .

**Mr. Bradshaw:** — Yes. I've only got five minutes here, so one more question and this also is on the . . . These new wind generators you're talking about that can go down, are they more money than the ones that are up there now or would you know?

**Mr. Collins:** — From what I understand, generally what happens is the cost would go up higher because the size would be bigger. Normally you'd get your economies of scale out of a bigger wind turbine rather than a smaller one. Okay.

As far as to what the costs are, I think the costs of those turbines are actually still staying quite high because demand is so . . . the demand is driving the price right now. And currently, as I said before, I've got a number of numbers across Canada and the United States and wind is the renewable choice. And so what happens is . . . Of course in some cases, you can't actually get the supply from the manufacturer, it is so far out, which again drives the price up. So I would say that the cost is going higher currently just because of supply and demand.

**Mr. Bradshaw:** — Okay. Thank you.

**The Chair:** — Mr. Weekes.

**Mr. Weekes:** — Thank you. Thank you, Mr. Collins, for your presentation. You've outlined many of the challenges that, you know, governments and utilities around the world are facing now, costs of new electrical generation and of course the whole issue around carbon and the carbon footprint.

I've asked a number of presenters this and you raised it by talking about, you know, how many people have taken up the green power and what they're willing to pay, and unfortunately it's not that many individuals. It's more institutions, the government, and so on that have taken up that green power.

You speak of hydro. I understand that Manitoba's locked into some fairly long-term contracts at fairly high prices as well, and that may not be an option in the near future. But when we talk about alternatives, and I'll just talk about hydro, you know, there's zero carbon emissions once it's built. Now there's obviously issues around building it, but the huge factor is the destruction of land if you go to a major dam versus the run-of-the-river type.

But this is the question and you've raised this to the green power. What costs are the citizens of Saskatchewan willing to pay for alternative energy? And not only the cost that the resident might want to be willing to pay, but there's a limit to what our business and industry and mines can pay to be competitive. That's a very tough issue that we're going to have to balance over the coming years. I guess if I could just get your opinion on . . . I'd love for you to have a number but I imagine you're not going to have a number for us.

**Mr. Collins:** — Again I was fortunate sitting on the board of directors of SaskPower and I appreciate both governments gave me that opportunity.

Every time we went in with rate reviews, I guess I was the one person that . . . It always seemed like you should ask for more. Because if you asked for 3 per cent and that's exactly what you thought you needed, you never got 3 per cent. Which, then, it puts your utility in a real tough position.

And it isn't to gouge the people of Saskatchewan. Like you or like all of us, we all pay our power bills. As soon as you start talking . . . I think as soon as you start hitting a ceiling of about 5 per cent, people just, they get nervous and they're running for cover. And if you're running a business, a 5 per cent hit on a power rate, it affects your bottom line. And so I would think that when you start looking at 5 per cent, based on what I know, people really start to get skittish. And as soon as you go above that, then people start thinking, well it's just a flow through. It's just the government is trying to raise money by the corporation making more money and we get a bigger dividend. We flow through it that way.

Currently, you know, we're talking about just about a billion dollars of capital infrastructure into SaskPower. That's tremendous. We've never had that in our history. Just to replace what we've got. That isn't to grow it. That isn't to build more power. It's just to keep what we've got going.

And so, I guess, and the only thing I would add as well is methane. If you go and you dam a big piece of land and there's wood stumps and there's wood by-products, when that stuff rots, it actually goes to the surface and it comes off in methane gas. So when people tell you that hydro actually has no CO<sub>2</sub> footprint, that is not necessarily correct. It depends on how much land was cleared. There's some factors in there as well. And I think on electrical costs, it is going to be a key.

If you want to grow the province and you want to bring businesses to Saskatchewan, they will look at electrical rates. And again, Manitoba. I hate getting compared to other provinces because I always . . . Saskatchewan's going to be a leader. It has been a leader. It will continue to lead. And I look at a made-in-Saskatchewan vision that works for businesses, old and new. But I still think, I would say the 5 per cent, that would be the number that I'd put my hat on. Did I answer all your questions?

**Mr. Weekes:** — Well, like I have one more. Just going back to the green power program, and what would you suggest the government of SaskPower do to encourage more people to buy into the plan?

**Mr. Collins:** — Those are some excellent questions that you've asked me today. You know, it's funny that we spend quite a bit on advertising and we put out information to the people about, you know, the cost of green power and \$2.50. For some reason, that small number is not getting translated to people who I know fundamentally would put \$2.50 a month on their power bill to say, you know what, I do support the environment. I do support green power. I want to send the right message to the politicians, to all parties that, you know what, it is important and I'm willing to pay a little more.

I think what happens is you hit a ceiling as to how much more do they really want to pay, and then all of a sudden they start saying, well the government, you subsidize. You know again, is

it the government's business to subsidize electrical rates of which . . . In the past we've had different strategies. I would say that, personally, I think we have to go into the schools, to the kids, and I think you get the message there because they become our next set of SaskPower taxpayers. And we go to the universities to get the message across because those are the kids that . . . And the leaders, young people that actually can carry the ball for us. And I think if we get them the message, I think it'll actually go. It will spread. That's what my thoughts would be.

**Mr. Weekes:** — Thank you.

[13:30]

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you very much. Very good presentation, Mr. Collins. I'd like to come back to one of your last answers. You said people start to get nervous at about a 5 per cent increase and then you mentioned a number that we needed for infrastructure upgrades. I know SaskPower has in the last little while put out a number of \$15 billion over the next 10 years, I believe it is. When did it become apparent to you that we needed to be moving ahead on infrastructure upgrades?

**Mr. Collins:** — I think that a lot of, most SaskPower employees understand that we'd love . . . We are animals of generation and building new generation. That's what SaskPower was all about. And we started in the '40s, and we started building. And we kept going till about '91 when we built Shand. Then we were, most employees were ready to build the second unit Shand. In fact we were hoping for that.

The problem is, is that as you looked into the future, you could see in again . . . I sat on the board of directors of SaskPower. Were there costs that we tried to put off? Yes, in some cases for the simple fact that again, money seems to be, it is a finite commodity unless you're Barack Obama and you've got the printing press down in the Treasury Department and crank out \$3 trillion. But for most of us here in the province of Saskatchewan, there's a lot of things we wish we could do, but in some cases we couldn't.

I loved . . . I mean I'm a coal guy; I wanted to see coal generation in the worst way. I wanted to see more hydro, but fundamentally we were caught in a position where debt comes into play. And what happens is, there's the idea is new debt good debt, and is it worthwhile for the people of Saskatchewan?

And when you sit there and you set target levels that were going to be 60 per cent debt, ROE [return on equity], right — or our debt to equity, sorry — and you're setting a 10 to 12 per cent return on equity, well pretty soon all of a sudden your infrastructure starts to suffer.

And again, I mean Manitoba Hydro, you know people come and they'll say to you, just do Manitoba Hydro. Well they're probably about 98 per cent debt. Now if that's what you'd like, again and it's a fundamental question for everyone in the province of Saskatchewan, we can borrow through the hilt. But fundamentally do you want a corporation that runs like a business, or do you want a corporation that, well, provides

cheap electrical power, and we'll subsidize it for whatever it is.

And maybe I haven't got totally around to the point that when did we see it. I would say that probably in the '90s, you know, and as we moved forward there was such a fundamental question around debt, that basically the corporation was told to not look at any new generation unless it was of a small scale.

Like natural gas, just for all of you in the room, you can put a megawatt of gas on for about a million dollars. So if you want to do a 200-megawatt project, that's \$200 million capital cost, but if you wanted to put in a 200-megawatt hydro unit, there is a tremendous . . . you're probably talking maybe five times that in capital cost. Now of course the water's going to be cheap, although different departments of the government always want us to pay water tax. We're all teasing. That was a question at the board we always . . .

**Mr. D'Autremont:** — I've asked that question too.

**Mr. Collins:** — Yes, but to say it is a real difficult question of the Crown, all Crowns, and not just SaskPower. Sorry, Mr. Chair, I'll keep my remarks to SaskPower. The amount to keep . . . And that's all utilities in Canada and the United States. This isn't just SaskPower. Fundamentally all utilities have to try to come to the grips whether they will actually put new capital into new generation as well as maintaining what they have. And I would say starting in the '90s on, it became apparent we just weren't putting enough back into the system.

**Mr. D'Autremont:** — Thank you.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — In terms of the generation . . . thanks for your presentation by the way. And maybe I'll answer the question for Mr. D'Autremont. In 1991 we were so broke we couldn't even make payroll, so how could we invest into the Crowns. That answer I could give. And I notice you're a pretty astute gentleman, so you're not about to give that answer.

But from my perspective, I think we're looking at the whole notion of the alternative energies. Do you think that the alternative energies themselves, some of the scenarios and the presenters that we had the opportunity to sit down with, they really, truly believe that they can add to the solution that SaskPower's looking, looking in terms of generation. Do you believe that they have a solid argument?

**Mr. Collins:** — That's a very interesting question. What I look at is, can you supply . . . And you have to break the argument down a little bit. Are you looking at putting on some generation, renewable generation, that may not be accounted for as baseload? Because you may possibly be able to do that, but you will have to actually subsidize it because the cost is higher than conventional electricity that you currently get from E.B. Campbell, from Athabasca, from Coteau Creek, from Boundary dam units, all the coal units.

You know even in regards to our gas generation that we have at QE [Queen Elizabeth power station] and some of the other places, so what you have to do is fundamentally ask yourself, are we looking to add that on as baseload?

The other problem that most people don't explain to committees and to non-electrical background people is that the system is built so that if a unit drops off, if a baseload unit drops off, if we trip a unit, the rest of the units that we have in SaskPower actually have to over-generate to supply that electricity, okay, until we can maybe get another gas plant on or maybe the hydro. We get a little more hydro or maybe another coal unit we can get up. Coal takes longer, so you're basically looking at hydro and you're looking at natural gas. If you can't, then you have to import power.

So in that regards, when we ask other independent power producers — they call them IPPs or non-utility generators — sometimes they don't want to over-generate because that actually puts a demand and a stress on your unit. They can actually shut down from a system and you could create a bigger problem.

And so in regards to, do I think that they can supply electricity? Yes, they could probably supply electricity as long as you're prepared to pay the subsidy for it.

**Mr. Belanger:** — The second question I have is in relation to the point that we really want to build SaskPower to become a very, very solid Crown corporation. That's our intent. I don't think anybody in the room is going to argue. The point is, how do we do it? That's where the division may occur.

I think the point I would raise with SaskPower is that some people believe that going out to the private sector and have them generate power, all of a sudden you begin to look at power as a commodity, not as an essential service that should have a strong Crown corporation in Saskatchewan that watches out for the Saskatchewan people. I strongly believe in that.

Do you view the electrical generation option as some area that we should go? And what restrictions would you put on from your perspective in terms of generation of new power? Is it a certain megawatt size? Is it certain groups? How would you characterize that argument?

**Mr. Collins:** — Again, the argument that we have in regards to generation is that you have a coal fleet that's aging right now. And currently the units that they're talking about, units 1 and 2, you won't do clean coal technology on them. The numbers, you know — and it depends on who you talk to — but the numbers I've heard is possibly 2012 or 2013 shutting down unit 1, 66 megawatts. And possibly very close after that, shutting down unit 2 which is another 66 megawatts.

So you have to look at, one, you've got to replace that generation. Then you have to look at load growth actually in the province. And it's really tough because if I give you a conservative estimate here at the committee, you'll say, well jeez, we don't need to . . . We only need to build a little.

But all of a sudden you find out that we're going to be leading the country in GDP [gross domestic product]. People need electricity. What you have to look for is, you have to look to the future. You've got to think of what you're going to start building that's going to come around in 7 years, 9 years, 11 years, 13 years, 15 years. And it has to be big baseload power. And currently just having a little bit of natural gas or a little bit

of pig poop or a little bit of methane, I mean, you know what, I think that we should encourage . . . What we're trying to tell the people of Saskatchewan, if you want to be entrepreneurs, we look forward to that.

But you also have to meet a . . . It's like a high jump. If you can't jump over the bar, we can't fundamentally drop the bar down just for you to make sure that we create a few more jobs. Fundamentally what we have to do is, we have to say, here's the bar. If you hit the bar, right, we'll look at purchasing that power. Well fundamentally then, we have to take another strategy to say we are prepared to subsidize. And if we're prepared to subsidize, then it's fair for everyone. Everyone knows what the subsidy will be.

But fundamentally SaskPower is aging. And I guess it's like most of us, and you know what, we're aging pretty gracefully and SaskPower's been a pretty damn good utility for us. And the only thing I guess that I would draw caution to is that would we not consider, I mean we have the ATCO partnership that we have at . . .

**A Member:** — Cory.

**Mr. Collins:** — Cory. Thank you very much. And we have Lloydminster Husky. And now that's not necessarily a partnership, that's a PPA. We off-take the power.

I think that SaskPower, it comes down to the debate whether you are going to accept debt. If you're going to accept debt, then you can grow your SaskPower. If you fundamentally can only accept so much debt, then you got to look for a partnership with possibly other utilities, whether it's a TransAlta or an ATCO or a Bruce Power, whoever it is. And in some cases you give up a little bit of your decision-making authority because you're in the partnership now.

And so, you know, again if we had an infinite amount of money, I would say always SaskPower could build. But I know that we don't have an infinite source of capital. And that fundamentally do I see, do I like the fact that SaskPower builds and maintains all generation? Yes, I do. Do I know that that's not the way that we currently do it? Yes, I understand that. And I think if people know that we are interested in partnerships that don't put SaskPower at a disadvantage or the people of Saskatchewan at a disadvantage, I think it's something you can look forward to.

I hope I didn't evade your question.

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you very much. One of the other questions I was going to ask you was regarding the cost of generation. A lot of the presenters, and you've mentioned some of it, have proposed the idea that we should be promoting and utilizing more what's been called intermittent generation sources — wind, solar. And as you've indicated, and as a couple of presenters that we had this morning and yesterday with gas generation, that they can back that up. But when you're looking at basically paying for capital costs for two sets of generation capabilities to get one generation out of it, how do the economics work there on a capital side in comparison to

some of the other potential baseloads, such as gas only or coal or hydro or nuclear or biomass?

**Mr. Collins:** — When I think of the Vestas wind farm, Centennial, I think it was in the neighbourhood of about \$250 million. And if someone knows . . . And again I'm not trying to misrepresent. But as far as I understand, it was approximately \$250 million for 150 megawatts. Now that was in 2005. Pardon me?

**Mr. D'Autremont:** — Of capacity?

**Mr. Collins:** — Of capacity, yes. Yes, you're poking me pretty good. And you're absolutely right; it's installed capacity. It is not baseload power. It has a good equivalent availability, meaning that you're probably regenerating about 36 per cent equivalent availability, meaning that across the whole year we could count on average 36 megawatts out of that 150 megawatts. The problem is that sounds good if we were in southern California, but when you're in the middle of winter, you need power now.

And when people start explaining that, you know, we'll backstop that with natural gas, okay. So just use for example 150 megawatts of capacity — wind — is two fifty. I would say it probably is a little bit higher, you know, two seventy-five. And if you went to gas, again 150 megawatts, you're talking about \$150 million of just the capital. So you're up to about 400 million in regards to an installed capacity. And again you could actually have the 150 megawatts producing wind on a certain day, and you could actually call for the natural gas to produce on a certain day.

The problem that you have is the cost in regards to that generation, vis-à-vis a conventional coal unit, is a lot higher. And the cost in regards to your natural gas is higher right now. I mean it's higher currently at \$5 a gigajoule. Go up to \$15 a gigajoule, and then you'll really see what the costs are.

[13:45]

And that's where it becomes a real big conundrum to SaskPower and to the government, regardless who the government is. Who takes the risk of the natural gas? Who is taking that risk? And I mean you'll have a small capital cost. I mean I'll just use, for example if you're building a supercritical 450 megawatt plant, you're probably in the neighbourhood of about probably a billion and a half. Okay. And so of course we've got a factor of three times. But normally you won't build a coal unit to 150 megawatts. You just don't do it. You'll scale it to size.

