STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES

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STANDING COMMITTEE ON CROWN AND CENTRAL AGENCIES

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Carrot River Valley

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Mr. Randy Weekes
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Ms. Colleen Young
Lloydminster

Published under the authority of The Hon. Dan D'Autremont, Speaker

[The committee met at 12:59.]

The Chair: — Good afternoon and welcome to the Standing Committee of Crown and Central Agencies. Members of the committee include Ms. Sproule and Mr. Greg Brkich. Substituting for Colleen Young is Mr. Steinley, and substituting for Mr. Phillips is Glen Hart. Substituting for Randy Weekes is Mr. Makowsky.

We have three documents to table here today. They are CCA 186/27, Minister Responsible for the Saskatchewan Gaming Corporation, responses to questions raised at the September 15th, 2015 meeting of the committee re: revenue increase during VLT [video lottery terminal] upgrade, number of visits to casinos Regina and Moose Jaw, value of six to eight times EBITDA [earnings before interest, taxes, depreciation, and amortization] dated January the 11th, 2016.

We also have CCA 187/27, Crown Investments Corporation of Saskatchewan, CIC, reporting of public losses October 1st, 2015 to December 31st, 2015 for CIC and its subsidiary Crown corporations, dated January 29th, 2016.

Also we have CCA 188/27, Minister Responsible for Saskatchewan Water Corporation, responses to questions raised at January 5th, 2016 meeting of the committee re: greenhouse gas emissions, dated January 29th, 2016.

Members have a copy of today's agenda. If members are in agreement, we will proceed with the agenda.

Some Hon. Members: — Agreed.

The Chair: — That's agreed.

SaskPower Boundary Dam Carbon Capture Project

The Chair: — Today we are here for three hours until 4 p.m. to discuss SaskPower's Boundary dam carbon capture project. Minister Boyd, would you please introduce your officials and make any opening comments.

Hon. Mr. Boyd: — Thank you, Mr. Chair, and good afternoon, committee members. I'm joined here today by a team from SaskPower. On my right, Mike Marsh, president and CEO [chief executive officer]; Guy Bruce, over my shoulder to my right, vice-president, planning, environment and sustainable development. On my left, Sandeep Kalra, vice-president, finance and chief financial officer. Directly behind me sort of over my left shoulder, Mike Monea, president, carbon capture and storage initiatives. Just over beside Mike is Rachelle Verret Morphy, vice-president, law, land, and regulatory affairs; and Troy King on the left over there, director, corporate planning and controller; Rhonda Smysniuk, behind there, the director of government relations.

Mr. Chair, we are pleased to be here today for further consideration of the Boundary dam carbon capture and storage project. I'm aware that the officials at SaskPower spent a considerable amount of time preparing information to answer the questions that were related to the project stemming from the last time we met in January, and I know that the members in the room appreciate the time and effort that SaskPower officials have put in.

The last several years have been a time of exceptional growth, change, and innovation for SaskPower and the province. Although we are just two months into 2016, there are already signs of continued opportunity and promise in the area of carbon capture and storage. As you're aware, the Boundary dam 3 carbon capture plant performed very well in January. The plant was online for 100 per cent of the time in the month. This is a tremendous result and demonstrates that the investments made in the fall of 2015 to fix technical and mechanical challenges at that point were time and money well spent.

Of course, no power plant and carbon capture plant can be expected to run 100 per cent of the time. This one is no different. Over the course of 2016, SaskPower expects the facility to be up and running approximately 85 per cent of the time. The 100 per cent online achievement for January allowed SaskPower to capture and sequester approximately 85 000 tonnes of carbon dioxide. SaskPower continues to target the capture of 800 000 tonnes of CO_2 this year.

SaskPower encountered a small challenge in the power production side of things during the first week of January. This reduced the generation output of unit 3 at the power plant, but it did not result in a shutdown of the capture facility. These types of everyday challenges are typical in power generation units, be they coal fired or any other type. In the coming months, SaskPower will continue to commission the acid plant on site in order to convert captured sulphur dioxide into saleable sulphuric acid. That process is expected to come online later this spring.

SaskPower also took the carbon capture facility off line in early February, as previously communicated. After seven straight weeks of production since mid-December, this downtime was planned to inspect and clean the various subsystems in the facility before resuming operations. CO_2 capture in February is performing as expected. SaskPower continues to operate the carbon capture process at a level that meets the commitment to the CO_2 buyer as well as the federal emissions regulations.

Before I close, I want to also acknowledge the important partnership announced by SaskPower on February 5th. SaskPower and the global mining company BHP Billiton announced the establishment of a centre of carbon capture and storage knowledge to be located at the Innovation Place research park here in Regina. Establishment of the new centre includes a $20 million contribution from BHP Billiton made over five years, while SaskPower will contribute the CCS [carbon capture and storage] expertise and experience gained through its various CCS initiatives.

BHP has noted that the development and deployment of low-emissions technologies such as carbon capture and storage is vital. In addition, BHP said in a press release that the data information and lessons learned from the SaskPower Boundary dam facility or, as BHP calls it, "the first power project to successfully integrate carbon capture and storage . . . will hopefully stimulate broader deployment of the technology."

The Government of Saskatchewan and SaskPower greatly appreciate this valuable partnership and look forward to continued collaboration as the knowledge centre develops. The centre's mission is to help accelerate the development and application of CCS, which has been identified as essential in the global effort to reduce greenhouse gas emissions by the United Nations and the International Energy Agency among others.

In closing, the province has seen 20 per cent growth in the demand for power over the past five years, and that is expected to grow by an additional 13 per cent over the next five years. SaskPower has increased its generating capacity by about 778 megawatts since 2007 and plans to add about 1700 megawatts in new generation from 2016 to 2024.

SaskPower plans to invest about $1 billion per year for the long term on the province's electrical system to ensure that our customers have the power they need for today and for future generations. This will be done through careful planning and investment as SaskPower continues to deliver reliable, cost-effective, and sustainable power to the people of the province of Saskatchewan.

One final note: it has come to our attention that we made an accidental omission responding to the request for information. We will be tabling that here today. Mr. Chair, with those opening comments, we are prepared to take questions.

The Chair: — Well thank you, Minister. Are there any questions? Ms. Sproule.

Ms. Sproule: — Thank you, Mr. Chair. And right off the top I'd like to thank the minister and all the officials responsible . . . [inaudible interjection] . . . Oh sure, if you want to table it now, that would be great. Thank you.

Yes, just wanted to thank the minister and all the officials. I know it was an incredible amount of work that you undertook to provide information to us on January 5th, so in particular to all the officials who spent hours pulling that together, it's not something that we undertake lightly, and we certainly appreciate the efforts of the officials in that regard.

Mr. Chair, I received a letter from Minister Boyd yesterday with responses to the questions, and I'm wondering if that could be tabled with the committee because I'm not sure how else that information is made public. So is that something . . . Are those responses going to be tabled?

The Chair: — Those responses . . . Excuse me, those . . .

Ms. Sproule: — I received . . .

The Chair: — The ones we just got?

Ms. Sproule: — No, this is the ones that the minister sent me yesterday in the mail.

Hon. Mr. Boyd: — I don't see there being any problem with tabling all of that information.

Ms. Sproule: — So we'll ask the minister's office to undertake to table that with the committee as well. Thank you.

The Chair: — Okay.

Ms. Sproule: — And then there's additional information that the minister is further providing today. I know there were a couple of questions we had asked that didn't make it into my letter to you of January 20th, so that may be what you're tabling right now.

Hon. Mr. Boyd: — I think that was part of the problem with what we tabled here just now. It came in a little bit later and it was assembled a little later.

Ms. Sproule: — Thank you very much for that. So just to make sure that all this information is on the record then. We'll appreciate that.

I'm going to start then with just some comments and then some questions that flow from that. First of all, thank you to the minister and members of the committee for reconvening so that we can resume questions to both the Minister of the Economy and to SaskPower regarding the information that has been provided about the carbon capture facility at Boundary dam unit 3, or BD3.

When we last considered this issue at committee on January 5th, I asked questions concerning a number of financial and operational aspects of the project related both to start-up and to ongoing operations. I think that there were certain areas where we need further discussion. That's what I certainly intend to do today, especially relating to the technical challenge, but the costs associated with the start-up.

At this point though, and with today's three hours that we've been given, I want to change the focus a little bit and concentrate on the underlying profitability of Boundary dam 3 and something that we really only started to discuss on January 5th.

It seems pretty clear, based on the information that I have, that there was never any sort of business justification for Boundary dam 3. There's no doubt that this project, even if it operates 100 per cent of the time as it was initially hoped that it would, will result in losses for hard-pressed Saskatchewan electricity consumers of more than $1 billion. And we'll go through that as I question you today.

At the same time we know that it will generate profits in excess of 1 billion for a single oil company, and that's Cenovus, and again we'll go through some of those numbers today. That company also happens to have been the largest corporate donor to the Sask Party in 2014, 2013, and the second largest in 2012. Therefore I would like to use today's meeting to seek additional clarity from SaskPower and the minister, and with that information to justify our position that this is not . . . there is no business justification.

As we proceed, I note — and this is the first question I'm going to get to here — this government has previously cited issues of commercial confidentiality primarily when discussing the sales price of BD3 [Boundary dam 3] CO_2 to Cenovus. On this point I would like to raise the issue that we are dealing here with $1.5 billion of public funds which has been used by this government to increase the profits of the private oil company. The public

deserves to know where their money has gone, and as a result I fail to see how they can be refused any information because of confidentiality.

On January 5th, I did ask a question about the ongoing contract with Cenovus and I just want to refer to, Minister Boyd, the materials you gave me yesterday where we had asked for the newest contract — thank you — entered in to Cenovus with appropriate redactions for commercial sensitivity. And what you've told us now is that you are not able to disclose any portion of the agreement because there's a definition of confidential information which expressly includes the provisions in terms of the agreement.

So I would like to know, whose definition was that? Why is that clause in there where you're unable to provide any portion of the agreement? And why did SaskPower agree to that type of clause?

Mr. Marsh: — Mike Marsh. I'm going to answer this question. The particular terms and provisions of this contract with Cenovus simply do not allow us to release all the details that are contained in that contract. We enter into contracts with many different firms — consulting firms, contracting firms. All of them usually have some form of confidentiality agreement in them. This one is no exception and unfortunately we just cannot provide the specific terms of the contract.

Ms. Sproule: — It seems to me there is an exception with this type of contract because it's the only one of its kind. When you're dealing with other contracts, engineering firms, all of those people, you have a number of contractors that are bidding on those types of agreements. This is the only contract of its kind, particularly the contract we're talking about, which is the new one that you've entered into with Cenovus. There is no one else, so there's no commercial sensitivity that could even be applied here. So on what basis are you claiming confidentiality?

Mr. Marsh: — Ms. Sproule, I think in the interests of both parties, of both SaskPower and in the interest of the other party, Cenovus, their interest is certainly to keep the actual price and the quantity of CO_2 that's delivered to them confidential, because there are other oil and gas companies that could take advantage of that information. So that's the reason why this particular agreement was entered into in this way.

Ms. Sproule: — Can you explain to me how other oil companies could take advantage of the $25 a tonne that Cenovus currently is paying? Like how could other oil companies take advantage of that? I don't understand.

[13:15]

Mr. Marsh: — Well I am not in the oil and gas business and I'm not going to presume to speak for Cenovus. But any time you are dealing with information about quantities and price, it could affect, you know, production volumes in the oil and gas sector. It could have a material impact in some way.

Ms. Sproule: — And how do you feel about the fact that this is one and a half billion dollars of taxpayers' dollars and what they should know or not know about this deal?

Mr. Marsh: — Ms. Sproule, we're releasing as much information as we possibly can. We have endeavoured to provide you with all the information that we can on this contract and outline the information that we have in terms of the quantity of CO_2 that we can produce totally, and talk about the facility that we have built to capture CO_2.

Ms. Sproule: — Thank you. So I'd like to continue on with the process then that I want to follow today. I'm just looking at this . . . Thank you. First of all, I think we'll try to do a line-by-line examination of the revenues and expenses of Boundary dam 3. This will take some time and so I appreciate your patience. But this is how I think we can build a picture of the business case because we haven't received the formal business case from SaskPower.

So the first thing I want to do is ask the Clerk if I could distribute this table. It's called "Figure 1, year 1 cash flows [in million dollars] of the Boundary dam 3 carbon capture unit." So can you distribute this? I have 10 copies.

The Chair: — I just want to cut in for a second too on this so we can table this document. The document is CCA 189/27. It's a breakdown of consultants and contractors capitalized under Boundary dam 3's construction.

Ms. Sproule: — Thank you. So what I've tabled, Mr. Chair, and members of the committee is a figure that is a very high-level statement of the business case for the carbon capture unit itself. And this is based on information that we received from the committee on January 5th.

So we see there's two sources of revenue for the carbon capture unit. One is of course the CO_2 sales to Cenovus. Then the sulphur sales, which are pretty inconsequential, but based on the information that we were provided, it was about point eight of a million dollars, or $800,000.

So as far as we know, these revenue estimates have not been queried. I will ask a little bit about the CO_2 sales to Cenovus because we know now that it could go as low as $15 million, based on one of the question's responses that we just received about the specific CO_2 target that SaskPower plans to deliver to Aquistore.

So you said in your response of yesterday, SaskPower's target to capture 80 000 tonnes in 2016, the delivery of CO_2 to Aquistore could accumulate to somewhere between 50 000 and 150 000 tonnes. So if it goes up to 150 000 tonnes, we have only 650 000 tonnes being delivered to Cenovus, and at $25 a tonne, that would be $15 million. So assuming the revenue is as high as $23 million for Cenovus, then we have to talk about the expenses.

And we did talk a little bit about the parasitic load when we met in January. In fact Mr. Marsh noted that the parasitic load would include the 15 to 16 megawatts that are required to compress the CO_2, and it reduces the net generation to 105 megawatts, which is 30 megawatts parasitic load to run the carbon capture unit and 15 megawatts to run the compressor facilities. In other words, the parasitic load which is slightly greater than the 40-megawatt estimate which I referenced on January 5th was used to calculate the cash flows in figure 1,

which is $18.1 million.

For O & M [operating and maintenance], Mr. Marsh confirmed my estimate on January 5th. In fact his number was 13 million which is a little higher than the estimate we have here of 9.8 million. And of course, you know, we know there was another additional 17 million just last year alone, just to deal with the problems with the amine.

So confirmation of these numbers leads to the indisputable conclusion that the capture unit is loss making, as I noted on January 5th. And indeed I think that was confirmed by Mr. Kalra when he said on January 5th, "So if you look at the losses in the capture side, the offset to that is, you know, great profits in the sale of power from a conventional . . . [power] plant," which I'll get into in a minute. So my question here is, do you agree that the annual losses for the CCS facility at this point are around $4.2 million?

The Chair: — Ms. Sproule, do you want to table this or is it just for distribution?

Ms. Sproule: — It's for distribution, but you know, other people listening may want to see these as well so I think it would be good to table them actually, because then members of the public and of the media would be able to see these tables. So if the committee is willing, I would like to table them. But it's up to the committee.

The Chair: — Committee members?

Mr. Brkich: — Just a quick explanation. Who is Sask Wind?

Ms. Sproule: — Sask Wind is a community-based organization that has published this since I think November of last year. This is available online. This information is available online. You could Google them but . . . They're a wind company.

Mr. Makowsky: — Mr. Chair, if it's already online and in a public domain, is it necessary? That's just my comment.

Ms. Sproule: — That's fine. It is available online.

The Chair: — Okay, we'll just leave it as distributed.

Ms. Sproule: — Just so the committee knows, I have about nine of these that I'll distribute as we go along, so it's sort of starting with this one, yes.

So I guess my question, and I'm not sure if you heard it, was: is this figure accurate? Is this chart accurate?

