



Legislative Assembly of Alberta

The 28th Legislature
First Session

Standing Committee
on
Resource Stewardship

Natural Gas Production
Stakeholder Presentations

Wednesday, October 9, 2013
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Standing Committee on Resource Stewardship

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Standing Committee on Resource Stewardship

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Mike Hileman, Vice-president, Solomon Associates	
Centre for Applied Business Research in Energy and the Environment, University of Alberta School of Business	
Richard Dixon, Executive Director	RS-415

4:32 p.m.

Wednesday, October 9, 2013

[Ms Kennedy-Glans in the chair]

The Chair: Folks, I think we're ready to start. Welcome. Good afternoon. Thanks for being here. Special thanks to Mr. Gwozd and Mr. Dixon for being here to make presentations for us. We're going to start with Bill Gwozd from Calgary, and then we'll follow up with our local U of A economist.

Before we do that, though, we want to make some introductions, make sure we know who's on the phone here. There are quite a few people on conference. So we'll go around the room – and if you are substituting for someone, if you can make that known – and then we will go to the people who are on the phone. I will start here with our vice-chair.

Mr. Anglin: Joe Anglin, MLA, Rimbey-Rocky Mountain House-Sundre.

Mr. Sandhu: Peter Sandhu, MLA, Edmonton-Manning.

Ms Calahasen: Pearl Calahasen, Lesser Slave Lake.

Mr. Casey: Ron Casey, Banff-Cochrane.

Mr. Bilous: Good afternoon. Deron Bilous, MLA, Edmonton-Beverly-Clareview.

Mr. Dixon: Richard Dixon, University of Alberta School of Business.

Mr. Jeneroux: Matt Jeneroux, MLA, Edmonton-South West, substituting for Mike Allen.

Ms Fenske: Jacquie Fenske, MLA, Fort Saskatchewan-Vegreville.

Mr. McDonald: Everett McDonald, Grande Prairie-Smoky, MLA, substituting for Linda Johnson.

Ms Zhang: Nancy Zhang, legislative research officer.

Dr. Massolin: Good afternoon. Philip Massolin, manager of research services.

Mr. Bhardwaj: Good afternoon. Naresh Bhardwaj, MLA, Edmonton-Ellerslie, substituting for MLA Stephen Khan.

Ms Dean: Good afternoon. Shannon Dean, Senior Parliamentary Counsel and director of House services.

Mr. Tyrell: Chris Tyrell, committee clerk.

The Chair: Thank you, folks.

I've heard a few names on the phone. Mr. Bikman, are you there?

Mr. Bikman: I am here.

The Chair: Okay. Welcome.

Mr. Cao, substituting for Maureen Kubinec, are you there?

Mr. Cao: Yes, I'm here. Wayne Cao, MLA, Calgary-Fort, substituting for MLA Maureen Kubinec.

The Chair: Mr. Lemke, are you on the phone?

Mr. Lemke: Yes. Ken Lemke, MLA, Stony Plain.

The Chair: Thank you. Welcome.

Mr. Hale, are you on the phone?

Mr. Hale: Yes, I am.

The Chair: Can you tell us where you're from?

Mr. Hale: Strathmore-Brooks.

The Chair: Thank you, Mr. Hale.

Mr. Barnes, are you on the phone?

Mr. Barnes: Yes, I am. Cypress-Medicine Hat.

The Chair: Welcome.

Mr. Stier, are you on the phone?

Mr. Stier: Yes, I am. Good afternoon. Pat Stier, MLA, Livingstone-Macleod.

The Chair: Okay. Is there anyone else on the phone? Great. Thank you.

Again, we've got a little bit of background noise here with the video con. Can we maybe take that noise down just for a little bit while we get going here? Thank you.

Just to remind you again, the microphone consoles are operated by *Hansard*. If you've got a cellphone, maybe slide it under the table. As we all know, this meeting is recorded by *Hansard*, and there may well be people listening on the Internet. There have been a lot more queries from the public about what we're doing, so I think that's a really good sign for all of us.