And I could be wrong, Mr. Chair, and again, that's not to mislead the committee. But from what I understand the supercritical over at Genesee power plant — and it's now called Capital Power Corporation — that would be somewhere where I would look to the cost. Then I could have a really good comparison as to what people are telling you they can build for wind and backstop with gas, vis-à-vis a supercritical coal unit.

And again, even with the natural gas, you'll have to pay a carbon footprint, and you would have to pay a carbon footprint in regards to the supercritical coal unit. Did I answer the

question?

**Mr. D'Autremont:** — Yes.

**The Chair:** — Mr. Nilson.

**Mr. Nilson:** — Thank you for your presentation, Mr. Collins. And you come from a very unique spot in our Saskatchewan society, representing the union but also having a lot of years of experience on the board. My question relates to an underlying theme, I think. In all of your answers to questions from my colleagues but also in your presentation which is, we need more money to make sure that we have safe, secure power for the developing economy in Saskatchewan. And the question comes, how should that be paid for? And one of the answers obviously is increased rates in the power corporation.

But what I hear in the background, and this will lead my question, from what you say is that there's a general benefit to society to having that secure source of power for everything that we do, whether it's heating our homes or running our businesses or just running our computers, I guess, if we can put it that way. And is it possible that because of the nature of Saskatchewan that some cost of providing a secure electrical system for Saskatchewan isn't in the nature of a General Revenue Fund expenditure and therefore a tax on everybody, as opposed to charges through a power corporation?

**Mr. Collins:** — Yes. You could do it that way. And the biggest problem that we have is again, how do we find that money? And different individuals had come up with different ideas. I remember when we used to have days ago that you could purchase SaskPower bonds. You could actually invest in the company. And I always like to think that, you know, there was an opportunity for us because again we'd have to go to the markets of New York or wherever. And all of a sudden, you basically go there with your hat in your hand, and they'll tell you whether they're going to give you the money or not, and they'll tell you what the rates are going to be. And I always thought there could be an opportunity for us.

The people of Saskatchewan are very interested in good businesses. You have a great business in SaskPower. Could it be better? Yes, it could be. In some cases we kind of need to understand do we want to run it again as a business, or do we want run it as a low-cost electrical supplier of safe, reliable power for the people of Saskatchewan? And those are fundamental questions that turn to generally political in nature.

I kind of like to think that the corporation could be a great asset for us, but it needs to have some area of a growth strategy. And your generation, and I would say this to everyone in the room, we need to really push the federal government on that national transmission corridor. And this isn't a question of the people of Saskatchewan should be . . .

Electricity is fundamental like water. It is something that we should all have easy access to. And currently when we built our transmission system and our distribution system, we built it for the people of Saskatchewan. And you know that was built in the '40s, '50s, '60s, and '70s. Well we're 30 and 40 and 50 years into the future, and it's really tough to fund that sort of stuff when we've got an infrastructure fund that the federal



government is sitting on.

It'll pay for rinks and it'll pay for whatever else you want, but fundamental electricity we can't get a decision. And I'm not trying to throw stones that it's the PCs [Progressive Conservative] in power. It's a fundamental issue for the federal government regardless of who the party is, that they have to turn their eyes toward electricity and a national transmission corridor which would benefit all the people of Canada. We would get a tremendous benefit from that.

And you know I always like to think that, why don't we export power? Why don't we build, why don't we have a merchant plan to export power? And I can't believe that we couldn't go to businesses, use the expertise of SaskPower and say we are very interested in that which would create jobs, which would create growth, which would send power. The Americans need power and their economies are coming back. We know they're coming back. And our economies are going to grow and we're going to need power.

So is there an opportunity? Fundamentally I believe there is, but we've got to find the money. And I personally, I think, and in regards to what you're saying, you know, there could be an opportunity to say to the people, to the taxpayers of Saskatchewan, are you prepared to invest? And I know some people say, well I already own the asset. Well you're going to get me twice on this thing? And no, it's to give them an opportunity to invest in the corporation with possibly getting some form of dividend, some form of a payment back to them. I can't believe that people wouldn't be interested in that.

**Mr. Nilson:** — So you basically see that this is a public benefit, the electrical system itself. One of the questions that arises, with all of the various forms of proposals that would come from private power providers or others, is getting a fixed subsidy effectively on the project to make sure that the numbers work for the business plan in the long term. And that's what we've seen in Ontario. A lot of comparisons come and they fundamentally made a political decision in Ontario that we're never going to be caught in a blackout like went around the Great Lakes because we have no power.

We are going to pay, you know, seven, eight, ten times what the standard rate is to have wind power, solar power, some of these other things. I guess in Saskatchewan, do you ever see that we would be in a situation where we would make that kind of a political decision to subsidize private producers just to make sure we have the supply?

**Mr. Collins:** — I think that it's a great question. And yes, would we love SaskPower to be everything that it possibly could be? Yes, it would be a great idea. Can it possibly be? I think based on the financial constraints we have, no. And I think what happens is yes, you will have to look at some form of possibly a subsidy, some form of an incentive to make sure that we have electricity for the people of Saskatchewan.

Now in most cases what SaskPower . . . when it was first started out, was that we actually had extra generation. We built extra generation for the fact that, one, we don't want to be caught without electricity. Two, no one ever knows when a unit's going to trip, you know? You just don't know. And all of a

sudden a unit trips out of the blue. We have extra generation that we can actually put on very quickly.

Now one is, coal cannot come on as quick. Okay? Coal, basically you have to heat the boiler. You have to get steam, and then you have to heat the turbine. Then you run the steam through the turbine and you get it up to 3,600, and then all of a sudden, rpm [revolutions per minute]. And then you actually sync the unit and you can start producing electricity. But then it takes it a little bit of time to get to full load. So unless your coal unit is sitting on hot standby, and we generally don't run coal hot standby. We generally don't do that.

So we have natural gas or hydro. And I honestly believe there are some great hydro projects here in Saskatchewan. And yes, I understand. We need to have Aboriginal communities on board, absolutely. And I think in the past we haven't been very good in maybe getting all the people in the room so that we're all talking the same language. And that isn't to say that we speak a different language. It's to understand if we're talking about the economies, if we're talking about the impacts, if we're talking about the, again, socio-economic impacts, I guess as well.

And sometimes we put up so many barriers. We could be so much better, but we point to one another as you're the problem. And if I don't get what I want, I'm definitely not going to do what you want me to do, which creates more problems for us.

So would I look at some sort of a subsidy? Possibly, to make sure that I've got electrical generation. But it used to be, you'd have to fundamentally again ask yourself, do we want SaskPower to have some extra generation? And actually they will be the keeper of extra generation so that we're not caught in that predicament. Or we do want a TransAlta? Or do we want an ATCO? Or do we want a Northlands Power? You know and again, those people know how to run their utilities. They're not bad operators of the systems.

But I think what we could do is something unique and possibly have that private-public partnership that works to the benefit of everybody, you know.

**The Chair:** — Okay. Well thank you for your presentation and your questions. It has been very knowledgeable and very helpful to our committee. So thank you very much.

**Mr. Collins:** — Thank you.

**The Chair:** — The committee will recess until 2 o'clock.

[The committee recessed for a period of time.]

**The Chair:** — Before we hear from our next presenters, I would like to advise the witnesses of the process of presentations. I'll be asking all witnesses to introduce themselves and anyone else that may be presenting with them. Please state your name and, if applicable, your position with the organization you represent. If you have written submissions, please inform us and those documents will be tabled and will become public documents posted to our website.

The committee is asking for submissions and presentations to be in answer to the following question. The question is: how

should the government best meet the growing energy needs of the province in a manner that is safe, reliable, and environmentally sustainable, while meeting any current and expected federal environmental standards and regulations and maintaining a focus on affordability for Saskatchewan residents today and into the future?

Each presentation should be limited to 15 minutes and we have set aside time to follow for question-and-answer. I will direct questioning and recognize each member that is to speak. Members are not permitted to engage witnesses in any debate and witnesses are not permitted to ask questions of committee members. I would also like to remind witnesses that any written submissions presented to the committee will become public documents.

With that, I'd like to thank SaskPower for coming to wrap it up here today. This is your third time before the committee and we certainly find it valuable and appreciate you joining us. So please introduce yourself and your officials and go ahead with your presentation.

**Presenter: SaskPower**

**Mr. Mitchell:** — Thank you, Mr. Chairman. Good afternoon. My name is Garner Mitchell and I'm the acting president and CEO [chief executive officer] of SaskPower. And I am very pleased to be here and I'm joined by others from the senior management team at SaskPower. And with them, we'll try and answer any of your final questions in regards to SaskPower's strategy to meet the growing electrical needs of the province.

Now let me introduce the other SaskPower representatives and I'll just get them to wave, if they will. Sandeep Kalra, the vice-president and chief financial officer; Mike Marsh, vice-president of transmission and distribution; Judy May, vice-president, customer services; Gary Wilkinson, vice-president, planning, environment, and regulatory affairs; Doug Daverne who's the manager of the clean coal project; and we have Shawn Silzer from corporate relations.

These members of my executive team will help answer your questions, but before we begin to take questions, I'd like to table two documents with the committee. First I have an updated version of our submission to the committee from October the 6th. We have updated this to reflect developments in our supply plan and system operations that have occurred since the document was first prepared.

There are a couple of updates I'd like to highlight for you. The updated document notes our launch last October of two programs that will see us more than double the wind power production in the province. The green options plan and the green options partners program will add another 200 megawatts of wind power to SaskPower's generation capacity.

We have confirmed in our updated document that while over the last 10 years demand has grown by an average of 1.3 per cent each year over the decade, system peak demand is expected to increase by approximately 3 per cent per year. And to demonstrate the accuracy of our load forecasting, in 2009 SaskPower's peak load was forecast to reach 3214 megawatts. At the end of the year the actual peak was 3231 megawatts. In

electric industry circles this type of accuracy in peak load forecast is admired, or very lucky.

The updated documents we're sharing with the committee represents a snapshot in time of our planning process and is built to be fluid. Nothing less could be expected for a document that looks far into the future. It's also important to remember that the job of implementing the long-term infrastructure renewal strategy outlined in this document isn't one that will be completed overnight. Generation and transmission projects can take anywhere from two to ten years to complete. And we're not alone in facing this type of challenge. All across North America, electric utilities are grappling with the very same issue as we are in Saskatchewan: how to meet growing demand for electricity in a way that is green, reliable, and affordable.

The second document I would like to table today includes our answers to questions posed by the committee on October 19th when we last appeared before you. With the two documents we are tabling today, along with our previous appearances and our final testimony today, I am confident that the members of the committee and those watching the proceedings on the legislative network will have a clear understanding of the changes SaskPower faces in our operating environment that require us to, in essence, undertake an entire renewal of the province's electric system infrastructure.

I hope the committee and the public will clearly see we have a comprehensive strategy to respond to this unprecedented challenge. It is my belief that in 10 years from now, thanks to the thoughtful planning, investment, and partnerships that are at the heart of this strategy, SaskPower will be in an even better position to fulfill its mandate to serve.

And with that we'll be pleased to take questions.

**The Chair:** — Thank you very much. Those documents will be tabled. Our first question is Mr. D'Autremont. Before we start, I will say we have had a tradition of five-minute questions. By agreement between the Chair and the Vice-Chair, we have decided to go to 10 minutes for SaskPower because some of it gets slightly more technical. With that, Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you very much. Thank you for your presentation. We've had very interesting hearings with lots of varied suggestions. One of the issues that has been raised with us deals with clean coal and carbon sequestration. We had a representative here from HTC Purenergy the other day who was suggesting that — I think his words were, strongly suggested — that HTC not participate in the RFQ/RFP [request for quotation/request for proposal] process for the MOU [memorandum of understanding] with the carbon sequestration project with Montana.

I thought it was important that we find out. He was suggesting that that suggestion they not participate came from SaskPower. I thought it's important that we get SaskPower's view of that and as well I would like to ask you, what is the process that SaskPower is going through for this project?

**Mr. Mitchell:** — Okay. I'll ask Mr. Doug Daverne to come forward.

The carbon capture projects are very, very important to SaskPower and I believe to the province as a whole. The future of coal as we move forward, there's much more stringent environmental expectations. And so the work that we're doing on coal and clean coal technology will help us position for the future so that coal can still be part of the portfolio and part of the mix.

We have been getting ready for a very large project at Boundary dam 3. It's a billion-dollar type project. We went through a very formal process, which I'll get Doug to talk about, to prepare for this. And we're on target. Things are moving ahead. But again when you're talking a billion-dollar type of project, performance of the end plant is extremely important to us. And then because we're dealing with new technologies, just the risk of who you work with and whether they have the ability to deal with it, and cost — in the end it comes down to cost as well. So we followed a very formal process to get to the three people or the three groups that are currently under consideration. But I'll turn it over to Doug and he can talk a little bit about the process.

**Mr. Daverne:** — Thank you, Garner. My name is Doug Daverne. I'm the manager of engineering for the Boundary dam integrated carbon capture sequestration project. So as manager I've overseen the CO<sub>2</sub> capture system RFP process.

I think in response to the questions that were asked, I think what I'd like to do, if it is okay with Mr. Chairman and the committee members, is just talk about the process first, and then I will address the specific question I think that was raised by one of the witnesses. I believe it was Wednesday's proceedings.

So a little bit about status of the CO<sub>2</sub> capture technology selection and the process itself. And I'm going to speak generally to how SaskPower goes about request for proposal processes and then specifically how this process was conducted.

So as part of SaskPower's general RFP processes, and this RFP process in particular, I have to talk about confidentiality upfront and first and foremost. So one of the commitments that we make to all of our vendors in any RFP process — and frankly it underpins SaskPower's capacity to procure goods and services successfully — is we keep information confidential that those vendors provide. We keep our evaluation of those vendors confidential. And it's that type of information that I will not be able to discuss in any detail here today. I will talk about the general process and the characteristics of it and how it was conducted.

I would also comment that in the particular case of the CO<sub>2</sub> capture system RFP, beyond that general commitment to confidentiality, we also have specific non-disclosure agreements in place with every proponent that has participated in the process. So that's a common feature to every proponent. So we are under a legal obligation to support those agreements that we've made.

In July of 2008, SaskPower issued a formal request for proposals process. This was looking for CO<sub>2</sub> capture systems for the Boundary dam integrated carbon capture sequestration project. The purpose of this RFP was to select a CO<sub>2</sub> capture technology based on the lowest cost of capture with acceptable risk.

[14:15]

Risk includes many factors. There's performance risk and technical risk. There's other risks such as capability to deliver projects. There's financial risks. These risks exist in all of the projects SaskPower does. Because of the nature of the project in the case of the Boundary dam project, the fact that it involves new technology but, more importantly, a new business arrangement for SaskPower to undertake, risk management is particularly important with this project.

The criteria that was set is based on SaskPower's overall objective of delivering safe, reliable, cost-effective electricity. So that's where we came from with this RFP and frankly where we come from with all RFPs. It's a practical requirement. We have to ultimately deliver electricity at the lowest cost we can, commensurate with safe, reliable operation, and going forward commensurate with required emissions control regulations. And that's one of the focuses of this project.

Significant SaskPower ratepayer dollars are involved with the project, as Garner has pointed out. It's approximately a \$1 billion project. For this reason, a formal, structured, and rigorous process has been utilized to ensure that the technology and proponent having the best combination of performance cost and risk is selected. The specific RFP evaluation requirements were disclosed at the initiating documents, and all proponents received those as part of the RFP process.

SaskPower's CO<sub>2</sub> capture system process has been a two-stage process. Stage 1 involved requesting initial proposals from which up to three proponents were to be shortlisted. Approximately 15 firms were invited to submit a proposal as part of that stage 1. In early October of 2008, all participating proponents submitted their proposals. So these were the proponents that of that, 15 decided that they would like to submit a proposal to the project. All responded at that time.

Following receipt of the proposals, SaskPower worked with all proponents to ensure that the quality of their information was adequate, and to ensure also that each had put their best offer forward. So again our objective is to get the best result we can out of these RFP processes, and this one in particular. So we try and work as much as we can with proponents to make sure that they have put their best foot forward and that it meets our needs as well as it can.