Mr. Marsh: — I'll respond to that just with a couple of comments, and I'll ask our CFO [chief financial officer], Sandeep Kalra, to step in here.

First of all, I think we need to look at this project the way it was intended to be looked at. This is a power generating station that has a carbon capture plant attached to it. The whole reason we built this plant was to produce energy and to reduce greenhouse gas emissions. We are doing that. We did not build this just to capture SO_2 [sulphur dioxide] and CO_2, and the profit and loss that you've shown here is really not relevant to how this business case was put together, not relevant at all.

So I take you back to the fundamental reason why this project was built. It was built so that we could continue to generate from low-cost coal for a long period of time and produce that energy with a very, very low carbon footprint. And that required the injection of a tremendous amount of capital, to be sure, to build the carbon capture facility, but you cannot extrapolate a couple of items on the revenue side and a couple of items on the expense side and call that an accurate profit and loss statement. That is simply not the case.

We can help explain and go back to the rationale on how the business case was put together, and I'd be happy to have Sandeep speak to this in a little more detail.

Mr. Kalra: — Okay. So as Mike has said, when the business case was put together, it wasn't for the carbon capture unit and power production unit separately. Without capture of carbon, there was no conventional coal that could be started, so both of them were combined. Also there is no profit and loss for our units. What we do is we try and produce power and we produce power . . . We look at various sources that we have, various generation sources, and we go for the lowest cost possible in any given circumstances.

When the business case was put together, the BD3, which includes power production and the carbon capture facility, was looked at as one unit and this cost was compared with the other costs of production, with the other sources of production. The main one was a combined-cycle gas facility. And at that time, those prices were the same whether you did carbon capture or whether you did combined-cycle gas facility.

The additional benefit of doing BD3 over combined-cycle gas facility was two- or threefold. One is the capture of CO_2 was 90 per cent versus reduction in CO_2 of roughly 50 per cent. So the capture rate was roughly 80 per cent more.

The other benefit was the ancillary benefits in the economy, so coal mines, you know, going and the economy in those towns going and the mining going as well at the same time. And also this was evaluated independently as well to look at our business case versus, you know, one versus the other.

In addition, the additional benefits from doing carbon capture versus combined-cycle natural gas with royalties flowing through additional oil production which was because the CO_2 was used in enhanced oil recovery. So those were a few benefits which were not there in combined-cycle gas plant. And so even for dollars, even though it was even it had many more benefits and that's why we decided to pursue this.

Now if I look at this chart itself, once again as I said, we don't do profit and loss on our production units. It's just cost of production. So we don't do profit and loss, so I can't speak to it.

One thing which jumps out at you which is parasitic load, which is not a cash flow item, shows up as a cash flow, you know, deduction of $18 million here. So that's not correct.

So I'll go back to the original business case. Even as compared to the next best alternative, many more benefits as compared to

the next best alternative and first of its kind, lots of other technological benefits — that's why we decided to do it, and the business case was sound. And the plant is up and running right now. It had teething issues, but the plant is up and running right now.

Ms. Sproule: — Thank you very much, Mr. Kalra. I will address the points you have made in the next section. You did tell us on January 5th that you have to look at the whole picture together, and at one point you said let's consider both pieces of the puzzle together.

So the next chart is taking what I just provided you, but putting beside it the operations of the coal-fired power station. And let's keep in mind we're not talking at all about any of the capital costs that were involved in this, nor are we talking about interest costs or depreciation costs.

So this is figure 2, Mr. Chair. It's the year one cash flows in millions of dollars of the coal-fired power station plus the capture units. So we're putting them both together side by side now.

What you see here . . . and I'll wait till all the committee members have a copy. And by the way, this information has been public for quite some while and SaskPower's never commented on it, so I'm appreciating the opportunity to have you comment today.

There's two columns in figure 2, year one cash flows, that we're going to look at right now. It's the expected revenues and expenses of the coal-fired power station on the left side and of course the capture unit on the right side.

So we've seen the stuff on the right. We're just going to talk about the column on the left now. We know that revenue to the coal-fired station derives only from the sale of electricity and fly ash. And we see that fly ash is about $1 million, which is less than 2 per cent and is effectively negligible as far as our conversation goes today. And in terms of electricity sales, that's relatively straightforward. We know that the unit wholesale price of electricity is the weighted average of SaskPower's four categories — the oil field price, the power price, the reseller price and the export price — which is 71.78 per megawatt hour less the open access transmission tariff which is about $7.30 per megawatt hour. So we're using the figure $64.48 per megawatt hour.

If you multiply this by the total gross generation from Boundary dam 3, it leads to annual electricity sales revenue of around $65.1 million. Our view is this amount is not in dispute. Is that something that you agree with?

Mr. Kalra: — [Inaudible] . . . explain again two things where this came from, and let me go back to what I had said earlier on. There is no profit and loss statement at the individual generation units. What we do is, when we put the generation in we look at the cost of that piece of the new supply that is coming on and add that to our overall supply mix, and then we recover that cost from the customer. So once we're putting the generation in, we are not looking at the revenue because revenue is the recovery of the costs that are going in. Our attempt is to minimize the costs that are becoming part of the rate base. So that's one thing that I would say.

[13:30]

The second thing is that I kind of pointed out earlier on, on the right-hand side you still have a parasitic load of 18 million which should not be here. It's not a cash flow item. It's not an expense item. It should not be there. No P & L [profit and loss], even if this was the right P & L, that amount would not show up anywhere. So those are two issues that I would like to point out on this one, on this chart that you have.

So going back, what we would do is, we would say, what is the cost of running this plant? O & M is right. The O & M on both sides is right. What this is missing is, it's missing the depreciation; it's missing finance costs. Those costs would be added up. That would become part of the rate base. We would recover it from the customer. We would recover our return on our investment, on our equity, and that's how the rates would be determined. So I don't understand this P & L because we don't do P & Ls. And based on what I am looking at, this does not seem the right analysis to me.

Ms. Sproule: — Sorry, Mr. Chair. I'm just trying to find the question I was . . . the answer to the question I received yesterday in terms of the parasitic load because I think we need to have that discussion at this moment. I wasn't intending to go into that until a bit later, but it might be helpful to move to that right now. There's a quote in the response to the question. The question that I asked on January 5th was, why would you not factor in the opportunity cost of not selling power siphoned via the parasitic load? Because that has a value to it, and we know it's worth about $18 million. And your response to that question, that I received yesterday was, you said:

> At the time of the decision to approve Boundary dam 3 with carbon capture the SaskPower Board had directed that the Corporation would not invest in long-term rebuilds of conventional coal due to the concern that regulations on GHG may require SaskPower to strand the investment in conventional coal. Emerging Federal regulations indicated that utilities would not be allowed to rebuild conventional units and may have to shut down existing units. Therefore . . . [you] could not do a straight rebuild of BD3 as a conventional coal unit with . . . 150 MW [output of gross power]. [Anyway] . . . SaskPower did not compare a 150 MW conventional coal plant to the carbon capture unit which would have an approximate 110 MW net output.

And I know occasionally it performs higher than that.

> This analysis captured the opportunity cost of the 40 MW parasitic load. The comparison made in the Business Case was to compare 110 MW carbon capture unit with the next best option . . .

And you chose 110-megawatt combined gas plant as the next best option. So there's a few questions I have about that specifically, and that decision.

But we know right now that if you look at the 2010 prices, right now the all-in carbon capture sequestration price at that time was $129 per megawatt hour. For combined gas the price was

$79.30 and for wind it was $67. And this is from a levelized cost of electricity data that were provided by the US [United States] Energy Information Administration, so the EIA. And I'm sure you have access to that document, but their *Annual Energy Outlook 2010* indicated that the all-in costs of CCS was 129.30 and the cost of combined-cycle gas was 79.30. Now you said that's comparable, but I would like to understand how you think that $129 versus $79 is comparable, particularly when wind was $67.

Mr. Kalra: — [Inaudible] . . . three different questions. I'll kind of try and address it. On the parasitic load, if I could kind of take you back on this chart that you had kind of handed out, the second chart, if you look at the left-hand side, you have electricity sales of $65 million. And I assume it's based on 110 megawatt of production, not 150 megawatts of production.

Ms. Sproule: — It's based on 150 because you have to take the whole amount into account that's available for sale. Then you take out the parasitic load.

Mr. Kalra: — So what you've done is you have the gross amount on the left side and then you have the net amount, taking out the parasitic load, on the right-hand side. What we have done, we took 110 as production and not 150 as production, so that's how the parasitic load was accounted. So the production volumes were reduced by the amount of parasitic load.

So I hope it's clear now how we were kind of accounting for parasitic loads. Otherwise we'll be double counting. If we reduce the production from 150 to 110, and then if we added the cost of that, opportunity cost of that, we would be double counting the parasitic load. So that's why 110, counting it once, the net output covers the parasitic loads. So I hope that point is clear.

On the second point of . . . You know, some of the sources that you have quoted have different types of generation estimates have been given. First of all, some of this is in US dollar numbers versus Canadian dollars so, you know, I can't speak to that.

The other issue, is the only company in the world which has done carbon capture and sequestration is SaskPower. No other company has access to that information that we had in 2010 when we presented that case to our board. And our analysis showed that by doing a few things — which is getting a federal grant, selling of CO_2, doing a brownfield operation versus doing a greenfield operation — our costs would be the same, whether we do carbon capture and the carbon capture amounts were lower than 129, or whether we do combined-cycle gas plant. Our estimates of combined-cycle gas plants in Canadian dollars were a little bit higher. So they were within cents of each other when the business case was presented and approved by the board.

And as I'm saying, we were the only ones who had access to this information because we were the only ones who were doing this project. And also we had three mitigating factors: brownfield versus greenfield, CO_2 sales, and $240 million in federal grant. That is not reflected in the $129 number which is out there. So that's why our numbers are what they are. We believe our numbers and that's how the business case was presented.

And I think I've forgot what the third question was about the wind. Now it cannot be compared with wind because wind is not baseload capacity, giving a generation source. Wind is intermittent. It's available when it's available. You have to back it up with something. So if you look at the full cost of wind, is wind running 30 to 40 per cent of the time backed up by a natural gas plant which runs about 70 per cent, 60 to 70 per cent of the time. So the whole cost has to be taken into consideration, not just a nameplate cost which is 60, $70. So you cannot compare it with wind either.

I hope I've answered all your three questions.

Ms. Sproule: — Yes, thank you. We're going off in many directions here. I'm going to go back to the parasitic load just for the time being. We had asked in January whether the original business case had considered the opportunity costs of the parasitic load, in other words the cost of the electricity that was not being sold because it was needed to run the capture and the compression units. And your response at the time, and you said it again today, it wasn't the lost revenues that were looked at, but the reduced production that was factored in. And as you said again today, in this case the power was 110 megawatts in the business case and not 150.

But this is a bit of doublespeak because in a normal business analysis, reduced production would automatically translate into reduced revenue which would, by definition, negatively impact the economics of the power stations. So it's an entirely logical statement, since we know the coal-fired power station only makes money by selling electricity, ignoring the fly ash sales, of course . . . So it would appear that your business case simply ignored the electricity consumed as parasitic load. And this is convenient for you as proponents of a project, particularly when you're looking for grant money, but it makes no business sense.

A power station, coal fired or otherwise, can only earn a return on the initial investment if it can sell all of its output costs plus a margin. Now as far as I understand, this is basic economics. So the question is, why are you not reflecting the loss of the revenues from parasitic load in your business case?

Mr. Kalra: — You said it does not have business sense, it's doublespeak, and this was ignored. None of them is true. You could do the business case by showing the production at 150 and then netting off the cost of the parasitic load and then comparing it with natural gas. Or you could say, I will only produce 110 and not 150, so my net production, after I've spent everything that I needed to spend, all the cash that has gone in is X dollars, and comparing it with the next best alternative.

So I think what you're looking at is gross and netting off the costs versus looking at the net production. So there is no . . . The parasitic load was not ignored. Complete business sense was applied. And there is no doublespeak because I've been saying the same thing again and again: that we looked at the net production, not at the gross production. And that's why we don't need to count the cost of, the opportunity cost in the business case.

Mr. Marsh: — And Ms. Sproule, one other comment. The reason we looked at the net production is because we simply, under the Canadian regulations, could not operate that station without having captured the carbon that we are capturing and reducing the greenhouse gas emissions that will meet the federal regulations.

So the plant was built, designed and built to operate with 110 megawatts net. We're producing actually more than that, which is a plus to the business case, but the regulations simply require that you cannot operate unless you clean up the emissions. And that's exactly what we have done.

Ms. Sproule: — I think what's at dispute here is there are other ways to deal with emissions rather than using carbon capture. But you went back to say that you need baseload. But is there not enough baseload through hydro and combined-cycle gas plants that you could have considered wind? Like you're relying on coal as your only source of baseload?

Mr. Kalra: — Coal is not the only source of baseload. Natural gas . . . That's why we looked at natural gas. Hydro depends on the scarcity factor with hydro and the hydro development time is seven years to 10 years, so it takes a long time to develop the hydro. So the realistic options for baseload were either convert a coal plant into clean coal or do a natural gas power plant. We chose to do clean coal for the same reason that I've kind of enunciated before: same cost and additional benefits, which is additional emission reduction, royalties from EOR [enhanced oil recovery], and economic benefits, spinoff benefits from keeping coal mined.

Ms. Sproule: — So in terms of the figure 2 that we've presented today, in terms of electricity sales, what I'm understanding you to say is you would reflect the loss of the parasitic load in that number, and so you would really be generating around $43 million in electricity?

Mr. Kalra: — I won't . . . [inaudible] . . . this one at all because we don't do analysis this way. We don't do P & Ls. This is incomplete P & L. It doesn't have financing cost, doesn't have depreciation costs, and it has parasitic load . . .

Ms. Sproule: — No. I'll agree on that.

Mr. Kalra: — Which should not be there. So first of all I won't do P & L at a unit level. We look at the least-cost alternative, put that as a cost of service as combined with the other generation and other investments that we have, and try and recover that from our customers and keep it as low as possible. So this is the analysis, and I won't do it. This is not done in the utility business.

Ms. Sproule: — So when you consider customers — I guess you could consider them shareholders in this sense because it's one and the same thing with a Crown corporation — so you're saying that you would pass the costs of this on to your customers or your shareholders. Would private power companies operate in the same fashion?

Mr. Kalra: — Private companies go to the regulator, and the investments they make have to pass a prudence test. So the investments when they were made, did the business case make sense? You know, were those investments prudent? Did we take all the precautions? And I think we passed those tests when we put the business case together. And it wasn't only cost competitive. It offered all the other benefits which I've talked about earlier, you know, a few times. So once the regulator approves it, those costs would become part of the rate base and they would deal with it, you know, in a similar fashion.

Ms. Sproule: — I'm going to move on. The figure 2 data that we are using, which you won't accept, does use data from the U.S. Energy Information's annual levelized. So the O & M costs, I don't know if you have a dispute with that but that's based on what comes out of the U.S. Energy Information's annual estimates, which I'm sure you're familiar with.

If you do take out . . . We know what electricity sells for. You take out the parasitic load, put it wherever you want on either side of this. We know that the operating profit of the power station itself — simply on the principles that you don't accept — but we can see where the revenues, we can see where the expenses are. We're not counting depreciation. We're not counting any of the management time because we aren't able to get those figures from you. We don't have any debt interest charges on here. So we know there's a number of other expenses involved that we simply aren't reflecting here because we don't have those figures.

What we've come to the conclusion of is that your EBITDA figure, which is the earnings before interest, taxation, depreciation, and amortization, is around $30 million per year. This is a very thin margin, as you know, because it doesn't include any of those other charges that I just referred to. And what this does is give credence to recent claims by former CEO David Crane of NRG Energy who said, "Not a single coal plant in America is making money." Do you agree with that statement?

Mr. Kalra: — Sorry, what was the statement?

Ms. Sproule: — "Not a single coal plant in America is making money."