Everybody has had a chance to look at the agenda, and I'm looking for a motion from a member to approve the agenda. Ms Fenske, would you move that the agenda for the October 9, 2013, meeting of the Standing Committee on Resource Stewardship be adopted as circulated?

Ms Fenske: You took the words right out of my mouth. So moved.

The Chair: Thank you.

All in favour? Any objections? On the phone? Motion is carried.

All right. The approval of the minutes is the next item. Are there any corrections to the minutes from our last meeting to note? If not, then Ms Calahasen, would you like to move?

Ms Calahasen: Yes, that the meeting minutes of September 10, 2013, be adopted as circulated.

The Chair: Okay. All in favour? Any objections? Any objections on the phone? Motion is carried.

That brings us to our presentations. We've got two economists here today, just to set the stage because this is a very complex topic, natural gas in Alberta. As introduced, we have Mr. Dixon, from the University of Alberta School of Business, and we have Mr. Gwozd, senior vice-president of gas services at Ziff Energy.

We've asked each of them to come with a presentation of 15 minutes, which is an awfully nasty thing to do to any economist, to ask you to take such a big topic and talk about it in 15 minutes. We'll have the two presentations back to back, and then we will open up the floor to questions, so record your questions.

So I'd like to turn the microphone over to Mr. Gwozd. We are at your attention.

Mr. Gwozd: Thank you very much. I just have an administrative question. I'm showing a chart on there with colours. I just want to know if you can see the colours on the chart. It's like a rainbow.

The Chair: Absolutely.

Mr. Gwozd: Very good. Sometimes the projectors don't work, and I wanted to just test it.

Ziff Energy

Mr. Gwozd: My company name is Ziff Energy. However, Ziff Energy was acquired by a company called Solomon Associates on July 23, so our new name is Solomon Associates. Solomon Associates has some copyright and confidentiality and warranty issues, so all the information that you see is actually private and confidential. We don't allow copies of the material to be taken.

I'm now starting chart 1, which looks like a Canadian baseball game. I'm going to start reviewing the material. LNG in Canada is really like a large baseball game. We have Canada that's going to be hitting LNG over to the catcher's glove in Asia. The bases are loaded already. We already have several runs batted in. The Canadian National Energy Board is refereeing all of the facilities, and we see a lot of growth potential for Canada overall. There are a lot of interested parties. Asia, the Philippines, South America, and other countries are all carefully watching the growth of Canadian LNG.

On chart 2 we're going to show you that there have been a handful of LNG applications filed with the regulator. So far several have been approved. There are more in the mill coming, and this is just the initial phase of the first 15 billion cubic feet. To put that in perspective, western Canada today produces less than 15 billion cubic feet. So here we're talking about exporting more gas than western Canada currently produces today.

In terms of transporting this gas, we have to look at the economics of LNG. Shown in red on the left of the chart is the history of western Canada gas prices. On the right part of the chart it'll show in blue the Ziff Energy/Solomon price forecast of where gas prices will be in 2020. From a producer's perspective it's not good, maybe around \$5.

4:40

When we add on the pipeline toll in green, we add on the LNG cruise costs, and we add on the estimated liquefaction costs, we get a delivered cost of LNG to Asia approaching \$12 per unit. The unit – here we're showing MMBTU – could be gigajoule, or it could be MMCL. The idea here is that the delivered cost to Asia is around \$12 in 2020 whereas the gas price in North America is around \$5. The estimated gas price in Asia may be \$12, may be \$15, may be \$17. That's what's driving the LNG projects. They pay more for natural gas in Asia than they pay for gas in western Canada.

In terms of opportunities for Alberta, a lot of the gas is situated in British Columbia; some of the gas is situated inside Alberta. The pipelines to transport gas to the west coast: each pipeline will be approximately 3 billion cubic feet, transporting a quarter to 20 per cent of the gas supplied to the west coast, meaning four or five pipelines.