An analysis of the proposals that were received, as well as follow-up information, analysis of follow-up information, was prepared for SaskPower by Stantec engineering. I'm not sure how many of you are familiar with Stantec engineering, but I'd like to just briefly discuss SaskPower's perspective on Stantec. We feel that they have established expertise in clean coal emissions control for power plants in general, power generation, and CO<sub>2</sub> capture technologies. SaskPower considers Stantec to be a leader in this area. Overall Stantec has approximately 12,000 employees throughout Canada and the US and it's one of Canada's largest engineering firms. Further, Stantec has designated their Regina office here as their corporate clean coal centre of excellence.

So that's the background on the independent engineer that has been working with SaskPower and took the information that we

received from proponents, analyzed it, and produced a report for SaskPower for review.

Stage 2 . . . I guess I'll just step back here. Based on the formal selection process and the proposals received, a short list of three firms was announced in February of 2009. These were Cansolv Technologies, Fluor, and Powerspan. Selection timing was critical to allow the project to hold to the 2013 in-service date schedule. And I can talk a little bit more about that if there's a follow-up interest in why that particular date.

Stage 2 of the RFP process has been in progress throughout 2009. This has involved significant detailed work by each of the three short-listed vendors to ensure accurate costing has been established, with final commercial proposals being due fall of 2009. So sometimes this is called front-end engineering and design or FEED. In this case, it was that but also an activity to produce a commercial proposal that we could then look at and ultimately award a contract based on. So it was an additional activity beyond that.

Another important activity that has happened throughout 2009 with the short-listed proponents is that Stantec and SaskPower have been verifying the performance claims that they submitted with their initial proposal to make sure that their processes will actually work as claimed. I will also comment that the short-listed proponents were announced in February of 2009, so just a little less than a year ago. SaskPower is now completing the two-stage process and expects to announce a final selection in the near future.

What I can say specifically about the question of HTC — and this is the only comment that I'll be able to specifically make about any particular vendor in this process — is that SaskPower, in our opinion, has treated HTC fairly throughout the process and in fact treated them the same as we've treated the other proponents involved with the process. SaskPower can make a clear statement that we did not ask HTC to withdraw from the process.

So those are my comments. I don't know if there's other questions that come up around this issue.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Thank you very much. Based on your performance of projecting your maximum peak, you probably know what I'm going to talk about today. So the whole issue I'm talking about is the whole purpose of this committee, the renewable energy strategy. And obviously Ontario, certainly through . . . [inaudible] . . . and a lot of the companies across Canada, is looking at this whole issue. So they are . . . and an example, they are offering 44 cents per kilowatt for solar, 13.5 cents for wind, 13.1 for small hydro, 13.8 for biomass generated, with additional incentives for Aboriginal or community involvement.

So how did SaskPower arrive at less than 10 cents in its green options program from all these sources, renewable sources, I might add?

**Mr. Mitchell:** — I'll get Mr. Gary Wilkinson to address that one.

**Mr. Wilkinson:** — So it's Gary Wilkinson, vice-president of planning, environment, and regulatory affairs with SaskPower. So essentially, why is the amount of money that SaskPower is willing to pay for generation somewhat less than Ontario is listing in, I think, what you described as a fairly bold foray into something called the feed-in tariff? I would just offer the committee one observation, is that in addition to, I'm going to say, amounts of money for amounts of power, there may be one or two other facets to the Ontario approach that involve trying to stimulate local manufacturing and a few other bits and pieces. So I'll just mention that at the outset. It's not just a pure amount of money for an amount of power.

This is fairly fresh. We're reading about it quite a bit in the newspapers these days. They have just had their first lottery, I think it was, they were taking applications in I think it was October of 2009, and they're just now coming out of that experience. SaskPower is watching this with some interest, of course, maybe for some of the reasons you have mentioned.

The feed-in tariff, and I'll start with the one that they've kind of done the most work on and they've done some announcements already, and it's called the microFIT. FIT, feed-in tariff, microFIT. And this is for rooftop solar, so these are for relatively small installations that go up on top of folks' roofs. For that the tariff that they were willing to pay was actually higher than the 4.4 cents. That's for larger scale things.

For this one, and pardon me, I'll use the phrase dollars per megawatt hour. That's something I'm a little more familiar with and we talked to you in October in those kinds of terms so . . . They were willing to pay for this rooftop solar about \$880 a megawatt hour. That's what they're willing to pay. They had 700 applicants and they received enough . . . About 8 megawatts is what that will add up to be. These are relatively small installations — they go on top of the roof — at \$880 a megawatt hour. Right now the people in Saskatchewan are paying arguably about \$60 a megawatt hour for their generations. That gives you a sense of the premium that's being paid for that power.

In our estimation, \$880 a megawatt hour is quite high compared to what the people of Saskatchewan are experiencing right now. The bigger installations under the feed-in tariff — we call these macro FIT, if that's a better way of describing it — they had a great number of applications under that as well. That's just in evaluation right now. The information we have anecdotally out of Ontario is they may not have the transmission to actually be able to hook that up. There's some extra complexities associated with the larger installations that they have to go through before they're willing to say a whole bunch about that.

Because of the very large incentive . . . You want to be careful with how much incentive you ask SaskPower and maybe others to come up with to incent the kinds of behaviour. Inside SaskPower, to give you a sense, inside SaskPower we have something called a net metering program, trying to get small renewables hooked up in the lower voltage areas of the province. And very roughly, the price that we're offering is about \$110 a megawatt hour. Right now we have 170 people lined up in the queue process already. That's enough to attract the kind of attention we're looking for. We don't need \$880 to attract the kind of interest in small renewables.

So we think the cautious approach that we're taking with net metering — and it can be adjusted up and down over time — it's getting us results at a fraction of what Ontario came up with. We do not insist, however, that any materials or generators that are added to the system be manufactured inside Saskatchewan.

We have another program, and I think President Mitchell talked a little bit, called the . . . I call it the GOPP — the G-O-P-P — the green options partners program. That one's very fresh indeed. And I believe that's the program you're saying that we're just tucked under \$100, and you know, how's that going to work out? Too soon to tell.

We already have people who are rapping on our door and saying, we will build for that. We are going to get some responses under that program for that amount of money. If it turns out the response is overwhelming, you might actually back that dollar figure down. If it's underwhelming, you might touch it up a little bit. But it's early days on that, but we are attracting some interest.

In the past we had something called . . . It was an environmentally preferred power program, again trying to track, oh sort of 5- to 25-megawatt type projects, again of the smaller, the smaller size. And we were able to attract interest in that without going to a very high dollars per megawatt hour. We have some wonderful heat recovery projects that came through that program and we talked a little bit in October about the Gaia wind program. It also came through that program, again for much less incentive than perhaps Ontario's talking about.

We have attracted several thousand solar installations in this province through our livestock watering program — approximately 2,000 — by offering a \$500 incentive for them to put a solar water feeding station rather than have us run a line out there. In that case that solar power is not hooked up to our grid. It's isolated in the middle of the ranchland somewhere. That has saved us — it hasn't cost us; it has saved us — millions because we did not have to run lines out there. So we have kind of a very successful solar program. We've put out slightly less than \$1 million of incentive and it saved us millions in lines because we've been able to get more done with less, I guess is the answer as to why maybe we haven't embraced the Ontario approach vigorously.

**Mr. Belanger:** — Thank you so much. I'm sure there's more intelligent people out there that could evaluate what your answer was. But when I wanted to get married, I wanted to ask my mother-in-law and she gave me this long-winded answer. So basically I think the answer, that she didn't want me to marry her daughter, so I just went and asked her daughter on her own.

So I guess the question that I would have is that, why would anybody not come to SaskPower and Saskatchewan to do this kind of generation of power? Instead they say, well let's go to Ontario; the deal is better is over there. It almost seems like you're discouraging by giving the low rate of what you're offering for alternative energy generation. Why would any producer come here?

**Mr. Wilkinson:** — Well maybe I'll shift gears a little bit for

you. And we're seeking . . . I'm just going to . . . It's a bigger program, 175 megawatts of wind. And it's a competitive process and we're going to try to attract people to bring wind projects to us. We're already asking who's interested and we have more than 30 people who have wanted to register to build in Saskatchewan.

The net metering program, it's not that old. People are getting used to it, getting the information on it. We have 170 in the application process. We are getting a response with the . . . So I don't think we're necessarily discouraging people. A matter of fact I think we're going to get a great result and I do believe that the ratepayers or the people who pay the power bills may actually appreciate how we're coming at it. Just a thought.

[14:30]

**Mr. Belanger:** — Yes, I know. I appreciate that as well because the whole notion of affordability is something that we ought to always keep in the back of our minds. So I don't think I'm arguing with you on that. It's just the point that you're saying that the interest that we've had, is that you're getting a lot of interest at 10 cents. Is that what you're saying as a result of some of the programs that you identified? So there's more interest in what you're doing under 10 cents than there is in Ontario under their pricing scheme for all the renewable energy generation possibilities.

**Mr. Wilkinson:** — So maybe I'll try this. Ontario being something of a fairly large province with a fairly sizeable population, they should be able to acquire more applicants than we can. It's early days on what I call the green options partners program — that's the one that's just tucked under the \$100, and the net metering is just over \$100. We are getting some interest in that. We'll know more about green options partners program by the time the expression for interest is closed up, which is coming soon.

**The Chair:** — Mr. Weekes.

**Mr. Weekes:** — Thank you, Mr. Chair. Thank you very much for your presentation, your information. A couple of constituency questions first, then I'll move on to something else. In Biggar constituency I represent Landis, and Landis is a natural gas unit — 79 megawatts — commissioned in 1975, significant capital injection, a retirement date 2014. Can you update that, about the future of that plant?

**Mr. Wilkinson:** — Sure. In our lists of material that we provided to you in October, Landis, we describe that as a retire or refurbish date. And President Mitchell at one time just recently was the vice-president of power production, and he has a habit of being able to make existing equipment run for very long periods of time. The decision has not been taken in the 2014 Landis case as to whether it will be retired or refurbished, but I think we shared with the committee, again in October, that often the refurbish option can appear quite economical compared to net new kinds of installations. Is that helpful?

**Mr. Weekes:** — Yes, but no final decision's been made yet obviously. My other constituency concern by my friend and neighbour, Rob. He has an abandoned farm site, and SaskPower has demanded either they want to be paid, I believe, \$100 a

month for the line in there — he does not have a meter; he's not using any power on that site — or else SaskPower's going to pull the line out. And then he would have to pay for putting it back in at a substantial cost, I guess. Would you explain to him why he is put in that position and justify it, please.

**Mr. Mitchell:** — Sure. Mike Marsh to answer this one.

**Mr. Marsh:** — Yes, I believe your neighbour is being offered the same offer that we give every farm resident when we are about to salvage the line out of the yard. If that line is not connected to a meter that is serving an active customer, then we go in and pull that out, and we call it salvage. And we make a small payment and remove the lines and facilities from that area.

**Mr. Weekes:** — Thank you. Now I'll go to the main topic. The recent announcement of a small or independent power producers, what . . . I guess the price of power produced by them is going to be negotiated. What is the process around that negotiation and how . . . I guess I want to get a handle on, depending on what kind of power that they produce and depending on the source, what price will be offered to them? And is it, is the price offered to them different depending on their . . . whether it's biomass or wind turbine? Or how is that developed?

**Mr. Wilkinson:** — Okay. I think I understand the question, and I may seek just a little clarification. From what I've heard, your interest is in the last two processes that we've been through with . . . to solicit IPPs, independent power producers, to give us bids. We had one we called an RFP process for peaking units and another one we called an RFP process for baseload units. Is that your area of interest and kind of how we went about getting competitive pricing there?

**Mr. Weekes:** — Yes, I believe I'm referring to the private power producers that you've asked for bids from. What is the range, 100 kilowatts to 10 megawatts?

**Mr. Wilkinson:** — Okay. No, that's GOPP. That's the green options partners program. Okay, now I think I know. I'm now with you. There would be . . . I would kind of describe that arrangement as almost a standard offer kind of program where the dollars per megawatt hour is fixed. If you can hit that, bring it on.

**Mr. Weekes:** — So the target?

**Mr. Wilkinson:** — Yes. And many people will say if they can hit that target, even if their costs are less than that target, they'll bring us a project, and it'll be quite profitable for them.

**Mr. Weekes:** — Oh, I see.

**Mr. Wilkinson:** — Yes.

**Mr. Weekes:** — That's public information, that target?

**Mr. Wilkinson:** — Yes, it was released in the public information that that dollar per . . . or I guess it was cents per kilowatt hour because they're smaller. And again I apologize for shifting units on you. But yes, the amount of money that

we're willing to pay is published, and if you hit that target with the project, bring it on.

**Mr. Weekes:** — So you're not really differentiating between how the power's produced. It's just if you hit the target.

**Mr. Wilkinson:** — Right.

**Mr. Weekes:** — Thank you. Smart grid . . . And we've been told Ontario's replacing many of their meters now to, well I think the term would be, to bring their system up so they can use the smart grid system, and it's obviously under development.

I guess a question is, where is SaskPower as far as the smart grid? And a bigger and a larger question is, how does SaskPower actually deal with new technologies? Do you do any research? Or how do you incorporate new technologies? How do you know that it's applicable for Saskatchewan as well?

**Mr. Wilkinson:** — Okay. I'll do what I can in eight minutes on that one.

So just background, when we were here in October, we said what smart grid is. Smart grid is really digital and computer technology. It's brought in, and it's applied to try and make a better power system and make it run closer to the line. It involves load in the . . . When we were here in October, we talked about the supply-demand balance and how we have to stay close, match the two.

So it involves the load. Smart grid starts to involve the load in that matching exercise. You start to control appliances and those kinds of things in the home. The smart grid implies that as well. And it also implies that you can hook up a lot of renewables in the distribution system — you found a smarter and a better way to do that.

I'll point to President Mitchell one more time. Inside Saskatchewan, arguably, you already have smart generation. Garner's time in power production, he put in plant control and monitoring systems, all computerized, that monitor those things — where they're running, are they at the sweet point? — pretty high tech stuff.

Inside Saskatchewan I would argue that you already have a smart transmission system. We started this in the mid-'80s and refreshed it again in the mid-'90s. This is a computer controlled electricity grid you have in Saskatchewan.

It's a system that looks at the losses on the system and advises the operator how he can improve the losses. It checks hundreds of possible contingencies and advises the operator where the weak spots in his operating mode at the moment are. It has 200 computers throughout the whole province that all communicate back to a little bunker just outside Regina. I won't say where it is — security. But at the end, I would argue that you have economic dispatch, voltage alarms. This is a very high-tech system at the transmission level.

We've done some very specialized high-tech things in the transmission system to try run it again closer to the line. It's in the distribution system, in the lower voltage, in the 140 000

kilometres of line in this province that the . . . That's where the smart grid is now being aimed at the most.

Judy May, vice-president of customer services, will talk to you maybe a little bit about advanced metering systems, so I won't touch on that. But if you're going to make a smart, I'm going to say, distribution system touching a lot of the load, you're going to need advanced metering infrastructure.

You're going to need some control equipment in the homes to shut off air conditioners. At one point they were trying to tap into the batteries of electric cars as those come out. That's another thing they're thinking about. You have to be very cognizant of cyber security because only one group should be able to control things in a person's house. And the other is you're going to need a communications infrastructure that is decently impressive.

In the United States right now, the US government has thrown \$34 billion at this, at the concept called smart grid. But I'll be frank with you. It's not really aimed at smart grid; it's aimed at economic recovery of the United States. It's a stimulus package as opposed to let's get smart grid going.

We have met with consultants, again from Canada and the United States, and they are urging extreme caution around the business case associated with this. It shouldn't be just a make-work project.

SaskPower, I mentioned we already have a smart set of power plants and a very smart transmission grid. We are just now going through cyber security audits of that equipment to see if we are vulnerable to attack, etc., etc. You must have a clear understanding. But before you got anywhere close to the smart grid concept, you really want to be in step with cyber security standards in this country.