Mr. Kalra: — I have no idea whether that statement is true or not. But knowing what I know of the industry, historical legacy coal plants would probably have the lowest possible costs as compared to some of the other alternatives. So I'll be very surprised if that statement is true. But I don't know what his sources are, so I can't, you know, with certainty say one way or other whether that statement is correct or not.

[13:45]

Ms. Sproule: — This is NRG Energy. He is the former CEO, and that's America's 19th largest utility company with a market cap of $10 billion. So that's his statement: not a single coal plant is making money.

Mr. Kalra: — I'm sure he knows what he is talking about, but I don't know what, you know, what his sources are and why . . . I wonder why he is saying what he's saying.

Ms. Sproule: — All right. Figure 3, Mr. Chair, is a projection of the first two figures over a 30-year period, which we know is

the lifespan or the projected lifespan of this particular Boundary dam 3 and the capture unit. So what we see here is extrapolating the numbers over a 30-year period.

If you look at this, based on the numbers that we were given — which, although you haven't disputed them, you say you don't agree with the way we're presenting them — what we know then is that in including the investments of the taxpayer through the federal money and SaskPower's investment of over . . . what is it, $1.3 billion, $1.2 billion? We can see that the net loss to Saskatchewan ratepayers over the next 30 years is about $1 billion, $1.42 billion. Again I think these numbers are slightly high, and actually the loss could be much higher. So I guess my question is, do you see anything that's incorrect on this statement?

Mr. Kalra: — I mean, I've told you before; I did not understand the first and the second analysis, and I'll say the same thing about this one. There is no loss. I really don't know where this is kind of coming from. The loss to the customers, to the people of Saskatchewan would be if we picked a choice which was more expensive than the best alternative we had. That would be a loss because they would be paying more for electricity. We picked the best possible alternative which offered many, many more benefits from an environmental point of view, from an economic benefit point of view. I don't see where the loss is.

Ms. Sproule: — Sir, I think, with all due respect, that that is not in fact a correct statement. We know that Boundary dam is only 3 per cent of Saskatchewan's generation right now. It could have easily been replaced with wind at that point in time. Iowa's at 30 per cent. And when you say it was the cheapest and most energy-efficient form, I think there is much to be disputed in that statement.

Mr. Kalra: — Well we can dispute it, but as I mentioned earlier on, you cannot compare wind with a baseload plant.

Ms. Sproule: — You cannot compare when the baseload what?

Mr. Kalra: — You cannot compare wind with a baseload power plant. So what we compared was a baseload with a baseload option. The least-cost option was adopted, and it has many more benefits. So I don't see how it can harm the customers of this province and the people of this province. This was the best alternative available at the time.

Ms. Sproule: — Only if we compare baseload versus baseload. But as we just discussed, there are other sources of baseload that are available to SaskPower, so this wasn't a critical source of baseload.

Mr. Marsh: — Ms. Sproule, that comment I guess, you know, would require a different kind of an answer. The baseload generation requirement in this province is absolutely necessary to provide our industrial growth and to satisfy that load. Two-thirds of the energy we produce is baseload generation. That runs 24-7, 365 days a year. There is no intermittent source available that can provide that kind of energy requirement for the amount we need, and wind is certainly not going to do it.

Now we have recently announced a tremendous increase in our renewable portfolio as we head out to 2030, and we're able to do that simply because we have been putting baseload generation in to meet up with the load growth in the province. Now that renewable energy is going allow us to reduce our carbon footprint over that period of time in a very, very significant way. But that's an entirely different argument than what we've been talking about here.

Ms. Sproule: — Yes I agree with you, but two-thirds right now — how much of that is coal produced, of your baseload?

Mr. Marsh: — Right now it's about 44 per cent of our energy produced is coming from coal. We have gas and a portion of our hydro is also baseload.

Ms. Sproule: — Okay. We're going to look at a quote I want to share with you right now. I'll just share this with you. It's frequently noted by the Sask Party that wind is not baseload and consummately cannot be a substantial part of our energy mix. That's not what the many studies which have been undertaken show. I could refer to many, but would like to make specific reference to one:

> At the 2005 Gleneagles G8 Summit, the Paris-based International Energy Agency [IEA] was tasked with assessing the challenges of efficient integration of variable renewables (mainly wind and solar) in power systems. This marked the starting point for the IEA anaylsis on the topic which culminated in February 2014 when the IEA presented [this is the name of the article] "The Power of Transformation — Wind, Sun and the Economics of Flexible Power Systems." The report is long (238 pages) but the following . . . is from the Executive Summary:
>
> > Based on a thorough assessment of flexibility options currently available for VRE (Variable Renewable Energy) integration, a major finding of this publication is that large shares of VRE (up to 45% in annual generation) can be integrated without significantly increasing power system costs in the long run. However, cost-effective integration calls for a system-wide transformation. Moreover, each country may need to deal with different circumstances in achieving such a transformation.

Now I think it is of note that last year, and as you just said, coal generated approximately 45 per cent of our electricity. In other words, and given our extensive hydroelectric resource — 22 per cent of electricity — it's not clear to me why wind, solar, and hydro, together with better interconnections with Manitoba and Alberta, could not completely replace the existing coal-fired generation assets. Can you . . .

Mr. Marsh: — You know, I totally agree with the statements. That is precisely why we have been able to develop a program as we look forward to 2030 where we can reduce greenhouse gas emissions by 40 per cent by integrating wind, by integrating solar into our electrical grid here in the province. Now what has happened over time is that the cost of wind is coming down even as an intermittent source, but also the technology that allows it to be integrated has gotten much, much better in the last decade, which is allowing that integration to occur at a faster and faster rate.

Now we will never get over the issue of having a reliable baseload source of clean energy unless we undertake carbon capture and storage on our coal fleet. And by the way, as time goes on, there will be emerging Canadian regulations around gas-fired generation. Those are already under way across the land with the federal government and the provinces, and that's going to have an impact on gas generation across the entire world. But the important thing to know here is that we have addressed that with our program and our plan to put in 50 per cent of our capacity by renewables by the year 2030. And we're doing that for precisely the reasons you've just stated.

The integration of wind and intermittent energy into the grid can be done on a larger scale, and we've been able to do it here in this province because we've been putting in baseload generation which allows us to do this very, very economically as we look forward. When I say this, I mean adding wind and potentially some smaller utility-scale solar projects into the mix.

And as time goes on, I fully suspect that you're going to see firmer and firmer environmental regulations in this area, and the opportunity to put even more renewables in with improvements in technology will undoubtedly occur. And when that happens, we will take advantage of it.

But as I've always said, we are doing this in a prudent way. We're going to do this in a mindful way so that we don't upset the rate equations, that we don't upset the impact to customers. And that's something we have to be mindful of as a utility.

Ms. Sproule: — Can you tell the committee what percentage of Saskatchewan generation BD3 represents?

Mr. Marsh: — Well at right now, it's 110 megawatts out of 4200 megawatts on a capacity basis so . . .

Ms. Sproule: — Two per cent. Would that be fair to say it's 2 per cent?

Mr. Marsh: — Two, yes, two and a half per cent.

Ms. Sproule: — Two and a half per cent. So of that 44 per cent coal, Boundary dam represents two and a half . . . Boundary dam 3 represents two and a half per cent of that 44 per cent. Is that correct?

Mr. Marsh: — Well there's about 1600 megawatts of coal, so 110 megawatts of 1600.

Ms. Sproule: — Yes.

Mr. Marsh: — Yes.

Ms. Sproule: — So that cost one and a half billion dollars basically to do 2 per cent of your baseload. But now you're saying that you're going to move forward to the more economical versions now because you've done that. Is that what you're saying?

Mr. Marsh: — No. It's not an either-or case. We're doing both. We are looking at ways that we have to integrate baseload generation capacity into our electrical grid, and at the same time we are pursuing a more aggressive renewable path so that we can continue to reduce our carbon footprint. But any baseload generation option that we will choose has to be a clean option, has to be one that reduces carbon dioxide. So for coal that means cleaning it up and using carbon capture, and we've done a great job and we are leading the world in this.

In the coming years, there's going to be a requirement, and we don't know what the regulations are going to form up, but there will be a requirement to clean up gas generation. And what that technology is going to require, nobody knows yet. But it's probably going to be a very similar technology, an amine technology. But baseload generation is a fundamental requirement for serving customers in this province and we can't lose sight of that fact. It's very, very important.

Ms. Sproule: — I want to go back again to a statement from Mr. Kalra back on January 5th. He said, "So if you look at losses in the capture side, the offset to that is, you know, great profits in the sale of power from a conventional coal plant." That's the end of the quote. So to my mind this implies that SaskPower expects the coal plant to generate such large profits that they will offset the 1 to $2 billion loss of the capture unit.

It's however clear by reference just to these numbers that I provided today in figure 3 that gross revenue would have to increase by $1 billion to offset the carbon capture losses. And so for electricity revenue to increase by this amount, the sales price would have to rise from $64 now to between 100 and $130 per megawatt hour, which is clearly ridiculous. Alternatively the O & M costs would have to drop to zero, which again is out of the question.

So, Mr. Kalra, now we know that even though you don't like referring to it, this plant doesn't generate enough money to pay for the losses of the CCS unit. Can you tell us where you saw the great profits that you anticipated from the coal plant?

Mr. Kalra: — That was an answer, because what you were referring to was only one part of the plant which is carbon capture. You said there are losses there. I said you have to look at both of these together. And what we are bothered about is the net of the two, both of them together, integrated. It's an integrated plan. It's not one or the other. One doesn't run without the other. So if you assume there's opportunity cost, there are losses on one, it has to be offset by the opposite of that. And I used the word profit over there because the net number is what the net number is.

I'll go back to what I've said earlier on today. When we presented this business case, we looked at the net cost of producing power from this plant which included all the parasitic load, which included all the costs which I mentioned here and all the costs which are not mentioned here, which are depreciation, finance, and ongoing running costs, and came to the conclusion that this option was cost competitive with the next best option which was a combined-cycle gas plant. So that's in reference to the . . . that you kind of quoted me earlier on, that profit.

So once again I would like to kind of go back and say there is no P & L; there is no profit and loss at individual unit basis. There is no loss of billion dollars that's being presented over here. And I'll repeat it: there is no loss of billion dollars which

is being repeated, which is being kind of represented over here. It was the lowest cost option when it was presented and that's why we proceeded with this project.

Ms. Sproule: — Specifically you refer to great profits in the sale of power from a conventional coal plant. So if you're not talking about profits and loss, what are you talking about there when you say great profits in the sale? I mean, that's a profit-based statement.

Mr. Kalra: — Because I was counterbalancing the losses, parasitic losses, the opportunity costs. And I said if you have costs on one side, it has to be offset by something else.

Ms. Sproule: — Agreed.

Mr. Kalra: — So either you take the net output or you gross up the production of the power unit and say the production is not 100 megawatts, it's 110 megawatts, it's 150 megawatts. And suddenly that 40 megawatts is free. There is no costs associated with it. The profit margin on that is 100 per cent. So that's where that comment comes from.

I would not do the analysis that way. My financial analysis would be on the net number. It won't be on inflating the revenues on one side and on inflating the opportunity costs on the other side. So I did, all analysis was done on the net net. That's how we look at it. That's how it was presented.

Ms. Sproule: — So the great profits that you anticipate from the coal plant are what then?

Mr. Kalra: — There is no great profit. There is no great loss. It's the lowest cost alternative.

Ms. Sproule: — So when you said that, you didn't really mean great profits in the sale of power specifically. You mean in relation to the whole business . . . [inaudible].

Mr. Kalra: — The parasitic load. The parasitic load being offset by something, because if you show load, the parasitic load, as a separate cost, I have to offset it with something. And that something is 40 megawatts of power production for which there is no cost. Then it's 100 per cent profit.

[14:00]

Ms. Sproule: — Thank you. I still don't have any sort of sense of where the numbers I've presented are wrong. You're rejecting the premise from the outset, but in terms of a profit and loss statement, which could certainly be constructed for one of these projects, you just choose not to do that. It would be helpful if SaskPower could identify where these numbers are incorrect.

But assuming that, you know, these numbers are somewhat correct, although they're not the way you would have done it, it is a typical profit and loss type approach. I think I'd like to move on, and the position I still put forward is that there is no economic justification for BD3 in terms of the numbers that were presented.

Mr. Kalra: — I think I made a very clear case that the economic justification was that this was the lowest cost alternative with lots of other benefits which the other alternative did not have. And that's the reason why we proceeded with it.

Ms. Sproule: — I just want to go back to a document from 2012, July 2012. This is a memo for the minister, describing the business case. And there's a number of statements in appendix 1 of this 2012 document that I think are incorrect and yet they were relied on.

The appendix 1 is called the status of CO_2 negotiations, dated July 18th, 2012. SaskPower, it says, is currently negotiating with CNRL and Cenovus. So those are the two parties that are discussed. There's a bunch of different items here: status of the contract, target completion, contract terms. And we see here that the contract terms was that Cenovus would take all production from BD3 and potentially production from BD4, 5, and 6; that the starting price is $25 a tonne escalating 2 per cent per annum, although we know now that that's changed because it's now gone to as low as 650,000 if I understand the information you provided yesterday to be correct, rather than 1 million tonnes.

So that's a couple of things that I think are of concern, but the thing I'm really concerned about is the position of SaskPower in these contracts. Here's a quote: "The Cenovus contract is greatly favoured over CNRL contract for the following reasons: (1) Cenovus will take all of the CO_2 produced, eliminating the need for further sales and decreasing the reliance on Aquistore for sequestration." And we know that is no longer true.

The second one: "SaskPower will see greater value for the CO_2 since all of the CO_2 will be sold." We know that that is no longer true. So this says, "The economics of the business case for ICCS will be realized," but we know now that that's no longer true. "Cenovus has allowed SaskPower to retain the CO_2 credits." I believe that still to be true. And "Cenovus has indicated potential for further sales for BD4, 5, and 6," but yesterday we received a comment that said EOR is nothing but a transition enabler. So this is the first I think that . . . I want to talk about that more in later times here.

So the financial too is another question under the next column on this document where it says, "Business case economics are met and BD3 will have a cost of electricity roughly equivalent to natural gas." And again we know that that has not proved to be true. "The Cenovus contract would provide an additional revenue of approximately 170 million over the CNRL one," but again that's not going to be realized.

So in turning to the business case that was presented I assume to the head officials at SaskPower but also to the Executive Council, have you done a revised business case which shows how this has failed and presented it to the ministry?

Mr. Marsh: — Ms. Sproule, there's no question that since the time the business case was put together and this project was approved, events around the world have shifted. The cost of natural gas has come down significantly. The ability for the offtaker, Cenovus, to take all the CO_2 has changed because we're in a different economic climate. The oil and gas industry is certainly in a different economic climate, and whether that lasts for six months or a year or who knows how long, you

know, this is what we have to deal with. And that's why the contract was entered into with Cenovus the way it was.

We fully intend over time to be able to produce the maximum amount of CO_2 we can from this carbon capture facility, and to sell as much CO_2 as we can. And whether that is to one offtaker or down the road to another offtaker, that is something that we are currently looking at very, very closely. I indicated that in January when that question was asked, and we're looking at every option available to us as we go forward.

Obviously the revenue stream that we would get from the CO_2 sales are important in the long run, and as long as this plant is operating we want to make sure we can capitalize on that as much as we can. But events have changed and we have to acknowledge they've changed. And it doesn't make the original business case any less relevant than it is today. When we made that decision, it was based on the economics of the day and against a natural gas baseload generating station. And the decision was made to proceed.

Ms. Sproule: — I just want to distribute another document. Thank you, Mr. Marsh.