An opportunity for government, both the British Columbia government and the Alberta government, is to do what we call a GRIK, a gas royalty in kind. So we're suggesting that the Alberta government and the B.C. government swallow the royalty share that they're getting from the producer, defer the money from the producer, take the gas in kind, pay for their share of the pipeline, pay for their share of the LNG facility, and then receive \$17 for their gas, and based on the \$17, pay for the boat, pay for the liquefier, and then get as a net-back maybe \$7 or \$8 for the gas versus the royalty money of 20 per cent of \$4 or \$5. So the government can increase their uplift on natural gas from, let's say, a dollar per unit up to as high as \$7 or \$8. So you have a chance of

getting eight times the value for your gas versus today. That's the concept.

I was also asked to address gas for power generation in Canada. The power that's feeding your microphones there comes from the wall circuits. It comes from behind the wall, underground, and is delivered to the building. It comes from black for coal, it may come from blue for water, it may come from red for nuclear power plants, and for some folks it may come from what we call green power – you can see it in light yellow in some of the provinces – from windmills or solar or other forms. The last one, of course, is green for gas-fired power generation.

Very quickly, you can see on the charts that Alberta has a fairly large portion of gas that's going to generate power in 2020. Ontario is going to grow as they mothball their coal-fired power plants, and the rest of the country is just whispers of natural gas. The vast majority of Canada is powered by water, hydro plants. If you look at North America as a whole and Canada up in the top upper left-hand corner, you're going to find that Canada is really no different from the other places in North America. They all use some gas, and in all jurisdictions gas is growing as a per cent of their power matrix. So gas for power is growing across North America.

We talk about gas demand. In welding, if you're a welder, you have to know what arc welding is. In natural gas you have to learn about all of these acronyms. It's very annoying because you have to not only know what they mean but know how to pronounce them. A guy like me will say, "CNG, NGV, SAGD, GTL, C₂H₅OH, LNG," and others, and you'll go: what? All we've mentioned are all these other unconventional gas demands that are emerging in North America, and they all have one thing in common. All of them are getting oil price for their gas.

Let me explain briefly. With CNG, compressed natural gas, you're burning natural gas and not burning oil; therefore, you're saving the oil expense based on gas. NGV is the larger trucks, same process. SAGD is steam-assisted gravity drainage for oil sands. You're injecting natural gas into the oil sands, giving the oil sands a sauna. The oil flows like ketchup. It flows out, and you get oil prices. GTL is not the name of a car. Rather, it's gas to liquids. You convert natural gas to diesel, and you get an oil price for your gas. C₂H₅OH, for the people that took chemistry in high school, is ethanol. You have to put fertilizer on the ground, which is natural gas. The fertilizer grows different crops such as corn. The corn is fermented into ethanol, and then you put ethanol into the gasoline. Therefore, you displace a little bit of oil and get oil prices. LNG exports we've talked about. All of these are emerging unconventional gas demands that can increase gas demand anywhere across Canada.

Specifically on SAGD, the oil sands, the oil sands today consume over 1 billion cubic feet of natural gas. That's almost equal to the output of the Alliance pipeline, which was built in the year 2000. By 2020 the oil sands will consume almost 3 billion cubic feet of gas. Three billion represents 20 per cent of western Canada production, maybe 25 per cent, a huge amount of natural gas, and it continues to grow. What we have done is looked at each oil sands project, looked at the efficiencies, and made a detailed forecast.

One more, what we call a BRIK opportunity. If you're looking at gas-to-liquid projects, we've run the economic profile for gas to liquids, and it can work. If the oil price is around \$75 and if gas is around \$2, it works, but natural gas is not \$2 today. Natural gas may be \$3 to \$4. The oil price is not \$75. It's maybe close to a little over a hundred. At our \$4 gas price, GTL is economic at a \$100 oil price. That's where we're at. If the Alberta government wanted to take your natural gas at \$3, you could convert natural

gas into diesel and get an oil price. So you would take your gas in kind. You wouldn't take royalties. You'd take the physical gas, and you'd bring it into a GTL plant. You'd pay for it or pay a use charge. Then you would sell your diesel and make diesel for your product.