Without going too much further, in Saskatchewan we've not received any portion of that 34 billion that the US has.

The business case, we've spent a little bit of time in the past looking at high-end metering and control things. Without DSM, demand-side management, or conservation as part of the package, it's really hard to make smart grid pay. That's what we understand.

There's a group in the States called the National Institute of Standards and Technology. They have just . . . And it's within the last weeks. Your question is right on time. They have just issued here's the kind of communication and control standards that we think are applicable to the concept called the smart grid, and here are eight pathways where there are gaps where you had better fill them or you're not going to have interoperability, which means you can't have this computer talk to that device over this communications link.

And so the message that I have for you on smart grid — it's early days. You already have smart power plants and smart transmission lines. The next step . . . Watch carefully. Our guess at this point, it'll probably be 3 to 5 years before you see those interoperable standards and kind of things mature to the point where you're not captured to the point of having just one vendor.

To give you a sense of it, World Economic Forum, they indicate that you better make your smart grid custom-tailored for where you live. Your local circumstances in Saskatchewan are going to be different than your local circumstances in California, are going to be different than your local circumstances in Ontario. And Cisco and Google and Microsoft are walking in on this, and their bet is that the communications space you're going to need to make this work in a widespread way is between 100 and 1,000 times what the Internet takes now. So you want to be cautious that you don't swamp your communication infrastructure in your province at this time.

So early days shows some promise. Careful with the business case. Judy has some work going on with advanced metering infrastructures such that we're kind of putting the pieces in place, but we're not ready to jump yet.

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you. I'd like to go back to carbon capture and sequestration. While we were in Estevan, we had a presentation there from the mayor and representatives of the community, and they recognized that there had been two announcements of projects to potentially go forward there. And their question was, what's the state of those projects? They're obviously looking for the dirt to move and the cranes to go up. And so their question was, what's going on and when can they have some expectations of some physical evidence?

**Mr. Daverne:** — Okay. Yes, I can provide an update on both those projects. I'll start with the Boundary dam project. In 2008 we announced a schedule for that project. It included dates like technology selection dates, dates for the selection of a steam turbine for the project, dates for what we call the go, no-go decision, and ultimately an in-service date. So we're basically tracking to those dates.

So early 2009 we were to announce a short list which we did for CO<sub>2</sub> capture technologies. In the near future we'll be announcing a final selection of the three that were shortlisted for those CO<sub>2</sub> capture technologies. We have undergone an RFP process to select a replacement steam turbine for Boundary dam unit 3 and expect to be making an announcement on that selection in the near future. We have activities under way now to secure a CO<sub>2</sub> sale for that project. A CO<sub>2</sub> sale is very important as it offsets some of the billion dollar cost for that project, and that work is proceeding per our schedule.

The main driver for the schedule has been and remains the 2013 in-service date which is controlled by the Boundary dam unit 3 critical major outage. There's equipment in Boundary dam unit 3 that must be upgraded at that time. We cannot change that date.

[14:45]

So everything we're doing on this project, although it is talked about a carbon capture project, it is also — and in some ways as importantly — a major life extension project for unit 3. So that unit will be 45 years old at that time. Our intention is to life extend it for an additional 30 years. So this is a continuation of work that Garner has done under his vice-presidency of power production to get as much life out of these existing assets as

possible, and that's as much what this project is about as anything.

So the intention is by the end of 2010 to have a complete package of cost estimates, major contracts in place, CO<sub>2</sub> sale in place, environmental approvals in place. At that point in time, the project will be ready for a final decision by SaskPower, and we're still on track for that and still working to that schedule.

I'll just offer the other comment that there may be the suggestion that this project could move more quickly. It's a very large project. It's the largest project SaskPower has ever undertaken in terms of a dollar value. It's not unusual for projects of this size to take this period of time. It's very important, as we've talked about related to the risk of the project and the number of technical issues, that we proceed very prudently, and that's the approach that SaskPower has taken. Part of that is making sure we have our costs well in hand at the time of project approval. SaskPower has a good track record of bringing projects in on cost and on time.

Talking about the Saskatchewan reference project, there's a variety of names that have been used for the project — Coronach-Montana project, more recently Saskatchewan demonstration facility. Basically this is a project that was announced, I don't recall whether it was in 2008 or 2009, but it was a concept to develop a reference facility that would allow different CO<sub>2</sub> capture technologies to be tested at a large scale. And by a large scale I mean several hundred tonnes per day, perhaps as large as a thousand tonnes per day. This is a scale that is a clear demonstration of the viability of those technologies and allows them then to be deployed in commercial projects, such as the Boundary dam project, future projects at SaskPower of the same type, or projects anywhere else in the world.

So that was the concept. SaskPower thinks that's an excellent concept. We think that's exactly what's needed in the CO<sub>2</sub> capture industry, is to get these technologies so that there's a selection of them available at a large scale.

So SaskPower has agreed to provide a host site for this reference facility. It has been working actively to develop plans to integrate this facility with one of our operating coal-fired power plants. There's a few different options available for where that might be located. Basically the facility is intended to accelerate the development and ultimate deployment of these technologies at a commercial scale. And this is, as I said, to allow these technologies to be used first and foremost — a selfish reason — for SaskPower and Saskatchewan ratepayers, but on a broader sense, for a global deployment plan that vendors may have.

We've been making a significant effort to get this facility developed, then have been taking a leadership role in obtaining project funding. This has included making formal application to the federal government Clean Energy Fund, and that application is pending now. I can say that there's positive indications to date but no final word on whether those funds are coming or not at this point in time. Continue to work towards that.

Its facility is targeted to come into service as soon as possible, so as soon as practical once that funding is in place. And

basically we feel it'll provide one of the first and largest commercial scale demonstration opportunities for CO<sub>2</sub> capture technology and related systems.

In terms of participants in this project, it's intended to be a technology-neutral project. However there is a specific intent that Saskatchewan technology will be provided an opportunity here. And we see that as one of the earliest and best opportunities for demonstration of any technology, including those that have been developed in Saskatchewan.

So in summary, SaskPower's working towards that. We do have a lead role. We're working very actively on it.

**Mr. D'Autremont:** — Okay. Thank you. In our hearings we've heard a number of people from particularly the northern Saskatchewan. Both individuals and businesses raised concerns that they feel that they're paying a higher price for electricity in the North than what is paid for in the South.

If I was to ask SaskPower to put in place a power line to, say, a large load where SaskPower needed to run lines, extra lines in and stuff, would there be any difference if the line was down on the US border versus a line somewhere in the neighbourhood of the northern line that runs up to Uranium City? Is there a difference in how that is funded, how that is charged, how the customers pay?

**Ms. May:** — Currently the first thing I'd like to address is that the current situation with our customers in the North, and here I talk about residential, small commercial enterprises, they pay the same rates, and in fact our industrials as well on published rates pay the same rates as customers who are located anywhere else in the province. In essence what we have is a method of, what they call sometimes in the industry, of postage stamp rates. So in essence we take our costs and we average them.

When it comes to specific issue of building lines, one of the issues that needs to be addressed by SaskPower is whether that line is actually considered a system upgrade versus a directly assign line. If it's a directly assign line, then those costs are attributed to the customer who is benefiting from direct use of that line and others are not.

Now we also have provision that should that directly assign line be built and at some point in the future — up to, I believe, it is five years into the future — if someone else wants to locate a service in that neighbourhood and would be best served from that directly assign line, we have a mechanism to pro-rate the costs of that line, give the original customer a benefit back to them, a rebate in essence, and then charge the customer who is now connecting a pro-rated portion of that line.

From time to time our policies do enable us to make exceptions to definitions of system improvement if there are very unusual circumstances, and at this point in time I can't say one way or another that building a line in the North would be an unusual circumstance. But there are some . . . There is a provision under our policy that does enable us to take a different look at a new service, a new line so to speak, if there's unusual circumstances and that we may in fact deviate from our practice of, or our definitions of, system upgrade versus directly assign line. Again that would be very much an exception situation and an analysis



would have to be done on the individual case.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — President Mitchell, your staff are well prepared. I just want to point that out.

Just for the record, we understand that the northern people do pay the same rate. Their consumption is greater. It's also the fact of line loss. And that's where some of the concern comes in from in terms of insulated homes and then what's the provision of line loss in northern Saskatchewan. We're getting less power but paying the same rate. Those are some of the points being raised. The northern people don't want a special rate. They just want to be recognized for some of the challenges they have when it comes to power consumption in general.

I took a two-minute break to make sure I phoned my wife to pay our power bill before I give you guys more heck here.

But just in terms of going back to the green options program, this is a really, really, really important option for SaskPower to look at. Like we say, we're on a cusp of tremendous possibilities with a very good Crown, a Crown that we're all proud of and a Crown that we want to build. I think you have the Saskatchewan people's hearts on that one.

But on the whole notion of alternative energies, again on the green options program, I think we fell short on what was presented. And yes, perhaps the evaluation is out there. But there's still a lot of people convinced — a lot of people convinced — that there ought to be a more significant focus and more importance and perhaps more investment into those options.

And we look at some of the rates that you're being paid and the varying degree of rates for hydro versus solar versus wind and so on and so forth. Then we look at the projects themselves, and once again we see SaskPower limiting the size under the green options program to 10 megawatts. Why would you limit the size to 10 megawatts? What is the logic behind that one?

**Mr. Wilkinson:** — We took a look at some of the programs that other utilities across Canada also offered, and it seemed like there was sort of two levels if you were trying to incent folks to bring smaller level generation to your doorstep. The two levels that we are familiar with, based on how other people at other utilities in other provinces had come at this same issue, were 3 megawatts and 10 megawatts. And to be quite frank, we kind of harmonized with the 10 megawatt number.

In Saskatchewan it's a little trickier here than it is in some other places. In our October sessions presenting to this committee, we kind of indicated we had a large geographical area, and we had a small customer count per kilometre of line. And we have, I call it a 25 kV [kilovolt], a 25 000 volt kind of distribution system. Other utilities, some of them have higher voltage distribution systems, and I'll just say 34 000 volts. And they can actually entertain, I would say, slightly larger sizes on their widespread networks than we can. We're kind of at the . . . At this point most of our system is 25 kV. Mike will correct me. I'm sure we've got an exception somewhere.

But at the end, the 10 megawatt one seemed about as big as you'd go to make the program as widespread and ubiquitous because we have 25 kV lines covering most of the province. So we kind of thought that would be logical place. And 72 kV we have, but we don't want to do a whole bunch with those. So the 10 megawatt size seemed kind of not bad for our circumstances if I can put it that way.

**Mr. Belanger:** — And the notion that this whole economies of scale as you do bigger plants, of course you can produce more power at a cheaper rate. That's one of the arguments that we may get back from folks in terms of why you're limiting the size. So what would you say to them?

**Mr. Wilkinson:** — Well I think your observation is that economies of scale can be significant when you're looking at renewables. And perhaps the one that I'll share with you is we put in a fairly large wind facility in, I think it was, 2005 — 150 megawatts and it's quite a ways up in the air. It's a big scale; it's a large-scale project. And it's high enough up in the air. It is capturing the wind — again I'll apologize for the units I'm going to use — but 40 per cent of the time it's capturing wind in a good way. And that's not perfectly fair because it's misleading. It bounces up and down all the time, but it's equivalent to running flat out 40 per cent of time. That's the amount of energy we get from it.

When you go to the smaller ones that are not so high up in the air and not built to the same large standard and you don't get the economies of scale, the information we're getting is, you'll be happy if you're capturing the wind 7 or 8 per cent of time. It's just not as effective.

In SaskPower's challenge, and if we shared anything with you the last time we were in front of this committee in October, it's kind of a balancing act. And to keep it affordable here in a large geographical area with a small customer account, you really have to kind of take the sweet spots. And in economies of scale with the renewables, sometimes that implies larger installations.

**Mr. Belanger:** — Now in doing the comparison on the economies of scale argument, you could look at . . . I'm really starting to believe I know what I'm talking about here. But anyway, on the terms of the economies of scale here, when you look at the difference between wind, which is a factor we can't control, versus biomass which we can control to ensure the volume, then obviously a biomass operation, given the economies of scale, would be a benefit, would be a better position to take for SaskPower saying, well okay, wind 40 per cent. Biomass, yes, we can control what goes into that burner and how much we can generate power. So you have to recognize the different renewable resources that are out there, that they're going to have different standards of service and different parameters of economies of scale if you will. So why wasn't that considered?

[15:00]

**Mr. Wilkinson:** — At the very, very small scale, one of the things we often do not get from smaller generators is an obligation to be there when the electrical loads are high. And so in our business, you run. And if you run, you're paid. And when you don't run, you're not paid.

In the larger installations — and maybe along the lines of the ones you're talking about — we actually write contracts with them that say, if you're there during our peak loads. In other words, you must run during that time to be paid. We have a very detailed contract with the larger kinds of generators that includes both on-peak and off-peak pricing, very expensive proposition to write those contracts and to enforce them.

At the very large installations, it's a definitely a good thing to do, and we've had some wonderful success with larger scale independent power producers. And I'll maybe mention a few — the Meridian project at Lloydminster and the project at Cory. Again, very large things. We can dictate when they run.

With the smaller ones, it's less. You don't operate those in communications with our operators. They're small. They're in the distribution system. We don't communicate with those folks to make sure that they're running on peak. It's just sort of a time . . . [inaudible] . . . thing. And your economies of scale observation is exactly right.

**Mr. Belanger:** — The other final argument is that, before I cede the floor to my learned colleague here because I'm obviously going to ask to come back in at a later time . . . But I'm bouncing all over the place because I've got to try and trap you here.

SaskPower indicated that the typical coal generation without carbon capture is roughly about 7 to 10 cents per kilowatt. That's what SaskPower indicated. That's a huge variance according to some of the presenters that presented to this committee.

In the SaskPower green options program, they offer 9.4 cents per kilowatt hour for small-scale biomass and river hydro. In essence SaskPower's saying that small-scale biomass and river hydro should be just as economic as large-scale, greenhouse gas-polluting coal.

So I guess the argument that they would make is that that variance of 7 to 10 cents, it's huge for some people. Now we need to get a clear understanding to those folks that are saying, well is it 7 cents or is it 10 cents? And if it's 10 cents, all of a sudden some of these other options become very viable. They become attractive.

Now we need to re-examine that. Is SaskPower prepared to re-examine those options and give it a heck of a lot more attention if the . . . [inaudible] . . . and the mood is to look at the renewable resource energy generation?

**Mr. Wilkinson:** — Maybe I can try that, Garner. Yes, 7 to 10 cents is quite a spread. Coal-fired generation like everything else — welcome to our world — actually comes in a very wide range of flavours. And it's everything from, I'm going to call it, the small-scale, small-coal units which don't enjoy the economies of scale, to great big supercritical ones that are as fine on the engineering point as you can make them. And there are some that come carbon-capture-ready, in other words, they don't do carbon capture, but certain portions of the design has been set up so that they could some day in future be used in that way.

And so there is really quite a range in coal units. One size does not fit all. A 500-megawatt unit will have a different cost structure than a 150-megawatt unit like we have in our system or a 300 megawatt, again coming back to your point on economies of scale.

Now are we trying to, I'm going to say, get some green, renewable-type things going? On this I would offer you a couple of observations. The wind generation that you have inside your province right now — I think we talked about 5 per cent on a capacity basis — that's pretty close to the front of the wave compared to most of the utilities. In the United States, their average is 2 per cent. They have some that are ahead and some behind. But you are pretty close to the front of the pack, and with the announcement that President Mitchell mentioned earlier, will be heading to, I think, it's between 8 and 9 per cent. You're doing very well with your renewable wind generation in this province with the approach that's being taken. And it's being done, in my view, at a very competitive kind of price.

I mentioned that we had just under 2,000 solar installations in this province, and that is being done and the place is actually saving us money, not costing us money. You have 170 people lined up in your net metering queue right now who, I'm not sure, 70 or some are actually through and the others are coming through. The take-up is actually pretty good. And on the green options partners program, I would suggest it's our first foray; it's early days yet. We only got a couple says, yes, I'm willing to build for that. But give that one iteration, then we'll see whether we have to bump it up or not to get what we need out of that.