I think we'll all agree then that the current business justification or the economic justification is no longer there given what has happened as Mr. Marsh just indicated. The basic finding of the weak economics of CCS I think has been confirmed by a gentleman named Mr. McKinsey, and this is what this figure is. It's from McKinsey's global GHG [greenhouse gas] abatement cost curve. This document I'm presenting represents an estimate in the maximum potential of all technical GHG abatement measures below, and this is a European document so it's 60 euros per tonne of CO_2 if each level was pursued aggressively.

So if you look at this, you can see that the types of choices that government and power providers are going to have to look at is whether or not the abatement potential is there. On this chart, and this is "beyond business-as-usual, 2030," is the name of it, you can see that a gas plant CCS retrofit is incredibly expensive, the most expensive with a very small abatement potential. Next to that is the coal CCS retrofit with it looks like maybe again a small abatement potential. It's still a very high cost. It's bigger than a gas plant. But if you go further in, you see things like solar PV [photovoltaics], high penetration wind at a much lower cost, and yet with a much larger abatement potential.

So given that, and we're, you know, seeing that there is about $1 million of loss . . . or $1 billion loss for our CCS project that you entered into in 2010, we know that the loss is carried solely by SaskPower and, as you explained, by the ratepayers. And as a result, the ratepayers are going to have to see substantial rate increases for the foreseeable future. And the only way they will not happen is if you're instructed to defer critical infrastructure investment, and then ratepayers will still have to pay. So given these losses, I guess the question is, why was political approval ever given for the $1.5 billion BD3 investment?

And I don't know if you want to answer that right now. I want to go into some of the mandates of the various agencies that are involved here. So if you want to comment at any time just let me know, but I'll keep going otherwise.

SaskPower, the corporation Act gives SaskPower a monopoly in power generation, transmission, distribution, and sales. And there is a requirement in the Act that says that SaskPower has to, for example, acquire certain things — this is section 10(1) — "for the efficient operation of its business."

CCS is one of the most expensive and inefficient ways to reduce greenhouse gas emissions based on this figure I gave you, and I have another one I'll share in a bit. It's not clear why you consider BD3 to be an efficient operation of SaskPower's business. So why did again SaskPower agree to this project when we have all this information in front of us?

Mr. Marsh: — Well, Ms. Sproule, if I may, first of all, the information you provided here, you know, provides abatement cost in euros per tonne of CO_2 equivalent. I'm not sure from what year this was produced. This looks like it's, as usual, out to 2030. But a lot of the figures in here would be calculated figures because nobody has built a carbon capture retrofit on a coal-fired generating station except us. So the numbers that are presented here are hypothetical numbers. And I think we are in the best position today to be able to say what those costs are. And as the technology improves and as the awareness and the growth of carbon capture and storage continues in the world, that cost is going to come down. And we've talked about that back in January.

That is one of the primary benefits of having a knowledge centre that's just been established to continue to promote the awareness, the understanding, and the knowledge around carbon capture technologies and to have people from around the world help, you know, improve the technology and the operation of facilities like this which will help reduce the cost for the next generation and the next generation as we go forward because we need to clean up the emissions. We need to continue to provide baseload coal and baseload generation in the province. In our province, a good percentage of that comes from coal. In other jurisdictions, more from gas. But no matter how you cut it, emissions have to come down.

And this, the technology that we have and the knowledge that we have here in Saskatchewan now, is the first of its kind in the world. And as Sandeep has indicated, as we made that decision back in 2011, the decision to proceed with a carbon capture facility on an existing coal-fired generation station was compared against the least-cost alternative of the day, which was combined-cycle gas. And the decision, as he indicated, was made to proceed because it was very, very close. And with the other benefits for the province through enhanced oil recovery, there was a lot of other benefits that accrued to the province for this decision.

Now as we look forward, we continue to believe that we can reduce the capital cost of this facility substantially for the next generation of carbon capture, and we will continue to work to make sure that any information that we can obtain and any information we can share with others around the world through this knowledge centre will benefit this technology going forward.

Ms. Sproule: — These figures in figure 7 that I shared were also confirmed. I think it's fairly recent but I know that the BBCE on November 25th, 2015, also said that economics . . .

"There are weak economics for CCS." *The Economist* on October 3rd, 2015, had an article about CCS and green energy in Canada, "Nice try, shame about the price." And the *Financial Times* on November 23rd, 2014 had an article, "Carbon capture faces a viability struggle."

So these are very recent estimates. I'm not sure of the exact date of this chart, but again . . . And keeping in mind of course when you made the decision in 2011, you had nothing more than a hypothetical as well in front of you. But I think clearly the economics of CCS are pretty much clear to everyone in the world now, that they're incredibly expensive and that there is actually losses that are going to be incurred when we carry down this path. And as I pointed out earlier, this would be losses that are paid for by the Saskatchewan ratepayers and taxpayers when it comes to the grants that you receive to do this as well.

In the Crown Investments Corporation web page, and there's a website there, they're responsible for the Crowns, including SaskPower. They go on to note that, on their web page, SaskPower's purpose is to "provide safe, reliable, and sustainable power to Saskatchewan people in a cost-effective manner." And I think it's very clear now that carbon capture is not cost-effective based on all the information that you've provided. I've also, I think, circulated figure no. 6 which shows the costs of new generation capacity. And I think . . . BD3 is built, but we're more talking now about BD4 [Boundary dam 4], or 4 and 5, on a go-forward basis.

So we can see, this is from 2015 in the *Annual Energy Outlook* levelized cost comparison from US Energy Information Administration. And what this shows us is that coal, with or without CCS, is quite likely the most expensive source of new generation capacity. So in that sense, well I'm going to have some more questions about that in a little while, but I think that supports . . . What's clear is that CCS is one of the more expensive and inefficient ways to reduce greenhouse gas emissions, if we want to talk about reduction of greenhouse gas emissions.

So we have SaskPower's own Act telling it that it has to operate efficiently. We have the Crown Investments Corporation's website that's saying that SaskPower is to provide power to people in a cost-effective manner. We have the four operating divisions of CIC, which is supposed to oversee Crown corporation performance and capital allocation plans. We have the balanced scorecard of CIC, which says that the Crown sector is financially sustainable and provides an appropriate return to the people of Saskatchewan.

[14:15]

As we can see from the information we have, the BD3 investment, the only people profiting from that right now is Cenovus. But it is causing a loss of more than a billion dollars over 30 years through SaskPower, and consequently for the people of Saskatchewan. And I know that you've rationalized that loss, but I think the loss is clear.

And so how can you say that CIC has appropriately administered the BD3 investment — and I guess this is a question for the minister — to ensure that SaskPower's efficiently operating its business, acting in the interests of all Saskatchewan residents, serving Saskatchewan people first, making the costs and benefits of CCS universal or available to everyone, make it financially sustainable, provide an appropriate return to the people of Saskatchewan, and provide electricity in a cost-effective manner that is offered at a reasonable cost?

Mr. Marsh: — Ms. Sproule, if I may make a couple comments. First of all, as we undertook the decision for BD3 and carbon capture, we took all of those factors into consideration. As we look forward with pending greenhouse gas regulations on existing coal generation units, we had an obligation to clean it up or we could not operate it. We had to find a way to clean up coal to make it environmentally sustainable as we go forward.

We also had an obligation to make sure that we did it at a very cost-competitive price. That's why we compared it to the next best available unit, or the lowest cost unit, which was combined-cycle gas. At the time the decision was made, those figures were very, very close together. It was a decision that was made to clean up coal because we have a tremendous resource of coal in this province that is available to us for the next 200 years, and that's very, very important if we could find a way to clean it up.

And by making that decision and making the decision to go ahead with a carbon capture facility on a coal generating unit, which would allow us to run that unit for another 30 years, we would be able to provide a cost-competitive source of electricity — baseload electricity — for the province and for the customers of SaskPower. We balanced that need to have a cleaned-up source of coal generation with being mindful about the impact on rates and keeping the rates as low as we possibly could. And we believe we have done that.

Ms. Sproule: — I'm going to move on to the Saskatchewan rate review panel decision when they, SaskPower recently — I think October 25th, 2013 — submitted a multi-year rate application to the SRRP, Saskatchewan rate review panel, where you sought an average rate increase of 5.5 per cent on January 1st, 2014; a 5 per cent increase to take effect January 1st, 2015; and a further request for an increase on January 1st, 2016 of 5 per cent. We all know that this was reviewed and, in April of 2014, the SRRP approved the year 1 and 2 rate increases as requested but denied the January 1st, 2016 request.

Before I go into the next part of my question, I'm just wondering, have you . . . are you going to resubmit that request for January 1st, 2016, or are you doing without?

Hon. Mr. Boyd: — Before the officials speak to that question, I just want to get back to the previous points that you were making. You have provided the committee with a number of . . . an analysis that comes from various sources. SaskPower officials, I think, have been able to demonstrate here this afternoon that virtually all of that analysis does not accurately apply to BD3. I think that the SaskPower officials, in addition to that, dispute completely the analysis that you have demonstrated here this afternoon around BD3 and the decision to go forward with BD3. Their decisions were based on the information that was available at the time around coal generation and around comparisons with combined-cycle

natural gas.

They also completely disagree with your analysis of a billion-dollar loss, which simply is inaccurate. The officials have spoken to that on a number of occasions. So I hope you're not going to continue to make that kind of assertion because it's disputed completely by the officials of SaskPower.

What we know is that, at the time, the analysis showed that — and SaskPower has completely agreed with this analysis this afternoon — that the proper analysis was taken, was undertaken. The board looked at it at that point and approved it. It was advanced to the government and the government approved it, and the decision was made to move forward with respect to it.

Taking into account that the regulations were coming forward from the federal government, that we had no choice but to be moved towards that, keeping in mind as Mr. Marsh has said that we have a huge supply of coal, keeping in mind that around the world there is huge amounts of coal being still used in generation, there are some 2,300 coal-fired power plants operating around the world according to the World Coal Association. There are another 2,440 plants that are being planned or constructed, says a report that was released in December at the COP21 climate summit in Paris. During the last two years, China alone has added more than 90 000 — 90 000 — megawatts of coal-fired power according to China Electricity Council.

So when you look at all of that, I think it speaks to the reasons why companies like BHP have stepped up and said we want to be a part of this. We want to be a part of trying to unlock this puzzle around carbon capture and storage. And they feel, and I think that there are many other companies out there . . . I know that the SaskPower officials are talking with a number of other companies that are interested in the knowledge centre as well, and we would be optimistic to say that we hope that they will sign on at some point as well in terms of this. But I think it's clear here this afternoon that the SaskPower officials were correct in their analysis that they made in the early days of carbon capture and storage, and that's why the government accepted that rationale at the time and moved forward with the facility.

Now I'm happy to turn it over to Mr. Marsh to speak to the areas around the rate review panel.

Ms. Sproule: — Thank you very much, Mr. Minister. I do have to take exception to some of what you said because they have not completely disputed all the information that I've provided today. I think they've taken exception . . .

Hon. Mr. Boyd: — Well which areas would you like to discuss further?

Ms. Sproule: — Well perhaps the McKinsey report. I mean I didn't hear anyone tell me that this is incorrect, and that is completely disputed. I haven't heard anyone tell us that the parasitic load of $18.1 million is disputed. What I have heard . . .

Hon. Mr. Boyd: — I think it's happened on a number of occasions here.

Ms. Sproule: — What I have heard Mr. Kalra say is that he is saying he disagrees with the way it's set out here. But these numbers are not incorrect. What you're saying is it's the way they're characterized.

Hon. Mr. Boyd: — Well let's debate it further then. We'd be happy to have the SaskPower officials debate it for the . . .

The Chair: — If you would excuse me for a sec, we're getting going back and forth. If you want to talk back and forth, could you put it through me then.

Ms. Sproule: — I would be happy to, Mr. Chair. Mr. Chair, I want it on the record that SaskPower has not disputed completely all of the information that I presented today and that there has been a disagreement about how those numbers are being used. There is no disagreement about the numbers.

Mr. Brkich: — Mr. Chair, just a point of order. Some of the information that has been presented, there's not proof that this is . . . Just because it's a chart presented to the committee doesn't mean that it is 100 per cent viable. So when we get into these arguments, I feel as a committee that I don't mind a debate between SaskPower and the member opposite. I don't want things being introduced saying that that's absolute when there isn't 100 per cent proof that it is, other than just a chart in front of me.

The Chair: — Okay. I think let's just maybe cool down just a little bit. Now we've had a couple of different people speaking. Minister, would you like to put your point in please?

Hon. Mr. Boyd: — Well thank you, Mr. Chair. I respectfully disagree with the member opposite. I think that SaskPower has adequately demonstrated their position around the business case for BD3 in the initial start-up of BD3. I think the . . . Mr. Kalra has done a good job of explaining it. I think, you know, if you want to debate it further, I'm sure Mr. Kalra would be happy to continue with that discussion around it. But I think he said on a number of occasions, the analysis that you're working with is not correct. The way you put parasitic load is not how SaskPower or others would do that kind of an analysis. So if we wanted to go into that further we can be happy to do that.

The Chair: — Okay, could we then . . . I think this has gone back and forth long enough. Could we continue on with the next question?

Ms. Sproule: — Agreed, Mr. Chair, and thank you. I'll move on and go back to where we were, which was at the considerations of the rate review panel. The question was, before the minister felt he needed to intervene there, the question was the January 1st, 2016 request for 5 per cent. Is that going back to the Saskatchewan rate review panel or is that something you've had to readjust your projections to do without?

Mr. Marsh: — Ms. Sproule, we have not come to a decision yet on this. Just recently you're aware that the year-end adjustment for Crowns was made to move the year-end from December 31st to year ending March 31st. As a result of that,

we have . . . we're going to wait until the year-end results are tabled in our annual report and look at how 2016 is shaping up for us as we always do before we submit any further rate application.

Ms. Sproule: — That's correct, and thank you for reminding the committee, Mr. Marsh. So is that official now? Your next year-end is March 30th of 2016.

Mr. Marsh: — Yes, it will be.

Ms. Sproule: — Thank you. One of the things we noted in the final consultant's report for the application made by SaskPower in 2013 was there was no mention or consideration of more cost-effective alternatives to the choice that SaskPower made on BD3. And I remind SaskPower that, you know, you've reiterated you didn't have a choice, but we know there was a choice in terms of choosing different ways to generate that electricity. Wind would have generated that 2 per cent at half the price, so that was an option on the table.

At any rate, the panel did not appear to express any concern regarding the high cost of carbon capture in Boundary dam 3, and they did not make mention of the existence of more economic alternatives. So they concluded that the two rate increases that were approved were reasonable and justifiable. But it's not clear that the high cost of BD3 was in the interests of SaskPower, was in accordance with the mandate to promote ". . . programs designed to encourage the prudent, judicious and economic use and conservation of electrical energy, steam and heat" and wasn't consistent with other choices in the industry in terms of other jurisdictions which chose not to go this route.

At any rate we know that regulated utilities across North America are under ever-increasing pressure to justify rate increases. And a good example of this where these increases are not justifiable . . . Like this 10 per cent increase may or may not be justifiable. In 2015 the Mississippi Supreme Court actually overruled a rate increase approval allowed by the Public Service Commission of Mississippi. And that rate increase had been proposed by the Mississippi Power Company to assist their shareholders in covering the 4 billion cost overrun on the Kemper integrated coal gasification combined-cycle CCS project. So I'm assuming you're aware of the overturn of the rate review panel's decision in Mississippi, and I'm wondering if you have sought legal advice whether the SRRP made a mistake that could be challenged in court.

Mr. Marsh: — I'll make a statement and then Sandeep may want to step in. Number one, the costs for the carbon capture facility are part of our overall capital program each and every year. And that overall capital program is what ends up on our income statement in the form of finance charges and depreciation charges. And it's the income statement that drives the requirement for a rate increase. We have never gone back for a rate increase in the way that the jurisdiction in the United States did to get full cost recovery for that particular project. That is not the way we approach rate increases in this province.