But as a utility and as a province, I would suggest to you that you're 20 per cent renewable right now. Countries like the United States, Australia, and others would like to get there in the year 2025. You are there now. That's not bad.

**The Chair:** — Mr. Nilson.

**Mr. Nilson:** — Thank you. Just a couple of specific questions. On the document that you presented today around the carbon capture and sequestration description, you've indicated there is \$240 million from the federal government that's available for this project out of, I guess 1.4 billion is the estimate now. Up until seeing this document, I had understood that basically that 240 million was just being held in trust until this goes forward. But here it states that some of this money has already been used. Can you tell us how much has been used?

**Mr. Daverne:** — Yes. Thank you for the question. I can provide information on the status of the funding. So there was an announcement in first part of 2008 that federal government was contributing 240 million to Saskatchewan for the general purpose of the commercial demonstration of CO<sub>2</sub> capture on large-scale, coal-fired power plants. That money was put into trust and is held in trust by I believe the Government of Saskatchewan, and I think administered by Crown Investments Corporation.

Of that money, a portion has been allocated to SaskPower for the pre-commitment engineering, critical path engineering, and procurement for the Boundary dam project needed to take us to the point where we can make that go/no-go decision at the end

of 2010 and ultimately be in service in 2013.

So of those funds, I think at the last hearing in the fall, there was an update provided that approximately SaskPower had spent something approaching 20 million. So at this point in time, we're approaching \$30 million we've invested in the critical path engineering and procurement needed to reach that go/no-go decision. So I think that's the answer that I have to your question on expenditures today, and that is being funded out of that \$240 million.

**Mr. Nilson:** — So does your answer mean that SaskPower's actually received the money to pay for those expenses?

**Mr. Daverne:** — Yes.

**Mr. Nilson:** — So the fund itself is now approximately 210 million?

**Mr. Daverne:** — That's correct. That's correct. And the method there is that SaskPower is to remain cost neutral as we move through this process of developing this first-of-kind project.

**Mr. Nilson:** — Is there any signal that a more fair, sort of, percentage sharing of the total cost would come from the federal government? Or is that 240 fixed?

**Mr. Daverne:** — What I understand is that that 240 million is the money that's available at this time for this project. I'm not aware of any other funding that might come forward. The additional funding that's being talked about would be with respect to the Saskatchewan-referenced plant.

**Mr. Nilson:** — Okay. My next question relates to a number of these rates that we've been talking about that provide incentives for some of the alternative sources of power. How are these decisions made to have a certain amount for the green options power projects or for the other various projects that are there? Can you explain where these numbers come from?

**Mr. Wilkinson:** — Maybe just as a point of clarification, are we talking about the rates, or are we talking about the sizes?

**Mr. Nilson:** — No. I'm talking about the rates and how much . . . Like basically you're saying there's a certain amount, I mean basically the energy is the same no matter where it comes from, but certain places it costs more. And so you're saying, well we'll pay 8 to 13 cents on the carbon capture, 7 to 10 cents on the coal, biomass is 6 to 11 cents. That's what this document says here.

And then what you've been saying is, well there is a fixed rate that somebody who wants to come forward with a proposal knows that they're going to get, and it's higher than what is being paid in other circumstances or higher than what you actually pay for existing projects.

**Mr. Wilkinson:** — Okay. I think I understand the question, and maybe I'll try this if that's okay, Garner. So in the information that we've given you, we say it's 7 to 10 cents for coal for example. I wouldn't say that's what we're willing to pay. That is kind of the generic range of cost estimates that we're seeing.

If you see nuclear, there's probably a decently wide range on that one as well.

**Mr. Nilson:** — Well forget about that part.

**Mr. Wilkinson:** — Okay.

**Mr. Nilson:** — But just, right now, you've said to us that there's certain programs that will pay 10 cents or 9 cents or 11 cents. Can you explain how you came up with that figure.

**Mr. Wilkinson:** — Okay. From that point of view, for net metering for example?

**Mr. Nilson:** — Yes.

**Mr. Wilkinson:** — It really says you'll pay pretty much the full retail rate. In other words, whatever they're paying for power is whatever the net metering will offset for them. So as that retail rate goes up over time, and maybe it's 11 cents or something like that — 10, 11, 12 cents, depending on where you're at kind of thing — it'll offset that because you're offsetting your own consumption. So you're paying essentially the full retail rate for that.

So that's where that number comes from, net metering. And it's a little bit subsidized because you're essentially, you still have to run the wires out there. And you're saying, well okay, you can have that amount too for your generation. So it's a little bit subsidized at the retail rate. But that's where the net metering rate comes from, is the retail consumption rate.

For the GOPP, the green options partners program — sounds more elegant when you say it that way — that one is really is kind of on a go-forward basis. It looks at the generation that we're going to add over time for net new generation as we replace some of the older generation. I didn't mean to look right at you; I apologize for that, but I meant the units.

We looked at what was going to be our cost of having to try and meet the load. And we backed that up and came to a levelized first year escalating, and that's where we came up with that 94 or 95 dollars . . . 9.4 cents. And that's how we came up with that, so that our customers would essentially be saved harmless. In other words, if we can get smaller generation to come in at that level, we should not be significantly adding to the burden of the customers who have to pay the power rate to fund that.

**Mr. Nilson:** — Then my next question is if in fact that 9.4 there or whatever the, basically the net metering, which is the straight retail price is what's going to be paid to people, are those amounts reviewable by the utility rates commission and so that you have to have prior approval for doing some of these things? Or is it such that you have to go and then explain to them later why you're doing it this way?

**Mr. Wilkinson:** — Often what happens is when you find yourself in front of the rate panel, you say here is my expense profile for lines and meters and green options partners program. And at that point, the regulator either allows or disallows those kinds of expenditures. But we don't normally go into the rate regulator and say, look, I'm thinking of adding some generation. Here's how much it's going to cost me; do you

agree or not agree? It's more that we run the business and then they kind of approve the rate structures, given that we're running the business. And they can disallow expenditures if they believe they're unreasonable.

**Mr. Nilson:** — Okay, yes. So that increases in some of these amounts to deal with further green projects or some of the things that my colleague was raising could be proceeded with now, but always subject to review by the utility rates commission.

**Mr. Wilkinson:** — Probably more to the point is we put out a price point and we want to see how many people come to play. And if you get as many as you want to handle, then you probably would not take the price up in the subsequent year. This price will be adjusted each year.

**Mr. Nilson:** — Okay. And that decision is made by senior management or by the board or somewhere else?

**Mr. Wilkinson:** — Pretty much at this point by our board. And we'd say this is what we anticipate; this is a program. And we run it all the way up into the minister's office as well, saying this is a program that we want to proceed with; here's how we're going to start out.

But all of these programs are multi-year so we're seeking, I think under the green options partners program for example, we're seeking 50 megawatts a year. If the subscription comes in too light, then you'll probably bump that number up a bit to see if you can attract more. If it comes in with way more than you need, etc., you'd probably leave it where it is.

**Mr. Nilson:** — Okay. So people that have concerns about whatever these rates are have a number of different places to raise issues including the minister's office.

[15:15]

**Mr. Wilkinson:** — Yes.

**Mr. Nilson:** — Yes. Okay. Thank you.

**The Chair:** — Mr. Weekes.

**Mr. Weekes:** — Thank you. I'd just like to go back to the smart grid. I believe your colleague was going to explain about the meters that were going to be replaced, or I just wanted to give her the opportunity to discuss that now.

**Ms. May:** — Earlier Gary had talked about the fact that SaskPower is doing work on advanced metering infrastructure. And I think in the industry, although smart grid is certainly a concept that's evolving, the notion is that advanced metering infrastructure is the foundation for a smart grid.

And advanced metering infrastructure, we have a project under way. It really got started in a significant way about mid-last year. And by mid-2010, it's our intention to have a business case for a decision making, to go through our decision-making process as to the case for, the business case for advanced metering infrastructure. And really what we're looking at is, we're looking at the metering technology and some of the

communication technology that would be required to more automate predominantly our distribution system.

But really starting with that whole notion of improved communication through our distribution system, and using the meter and some other pieces of equipment on the distribution system so that when it comes to serving customers, we are better able to monitor and work with customers about what their energy usage is really doing in their premise and be able to better tailor and measure our demand-side management programming.

And when it comes to the distribution system, with some of the equipment that we would look at perhaps installing through the advanced metering infrastructure program, being able to collect electronically more information than we can currently with our current distribution system on how that distribution system is operating. So that helps engineers and planners in our distribution side of our operation to better set out maintenance plans, refurbishment plans, and also better able to pinpoint some of our problems with the performance of our distribution system.

And then finally the other area of consideration, at least in this initial case, will be the ability to automate some of our operational endeavours such as meter reading, so that perhaps we can be better able to produce more regular meter reads for all of our customers. Currently for example, we read residential meters only once every three months, and that makes it very difficult for us to explain to a customer why their bill is so high when really we've only had one reading in three months.

So there is a number of things that we are looking at in this business case. And we do see it, as other members of our industry, as potentially a foundation for the smart grid. But it is a very complicated infrastructure and complicated technologies that we are looking at. So we are engaging, as I indicated, a group within SaskPower from various parts of our corporation supplemented with consulting advice from entities who are very much involved in this kind of work in other jurisdictions in Canada and the United States. And of course there is a lot of information out there in the public domain on smart grid as well that we are able to acquire.

And with that, taking the people that know Saskatchewan, so can talk about how we might need to tailor this kind of infrastructure for our needs with the knowledge of consultants who have seen what's being done in other jurisdictions and information from the public domain on what's current and what is the future. We are looking at this business case that would address those issues of operational efficiency, ability to better plan for the maintenance and rebuilding of our distribution system, and the ability for us to better establish and measure demand-side management programming going forward. And looking at this as a business case that we will deliver to the executive and after that the board as part of our approval process for what we may do in the future for advanced metering infrastructure.

**Mr. Weekes:** — How long will that process take? What's the timelines?

**Ms. May:** — Well we are looking for a business case in front of

the board of directors of SaskPower by the end of June of 2010. And depending of course on the executive view and the board view thereafter as to the business case and its merits going forward, that will determine the timeline thereafter. But certainly we'll be seeing a business case for our internal approval by June of 2010.

**Mr. Weekes:** — I assume there's going to be a cost to SaskPower to incorporate the new technologies. Will there be a cost or will there be changes to appliances or to the individual resident as well?

**Ms. May:** — There will be costs certainly to SaskPower. And what the customer would see in future years is a requirement, should we proceed with advanced metering infrastructure, is a requirement for SaskPower to change out their meter. We would be introducing new meters with more capability, more intelligence, and more capability in communication. So that would occur. Certainly we see other jurisdictions where some of this work is taking place and that's what customers will see as a change to their meter.

There would be costs to SaskPower. And part of the business case is looking at the benefits to SaskPower in terms of operational efficiencies and a better capability for planning, for refurbishment, maintenance, and planning for demand-side management programming, which we've talked about before, has really become a supply option for SaskPower.

**Mr. Weekes:** — Thank you. I'd like to move onto another topic if I may — wind turbines power production. We've had a number of people make statements that the amount of wind production in Saskatchewan could be much higher than, I believe, what SaskPower mentioned. I believe it's around 8 per cent is what your SaskPower's goal or peak amount. And we've had people just throw out different numbers.

First of all, what goes into . . . I guess every region and every utility has to look at different, their individual circumstances as far as geography and power usage and other forms of power production. I guess my . . . Other people, other presenters think SaskPower can go to higher than 8 per cent. Could you explain your methodology, and is there a potential to go higher with wind?

**Mr. Wilkinson:** — Okay. In terms of the amount of penetration, we call it wind penetration level, that you put in your system — so this is not to be confused with the capacity factor that we were talking about earlier; this is just how much of your system capacity do you want to come from wind given that it is variable — most of the wind proponents that we're aware of and throughout the United States and Canada are seeking penetration levels well beyond 8 per cent: 10, 15 and arguably a couple as high as 20 per cent.

In the United States initially, the group that tries to coordinate power system reliability across the grids, across the whole continent if you will — and I think we've used the acronym, NERC, North American Electric Reliability Council, with all of the plans by the individual states; and I'll just use examples, by 2025 to have 15 per cent wind or 10 per cent wind — the alarm bells went off with the reliability coordinator and said, we better do some work to assess what that kind of penetration level of

intermittent or highly variable generation. What is that going to do to the reliability of the North American grid? Arguably the economies in the North American grid run fairly smoothly when the electricity is on, and they don't run at all when the electricity is off. So reliability is kind of a key factor with respect to that.

They indicated that as you pass 8 and 10 per cent, you better keep your head up. You're going to need a lot more transmission. You are going to need some new ways of running the power system. The hope is that by the time people get to those kinds of penetration levels is that the operational problems can be solved with better wind forecasting tools, so that you know how the wind is going to run in the next hour so you can actually do that balancing act that we talked about last October more effectively. Those tools, we've been working with them for two years. They still need a little bit of work.

Wind providers right now, they give you a model. It's an engineering model of how that thing will behave on your power system during lightning strikes and swings and that kind of stuff. It's a proprietary model; in other words, you can't share it with anybody. And yet the problem on the North American grid is we're all hooked up to one another. So the NERC group is insisting that the wind proponents come up with verified models that are shareable so we can actually start studying these larger wind penetration levels to preserve the reliability of the entire North American electric grid.

And I think they've got a few other ones. You're going to need a lot more transmission, etc. They've given probably five or six areas that we better spruce up on as an industry. They did that in 2007 or 8. In 2009 the integration of variable generation task force was formed. A lot of Canadians were on that in addition.

And SaskPower's also looking at the same thing in Canada, is how much variable generation can you put into the grid before you start to have reliability effects. The 8 per cent that we chose, we had groups inside SaskPower and they spent a year and a half or two years doing this. They said, we think you can go there before you start to have effects that are going to be tough to manage. That's my reason for why we stopped about there.

If we get to the next 175 megawatts on there and it comes on the system like a dream, and we don't have — because our system will have grown by then in terms of the number of megawatts; the minimum loads at night will come on — if we're not having operational difficulties, we'll be back. If we are right on the corner, we'll probably hold up a little bit.

It's a prudent approach, and you're not wasting your money when you're taking a prudent approach. But it's big enough that you're getting economies to scale that we talked about earlier.

**Mr. Weekes:** — Thank you.

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you. You're talking about the large wind project RFP. We had one proponent in to see us, and their concern was that they were being restricted from participating because of their geographic location. With

SaskPower's RFQ or RFP on the new wind projects, are there any restrictions in place based on geographic locations?

**Mr. Wilkinson:** — Okay. I'll try that one as well. So the RFP rules are not written yet. The RFQ phase is where they're at now, and I think there's at least 30 who are registered because they want to come through this process. So we think the participation level will be high enough that we can get a good competitive bid.

Geographical limitations, we're kind of leaving it up to the proponents to say where they want to put their wind farm. On our website, I believe we have provided that to the committee as well, is kind of the . . . At various heights above ground level, the wind regime in Saskatchewan, there are areas where it's pretty good, and there are areas where it's not very good at all. The proponent can put in a bid for any location he would like. But everything we're seeing so far is putting your wind generator in a windy location allows you to come up with a much more competitive bid if you're going to be paid for the energy from that.

So we're not restricting where it goes. But probably, if you want to compete in that competitive process — and that's how we keep prices down — if you want to compete, you'll probably end up putting it in a windy place, which is good.

**Mr. D'Autremont:** — Well, which is where you would think you would put wind generation.

**Mr. Wilkinson:** — But we've left that up to the proponent to pick that spot. We've not been prescriptive saying, put it there because it's windy. That's your job.

**Mr. D'Autremont:** — Okay. When a person looks at their monthly or three-month bill that they receive, there's a basic charge on there. What does that basic charge pay for? Does the charge for my kilowattage, is that strictly related to the generation costs, or are some of the capital costs, the infrastructure, etc., etc., built in to that charge for the electricity? Or is that all covered in the basic charge?