And secondly, we have acknowledged the impact on rates on our customers in this province, and we have worked hard to keep those rate increases to an absolute minimum, in the area of 4 to 5 per cent. And as a result, our financial returns at the end of the year are lower than what our long-term objective is. And our long-term objective is an eight and a half per cent return on equity, and you are well aware we haven't achieved that for the last couple of years.

So we have not certainly impacted the customers with undue rate increases for this. We have a tremendous capital program which requires investment in our existing generation facilities across the province, our transmission facilities, our distribution facilities which are aging. And you're well aware of the aging infrastructure issue as well. So a good portion of that capital investment is to sustain and maintain the reliability of the electricity grid in this province. And we will continue to work hard to, you know, to keep our capital expenditures low, which has the knock-on effect of allowing us to keep rate increases very, very low. Sandeep, anything else? No.

[14:30]

Ms. Sproule: — Okay, I'm just deciding where to go next. We covered this already.

Okay. I just wanted to ask you, Mr. Monea, about an article that you wrote in October of 2015, in *Cornerstone*, which is titled "SaskPower's Case for Carbon Capture and Storage." In there you referred to the . . . you noted apparently . . . This is in the article, October 2015, you said the project would generate $850 million of capital investment. How would you suggest that that would be generated?

Mr. Marsh: — Sorry, which article?

Ms. Sproule: — It's called "SaskPower's Case for Carbon Capture and Storage," in October 2015 of an article called *Cornerstone*, the official journal of the world coal industry.

Mr. Marsh: — And I'm referenced in there?

Ms. Sproule: — I believe you wrote the article.

Mr. Marsh: — May I have a copy of that?

Ms. Sproule: — I don't have a copy of the article. I just have a reference to it. I could certainly find it.

Mr. Marsh: — I'm not aware of the context of that particular statement.

Ms. Sproule: — Okay. I'm just going to have to move on. Perhaps if we could provide a copy to you after the meeting because I don't have one with me.

Mr. Marsh: — Thank you.

Ms. Sproule: — Okay. Sorry, it wasn't Mr. Marsh. It was Monea. I'm sorry. That's my mistake. It was Michael Monea wrote an article in *Cornerstone*, so that would be your vice-president. Do you recall that article? No? Okay, I will get a copy of it and provide it.

This is another chart that I wanted to share, of course using the figures I presented earlier, but it adds in now the Cenovus Energy portion. Okay, in this one what we've done is we've

taken estimates of what the Weyburn Consortium is looking at in year 1 of the CCS project in terms of an enhanced oil recovery, and then of course projecting that out over the 30 years of the project.

So what we see here is we're assuming that the revenue, crude sales are around $225 million and some basic expenses. And this is . . . I'm just going to read through this part right here:

> The BD3 business case was produced in 2010, a year in which average global oil prices were $100 a barrel. And if we assume that Western Canadian Select would trade at a 10 per cent discount to global prices, then it seems reasonable to assume that the initial BD3 business case, even if it exists, assumed an average crude oil price of $90 over 30 years. At these levels, and after consideration of Cenovus's costs including royalty payments to the Crown, then over the 30-year life of the project Cenovus can expect to make more than $1 billion in profit.

And I don't know if you want to dispute this or not, but this is just a projection based on the figures that are available. Over the same time period and given the assumed BD3 CO_2 sales price of $25 a tonne and possibly less, Saskatchewan ratepayers, through SaskPower, will lose more than $1 billion. This loss will be paid by them through higher electricity prices.

So the question is this: why was the project set up so that, regardless of the amount of money made by Cenovus and regardless of the future price path of crude oil, electricity consumers of Saskatchewan would always be faced with the same loss on their initial $1.5 billion CCS investment?

Mr. Kalra: — First of all, these are Cenovus estimates so I have no . . . We have no insight into what their economics are, how much money they make. The more they make, I think it's good for them. I would only like to point out that your analysis said, it said $90, so what happens if, you know, oil is at $15 or $20 or $30? So this would start looking a little bit differently.

Our contract with Cenovus wasn't based on the price of oil for exactly the same reason which is happening right now. Oil prices were quite high at that time and, you know, there was a risk the price would go down, and as a result, sale of CO_2 volume, but the price would also come down with that. So we wanted to have more certainty of that recovery and how much we would be able to recover from Cenovus, and that's why it was a fixed-price contract rather than tied to the price of oil.

Ms. Sproule: — So there was no consideration for the ratepayers? In the event that the company that was purchasing the CO_2, compressed CO_2, would make more money, there would be no return for the ratepayer?

Mr. Kalra: — Or if the company loses money, the ratepayer will still get the same amount as, you know, as the case may be right now with low oil prices.

Ms. Sproule: — So what was the justification for that?

Mr. Kalra: — So the justification was you get a fixed-price contract. You know, there was some indexation, but irrespective of where the oil prices go — the oil price could be 200; the oil price could be 20 — but the ratepayers would not be affected and, you know, that's proving true right now. If we had linked the price of CO_2 to the price of oil, we would be getting a lot less than, you know, what we expect to get right now.

Ms. Sproule: — I just want to put this to you, and this was probably to the minister: can you explain to me and the people of Saskatchewan the equity in this arrangement in light of the fact that Cenovus was the top corporate donor to the Sask Party in 2014 and 2013?

Hon. Mr. Boyd: — I'm sorry. Your question?

Ms. Sproule: — In light of the profit that Cenovus is going to make out of this deal, what is the equity of this arrangement in light of the fact that Cenovus was the top corporate donor to the Sask Party in 2014 and 2013?

Hon. Mr. Boyd: — Absolutely not. They were the successful bidder based on the price that they offered for the CO_2.

Ms. Sproule: — Thank you very much. I have copies now of this article that I was referring to earlier by Mr. Monea and I can circulate . . . How many do I have here? One, two . . .

Mr. Steinley: — I read . . . I did look at the article, Mr. Chair. Those examples are not based on SaskPower estimates. They're based on an oil company's estimates, if you've actually read the article completely. It's not SaskPower estimates whatsoever. So I would take it that SaskPower could not base an . . . make an assumption about estimates they did not do. So I think the member opposite should just move on.

Ms. Sproule: — This is an article by Mike Monea who is the president of carbon capture and storage initiatives from SaskPower, Mr. Chair. So that's the article I'm referring to.

The Chair: — Mr. Steinley.

Mr. Steinley: — Yes, Mr. Chair, I realize that. But if she'd read the article, it says the estimates in the article are based upon an oil industry's assumptions, not on anything SaskPower assumed in their estimates. So SaskPower cannot speak to that specific oil industry's estimates.

Ms. Sproule: — Unfortunately SaskPower has spoken to it in this article, so I'd just like to refer to what Mr. Monea has said.

The Chair: — Actually I guess you can distribute it around and we . . . I think Mr. Marsh wanted to speak.

Mr. Marsh: — Yes. I'll just make a comment. These numbers were not put together by us. They were developed through, yes, through the Ministry of Economy just to capture I think the pertinent information around enhanced oil recovery benefits, and they were included as part of this article. I have no expertise in this area, so I can't really speak to it, but that's how they're in this article.

The Chair: — Ms. Sproule.

Ms. Sproule: — The one question I did want to ask was the estimate of $850 million capital investment over 10 to 15 years.

So is that in relation to the oil industry? Is that what you're referring to, Mr. Monea? Because I won't go any further if that's what you're . . .

Mr. Marsh: — Well we're not sure exactly. We're going to just confirm what this refers to because I may misspeak and I don't want to do that, so let us get the right answer.

Ms. Sproule: — That's fine. That's my own question there, yes. I guess the concern, when we're talking about capital investment, is that's not a return to the SaskPower ratepayers. So that was the concern that was being raised.

Perhaps now we could move on, and I guess the staff are going to provide a copy to all members of the committee of that article. I only had a few. But I will move on now to Boundary dam 4 and 5, just some questions around that. The ultimate, you know, numbers that are going to be presented in terms of SaskPower's revenue from the sale of CO_2, obviously it's going to be . . . We're assuming it's $23 million here. I think it's going to be somewhat less than that. It won't cover the combined costs of the parasitic load and O & M, I think, even no matter how you figure in the parasitic load and how you reflect it. So we know that CCS is not economic regardless of how much the capital cost is reduced.

Now you have stated that you intend to reduce the capital costs of the capture unit by 30 per cent at BD4 and 5 if you go ahead with it. But if you could demonstrate to the committee how you would be able to make money, even if the capture unit was free, if the capital cost was reduced by as much as 100 per cent. How would this in fact be an economic case that you could present for BD4 and 5?

Mr. Kalra: — We will make the case as we made the case for BD3, which would be on the same lines. We would consider the . . . Now we have lots of learnings that BD3 is up and running. So we take into account what the capital costs would be, what the running costs would be, how much we can sell the CO_2 for, how much CO_2 can be sold, and parasitic load, and come up with the levelized cost of electricity which is, this is how much it produced . . . costs us to produce 1 megawatt hour from this power station or 4 and 5 power station.

And that would be compared with the next best alternative as we had done in BD3 with newer sets of assumptions because gas prices are different now and many other assumptions may have changed. And also we would look at the ancillary benefits and, you know, come to the decision whether there's a business case for BD4 and 5. So the method won't be any different. The assumptions would be a little bit different because we have more information on it.

Ms. Sproule: — What information do you still not have? Don't you have all that information now?

Mr. Kalra: — I think the running of the plant for another year or two would be helpful, because the plant has started running well over the last few months and we want to see how it operates; what kind of consumption of chemicals it has, you know; what is the output of the plant on an ongoing basis; how much downtime is required. So we'll have a much better running performance, operating performance, over the next two years which is still missing.

Capital costs may change a little bit over the next two years depending upon the economy, the inflation, etc. So those assumptions may change a little bit. Natural gas assumptions are updated quite frequently. Prices are low right now; they may change. More and more utilities are, you know, going towards natural gas. That may have an impact on the long-term price of the natural gas as well. So we would look at all those assumptions when we make the business case.

Ms. Sproule: — We know that 2019 is the drop-dead requirements from the federal government. Are you looking for an extension to those timelines? If you're going to take two years from now to make this determination, you simply won't be in a position to meet the regulations in 2019. Is that correct?

Mr. Marsh: — If the decision is made prior to 2019 and we commit to some form of carbon capture to reduce the emissions under the federal regulation, there is a period of time beyond 2019 that we have to undergo construction or undertake construction and get that plant built. So we would be in a position certainly before 2019 with a proper business case analysis and taking it through the appropriate approval process to be in a good position to go forward.

[14:45]

Ms. Sproule: — So are you basically saying that, at this point in time, no decision is being made? You are going to basically not look at the business case until two years from now?

Mr. Marsh: — At the present time we will continue to operate BD3 as I've indicated in January and in many previous occasions. We're going to continue to operate this facility to prove the technological operation and the commercial operation of this facility, so understanding the operating costs very, very well, as we maintain stable performance in the upper operating range of this particular facility.

Prior to the overhaul in September-October of 2015, the plant was experiencing, you know, first-year start-up issues which required a significant amount of effort during that overhaul to correct. Since that time, we've been able to pull that plant up to its full nameplate capacity. We need to operate it for a period of time to really understand the economics very, very well before we proceed, and that's precisely what we're doing now.

So we're assembling that information each and every month as we go forward, but we're not going to be proceeding with any business case until sometime . . . I think right now it'll be sometime in 2017.

Ms. Sproule: — If I understand correctly, and I could find the reference, but I believe you represented to cabinet back a couple of years ago that you would make this decision by the end of 2016. Is that correct?

Mr. Marsh: — Yes. I think we indicated that as an estimate. And I think I indicated in this committee meeting last April that it would be 2016-2017. Again, the drop-dead date, as you have indicated, is 2019. So we do have time to make that decision, and we want to make sure that we have all the facts that we can

before we proceed.

Ms. Sproule: — Okay. I know that recently you have recommitted to coal, signing two contracts with Westmoreland Coal to supply 60 million tonnes from its Estevan mine to 2024 and 58 million tonnes from the Poplar River mine to 2029. Does this not suggest that SaskPower has already made a decision to build two new carbon capture and storage facilities at the Boundary dam power station?

Mr. Marsh: — No, absolutely not. The Poplar River coal agreement was extended to line up with the retirement, the current retirement dates for the Poplar River units. So the coal contract was out of sync with the retirement date of Poplar River no. 1 and 2, and the contract in the Estevan area was simply agreed to 2024 but it has no bearing on any coal supply for a potential BD4 or BD5 [Boundary dam 5]. Once that decision is made we would be entering into negotiations with the coal company to look at a longer term agreement to make sure we have that in place for the life of BD4 or 5 or whatever unit that we proceed with.

Ms. Sproule: — Thank you. When you made the life cycle analysis of CCS coal with enhanced oil recovery — or I'm not sure whether you did one — did you undertake a life cycle analysis of CCS coal with EOR to determine the CO_2 reduction that the project would deliver from mining to burning the oil? Was that done?

Mr. Marsh: — Ms. Sproule, our interest as a utility was simply to undertake to build a cleaner coal-fired generation station, one that had carbon capture attached to us. So the analysis of how much CO_2 is recycled or how much is kept underground at the end of the day, that wasn't part of our calculation. Our interest was really making sure we had an economic business case to proceed with, with a generating station for the utility.

Ms. Sproule: — If that's the case, I'm not sure why Mr. Monea would be referring to the benefits to the oil industry and, in return, the government, in his article of 2015 where there's also a cartoon that says you're taking 250,000 cars off the roads annually. I thought, we've been through that already and we know that that's not the case. So I'm not sure why that graphic is showing up in this article on . . .

Mr. Marsh: — We'll endeavour to provide the background on how this article came together. Some of this information was, you know, not from our office and it was derived from other sources. So we'll get the background on how this information came together and where it came from.

Ms. Sproule: — Yes, I think when you put your name on something, you should probably do that before you put your name on it.

Anyways, if you did do a modelling of the lifestyle emissions at Boundary dam 3, there was one done by University of Regina researchers and ArticCan Energy and they anticipate a decrease in greenhouse gas emissions from the project of 63 per cent if you look at the life cycle of the emissions, not the 90 per cent that you state would be the portion that, I guess, you're part of that because you only look at emissions from the power production process. So I think if you took the 63 per cent reduction analysis, the question would be, how does this compare to renewables?

The best available meta-analysis of all life cycle costs from all forms of energy generation shows that wind energy has the lowest CO_2 emissions. Its life cycle emissions are lower than nuclear, 2 per cent of natural gas, and just 1 per cent of coal. So is that something . . . I hear you often say that your concern is lowering the global warming issues associated with carbon dioxide. So in terms of taking into account your future, is that something you take into account?

Mr. Marsh: — Ms. Sproule, I'm not familiar with the specific article that you have. We'd be happy to have a look at it and provide some response, but we haven't read it, and none of my colleagues have read it. So if we could get a copy, we'd be happy to provide a more detailed response for you.

Ms. Sproule: — Thank you. We'll endeavour to provide that.

We talked a little bit about renewables on January 5th and, Mr. Marsh, you indicated that SaskPower is looking at all options all the time and constantly comparing each technology option that's available. But we know that in the 10 years since Centennial wind facility came online, SaskPower has advised on multiple occasions it's thinking seriously about renewables and low-carbon generation options.

However, in the last 10 years there has been no increase in electricity generation from renewables generally or wind power specifically. And the numbers we have: in 2006 renewables were responsible for 23 per cent of our power; and in 2014 it was actually down to 22.8 per cent. Wind power, specifically 2006, 2.9 per cent and in 2014 it's gone down to 2.7 per cent. Generation from solar remains at negligible levels. In other words, SaskPower's track record indicates that when it comes to new renewables, looking at the options has not delivered. It's a wasted economic opportunity which should be increasingly apparent in this time of depressed oil and potash prices.

SaskPower's new 50 renewables, up to 50 per cent renewables by 2030 target, is encouraging. But to ensure that we move beyond simple planning to actual implementation, we have to recognize there's a significant difference between SaskPower's internal deliberations on generation options on the one hand and the adoption, widespread dissemination and public agreement regarding a concrete plan of action on how we are going to generate our electricity in the future.

To be specific, SaskPower has already advised a target of 2200 megawatts of new renewable capacity by 2030, but we have no detailed road map for how we're going to get there. And as soon as possible, I think you'd agree, that the public needs to see that road map. We need a concrete annual plan by which we will install at least 150 megawatts of new renewable capacity every year between now and 2030. If we don't, we will not reach the 50 per cent target.

We know time is moving on and action is a matter of priority. So we can't waste another two years waiting for a decision before Boundary 4 and 5 when we already know that it's actually not economic. It's uneconomic. And how are we going to give serious consideration to move on to renewables?

So given that statement, what is your actual plan for the next five years for renewables, for example, to reach that target?

Mr. Marsh: — Ms. Sproule, what we laid out back in December was a strategy going forward, a renewable strategy going forward which would allow us to integrate that percentage of renewables into our grid. We were very clear at that time that the details had yet to be worked out.

But we did indicate that we will be proceeding in 2016 with another wind RFP [request for proposal] and we are going to be undertaking a small utility-scale solar competition as well in 2016 to really demonstrate that we're serious and that we're moving down this path. But the rest of the details are going to evolve as we put together our supply plan which is coming together in 2016.

The early part of the process was simply to look at the economics of wind and solar and is there a viable and economic way that we can actually do this. And we came to the conclusion that yes, this was possible. We moved forward through our board to get the necessary approvals to, you know, to make this public. And certainly it was a very important moment for the company and it's a very good and strong direction that we're taking. But the details certainly have yet to be worked out.

You're correct; we're going to have to put between 100 and 200 megawatts of renewable energy in each and every year as we go forward, and that may require, you know, competitive RFPs for wind in that size every one to two years as we look out to 2030. We'll be doing this as we keep mindful of how the load continues to grow in different parts of the province over the next 5, 10, 15 years, and we will make the decision to proceed with economic wind developments and stage them in over this 15-year period, you know, each and every year. Those decisions are going to be made and integrated into an overall plan, but the actual time that we trigger these things are . . . We're going to leave it to our planning people to make those decisions as we look forward.

Hon. Mr. Boyd: — In addition to that, Mr. Chair, I would just make some further comments with respect to it. And we also — when I say we, SaskPower and government — will also have to overlay whether or not we will see a carbon levy put in place here in Canada. There's, you know, considerable discussion about that, whether or not there will be a $15 a tonne carbon levy that will be implemented across the country. We have . . . Obviously our Premier has indicated that we are not supportive of that because we think it would be harmful to our economy here in Saskatchewan and simply not fair in terms of the distribution across the country.

We do know that on November 24th of 2015 you indicated that ". . . we want this government to implement the carbon levy for large emitters," and that will definitely have a cost that will have to play into any decisions that SaskPower will make. I think their calculation is that it would be about $7.20 per month per ratepayer here in Saskatchewan if we implemented a $15 a tonne carbon levy.

If you look at large emitters here in Saskatchewan like Evraz, the pipe facility at the north end of the city here, just outside of the city of Regina, that would have a tremendous impact upon their operations up there. We estimate it could be as much as 20 per cent additional cost if a carbon levy was put in place like that. So that's why we don't support the NDP [New Democratic Party] plan which was enunciated in your sustainability plan: "Cam Broten's New Democrats are committed to implementing a technology fund and a price on carbon for major emitters."

So that also plays into any of the decisions that SaskPower and the government will be making around carbon capture and storage, around the use of and continued growth of renewables here in Saskatchewan.

You know, I think it's clear that that's the NDP's position with respect to carbon taxes, and we would hope that you would confirm that that is the position of you, as you stated on November 24th and as is stated in your sustainability plan, that you're committed to a carbon tax. Just so that people, I think, the people of Saskatchewan can look at the various choices: are we on the right path in terms of carbon capture and storage moving in that area as demonstrated with the business case that was initially put forward by SaskPower officials prior to the construction of BD3?

Ms. Sproule: — I think what the minister is talking about, Mr. Chair, is the plan that they've promised for I think it's seven years now. The bill was introduced and passed in 2009 but it's not yet enacted. We've been calling on this government. I've spoken I think now to four Environment ministers calling on this government to enact that legislation. We think the technology fund that's in there makes sense, and we think that the climate change foundation actually makes a lot of sense. But there's no money coming in, and this has been delayed for many years. And the minister knows that I've spoken to at least four separate Environment ministers asking them to bring that plan into place, and that's what we're calling for.

[15:00]

So we're certainly looking forward to the government actually enacting it. They've been saying they're waiting for the feds, and now the Premier doesn't seem to like what the feds are saying. So I'm not sure what it is for this government but that's certainly a discussion we can have with the Minister of the Environment at that point.

We were talking about the go-forward plan for the 50 per cent renewables target. And, Mr. Marsh, I just wonder if you could confirm for the committee how many megawatts the wind RFP that you're putting out this year would be for.

Hon. Mr. Boyd: — Just prior to having Mr. Marsh comment on that, I just want to say that I think our position is quite clear. The Premier has said on a number of occasions that we don't support the implementation of a carbon levy across the country, certainly not here in Saskatchewan. Others can do, I suppose, other provinces, other jurisdictions can do as they please, I suppose. We simply don't agree with the argument that it's going to make a difference considering the significant impact that it would have on the economy of Saskatchewan, the impact that it would have on ratepayers here in Saskatchewan for SaskPower customers, the impact that it would have on large emitters like Evraz and what that kind of impact that it would

have on their operations or employment. All of those kinds of things have to be taken into consideration as well.

So I would just say that I think our position is very clear. I think your position is very clear as you indicated on November 24th, just a few months ago, that you want the government to implement a carbon levy and that your sustainability plan, your party's sustainability plan, calls for a price on carbon for major emitters. So I think those positions are quite clear now before the people of Saskatchewan, and we want to make sure that the people of Saskatchewan know the various positions.

Ms. Sproule: — This is a discussion obviously for the Minister of the Environment to have and, as I said earlier, we would like to see this government do what they set out to do at least seven years ago now, and we're looking forward to that. And obviously there's some work and some consultation that would need to be done if we form government after April 4th. But we do want to see something in place and this government has delayed for way too long.

So going back to the question to Mr. Marsh: how many megawatts were you planning to tender out in 2016 for wind?

Mr. Marsh: — We're forecasting up to 200 megawatts in 2016, and we're looking at 10 to 20 megawatts of solar in 2016 of the 60 megawatts that we announced.

Ms. Sproule: — And the 200 megawatts, is that including that 10 to 20 of solar? Or is that wind?

Mr. Marsh: — No, that's in addition to, yes.

Ms. Sproule: — Or is it wind only, or are there other RFPs that you're looking at?

Mr. Marsh: — We're going to look at other renewable energy sources — biomass and geothermal — as the proposals are developed. I must say they're more expensive than wind and solar look today, so we've got to be very careful about the economics of those particular projects. But we're going to have a look at them, and we'll be undertaking those projects as they prove themselves out.

The other thing I'd like to mention is, as we go forward to develop this plan, we will be consulting with the wind and renewable associations in the province, talking to interested parties, contractors, people who are interested in this business, and getting their feedback so that we can help develop the program in a way that accommodates, you know, the interests of the renewable community out there. We've already had some of those discussions already.

Ms. Sproule: — I assumed you would already be discussing it with them. We certainly had a good meeting with the Canadian wind power association, and I think they have some very positive numbers, not just for the environment but certainly economically as well. And as we know, green jobs are actually quite inexpensive jobs.

And actually I want to move on to that right now. I just presented the committee with another table, figure 4, which is the United States employment in solar, wind, and coal mining. This is from the Solar Foundation, the US Department of Energy, the US Bureau of Labor Statistics, and it's through the Sask Wind website, which is available again online — employment in US wind and solar compared with coal, oil, and gas.

So you see in this chart, we see that in . . . This is data as at the end of 2015 for solar and coal, and wind data at the end of 2013. And we see there are 209,000 jobs in solar, 73,000 jobs in wind, and 63,600 jobs in coal mining. Now I need to provide you with an additional chart that will put that in context, if I can find it. Here we are. I think you'll need a few more copies. Just hang on.

So I know the Premier was concerned about the jobs that are currently in the coal industry in the province. What I'd like to talk about now is the jobs that can be created by the intelligent development of our world-class renewable resources, which of course are wind and solar. As I indicated in this chart, the coal mining jobs in the United States are around 63,600 jobs. There's also information as I said on wind energy, which is somewhat dated. At that time it was 73,000. But I think of particular note is the US solar industry where they have 209,000 people working in the industry at the end of 2015. And I just got information today that solar's actually now second in terms of the amount of energy being generated in the United States.

I think the important part that we need to look at is the table that I just shared with you as well. This is from The Solar Foundation, the American Wind Energy Association, the US Department of Energy, the US Bureau of Labor Statistics, and the US Energy Information Administration *Electric Power Monthly*. And what this is is a table showing US employment and electricity generation. So for 2015, we have the amount for solar, wind, and coal of electricity. And we can see solar was at 38 000 gigawatt hours, wind was 185 000 gigawatt hours, and coal was 1 391 000 gigawatt hours, and the percentages are there.

We see the employment referenced from the table I just provided you — figure 4. And we see that the number of jobs per gigawatt hour is actually much higher when you look at solar by a factor of, I think, 108 times. Then coal and wind is by a factor of 7.8 times more. So the point here, Mr. Marsh and Mr. Minister, is that many more jobs of course are created by renewables than by coal. And you know, I would like to take a moment if you want to comment on that, if there's anything you see in these tables that are incorrect.

Mr. Marsh: — I'll just make a quick comment, and then I'll turn it over to the minister. You know, as I . . . First of all, you know, with respect to the employment in US solar, wind, and coal mining, you know, I'm not going to dispute these numbers. But I will say that in the US in the last four or five years there's been a tremendous amount of subsidization for the solar industry which resulted in a real boom in the solar industry across most of the United States, and indeed where subsidies were in place in Canada resulted in a boom in solar installations for a period of time.

If you've been following the press over the last few months, a lot of those subsidies have come off. A lot of the tariffs have been put in place are being pulled back because it's far too

expensive for the ratepayers in those jurisdictions. And as different states and provinces recognize the impact on rates, that's the outcome. So while I'm not disputing what the numbers are, we have to recognize there was a tremendous amount of subsidization in that industry.

On the jobs, with respect to the number of people per gigawatt hours, from my perspective, I would look at that as a less efficient way to generate electricity. You're looking at it as employing more people per gigawatt hour. I look at it as a very inefficient way to produce electricity. When coal you can produce with .05 people per gigawatt hour, and it takes you 100 times as many people to produce the same gigawatt hour for solar, that's not a very efficient way. And that just speaks to the whole economics of solar. So I'll turn it over to the minister to make any other comments on this one.

Hon. Mr. Boyd: — Well yes, I would just add to that that, you know, you can use these figures kind of any way you want I suppose. And you know, I think the government has made the decision around carbon capture and storage because, if we're going to use coal, clearly we have to use some way of capturing the CO_2. That's clear. I think there's no alternative with respect to that.

I think SaskPower is also looking at a very strong renewable suite of opportunities going forward. As technology continues to evolve, we may see further advances both on the carbon capture and storage side and of course on the renewable side. I think we're watching this whole thing evolve as things go forward. I think that . . . And I think that's why you're seeing companies making various choices that they are making out there, and various countries making choices that they're making. If you look at, you know, various places around the world, in China they're still adding more and more and more coal. At the same time, they're adding more and more renewables. They're adding more and more nuclear of course which will be beneficial to Saskatchewan in terms of the sale of uranium. I think India is probably the same.

You know, governments all over the world are making various choices with respect to that and I don't know whether you can just simply, in isolation, say that their choices are right and our choices are wrong. Or I don't think even we can say that our choices are right and their choices are wrong. I think they're different circumstances.

I think the grids are much different. I think the interconnections between various locations are much different and that's why we see for example, down in the States, some states are able to generate at a much higher amount of renewables, keeping in mind though that when their own resource isn't blowing down in places like Iowa that they're drawing power in from other places, probably baseload power from other places. Which we do too to a certain extent, but not to the extent of if we shut down all of the coal fleet here in Saskatchewan. I'm not sure we could draw that amount of power in right at the moment, and I think the SaskPower officials would confirm that.

So it's an evolving industry, no question about it. Are we moving fast enough? Clearly I think you would argue, no. And you know, I think the SaskPower officials would say, keeping in mind all of the various factors, I think we're moving at a pace that we can sustain and still maintain a reasonably priced electricity.

You know, I remember not too many months back, when you used to advocate that we should be moving much quicker to something like what Denmark is doing where they have a very large amount of energy that is generated by wind, I believe. They also have the highest power rates in the entire world. And I'm not sure that we want to quite go there to have the highest power rates in the entire world. I'm not sure that we have the same sort of circumstances that they have. Obviously they have made some choices with respect to that and that's, you know, clearly within the right of the government of the day to make those kinds of choices.

SaskPower and the Government of Saskatchewan has made some other choices with respect to that. And when it comes to carbon capture and storage I think that, you know, I take some solace in the fact that when you see companies like BHP Billiton stepping up, and on February 5th the president of BHP Billiton in Canada said, Giles Hellyer, when he's talking about BD3:

> It's a wonderful example of where the people of Saskatchewan and the talented people of SaskPower are eventually overcoming and developing something which is the first of its type within a fully integrated carbon capture system which is working on a power plant. So it's not risky. We fully believe that this technology is necessary to reduce emissions worldwide from the burning of carbon and fossil fuels.

So you know, I think we can probably debate these things, and we will continue to debate these initiatives, now and probably well into the future. I know that you would take a much different approach. You would probably shut down the coal industry here in Saskatchewan very, very quickly. You would move to a carbon tax, a carbon levy on large emitters here in Saskatchewan. We say that we don't think that that's the right approach at this particular time.

So you know, I think that, Mr. Chair, there is various approaches. I'm not sure any of them necessarily are right all of the time in terms of this but, as we know, governments around the world have to make choices. We make choices based on the information that's supplied by the SaskPower officials in terms of what they feel is the right move at the time. That is an evolving field, as I said. Right now with, you know, 25 or 30, perhaps even a little higher oil prices, that may impact upon decisions. Natural gas prices where they are may impact upon decisions going forward around BD4 and BD5.

[15:15]

But as more and more places within . . . more and more power generating companies here in Canada and the United States move to natural gas, one can only assume I think that that will put pressure, upward pressure on prices going forward unless we continue to see the technology that we're seeing in oil fields and in natural gas fields that is being able to generate those fuels at even lower costs than they are currently.

So I think it's, you know, it's a worthwhile debate. I think we

can have that debate now and well into the future. We stand behind our record with respect to this. We stand behind the comments that the president of BHP has made with respect to the technology that has been employed by SaskPower. We stand behind the decisions, behind SaskPower, in terms of a renewable fleet going forward. And we can, you know, we'll be happy to continue to debate about the speed at which we are moving versus the speed at which you would prefer us to move.

Ms. Sproule: — Thank you, Mr. Minister, for that. Mr. Marsh, you were talking about the subsidization of the solar industry. Would you say that carbon capture was also subsidized?

Mr. Marsh: — We received a federal grant of 240 million. Certainly yes, that was the first phase of . . .

Ms. Sproule: — You would agree then, most new forms of energy require some form of subsidization to get it up and running.

Mr. Marsh: — Yes.

Ms. Sproule: — Okay. Secondly, I think I understood you to say that if we created more jobs for less money, that's not a good thing. Because wind is certainly cheaper than coal, as we know.

Mr. Marsh: — I'm not sure that we've come to establish that's a fact. It would be more jobs for less money. So I think the graph that you pointed out simply had the number of employees used in the generation of so many gigawatt hours.