**Ms. May:** — The basic monthly charge, one, I think a good way to think of the basic monthly charge is it is sort of the minimum charge or the minimum fee on a monthly basis to be connected to SaskPower's system. And it, by and large, recovers those costs that we incur regardless of whether the customer consumes anything. So it does cover the cost of things like meter reading, billing, some of those kinds of costs. But it also does include some of the costs of what we call our low-voltage equipment on the distribution side.

So in essence it is really recovering the activities and some of the facilities that we have at that point or delivered into that point of service that we will continue to maintain or continue to undertake, regardless of whether the customer asks for 1 kilowatt hour from us or not.

[15:30]

Now there are really fundamentally three components to rates. There's the basic monthly charge that I've just described, and there is the energy charge, and then there's the demand charge.

The energy charge — although it gets a little mucky for the residential and farm because we don't put demand meters on residential and farm, so this is where it gets a little confusing — but the primary principle of the energy charge is it is the charge for your consumption for the fuel and purchase power that we incur in order to deliver to you the kilowatt hours that you need on a monthly basis.

Now with farm and residential customers or any customer that doesn't have a demand meter, in all honesty, the energy charge does include some of that capital infrastructure cost in order to build the facilities, the plants, the substations, the lines, and run the wires to that particular site. And it was that many, many years ago demand meters were very expensive and a single residential customer, in terms of generation, transmission charges and those kinds of charges, would have a very small proportion. So some calculations are made, and the costs for the infrastructure were included with the energy charge for those groupings of customer.

If you're a customer with a demand charge, then it's a little easier to see the split. The energy charge is really the charge for your consumption. It's largely the fuel and purchase power charges that we pass on to the customer. And the demand charge is the charge that we allocate to that customer to pay for that capital infrastructure of everywhere right from the generation through to distribution lines so that we can serve that customer. And it really is representing the costs that we have to incur to ensure that at any moment in time, if that customer wants to put on all their electrical appliances, run all their electrical motors, that we could serve the entire load for that customer.

**Mr. D'Autremont:** — Okay. Thank you. One of the complaints we had that came forward from a presenter was that as they respond on the demand side by lowering their consumption of electricity, their per unit cost increased because the base charge remained the same. While they used less electricity, they paid less for that, but overall if they had, let's say they had 20 kilowatt hours and they had reduced it to 10 kilowatt hours, they still paid the same basic charge in the 10 kilowatt hours.

So they felt they were being disadvantaged because they were now paying more per unit. Even though their bill dropped, they were paying more per unit. And there was the argument presented to us that we should simply eliminate the basic charge and have all the charge based on consumption. Well if that was the case, for those people who would tie in with some sort of renewable power source, where if they were equalling their consumption, they could be connected up and make a demand on SaskPower all of a sudden and contribute nothing to the system. So what's your response to those?

**Ms. May:** — Well the notion that, you know, I understand the customer's concerns. Certainly he or she has reduced their consumption by a certain number of kilowatt hours. It has meant a reduction in their rate. But then if he or she takes the number of kilowatt hours they're still consuming and divides it by the sum of basic monthly charge and the remaining energy charge, it probably looked high.

The problem is, is basic monthly charge is not there to address

the consumption part, the volume, which they have shifted, but it is there, as I have said, to recover the costs that we incur regardless of whether that customer consumes a kilowatt hour or not. And so for us to remove the basic monthly charge would mean that we couldn't recover those costs.

And the only other way to do that — because if we don't recover the costs from those customers that we no longer charge a basic monthly charge to — is either we're recovering those costs from other classes of customer or the other thing that could be done is you would take those costs and you would basically put them in the energy component of the rate, which does further confuse what the energy component of the rate is really all about.

So my view is that the basic monthly charge is there to represent our fixed costs and the costs that we must continue to maintain whether that customer needs a kilowatt hour from us or not. And as long as that customer is connected to us, even if they have their own form of generation, if they're still connected to us and still might need to take service from us at some point in time, perhaps because something has failed on their side, we need to maintain that infrastructure for them.

**Mr. D'Autremont:** — Thank you. This question was asked of the previous presenter and he had a response to it. This was, how many customers were signed up for the green energy program? He said that the numbers he had from SaskPower was 1,032 customers that were signed up for the wind power program. I wonder if you'd give us either numbers or percentages of how many of those customers are individuals rather than government or non-government NGOs [non-government organization], and what percentage of the power consumption of those — if the number is 1,032 — are represented by private individuals and how much by government or non-government NGOs.

**Ms. May:** — That was the Green Power program?

**Mr. D'Autremont:** — I believe that . . . Well it's the wind program.

**Ms. May:** — The wind. Yes. I don't have the numbers offhand, but I would commit to getting those numbers for you. Now 1,032 seems in the ballpark. What I remember is something that was more along 980 to 1,000. So there's a little bit of variation there. I'd have to go back, in all honesty, and get that information for you because I just don't have it at my fingertips now. So if I can, I'll defer that and we'll commit to having that for you.

**Mr. D'Autremont:** — Thank you.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Thank you. I'm back on here. One of the mandates of the committee talks about environmental sustainability in terms of generation of power. The renewable sector, I'm going to go back on that particular issue again. If you look at the whole notion of the CO<sub>2</sub> emissions, the greenhouse gas issue, has SaskPower really identified . . . I think, and correct me if I'm wrong, but our Crown corporation is probably the third largest emitter of greenhouse gases in

Canada. Is that correct?

**Mr. Wilkinson:** — There's a lot of greenhouse gas emissions. In the Canadian context, if you only look at electric utilities, in other words sort of ignore oil and gas and ignore transportation and ignore other sectors, we'd be . . . Yes, that's probably about right. We'd be number three in Canada, I would think. Ontario has 7500 megawatts of coal. Alberta has a lot of coal. We're probably about 48 per cent coal or something around 50 per cent coal, so that might be right.

At the end in the Canadian context as you look across the countries, across the world, and if you look at Canada in comparison, somewhere between 65 and 70 per cent of all electricity generation in Canada is non-emitting because it's nuclear. And we have a lot of hydros in Canada. Canada's actually pretty good. So we would distinguish ourselves amongst all the hydros as being high because we carry coal.

**Mr. Belanger:** — You know, and I'm certainly trying to . . . Because we're very proud of SaskPower. We want to build SaskPower, no question about it. And in a perfect world you would have SaskPower become very environmentally conscious, addressing the greenhouse gas emissions, trying to keep their costs as low as possible, and so on and so forth. So we have to meet that challenge; no question about it in our minds.

And so obviously the greenhouse gas emissions in terms of what you are targeting as a corporation, as to what you would like to reduce, have you specifically gone to target levels and saying this is what we want to reduce our greenhouse gas emissions by X amount in year 1, X amount in year 3, and so on and so forth?

**Mr. Wilkinson:** — Maybe I'll take that one as well. In terms of the greenhouse gas targets and regulations, one of the things we've found in the Canadian context, they have not yet drawn a line in the sense saying, we as a nation would like to be this greenhouse gas intensive. And again I'm talking about not just the electricity sector but all sectors — oil and gas and transportation and the whole works.

Part of the reason we would understand that the Canadian government has not drawn that line just yet is they don't want to get too far away from or be wildly different than a significant trading partner just to the south of us. So I think they would like to be, I'm going to use the word, in sync, with. And so I think the two governments, United States and Canada, have yet to draw that line.

Inside Saskatchewan, we have an Act now that suggests that we will have some obligations in future. The regulations under the Saskatchewan Act will be crafted, we believe, in 2010, and I think one of the goals under there, and I believe it's harmonization, or again to be in step, with the federal government on this — the Canadian federal government — because you don't want to be out of step as a province with your country either. So it's kind of waiting for it all to line up. Maybe I won't rag the puck a whole bunch more on you here.

But at the end, one of the things that you asked, what does SaskPower want? SaskPower wants, like all utilities, electric

utilities, number one, we want some regulatory certainty, and if you get regulatory certainty you know what's required. Then it's easier to hit the target with an optimized program. I would suggest to the committee that it can be a very expensive proposition to overdo it by changing the electric fleet, or to underdo it. In other words, you really want to know where the line is before you start changing out the fleet, because it's one of the more capital-intensive things you can do.

In October we discussed with the committee that the electric industry is very nearly the most capital-intensive industry on earth. It's higher than airlines, railroads, everybody. We need \$3 in capital for every dollar in revenue and that's pretty high. If you are going to try and reduce carbon and CO<sub>2</sub> and greenhouse gases, there are a great number of ways that are less expensive than horsing around with power systems. And we have visuals on that we can share with the committee if you so wish.

So one of the things that you asked: what does SaskPower want in this? One of the things we always do when we talk to both federal governments and provincial governments about what these regulations should read, we would say, SaskPower, you will have an obligation to reduce or offset this kind of greenhouse gas footprint. And if we can find legitimate means to reduce greenhouse gases going into the air that are less expensive than changing out the most capital-intensive industry on earth, we would like that opportunity and that option, as does most of the United States and Canada.

**Mr. Belanger:** — Now given the fact that our mandate as a committee is to look at the renewable and environmentally sustainable options, that's primarily what we're here for. Have you targeted any specific levels of generation of power for hydro, for wind, solar? Have you identified that? Have you looked at those options? Have you broken them down in those categories?

**Mr. Wilkinson:** — In terms of on a go-forward basis, how much of hydro we want and how much of water we want, etc., maybe as a little bit to start, sort of technology by technology.

On the wind, we probably wanted to push the envelope but we didn't want to go over the edge, so that's why we've kind of come up with the program that we have, is we believe we can do that safely and not . . . So we have kind of set a threshold for wind or highly variable generation, at least for the while until we get some experience with it, and that's probably that 8 per cent that we talked about earlier.

With respect to hydro, I would suggest that, and I think this showed up as an answer to one of the questions in the committee's material, is how much hydro potential exists inside our province, and we think we gave you an illustrative list in that answers to the questions. If you look at that list and I think it's — we provided that I think, yes — you'll see that inside our province there is a substantial amount of hydro potential. And so we've not targeted a certain percentage of that to be built in future. However, we brought it to the committee's attention that there could be several thousand megawatts of hydro potential in this province that is as yet untapped.

[15:45]

With respect to the only other piece that I'll . . . For drawing lines, we will, as soon as we're done with the RFP for baseload generation . . . We tried to entice some biomass folks through that process. We'll see how that turns out in the near future.

We'll be looking at biomass in a number of different ways, one of which is kind of using the biomass or waste wood in the North directly. So we don't have a target level on that. We're just kind of doing the research on that. We're also looking at — and I apologize in advance to President Mitchell — we're also looking at ways and means, could we use biomass and actually find a way to run it into an existing coal-fired boiler and reduce emissions that way? There's some interesting discussions inside SaskPower as to how achievable that might be, but it's early days yet. But we've not set a threshold for either of those activities. We're kind of gathering information to essentially look at the business case.

If I had one piece of advice in terms of setting thresholds for various technologies, I would probably want to see where the rules of the land set out on greenhouse gases and then optimize around that rather than say, I arbitrarily want this much hydro and this much wind and this much biomass and this amount of coal and this amount of gas. That balancing act, all this stuff has to kind of work together. And the package, if we can optimize the package for Saskatchewan, rates stay affordable. If we get out of sync, it can get expensive in a heartbeat. So just a word of wisdom there.

**Mr. Belanger:** — Yes, and fair enough. We're not debating those points. I think they were very well made. But I would point out though that again, as I see it — and maybe a lot of people in Saskatchewan may see it the same; I don't know. I hope they do. Because sometimes I think I know everything but of course I don't.

But the way I look at it is that, yes you say we're at 20 per cent of wind and other solar activity, but I think in Saskatchewan people say, well can we reach 30 per cent? Can we reach 40 per cent, those possibilities? That we shouldn't rest on our laurels, so to speak, even though we should be proud of what we did. And I think they are. But they're saying, well hold it here. Can we achieve greater ability to use the renewables as a source of energy generation? So I think that's the mood. And I would challenge you on that particular point.

And the second thing is, under renewable sector, in particular wood biomass, a lot of the Aboriginal communities are looking at wind and biomass. They really want to be part of the solution to power generation in this province. Has your corporation said no to that particular group? Has there been any concessions afforded to them, as Ontario has done? Because guess what? In many of the First Nations and Métis — there's two distinct groups, First Nations and Métis — they live in traditional areas that have forests, peat moss. They may have coal and they're saying, hey folks — and they may have wind — folks, we want to be part of this power generation stuff.

They don't want any special deals. Their deals will stand up on their own terms in economics but boy, they'd sure like some consideration as Ontario did to get into the game to help build this power generation corporation that we own, that we all own and we'll all proud of. So not only is it affordable,



environmentally sustainable, but guess what? It's highly interactive with the people it serves. That's their message.

**Mr. Wilkinson:** — Okay, I'll try that. And that's a question in a number of pieces so maybe I'll try it in this way. With respect to mood, one of the things that's apparent to SaskPower as we talk with our customers — and it comes to your point that you raised — is, can we actually be, work toward the front of the wave with wind? Now you've got a lot in your footprint compared to others. Can you actually go further? And I explained earlier that yes, we're kind of stepping up there to make sure we stick pretty close to the front edge but don't go over the place where you get cost effects that are unmanageable.

When we talk to the mood of many customers, they are interested in green but they don't want to necessarily have rates go to extreme places in order to afford that. There are places on earth where they were coal burners the same as us — Denmark is one — and they went to higher percentages of wind. I think we had a discussion with the committee last October on that, and the fact that their rates and the taxes imposed on the consumers are 400 per cent of our rates. There is a message in there. Be careful how aggressive you are. Yes, I think they want to be aggressive on the green front. And whether it's the solar things we talked about or the wind things we talked about or the hydro potential in this province, just be cautious that you don't get out of whack on the other part of the balancing act, which is the rates.

Coming back to your comment about biomass, I think I talked a little bit about that already. Biomass is the next great place we go to look at because we've just kind of finished an RFP process. Biomass, some proponents wanted to come through the RFP process we've just finished. I won't say a whole bunch more about that until it's done, but we'll go and look at biomass in more depth as sort of a next step.

Aboriginal groups and wind, you are quite right. SaskPower, we have visits saying, are you interested in wind from the Aboriginal community, etc., etc.? We're finding that the Aboriginal — and you mentioned they don't need any special deals, but they do need some openers to get into the game — Aboriginal communities that are now coming to see us are travelling with some fairly heavy hitters in terms of having built large wind farms elsewhere. And I won't throw names out but there's very significant experienced developers coming in with the group.

We're hoping that they come through our wind RFP as one. I haven't checked to see who's registered. I don't think I'm allowed to see who's registered yet because that process isn't done. But we're hoping that Aboriginal groups and what I describe as very heavy hitters come in through the wind RFP that's there now. That's no special consideration. That is a very competitive process. There was no set-aside, etc., for that.

But at the end, we believe that with the people that the Aboriginal groups are travelling with, they may not need a whole bunch of extra invitation. Those are very experienced developers. Where it gets tricky, I think, where it gets tricky is I think the Aboriginal groups would prefer to have the wind generation on land that they own. And it may or may not be the

most competitive wind resource in the province, and I think that's where it's . . . They may. They're going to have some interesting discussions as to where they decide to make their proposal based on because they may not have the windiest sites available. They may, in which case they should be able to compete very favourably.

So that's kind of a little bit on mood, little bit on biomass, little bit on wind, and a little bit around special deals.

**The Chair:** — With that we're almost to the top of the hour. Could we recess for 10 minutes and reconvene to ask some more questions? The committee will now recess for 10 minutes. We'll reconvene at 2 minutes past the hour.

[The committee recessed for a period of time.]

**The Chair:** — Welcome back to the committee hearings. Questions from Mr. D'Autremont.

**Mr. D'Autremont:** — Thank you. One of Mr. Wilkinson's words caught my ear there, so I wanted to ask some questions about that. I was wondering what SaskPower sees as the cost of carbon now that Copenhagen conference is behind us, whether there has been some settling out of what that cost is going to be or if that's still up in the air.

And Mr. Wilkinson mentioned the word offsets, so the cap-and-trade system. I was wondering, how much of a reduction in CO<sub>2</sub> do you see under . . . if someone becomes involved, either utilization of offsets or in cap and trade?

**Mr. Wilkinson:** — Okay. Also a broad and complex topic, so I'll wade in and I'll try to stay under the number of minutes.

So you mentioned Copenhagen. One of the things . . . And we just received some of the results from the Conference of the Parties in Copenhagen in late December, so we're kind of still going through it just to get a sense. From media releases, there's been some, I describe it almost as disappointment, in that a large consensus was not necessarily reached. But we'll go through the details on that.

Anecdotally, inside the Conference of the Parties information, we are now getting . . . We kind of compare notes on this kind of material with other provinces and other utilities. I think it was someone in Manitoba had observed that although there wasn't a large consensus from the Conference of the Parties in Copenhagen, there was some sub-nation agreements associated with that. And we're just trying to get hold of those now, some of which deal with planting trees.

And I don't have the details on this yet, but there was some group that was trying to get to the point where they would plant a tree . . . I think it was 1 billion trees across the globe. And then the long-term target was to plant one tree for every person on Earth, which was 6 billion trees. And then they made the observation that in Saskatchewan, the Shand greenhouse has issued 6.2 million seedlings in a province of 1 million people already today. So we were feeling pretty good about that, but I don't know whether that means very much here.

In terms of the cost of carbon, we are not getting a strong signal

back that the cost of carbon is yet to be set. Now when you come down to sort of cap-and-trade kind of arguments . . . And I understand from media releases associated with the United States is that the words cap and trade are not being used with the same vigour as perhaps they were at one time. You see other kind of words being used.

In SaskPower's context, it's too soon to say what the cost of carbon in North America's going to be. But we are watching, I call it, multi-state carbon trading platforms surface over the last couple years — WCCI [World Carbon Credit Investment Ltd.] and RGGI [regional greenhouse gas initiative] and a few of these others in the States. And we watch what CO<sub>2</sub> credits are trading for there. And we're watching it in the, sort of the \$5 per tonne through \$25 per tonne.

To give you a sense of what that means is that at trading levels in that 5, 15, 20, and \$25 neck of the woods, folks like SaskPower or utilities like SaskPower would go into that market and buy offset credits rather than change their fleet at those kinds of levels of carbon trading. And that's where offset becomes so powerful, and I'll just give you some examples. In the Saskatchewan context, if there's viable credits by changing farming practices, we might be able to offset CO<sub>2</sub> going into the air much more economically than changing out large capital intensive generating. So that's why offsets have such an appeal. If carbon trades at much higher levels, then all of a sudden the low-hanging fruit would disappear quick, and eventually you'd be inspired to change your fleet.

But it's very important. But I've not seen a national or international level for carbon trading for North America up to this point.

**Mr. D'Autremont:** — Thank you. So offsets or cap and trade are really not about reducing the carbon emissions by any particular plant, but rather paying somebody else to take your guilt for you.

**Mr. Wilkinson:** — Let me just expand on that because I hear this quite often, and so maybe if I can just digress just for a minute on this one.

Inside Canada there's a group called the interprovincial offsets group, and what they do is saying if you're going to try and reduce your carbon footprint . . . And whether you're an agricultural guy, an oil and gas guy, or an electric utility guy, it doesn't matter. They're saying, okay if you were going to have credits for sale, they have to be verified as real.

And everything that we've seen in that process is, it's vigorous. They're not going to allow you to trade carbon credits unless they believe that CO<sub>2</sub> going into the atmosphere is really reduced, and that doesn't matter whether it's agriculture or oil and gas or electricity. That verification mechanism is . . . it's hard. You're going to have to be a pretty good scientific base to say it's really being reduced before you're going to be allowed to put credits on the system. At least that's what we're seeing.

And so now it really comes down to CO<sub>2</sub> will be reduced. It's just which sector can do it the most cheaply — agriculture, forestry, oil and gas, transportation, whatever. And so I believe that CO<sub>2</sub> going into the atmosphere will be reduced. It's just a

matter of which sector can do it the least expensively, and those credits will trade first.

**Mr. D'Autremont:** — A number of news reports out of Europe in particular dealing with carbon trading was that, for some of the traders, there was no corresponding reduction in CO<sub>2</sub>. It was simply a means to gather somebody else's money. And further that last night in looking through the Internet on cap and trade, the carbon trading values have decreased from \$7 to 10 cents. So if you believe in cap and trade, now is maybe the time to buy.

Another question which I asked to a previous presenter was, when you take the cost of intermittent electrical generation, the capital cost of that, combine that with the capital cost of the reserve system — so in all likelihood natural gas because that's a system you can bring up on very quickly, or conversely hydro — how does that compare to a single source generation such as gas, coal, hydro, nuclear, or biomass?

**Mr. Wilkinson:** — Maybe I could try that one as well. I'll just back up a little bit. So I put in some capital money for the wind. And you're quite right. When the wind isn't there, I've put in some capital money for, let's say, gas generation so that I can have my power on when the wind is not blowing. And part of it is, if I didn't have the wind, I would have built that gas generator anyway. But because I put the wind generation in, I'm going to run it less. I'm just going to run that gas . . . I need less gas because I'm going to have some wind on from time to time.

In October when we were here, we hinted that when I get up to that 8 per cent wind penetration level that we talked about, up to about that point, we think the effects of that extra wind are manageable in terms of the extra energy and the load falling that I have to have. Because I've got certain loads on my system that bounce around a little bit already. So I have to carry a certain amount of correcting generation because I've got loads that bounce up and down.

I've got some pipelines that start some fairly big motors and I got to correct that fairly quickly. I have a steel maker who put some electrodes into pots of steel, and that causes the load to jump really quickly. So by virtue of my load, I have a certain amount of really quick load following stuff that I've paid for already. When I put the wind in up to certain levels, I believe I can go to that 8 per cent and I'm not going to cause unmanageable cost effects on the SaskPower system, because they had a certain amount of that up already, load following stuff. When I get past the 8 per cent, they say, keep your head up. You're going to start driving the need for extra machinery and extra gas costs because you're going to run it up and down more often. And that's really what we described in October.

[16:15]

We think with this second round of wind RFP that we're about to go through — and this is the 175 megawatts that we've talked about — we believe that if you've got gas prices in and around that 7, \$8 range . . . We're softer than that now of course. But in the longer run when it gets back to normal, we believe that you can, generation up to about that 8 per cent, you can keep it within good taste of what other generation would

cost. The combination of the two, which was your interest, will be within good taste of what new generation would cost you. Beyond it, it gets more expensive because . . . for the effect I described.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Thank you. Just on this whole, this carbon shell game as some people refer to it as. Some people say, well you're trading and you're buying and you're trading, and really the net effect, there is no carbon taken out of our air. And that's what many people indicate. That it's just people buying and trading, and really nothing . . . there's no advantage.

Now Saskatchewan people believe that they want to contribute to this decrease of the greenhouse gas emissions that we generate because we're pretty high up there in terms of the per capita greenhouse gas emissions. And I don't know the exact amount but I know we're pretty high.

Is there any environmental conscience, I guess if you will, on SaskPower to say, well as a Crown corporation generating power, using coal, that instead of us playing this shell game in reference to carbon capture and carbon trading and credits and so on and so forth, we're just going to just do what we have to do to make sure that we are leading this file to address this whole greenhouse gas emissions that we're doing, and this is how we're going to do it. Is there any value in doing that instead of waiting for the leadership to come to provide that leadership?

**Mr. Wilkinson:** — So maybe I'll try that one as well. I seem to be doing all the talking here.

I would suggest to you up to . . . And you used — someone, one speaker — used Europe as an example. One of the things that they decided to count in Europe is when economies collapsed and industries went out of business, all of a sudden their emissions profile dropped and they had credits to sell. Because they were emitting less than they did.

I share your view. That's not a particularly useful way of looking at it because you actually kind of want it to come down from today. So I believe that the carbon market can be structured in a number of ways, one of which is more of a trade argument than an environmental argument. In other words it's just a wealth transfer between areas for economies that are still bubbling and working hard and economies that have gone broke. That is one way to solve the problem. That's not a useful way to think about it.

In the Canadian context when you use the phrase, shell game — and maybe you're getting a sense of that from other continents — but what we're seeing from Environment Canada is that they're going to make it fairly rigorous. And I am sincere. I am sincere when I talk to the committee and I say, there are ways to reduce your carbon footprint. One of the most effective ways is to actually do conservation. Make the load go away in the first place, not just try serve it in a low emitting way. Make it go away.

And Vice-President Judy May has got a target and she's got 300 per cent of that target and then with demand response, she's got

another target on top of that. SaskPower is pushing that pretty hard. The more load we can make go away, that's a very useful way, I think. We'd seek your committee's support on things called demand-side management. Make the issue go away in the first place so I don't even have to even consider a generator to meet it. That would be wonderful.

But the shell game? Not so much. What we're seeing in Canada is, if you buy a credit on the Canadian market, it is going to be a real greenhouse gas, on the protocols that we're seeing developed. And I would say . . . I'll give you an example. SaskPower — sorry, Garner — owns some forestry credits that we had certified by the province some time ago. And it really means you have to modify your forestry practices. The trees have to stay intact, etc. The protocols around that are exhaustive and we're just going through now to see whether they count in a federal government kind of way. But it's exhaustive; it's technical; it's not trivial at all. It's not a shell game as we see it.

**Mr. Belanger:** — I'm pleased to hear that. I'm sure a lot of people are. Like you talk about the Russian economy collapsing and all of a sudden they want to buy all these credits and wealth transfer. It doesn't really work and that's kind of what people were arguing about.

But my other point that I would raise, that if there is that legitimate qualifying process as you mentioned, then shouldn't we be investing more into the renewable sector? Do you see how I'm trying to connect the dots here for people out there saying okay, fine, if conservation helps you in qualifying what your carbon reduction is, then shouldn't renewables also count?

**Mr. Wilkinson:** — Okay, maybe I'll try that one as well. So renewables, what are renewables? Wind, SaskPower is getting pretty close to the highest percentage you're going to find in North America. You are, as a province, investing in renewables to a high degree in terms of per cent of the size of your system. You are doing that already. I would also mention . . . And I'd take a good look at that hydro list for Saskatchewan. Again you can argue whether large hydro is renewable or not. In my view it is. The water comes next year as it always did. And you're going to see we're working with obviously certain groups in the North to try to see if we can get hydro proposals to come our way.

So again I would suggest that your electric utility, SaskPower, is maybe getting a little gutsy on the wind. It is pushing again the large hydro, which is renewable, both inside the province, and also kind of working on one of our neighbours to see if large hydro installations, and I'll just say in Manitoba Hydro, whether there's some space or purchases we could bring across the border of the non-emitting style of power.

And between net metering, environmentally preferred power programs, and that almost 2,000 locations of solar that we've inspired so far, I would suggest that your electric utility is probably pushing the renewable envelope pretty well.

**Mr. Belanger:** — The other point I would raise as an example: you talk about demand-side management, that if you had less power demanded of a certain area that you could actually export that power. Because I'm assuming we're not exporting very much. We may be a net exporter, but not all that much. Is that

correct? Or do we export overall?

**Mr. Mitchell:** — [Inaudible] . . . net importer last year. We actually bought more power than we sold.

**Mr. Belanger:** — Now in that regard if I were to tell you, look, here's a cluster of communities in the Athabasca Basin; they have a plan to put in a hydro plant and hey, SaskPower, you know, we'll sell it to you. Give us a 20-year deal. But we really want to provide power to the mines and to our communities, and not necessarily get SaskPower out of our hair, because SaskPower is our Crown corporation and we want to protect it, right? Would SaskPower be in a position to say, yes we could work out a regional deal involving the Aboriginal people and look at the power generation opportunities and go into a partnership?

So that was my whole point about, if there's a solution that could be found way up there that doesn't affect or impact SaskPower down here where 98 per cent of the population live, why wouldn't SaskPower do that?

**Mr. Wilkinson:** — I'll start and President Mitchell can jump in later on. So in 2007 we actually invited northern groups, one of which was Black Lake, and at that time they were travelling with what I describe as very experienced engineering firm, and we invited them to provide a proposal to us as part of an '07 supply decision. They've been working for some years. The engineering looked like it was very robust; however they felt at that time they were unable to provide a proposal to SaskPower to consider.

One of the proposals, one of the things when we consider a proposal is often the cost and when it would be available and what the size and that kind of stuff. They were unable to provide that, and they had some internal issues associated with the developer and the engineering firm and that relationship ceased to exist, and so they couldn't provide a proposal to us.

Another group, maybe not quite as far north, three nations group, has approached SaskPower and said, we'd like to give you a proposal. And we're kind of working with them, to use a phrase, kind of to develop a memorandum of understanding as to how we might go forward on this. Once again in this situation, the Aboriginal group has a world-class developer in tow with them and so they were, in 2007 when we invited them to give us a proposal, also were unable to provide a proposal to SaskPower to consider as part of the supply decision.

So to maybe answer your question maybe a bit more directly is, we have been working with the groups to try to get proposals for us to consider in the very far North where the uranium mines are, and maybe still in the North but maybe not quite as far north, we have groups who are now also on extra projects distinct from those two that I just mentioned, coming to SaskPower and saying, would you be willing to talk to us about hydro and that kind of . . .

And we're being facilitative. We are trying to get proposals to come forth for our consideration. Kind of a work-in-progress, but it kind of depends on the developer you've got, your business acumen, and probably whether you've got sort of a separate business corporation, legal entity that you can actually

do business with. That's all kind of work-in-progress. Right now I'm optimistic. You'll see all of the ones that I'm talking about now on that list of hydro potential that we provided to the committee earlier.

**Mr. Belanger:** — I've got this little devil on my left shoulder and my angel on the right shoulder here. What that little devil's telling me is, well why in the world would you put 9.4 cents as a rate and 10 megawatts as a limit if you want to encourage Aboriginal participation in some of these processes? And the little angel is telling me, well he did agree he's going to look at the whole notion and see where things are at. So I'm more inclined to listen to the devil guy because he's saying, well if you want to encourage that and it does sound good, why are you boxing in potential partners on the size of the project, given the economies of scale we argued about earlier, and also the price? It just doesn't make sense.

**Mr. Wilkinson:** — Maybe I'll try that one as well. So in terms of the opportunities that we sort of provide, you mentioned that there's a net metering opportunity, but it's quite small. And then there's a green options partners program that goes up to 10 megawatts — still quite small. However, SaskPower also goes out on the street for RFPs, a request for proposals, some of which arguably are 10 to 100 megawatts and, more recently, 200 to 400 megawatts.

So the opportunities for developers and their partners to play, go everywhere from under 100 kilowatts up to 10 megawatts up to 100 megawatts and, the last one that we did, which is closing and it's under evaluation — it's too soon to make announcements on that kind of thing — but that solicitation was between 200 and 400 megawatts. That's really quite a range of opportunities to provide power to SaskPower, in my view.

**The Chair:** — Mr. D'Autremont.

**Mr. D'Autremont:** — Okay. Thank you. One of the things that we've heard from a number of the presenters when they have come forward is that they're willing to pay more for electricity. And that's part of the reason why I was asking how many were prepared to pay for the green wind energy.

One of the things that they were talking about doing was just in general paying more for renewable electricity, but also paying more through a smart metering system where you'd have a differentiated or a variable rate depending on the time of the day. So if you used more electricity from 6 in the morning till 10 o'clock when you're cooking breakfast or in the afternoon when the air conditioner would be on or in the evening, that type of thing. Has SaskPower done any work along that line to determine whether the customers are actually interested in paying more for electricity?

**Ms. May:** — We've certainly done some work in that area. And one thing that I . . . In terms of time of use and customers making choices about when they're going to, you know, what they're going to pay when, we've actually had time-of-use rates since 1984-85, I believe it is, for our commercial and industrial customers.

And what we have done very recently is we've looked at those rates again and we have created, we're working on creating a

rate for industrials that would, in addition to the rate we currently have, a rate for industrials that would really take the time-of-use incentive from the demand charge and move it to the energy portion. So they would see a reduction on their energy charges at certain points in the day, off-peak times obviously. So we're working on that right now.