Ms. Sproule: — Yes. I think you were pointing out that the figure could be taken as showing more expensive, but I think it's pretty clear that wind is cheaper than coal to produce power, so that in fact creating more jobs for less money would actually be a good thing.

Mr. Marsh: — Wind is much more expensive than coal to generate power.

Ms. Sproule: — But that's not true.

Mr. Marsh: — And if you try to generate, let's say, 100 megawatts of capacity, you would need to install significantly more than 100 megawatts of wind given the intermittency of the wind. And that's why wind farms in this province are really developed based on a 40 per cent capacity factor because over the course of a year you can only rely on them 40 per cent of the time. But you can't rely on them . . .

Ms. Sproule: — You're talking about different forms of baseload that could be used to create . . .

Mr. Marsh: — I'm talking intermittent now. I'm talking wind energy in the province.

Ms. Sproule: — Yes. But what are you talking about? That it's more expensive than coal because it's intermittent?

Mr. Marsh: — If you would try to replace 100 megawatts of coal with 100 megawatts of wind, you'd have to install 250 megawatts of wind in order to achieve that 100 megawatts capacity. But you still could not guarantee that would work. Pardon me?

Ms. Sproule: — Wouldn't you need 200 megawatts of coal to have the backup?

Mr. Marsh: — Well if it's coal, no, we don't need to have . . . We have that in the grid today. You have that with gas and you have that with coal. So you know, you need the backup for the wind. And that's why I said earlier in the conversation and I said in January, because we're a growing province and we're adding baseload gas generation and we have a good amount of coal, we have that backup supply already there. And that makes the decision to put wind in much easier for us now.

Ms. Sproule: — I just distributed figure 5, which is from the United States, 2014 wind use versus the 2014 average power price. And this is in relation to the comments you just made now, Mr. Minister. But also I was going to recite to you from 2013 saying the same thing because you said that it will take up to three times that to move to renewables, basically. And I'll quote you. On page 389 on June 18th, 2013, you said:

> The point I'm trying to make, Mr. Chairman, is that there is a cost to increasing the . . . if you want to move to that type of energy. And we are moving more towards renewables all of the time. But the rate shock to our economy to move dramatically in that direction would be significant, to say the least — very, very significant.

Now I want you to look at this figure that I just provided where I think that discounts the statement that you made in 2013 and just now, where you see the percentage of wind by state with both South Dakota and North Dakota being in the top five, which are fairly close to Saskatchewan. And you can see the blue lines representing the percentage of wind. And North Dakota is at I think about 17 per cent wind. We're currently at 7. So we'd be more in the range of Texas or Wyoming.

At any rate, if you look at the red triangles, that shows the electricity price that those states pay, and you can see that in Iowa, which has 30 per cent, almost 30 per cent wind. Their power rates are actually lower than the average, which is the line that goes across the middle of the page. So I think high wind equals high price is clearly not true, and that's an assertion that, you know, both you and the minister have . . . or the Premier have made. So I think that's misleading to the public when you look at these kinds of figures where you can see that percentage of wind actually doesn't have a direct tripling effect on the rates of power. And so it's misleading to the public of Saskatchewan to say those kinds of things.

Another thing that I'd like to refer to was in a comment by the minister on November 4th, 2015. And here's a quote. This is I believe from question period where we were having an exchange. And this is what you said, Mr. Minister. You said that's the choice that's before the people of Saskatchewan. Do we create . . . "Do we add 120,000 new wind turbines or . . . [20,000] acres of solar panels as is suggested in *The Estevan Mercury*?"

Well I want to take that apart a little bit because when you're saying 120,000 wind turbines or 20,000 acres of solar panels,

that is actually a very wildly inaccurate figure. And if you took it . . . [inaudible interjection] . . . You said that in the legislature, Mr. Speaker.

In terms of wind and the amount of electricity that would take to replace the electrical output of Boundary dam is about 189 megawatts of wind capacity, and that would require 95 wind turbines, not 120,000 or 200 acres of land for the . . . or sorry, on 200 acres of land. So we're looking at 95 wind turbines, not 200,000. Secondly, in terms of solar where you said it would take 200,000 acres of solar panels, actually we only need 7 square miles or 4,400 acres of solar to replace the capacity that's being used or produced in Boundary dam 3.

So I think those kinds of estimates, you know, you need to be careful about those kinds of numbers when you present them in the legislature. And perhaps you need to do a little more research when you're looking at those kinds of comments. So I'm not sure if you want to refute this but this is from the levelized cost of electricity . . . Sorry. This is from the costs that we've been able to determine, yes.

Mr. Marsh: — Is it figure 5 you're referring to?

Ms. Sproule: — I'm past figure 5 already. I've just moved on. Do you want to go back to figure 5?

Mr. Marsh: — If I might just make a comment. You've handed out a graph here which shows the percentage of wind generation in different states in North America, together with the US average electricity price. It must be noted that this doesn't reflect the cost of generation from that wind. So in some of these states there are still subsidies for wind generation that are in place. And that's very important to note because that can skew the evaluation of these numbers. And I'm not exactly sure what they might be but if there is a subsidy then, you know, the ratepayer is picking that up at some point in those jurisdictions.

We are trying to develop a wind strategy here in Saskatchewan and a renewable strategy which does not require subsidies. But as I said, we're going to do this carefully and slowly and build it into our system over a period of time to minimize any rate impact whatsoever. But there will be no subsidies. So I think we need to be just a little bit careful with how we view these graphs and these figures.

Ms. Sproule: — As long as we remember that carbon capture is also subsidized and it's an important feature of properly pricing.

Mr. Marsh: — True. True, but wind has been around for a lot longer, and that's why the economics of wind are now at a point where subsidies are not required for wind to take off.

Ms. Sproule: — Perhaps if we invested $1.5 billion in wind we might be in a much more economical position as well. I mean if you want to start . . . [inaudible].

Mr. Marsh: — And that's actually the cost that it will take to invest in wind technology over the next 15 years for Saskatchewan. That will be about 1.5 billion.

Ms. Sproule: — Thank you. I want to go now to some of the responses that I received yesterday from the minister in terms of the questions that were asked on January 5th.

The first one I want to look at is total spending on marketing for 2012, 2013, and 2014, and how much of that marketing has been related to Boundary dam and carbon capture technology.

And just for the record, I would like to read this in. SaskPower marketing expenditures from 2012 to 2014: total SaskPower marketing in 2012 was 3.6 million, and I'll just round these figures off; 2013 was 4.4 million, or 4.5 million I guess; 2014 was $4.4 million. Now of those totals, the total carbon capture marketing for 2012 was 173,000; 2013, $680,000; and in 2014, $681,000. So we see carbon capture here as a percentage of total SaskPower marketing. In 2012 it was 5 per cent; 2013, 15 per cent; and in 2014, also 15 per cent of your total marketing.

Now the notes that we received pointed out, and I think this is important to note, that this doesn't include any internal labour costs that SaskPower has nor does it include any out-of-province travel expenses for Mr. Michael Monea. So I guess the first question I have is, why have you excluded Mr. Monea's travel expenses because if we understand, he was doing promotion of the carbon capture project?

Mr. Marsh: — Well I think that we just answered the questions that came forward around marketing expense. We had already provided the travel expenses for Mr. Monea and that's why it wasn't included.

Ms. Sproule: — Okay. In terms of what the project is in relation to the mandate of SaskPower, do you feel that 15 per cent is justifiable of your marketing dollars, and what exactly are you marketing if we're not selling anything?

Mr. Marsh: — Well as we've undertaken work both here in Saskatchewan and around the world, we have hosted conferences. We've attended sessions and other conferences in other places in the world, and people from around the world are requesting information from SaskPower. So a good part of that expenditure is to provide promotional material which outlines various aspects of the project, both the power island and the carbon capture facility, and put it in a format that has the SaskPower brand on it, and it looks very, very professional. I don't think we would want to send anything out to other parts of the world or give documents to other companies that didn't look professional and didn't reflect a professional presence.

Ms. Sproule: — You say these people are coming to you for the information. Why aren't they paying for it then? Why are you paying for it?

Mr. Marsh: — You know, when any company is looking at an opportunity to capitalize or earn a revenue stream off of a product, a service, in our case the integration of a carbon capture facility with a power station, you provide, that company provides the promotional material.

When I go to trade shows and look at other manufacturers' equipment, I'm getting handed brochures and catalogues and information all the time. Never do they ask me to pay for it, and we certainly wouldn't see that as something we would do. That's just part of business out there today.

Ms. Sproule: — That's in the case when they have something to sell. You have nothing to sell.

Mr. Marsh: — Again in January and in, you know, prior opportunities, I've said these are early days in the carbon capture industry. We're the first of its kind in the world. There are companies now looking at this very, very carefully. We've had the knowledge centre set up with BHP, and we're going to proceed to look at opportunities over the next year or two.

At some point, we will take advantage of an opportunity that will come our way and we are going to continue to press with this. But it's early days, and I can't give you an exact date on when that's going to happen. But if we're not out there promoting and talking about the good work we've done and being proud of the work we've done here, nobody will know about it.

Ms. Sproule: — But, Mr. Marsh, you spent $1.5 million of ratepayers' dollars in the last three years marketing something for which you have no return whatsoever. You can't tell us if and when there will be a return, and yet your obligation, your purpose is to provide power to people in Saskatchewan in a cost-effective manner. What does this marketing have anything to do with the mandate of SaskPower to provide power to Saskatchewan people in a cost-effective manner? One and a half million dollars, plus Mr. Monea's travel and your travel.

Mr. Marsh: — As indicated in January, the opportunity is there to continue to drive down the cost of carbon capture as we look at a business case for unit 4 and 5, for example. Technology improvements, information that we might receive or obtain from other companies in the world would allow us to undertake certain aspects of the next plant much more efficiently. We may be able to save $10 million, based on information we might receive in the next little while. We don't know how this is going to unfold.

[15:30]

But again, when you're the first of a kind in the world, you have to be able to stand up and say to the world, here's what we've done. It's working. It's working well, and here's what we're prepared to do with this information. Please come and talk to us; we'd like to talk to you.

Hon. Mr. Boyd: — And I think that, Mr. Chair, I think that's the reason why you see a company like BHP Billiton stepping up and wanting to be a part of the knowledge centre and committing significant dollars to that centre. And I think that's also why the president of BHP Billiton, Giles Hellyer, said on February 5th, just a few weeks ago, "It's technology that has been a long time coming. It's the first of its type and it is absolutely meeting its objectives. It's a wonderful demonstration plant." And I think, you know, that's why I think we're seeing that kind of interest from around the world, and I think we're going to continue to see that.

SaskPower is in discussions with at least two other players at this point in time that have a similar interest that . . . You know, we're optimistic. We'll join with BHP at some point in the future in making that similar decision.

Ms. Sproule: — One and a half million dollars of ratepayers' money is going to possibly generate some money somewhere down the line, maybe up to 10 million. It could be also a loss leader as far as what you're telling us today. We don't know. I mean that you'll be very clear — maybe $10 million. It might be nothing. It could be a loss.

But the role of SaskPower is to its ratepayers. I mean that's very clear. In the role you're taking on is one of altruism, and probably a bit of philanthropy, but that's certainly not the role of SaskPower. That's the role of the Government of Saskatchewan. If they want to be philanthropic and share money, spreading the word about carbon capture, certainly that's the role of the Government of Saskatchewan. But it's not your role, especially when you're going to ratepayers with 5 per cent increases.

So why is it that SaskPower — and I'm going to ask one more time — feels justified in spending ratepayers' dollars when it goes clearly beyond the mandate of the company?

Hon. Mr. Boyd: — Well, respectfully, I think we disagree with you, Madam Member. I think we respectfully disagree with that. The mandate provided by the Government of Saskatchewan to SaskPower was to advance the technology, to do the business case analysis around it, to construct, and in addition to that, to spread the word about carbon capture and storage. And I think they've done a pretty good job with respect to that. We can disagree on it if you like, but that was what the expectation of the government was of SaskPower.

Ms. Sproule: — Thank you, Mr. Minister. Could you provide the committee with a copy of that mandate and indicate why it was allowed to overrule the mandate of SaskPower on the CIC web page?

Hon. Mr. Boyd: — I wouldn't say that it overruled it in any way, shape, or form. I think it supplemented or I think it would be a . . . Obviously when SaskPower comes before, puts information before cabinet with respect to their plans, clearly the government agreed with their plans with respect to carbon capture and storage and the project was advanced.

And I think all aspects was advanced at that point as well, that as a part of the plan that came forward from SaskPower was the promotion of carbon capture and storage which was endorsed by the Government of Saskatchewan.

Ms. Sproule: — Then I again would just ask you, obviously we disagree on the interpretation on the mandates, but if you could provide a copy with the mandate you referred to that was given to SaskPower in relation to this project, and then allow the pundits to interpret it, that would be helpful vis-à-vis the stated mandate of SaskPower in the legislation.

Hon. Mr. Boyd: — Well we can provide information around the discussions that we had with SaskPower with respect to that. There was a wide range of questions that were asked of the officials at the time with respect to moving forward with a project of this nature.

Ms. Sproule: — And all I'm asking for is a copy of that mandate as you referred to.

One of the other questions we asked was in relation to the brownfields. And I know you indicated in committee that there is no knowledge exactly how many brownfields are out there that would have the EOR, enhanced oil recovery opportunities immediately at hand. So on that basis alone, we're kind of wondering why you would want to keep promoting this as you have with Mr. Monea travelling around the world. And his costs as well as the marketing costs is . . . particularly because the uptake has not been significant at all for this type of technology. In fact I don't know if you can provide the committee with any instances of where this type of technology is actually being implemented. Maybe there is some news on that front.

But EOR seems to be part of the justification that you're using, and I'm not sure when you're marketing if you're marketing it as an EOR type of project or you've referred to EOR as a transition enabler and not an ultimate requirement for future deployment. So in your marketing, are you focusing on the EOR side of it for revenue generation, or is that something you don't refer to at all?

Mr. Marsh: — From our perspective, it's about having a carbon capture facility attached to a coal plant that can be utilized in a number of different ways depending on the jurisdiction. That's why we have the enhanced oil recovery field, and we also have the Aquistore facility, a deep underground Aquistore where the liquid CO_2 is injected into a brine 10,000 feet underground. Now there's opportunities and there's actually places around the world where CO_2 is being injected right now into deep saline aquifers underground both onshore and offshore.

So our interest isn't how people use it. It's just if they have an opportunity or they need to capture carbon, what they do with it at the end of the day is their concern. Some of them may, as a result of regulations or carbon penalties in their own jurisdictions, may elect to use carbon capture and put it into a deep underground storage basin and, you know, the entire cost for that facility would be borne by that particular company.

Over time, as this technology improves, the cost is going to come down. That happens with every technological invention in the world. It's been proven. And as we're in the early days of the evolution of this carbon capture technology, you know, we are looking for that opportunity out there and that opportunity to help somebody and the potential opportunity to earn some revenue stream at some point. And that's why we want to make sure that people know about SaskPower and that they're aware of what we've done to date.

Ms. Sproule: — The one and a half million dollars that you spent on marketing alone plus the additional costs of Mr. Monea's travel and your own travel, which is significant, do you think that the technology would not evolve if you hadn't spent that money?

Mr. Marsh: — Well first of all, the travel expenses for Mr. Monea in 2015 are substantially reduced from previous years. I believe they're in the $38,000 range, so significantly reduced from 2012, '13, and '14. And I just want to make sure that's noted.

My own expenses last year for attending an event where I spoke about carbon capture . . . There was three events: one of them was the Paris conference and two events in Washington where, you know, again a tremendous pile of interest on the part of that community that attended.

It's a necessary expense if you want to keep your visibility and your presence in this industry. And it's a small part, not insignificant, but a small part of our overall marketing expense for the company.

Ms. Sproule: — Again, I understand keeping a visibility and presence when you actually have something that you're marketing, but in this case what you're marketing is the hope that savings will come to you in the future. So it doesn't seem to be a good business case for the amount of money that's being spent.

And I would suggest the science is there and it's working on its own. It doesn't need . . . And I don't know what you spent $640,000 on last year, or $680,000 on for marketing, when you . . . Like you said, you've referred to other trade shows where people hand you a brochure. They have something they're selling you, but in this case you don't. So I guess we have to agree to disagree that that's an effective use of dollars at this point in time because I don't see the business case for it at all. I don't know if you want to comment one more time.

Mr. Marsh: — One more time. Again, it's early days. We're keeping a presence. We're making contacts in the industry. I think the biggest single benefit that you've seen is the knowledge centre with BHP that was just announced last month and the fact that we're moving forward with expanding that community of knowledge around the world which will bring more interest and more visibility to what we've done here in Saskatchewan. And I think that's very, very important and something we should really be proud of.

Ms. Sproule: — So the marketing that you did, you believe there's a direct correlation between that and BHP's interest in carbon capture?

Mr. Marsh: — I believe they're very interested in what we've done, and they've attended our conferences and they've come to our facility to look at it. But again, they're one player. They're a very big player, and we're very happy to have them as a partner, but there are many, many other people in many other parts of the world that need our information, and we're providing it in the most professional way we can.

Ms. Sproule: — I just want to move on now to EOR as a transition enabler. And I just find that a very interesting description of enhanced oil recovery vis-à-vis CCS enabler. When we look at Boundary dams 4 and 5 and the conversion, if you choose to go there with using the carbon capture sequestration technology, presumably each one of those plants will also produce a million tonnes, or you can extract 800 000 tonnes for each one of those facilities as well, up to a million, if you have the nameplate capacity as you do for this one. Maybe more, depending on how the technology advances, because I think you're at 80 per cent now of all carbon.

Anyways, where will that 200 million tonnes go, or 160 . . . 2 million tonnes or 1.6 million tonnes. Where will you put that

once it's captured and when you need to meet the requirements of the federal regulations? Is Aquistore where it will all go?

Mr. Marsh: — No, not at the present time. The Aquistore facility just does not have the capacity to take the full CO_2 capacity from a retrofitted 4 and 5. We'd certainly be looking at another offtaker. We'd be looking at, again, somebody to purchase the CO_2 and again help make that business case look very economic, you know, with that revenue stream. And there's been interest already expressed by other oil and gas companies about taking a position on purchasing CO_2 with us.

Ms. Sproule: — In terms of the other offtakers, do you . . . If oil remains as low as it does today, is that still a potential or does oil need to go up to a higher price before they'd be interested in offtaking?

Mr. Marsh: — Well I do know that there's been interest expressed even over the last year when oil prices have been very low. So I think they look at this as a long-term and we certainly look at a generation decision as a long-term decision as well.

Ms. Sproule: — So what do you see as the long-term capacity for Aquistore?

Mr. Marsh: — Right now we believe it's indefinite. And you know, we have, through the PTRC [Petroleum Technology Research Centre], that facility is instrumented and we're going to be monitoring the migration of CO_2 in that underground aquifer and watching the geology of this very, very carefully. That's a very particular interest for many countries and companies around the world.

Ms. Sproule: — Yes, I've certainly had the opportunity to meet with PTRC officials, again noting that they are subsidized as well, so that's helpful to SaskPower's case. Now you've said that Aquistore doesn't have the capacity right now, although you said it does have indefinite capacity.

Mr. Marsh: — The aquifer underground may have the capacity to take it. It would probably require another well to be drilled in order to be able to inject that amount of CO_2.

Ms. Sproule: — So in terms of the business case you're putting forward and these other offtakers, what percentage of the CO_2 would you hope the offtakers would take, and what are you hoping that Aquistore would be able to take?

Mr. Marsh: — Well again, this is premature because we're not that far down the path yet. But obviously if we're looking at another business case, we would pursue the same avenue we did with BD3 and that would be to try to find an offtaker to take the full amount. And if we could enter into a contract with an offtaker for that full amount then that would help position the business case much more favourably.

Ms. Sproule: — What oil fields are in the area that could take the full amount or the same amount that Cenovus takes?

Mr. Marsh: — You know, I'm not aware of specific oil fields right now, but there are companies around the province that have expressed some interest.

[15:45]

Ms. Sproule: — So if they're not exactly in the near vicinity of the Boundary dam 3 like Cenovus is in the Weyburn field, obviously you pay for the compression of the CO_2. You also pay for the pipeline that delivers it. If you need to deliver long distance that may make it even more uneconomical.

Mr. Marsh: — We leave that decision up to the offtaker. You know, in the particular situation we have today with BD3, we own a pipeline that's approximately 8 kilometres long to our takeoff point where they take delivery of the CO_2, and the rest of the pipeline, the 80-plus kilometres, is owned by Cenovus.

Ms. Sproule: — Right.

Mr. Marsh: — So if there's another offtaker, they would have to factor in the cost of the pipeline into their equation.

Ms. Sproule: — So the 8 kilometres that you constructed to the Cenovus field was paid for by . . .

Mr. Marsh: — We didn't take it to the Cenovus field. We took it to the edge of SaskPower property.

Ms. Sproule: — To the edge of your property.

Mr. Marsh: — And then it goes into their pipeline.

Ms. Sproule: — Okay. So you would only do 8 kilometres in any case?

Mr. Marsh: — We don't know. It would have to depend on what was negotiated. We'd look at all options.

Ms. Sproule: — What would be your ideal scenario in terms of Aquistore? Like right now I think you're giving them up to 150 000 tonnes this year potentially — 50 to 150 000 tonnes. Is that correct?

Mr. Marsh: — Yes. It depends on the day and, you know, the production of Boundary dam 3 and the carbon capture facility, the offtaker, and what's left over we put down the Aquistore facility. So we've had it up to 1000 tonnes a day, but it's typically running 5 to 600 tonnes a day.

Ms. Sproule: — And in terms of 4 and 5, would that be . . . I know it's speculative, but is that a target that you're comfortable with right now? Or would you like to see Aquistore take more eventually?

Mr. Marsh: — I can't really answer that right now. You know, if it goes into an Aquistore facility, we're not earning revenue. So it will entirely depend on how the economics of the entire business case look. If natural gas prices go up, as Sandeep indicated, and the cost of building the next unit is way down, we may be able to inject more and not worry about revenues. But I have no idea at this point what that business case is going to look like.

Ms. Sproule: — I'm going to go back to that because we had a bit of that conversation previously. But I just wanted to go back to marketing for one minute. When you are doing this

marketing, could you describe to the committee what that $681,000 was? I know you said graphic design, print, web design, displays, tours, events, advertising, videography. But what is it that you're actually marketing? Is it SaskPower or . . .

Mr. Marsh: — All of the information explains what the carbon capture facility does. It's about explaining the process of carbon capture, how it's extracting CO_2 from the exhaust stream out of the power station, the process that it goes through, you know, where the CO_2 goes after it leaves our facility. It talks about, in our particular case, this is what's happening with it. And it really explains the model that we've constructed here at Boundary dam.

Ms. Sproule: — So there's no sales pitch or anything like that. This is more like an educational marketing or . . .

Mr. Marsh: — You know, we'd have to bring you some of the information. There's always contact information in there, if you want more information, if you want to discuss this further, like all marketing information. And you know, we leave it up to those companies to get back to us if they have a keen interest. There's many companies that have come back to us, and we're in discussion through Mr. Monea today on many different aspects with different companies.

Ms. Sproule: — I mean would this . . . I'm looking at the article that Mr. Monea submitted to *Cornerstone* magazine last fall, and this . . . I don't know what page. It's on page 4 of the handout, but it's an online article. It has a graphic here showing a power plant with a highway towards it and some trees, and it says, "The Boundary dam CCS project is like taking 250,000 cars off our roads annually." Is this something that was prepared by SaskPower?

Mr. Marsh: — Yes, I believe it was, yes.

Ms. Sproule: — And we know that we're not taking 250,000 cars off the roads. So why is this still being used?

Mr. Marsh: — You know, I think somewhere in the article we talk about the capacity potential of the . . . I haven't read this article so I'm not sure of that. We talk about, at a capture rate of 90 per cent the results are equivalent to taking approximately 250,000 vehicles off the road. The very first . . . on page 6 of 8, "To date we've been fine-tuning the CO_2 capture plant. Once it reaches full capacity in its second year of operation, the plant will capture up to one million tonnes of CO_2 . . ." So I mean the statements are qualified . . . [inaudible interjection] . . . Pardon me?

Ms. Sproule: — Is this not the second year of operation? You said 800 000 tonnes this year which is the second year of operation. That's your target.

Mr. Marsh: — Our target is 800 000. We can hit nameplate capacity if we so desire but we're targeting 800 000 tonnes this year. But this paragraph simply says that if you capture 1 million tonnes, that's equivalent to taking 250 off the year.

Ms. Sproule: — I think it says more than that, Mr. Marsh, and I would advise Mr. Monea to be a little more careful with some of the statements because we know that people would interpret that much differently than what you're suggesting. And if you look at the wording, right away, the plant will capture up to 1 million tonnes of CO_2 annually. That's not true because you stated publicly that you were only going to capture 800 000 tonnes this year.

So it's misleading at a minimum, but I think that's something that I'll just leave with Mr. Monea to consider the next time he writes this type of article. Also I think that that graphic is also misleading, and I think SaskPower needs to be a little more careful in terms of the marketing dollars that it is spending on behalf of the ratepayers to market a process with no expectation of return for the taxpayers who are paying for the process.

I'll keep going here. I'm just looking at the questions. Again before I forget, in committee on January 5th, I did ask a question about Nelson Mullins, which is the law firm that Sask Party uses as well as SaskPower for carbon capture promotions, and it didn't make it onto my list of the January 20th things that I had asked you to undertake. And perhaps you can't answer this right now, but on page 721, on January 5th, Mr. Minister, we had a discussion about Nelson Mullins and the work that they do. What I said at the time is we understand that almost all of the money that's being spent for Nelson Mullins is in relation to the carbon capture project. This is money that's coming out of, I believe, Executive Council. I could be wrong on that.

Anyways, you had said that you will endeavour to get further information from Nelson Mullins with respect to that because you wanted to ensure that the number is accurate. That's on page 721. I forgot to list that on my January 20th letter, but we're still interested in getting that information. So if you could undertake to provide that, that would be appreciated.

I do have some information on Nelson Mullins that I want to go into at this point in time, if I can find it. One moment, Mr. Chair. There we are.

The Chair: — Step in for a second here. Mr. Minister, you had mentioned before you had that other, the answers you had provided Ms. Sproule and you're going to table them. Would that be done at a later time, or . . . You have it there?

Ms. Sproule: — That's something different.

The Chair: — Yes, I know.

Ms. Sproule: — Okay. I can certainly address that as soon as we're finished with the Nelson Mullins. I can talk about this information that was provided today? Yes. Okay. So just an undertaking for the minister to go back and give us more clarity on that.

We noticed on April 29th, May 1st, Mr. Monea, I think . . . And I've been saying his name wrong all along. It's Monea, right? Monea. Sorry. He had a meeting with Nelson Mullins to discuss CCS consortium promotion in the United States. That was April 29th to May 1st, 2015. So my question for SaskPower: is Nelson Mullins also on your payroll as well as the Government of Saskatchewan?

Mr. Marsh: — We do not have them as a vendor.

Ms. Sproule: — So in terms of those meetings where Mr. Monea . . . It wasn't a huge expense claim, but it was just one of the meetings that he went to. You can confirm then that any costs for that law firm are directed by Executive Council, then? Is that correct?

Mr. Marsh: — Executive Council and CIC to my knowledge.

Ms. Sproule: — And was there anyone from Executive Council or CIC at this meeting?

Mr. Marsh: — Probably not. I don't believe so.

Ms. Sproule: —Why is SaskPower talking to a law firm about marketing?

Mr. Marsh: — It may be a law firm, but the contact person was interested in getting an update on the Boundary dam carbon capture facility. Many of their clients are interested and they have the potential to make contacts with others. So it was just a simple update of our facility.

Ms. Sproule: — Okay. I have here a summary that we put together of the Nelson Mullins lobbyists filings with the US Department of Justice. We briefly talked about it last time, and I see I'm going to run out of time this time. But in 2015, there were five of five meetings were arranged specifically for officials in the US government in carbon capture, and Saskatchewan taxpayers paid $337,000 for that. In 2014, 11 of 18 meetings arranged with Nelson Mullins as a lobbyist on behalf of Saskatchewan were about carbon capture, and that was for 715,000. I think that was the total, but of that, 11 of the 18 meetings, so more than half, were on CCS. And in 2013, 13 of 16 meetings were arranged on behalf of the Government of Saskatchewan and the US government. And these were all with senators, pretty much all senators or other high-ranking officials, congressmen and senators. So 13 of 16, and the cost that year was $757,000.

So according to our calculations, 75 per cent of the meetings arranged on behalf of Saskatchewan with the US government were about carbon capture and that means about $1.8 million in fees were paid to Nelson Mullins over those three years.

So, Mr. Minister, maybe you could give us more details about that money that was spent and what sort of lobbying Nelson Mullins was doing on behalf of the Saskatchewan taxpayer in addition to what I asked you to provide on January 5th.

Hon. Mr. Boyd: — We will endeavour to provide that information to you, Madam Member. With respect to Nelson Mullins, Executive Council has a contract with them, and CIC has a contract with them as well.

The United States is Saskatchewan's largest trading partner, accounting for 64 per cent of our exports, $22.7 billion. Approximately 72,000 Saskatchewan jobs depend upon exports to the United States. Nelson Mullins has provided meetings and arranged meetings with congressmen, senators, and administration officials from both sides of the aisle regarding country of origin labelling, Souris River flood management, bilateral energy trade agreement, Canada-US agriculture trade, and CCS. They have also provided advice to the Premier and government on key priority areas such as COOL [country of origin labelling], greater economic integration, fewer barriers to trade, North American energy infrastructure, and again CCS.

Nelson Mullins has arranged or has had contact with a number of, as you indicated, congressmen, senators, and administration officials. There is and continues to be ongoing interest by the Department of Energy in CCS. In fact that is one of the players that has shown the greatest interest, I guess I would say, with respect to carbon capture and storage. In the United States there's a huge amount of electricity that is generated by coal in the United States. Now as a result of that, there seems to be by the Department of Energy a tremendous amount of interest in the BD3 carbon capture and storage facility. That is ongoing and continues to this day.

Ms. Sproule: — I have a couple more questions.

The Chair: — One quick question.

Ms. Sproule: — Oh boy, you're going to make me decide here. I guess the last question that I'm being allowed by the Chair is one that I will refer to the . . . You actually provided the consultants' fees, but you've also additionally provided today the contractor expenditures, which was certainly one question I had.

[16:00]

But in terms of the consulting fees last year, the legal fees have jumped astronomically. We see four law firms listed specifically in the list in 2014, and you've spent $363,000 in legal fees. Can you confirm for the committee whether that is in relation to the lawsuit you're currently engaged with SNC-Lavalin?

Mr. Marsh: — Certainly a portion of our legal costs are as a result of the background work that's being done by outside legal counsel in addition to our legal department as we undertake to put our claims together. But it's a small percentage of the legal department's budget, but it does form part of this expense that you see here today.

The Chair: — Okay. Thank you, members. Before we conclude, I would like to table CCA 190/27, Minister Responsible for SaskPower re questions asked at the January 5th, 2016 meeting.

Time has expired for us today. I would like to now ask for a member to move a motion to adjourn.

Mr. Brkich: — I so move that, Mr. Chair.

The Chair: — Mr. Brkich has moved the motion to adjourn. Is everyone in favour?

Some Hon. Members: — Agreed.

The Chair: — Carried. This meeting is now adjourned.

[The committee adjourned at 16:01.]