[16:30]

We're also working on a very similar concept to our commercial customers as well. But again in rate design, you always need to look at rate shock and potential impact. So we do have some commercial customers on our currently existing time-of-use rate. And so we really would need to, and are, looking at an additional rate for the commercial customers on time-of-use that would give and move that time-of-use incentive from demand charge to energy charge, but mindful of impacts to the current customers that are on our current rate.

So we've done work in that regard. We are very mindful that things such as advanced metering infrastructure would give us better capability to offer those same kinds of rates for residential, farm, and small commercial customers. But right now we're limited by our current metering infrastructure in being able to properly measure when the customers are using electricity on-peak versus off-peak, for example, when it comes to residential, farm, and small commercial, whereas your large commercial, industrial, our meters are capable even currently of recording that. And that's why we're able to do time-of-use.

As far as other sort of general comment, I will say that from time to time we do customer research, and so certainly are from time to time testing all kinds of notions and programs with our customers. To date we haven't done too much on things like inclining block rates, which would address some of your issues. But those are the kinds of things that we're looking to do customer research in the future as well.

We do get mixed comments, I would have to say in that, yes, there are certain customers who are interested in paying a bit of a premium for green or renewable electricity. But again there's also, through the process we undergo with rate applications, those customers who are really looking for the least rates. They're looking for that reliable, sustainable electricity at lowest possible cost. So more work to be done in that area, but we have started.

**Mr. D'Autremont:** — Thank you. You mentioned that your growth projections over the past 10 years were 1.3 per cent and that you're now looking at a projection of about 3 per cent, I believe you said. One of the things that we've heard from a number of the presenters is that we should be able to cover off all of the projected increases by demand-side considerations, that we should be able to reduce our demand or our consumption of electricity to cover off any of the new increases that may be coming in place because of new industries or a growing population or new iPods that we're plugging in, whatever it might be. Is that a realistic consideration?

**Ms. May:** — I'm not sure of any jurisdiction that has set 100 per cent of growth to be covered off by demand-side management. There are certainly other jurisdictions that are looking at 20 per cent of load growth to be covered off by

demand-side management or 50 per cent of load growth to be covered off by a demand-side management. But to have that entirely covered off by demand-side management at this point in time, certainly ambitious. But whether it's quite realistic at this point of time, I would say, questionable.

However having said that, certainly SaskPower has been setting I think very aggressive targets — 100 megawatts of energy saving by 2017, 120 megawatts of capacity savings by 117. And by somewhere in that 223 or beyond range, we're looking at 300 megawatts of energy saving and about 220 to 230 megawatts of capacity saving.

And you know, if I recall correctly — and I'll check my numbers and we'll certainly verify them for the committee — I believe our load growth was very substantial in that we were predicting something in the, you know, neighbourhood of about 100 megawatts almost on an annual basis. That's the size of some of the natural gas generation that we've been putting in place. So that certainly would be a major undertaking.

Other jurisdictions that have been in the demand-side management arena for far longer than we have, for several decades, you know, are looking at making those 20 to 50 per cent reductions.

We have not been in the demand-side management arena for that length of time. We have had different circumstances where in the past we've had more generation than we've had demand. So we've had a surplus for a period of time, and so the need for us in our jurisdiction wasn't as great. However going forward, we think with the work we're doing on demand-side management programming, we are certainly pulling ahead. And maybe, as Gary Wilkinson often says, we will be very quickly punching above our weight.

**Mr. D'Autremont:** — Thank you. We've heard talk about the desire to reach a 20 per cent level on wind as Denmark has in Europe. I wonder if you would know if there is a difference between how the system in its entirety operates in Europe versus the system as it operates here.

Obviously you've told us that you need to be able to stabilize and balance. That the larger your system, the easier it is to stabilize and balance. And I don't know whether Denmark . . . And I know that you've mentioned and we've seen that they in part use, as their backup, a nuclear system from other jurisdictions and/or hydro from other jurisdictions as well.

Is the entire European — or at least west European — electrical system sort of one unit with various national jurisdictions providing generation, but yet they can balance across the whole system? Or is it like us where we're limited to Saskatchewan with very little connectivity to our neighbouring jurisdictions so that our entire stabilizing and balancing has to take place within our own jurisdiction? Because I think we have very small connections outside of the province. And in fact it is to Alberta, that connection, because the different phase probably is of no value when it comes to stabilizing and balancing.

**Mr. Wilkinson:** — Maybe I'll try that one. We actually tried to go into . . . We need a little help from someone who has a working knowledge of Danish. We tried to get some

information as to how Denmark was handling that wind penetration level. And I would say the translation services were not very good, but the information we were able to get so far is they are desperately looking for ways to reduce the cost of trying to correct that amount of wind variability on their system.

They are one of the first ones, and in for a penny, in for a pound. They are trying to push electric cars and a few other bits and pieces so they can have a storage device in a large percentage of garages, because we understand it is problematic between what they're paying on their own system to try, do that balancing act, and what they're paying to their neighbours.

My understanding, again working through maybe not the best interpretation of the technical literature, is that they are significantly interconnected to Sweden and also down the other way into the continent. And they are leaning on their neighbours a little bit, which is not without its cost and consequences.

I couldn't get a breakdown, and I've not talked to anyone directly in the Danish utility to try to find out how they're doing it and who they're paying for it. I just know that it's something that seems like it's an irritant for them right now. In other words, when I mentioned to the committee if you get past a certain point, the costs become a trick to be manageable. I believe they are there.

**The Chair:** — Mr. Belanger.

**Mr. Belanger:** — Yes, thanks again. I just want to point out that the Aboriginal partnership that are looking at some of the alternative energy scenario, they are deadly serious about trying to be a good partner with you. Deadly serious, that's the best way to characterize it.

And they look at a number of other things. They look at the line loss to northern Saskatchewan — some say it's as high as 22 per cent as I mentioned earlier. They look at the benefits of your demand-side management. Is that worth something? They look at the notion of, well if we generate power, there's less debt for you, SaskPower. And there'd be a huge amount that . . . But 9 million here and 12 million there, you know, that kind of adds up to less debt for SaskPower. They look at the carbon credit. Is there a value for the corporation? And yes, perhaps they also look at the cost of power to their current people, to the people that they serve, Métis or First Nations.

So all these things are entering their mind. They're saying, well this is our Crown corporation. Can we make a deal with them? Can we sit down with them? And I for one say, absolutely. I think it's important. This thing is too big to be partisan, this whole issue of trying to find power.

And then the notion of concessions. People are saying, well every other jurisdiction is doing it. Manitoba's doing it. Ontario's doing it. So should that be a consideration? And I think it should be. Be bold enough to say, yes there should be some concessions. As in Ontario, I think it's point four to point six of a cent of kilowatt difference if there's Aboriginal partnership 50 per cent or above. Absolutely, absolutely there should be concessions because it provides a lot of benefit to SaskPower, a lot of benefit.

And I'm quite pleased and I'm quite encouraged that at least you're going to look at reviewing the process and see how it's going to . . . I'm not trying to put words in your mouth, but the impression I got was that we're going to look at this and see where things are going. I don't think we need to leave it to . . . yes the update, can somebody do that? I think there's got to be an extra effort to outreach on this front and to seek some really good partners or open a door at the very least.

At the same time, I appreciate and we appreciate that SaskPower's still got to be in charge here. We've still got to have a solid Crown corporation. So I'm not saying go ahead helter-skelter, privatize SaskPower and every corporation that these guys could find to provide power and eventually put you out of business. That's not what we envision. There's three words missing from your logo of safe, reliable, and affordable. And I think it's environmentally sustainable; I think it's interactive, and I think it's strong. Those are the three words I think are missing.

And the Aboriginal community themselves, whether it's a dam in the far north with the Black Lake Band or whether it's conservation efforts or whether it's a biomass opportunity, they really, really want to be in the door. They really want to have this opportunity. But the moment you start limiting them and their opportunity, then it becomes problematic for them. They can put on their thinking caps.

And you talk about a wind farm, if it's on-reserve, is a good example, or you look at the possibility of buying land for your wind farm. What are the costs of that? And all of a sudden we'll put it on-reserve, as an example, where the cost of land is not cheap. Because according to the one chief that made a presentation here, they got to sell it, rent it at market value as per INAC's [Indian and Northern Affairs Canada] rules. So, you know, this notion of free land and cheap land on-reserve is out the window. But they can't go off-reserve and buy land because it becomes very, very expensive. So while they have a good business case, there are some compelling challenges that they face as well. And that's just one example.

So my point is that . . . And this is really a challenge to SaskPower, you know, Mr. President, if I could be so bold as to point the direction at you. I think, I think we have to take a very strong position on renewable energies development. I think we have to look at concessions for the Aboriginal community, both the Métis and the First Nations. I think we have to look at all range of activity as you've mentioned, whether it's conservation, whether it's demand-side management, whether it's trying to find some new ways to get our energy in coal cleaner because there's so much dependency on coal. We have to realize that, while it's the biggest greenhouse gas emitter, it has a lot of benefit for Saskatchewan. So how do we turn that around?

So these are some of the things that we've been hearing. And boy I look at this line loss and less debt and the carbon credit, and all of a sudden the Aboriginal proposals, well they seem pretty darn attractive to me. But it's when you box them in where the problem is. So again I'm going to pressure you, sir, gentlemen on my right, the process needs to be much more conciliatory than what it is now. You can't simply say, we'll put it at this price, see who will respond, and hope that people do.

And what if they don't? If we're serious about the renewable resource sector, then we ought to show leadership and say, yes, we think that the price that they give us is pretty darn good.

[16:45]

And I disagree with the notion that people aren't environmentally friendly in Saskatchewan. SaskPower is our Crown corporation. We will follow your lead — not because you're a monopoly — because we own you. You're us. And that's why I think on the environmental front, this two fifty a month that my colleague across the way made reference to, well it may not have big uptake. But if SaskPower leads on the environmental issues and the environmental development on renewable energies involving the Saskatchewan people, businesses, First Nations, Métis groups, but I think, I think people will follow you. But you've got to put your thinking caps on. And you've got to be flexible, and you've got to really respond to the proposals that we heard.

So again, can I get your commitment that you'll continue that particular work and review the rates? And whether hydro is up here and biomass is down here, lump them all together and average the baby out, whatever you've got to do. I think people will buy into that if they see that Saskatchewan, SaskPower is finally becoming environmentally sustainable and interactive, thereby becoming stronger. Will you do that?

**Mr. Mitchell:** — Yes, I hear your message very clearly and I think it's a very important message. And one of the thoughts that does come to mind that, like some of the very good thoughts may go beyond the scope of SaskPower and they would maybe fall more into policy lines and, you know, there are shareholders and government and that type of thing.

But we will certainly take interest in your viewpoints. I think they have importance, and we'll certainly communicate that through our governance process and state the ideas and state the interest.

Because I guess if you look at SaskPower, we do have some success — our Sandy Bay community in particular, in relationship building, and that credit to our unions who co-operated and when, you know, we got 23 people and 22 out of the 23 are First Nations people. And some of the people have now moved down into the South and getting into the main systems here. So we've had a real success with working with First Nations communities, and we're quite proud of that.

And we see lots of opportunity and, you know, I think our shareholders are very open-minded. And we'll certainly communicate some of the ideas and see where it goes.

**Mr. Wilkinson:** — Can I just please add one comment to Mr. Mitchell's response there? Crown and Central Agencies is going to eventually write a report that says, here's how we'd like you to go forward and some things to think about. If the committee is all of one mind, this'd be a perfect venue to send us a message saying, by the way, here's how we'd like the future to unfold with respect to renewables, generation, Aboriginal . . . That would be a wonderful way to bring that forward for us.

**Mr. Belanger:** — Thank you very much for your answers, and I'm encouraged as a result of some of the activity. And I want to point out that we're going to be very, very cognizant of some of the activities happening within SaskPower, like we kind of keep our finger on what's going on. And there's an old Chinese proverb: a man without spies is a man without eyes. So we watch very careful what people do in and around this whole notion.

And then from my perspective, I'm not sure if my colleague has any further questions, but I just wanted to commend your people, Mr. President, our Crown corporation people — they're very professional, articulate, and very knowledgeable, and they've been very helpful in this process. We have a ways to go, but based on what we've seen and the performance and the ability, I'm very, very pleased to see that they're serving Saskatchewan well. Thank you very much.

**The Chair:** — Well thank you very much for your presentation in your third time in front of our committee in this process. It's been very valuable each of the three times, and thank you for answering our questions today.

**Mr. Mitchell:** — Mr. Chair, if I might, I do have a bit of a closing statement. It'll just take a few minutes. I'll keep it fairly brief if that's okay.

**The Chair:** — I think the committee members would be happy to hear it.

**Mr. Mitchell:** — Well thank you, Chair. With the questions from the committee members now complete and testimony from SaskPower as well as interested citizens, provincial business organizations, and local municipal officials now part of the public record, I would like to take a few minutes and share some final observations and comments.

SaskPower has been very pleased to be part of the important conversation that this committee's work has started — a conversation that's carried on to coffee shops and kitchen tables across the province over the past few months. At SaskPower we've welcomed the chance to address the members of the committee and, through you, the people of Saskatchewan about the question posed in your ambitious mandate. Through these hearings, we've been able to talk candidly about the pressures SaskPower faces to renew and rebuild our generation and transmission system, and in response to the economic growth our province has been experiencing. We've also been able to share our short-, medium-, and long-term plans for how we'll take on this challenge.

With all testimony now complete, the task before the committee is not an easy one. The province's ongoing economic development will be directly influenced by the recommendations and the decisions coming out of your work. Federal greenhouse gas regulations are not yet final, yet we face the prospect of making decisions around our power system that will affect customers for years into the future.

While greener generation options hold promise, we are still searching for ways to ensure reliable service is not compromised as we rely on these alternative energy sources more and more, a task we're taking on in conjunction with our

sister utilities across North America. In short, there is no easy or single solution when it comes to meeting the province's future electricity needs. We hope we've made that very clear to the members of the committee.

We have a finite basket of options to choose from, each one with its pros and cons. Which of these generation options is better suited for Saskatchewan will become more evident as the federal greenhouse gas regulations get finalized. In this regard we urge the committee to be patient and not make recommendations that may inadvertently impede the provincial electrical system until further clarity on the regulatory front is available.

Over the many years SaskPower has done a very good job in striking a careful balance amongst reliability, environment, and what's really important, I think, is affordability. And I am very confident in our ability to maintain that balance into the future because of the extraordinary efforts of our 2,500 employees across this province. Just this week we've seen how far our employees are willing to go to keep the lights on, battling mother nature to restore service to the southern part of the province through the ice storms and severe blizzards.

And so let me express my thanks on the official record to all of our employees, and especially those who went the extra mile over the last week for their ongoing contributions and finding that service balance, as well as to acknowledge the contributions of generations of employees who came before.

We know that whatever generation and transmission options are chosen to meet the province's future electrical needs, there will be cost impacts on everyone in Saskatchewan, but it is our job to minimize those costs as best we can.

At the same time we also know that in 10 years from now, thanks to the thoughtful planning, investment, and partnerships that are at the heart of our generation and transmission renewal and growth strategy, SaskPower will have a modern, efficient, reliable, and environmentally sustainable power system, a system that will, better than ever before, deliver on the growing demand for electricity that comes with a robust economy.

The question in front of this committee merits serious debate and consideration. Thank you for this chance to participate in this discussion, and I applaud you for engaging so many others.

In closing I offer the ongoing assistance of SaskPower and my staff in your work and wish you well in the writing of the final report. Thank you.

**The Chair:** — Well thank you for your statement. Before we adjourn, I would like to thank the Clerks and researchers and everybody that has been involved in this process. We've cut across Saskatchewan and gone to the North and the South, and it's been a lot of work for a lot of people, so thank you to everyone who has been involved in that.

With that being said, we will adjourn today and the committee will report to the legislature within the time frame set out in the rules of the House. So we are adjourned, thank you.

[The committee adjourned at 16:55.]