I was looking at natural gas vehicles. I'm sure some of you may have a hairdresser who may have a niece or a nephew who may have a friend who actually knows someone that drives and operates a natural gas vehicle, but you may have to look pretty far and wide to find that person. When we run the economics for them, we find that the capital costs for NGVs are more expensive than for the equivalent gas-only fired vehicles, and as a result consumers have pushed them aside. That's just a consumer issue.

In terms of volume of gas, if we have 7 million vehicles, that would equal 1 billion cubic feet of gas. One billion cubic feet of gas equals the gas consumption of the oil sands. In other words, gas for natural gas vehicles does not amount to a lot. Even though it's a topic, it doesn't amount to a lot of natural gas demand.

Finally, if you want to get into the details of supply, the growth of supply will be more west of Edmonton, more in what we call the Horn River, shown in red, or in the blue area, the Montney, or in the Duvernay, which is mostly in Alberta. We've conducted some detailed studies. We have 46 different subscribers to the studies, so we have detailed supply profiles, detailed infrastructure profiles. We're the people that know what's going on in these growth basins. We've recently filed all the LNG applications for the proponents, so we're right up to date on the gas issues on the LNG.

That concludes my 15-minute overview.

4:50

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

We will hear from our other economist now, and then we'll open the floor to questions.

**Centre for Applied Business Research in
Energy and the Environment,
University of Alberta School of Business**

Mr. Dixon: Okay. Just to introduce briefly CABREE, which I'm the executive director of, we're a nonpartisan think tank and research group at the University of Alberta's School of Business. We have a somewhat unique mandate. I'm told by David Runnalls, formerly of IISD, that we're one of only two in Canada. Of the three mandates we have, one is that we do applied business research. A lot of groups do that, so our research is applicable for the business world.

The second one that we're engaged in quite a bit is energy literacy or advocacy. The reason I mention literacy is that oftentimes Andrew Leach, one of my company researchers, and myself are in the news about 30 to 40 times a month over various energy issues. Most of the time what we're doing is that we're really engaged in energy literacy conversations, particularly with an Alberta perspective, I would think.

The third one, then, is quite important to us. We have one of the most unique programs in the world – there are only four others that we know of – on natural resource energy and environment specialization. About half the students in our MBA program come for this program alone. They come from the international perspective, well, from every country in the world, to learn natural resource energy and environment specialization. So that's whom we represent.

We give the students an opportunity to study, for example, in natural gas extensively. We're able to bring in speakers. As Bill mentioned earlier, for the LNG project Apache out of Kitimat it

was actually one of our alumni that spearheaded that, someone I'd recommend that you'd want to bring into the discussion, Alfred Sorensen. He's working on a new project now and involves our researchers with him on this, one that's immensely larger, the Goldboro out of Nova Scotia, a new LNG plant where they recently sold a billion dollars U.S. worth of natural gas that they haven't produced yet. They haven't got the pipes, haven't got the LNG plant, but they have a futures contract with E.ON in Germany for a billion dollars of natural gas export. We're working with him on that project.

Part of what I'm hearing and what I'll be basing discussions on – there are quite a few slides; I'm only going to speak on the first six, and I'm just going to jump ahead – is that last year we were engaged in a project with Alberta Energy in which we produced 28 strategic scenarios based on various models. You'd be familiar possibly with the normative modelling that Shell international does. This is some of what we did. The results of it: these are the strategic options that came out of it and, in particular, four themes that we saw running through all 28 strategic scenarios that looked at various energy aspects. What we've done and what I'm going to be talking briefly on today is the one on natural gas and just briefly brushing on the one with petrochemical.

As you can see, probably in your printed copy better than in this version, this gives the overview looking out to 2035 and says: what is the future shape of energy in Canada, particularly from Alberta's perspective? For example, decisions that you'll be making on policies right now will impact not just natural gas but, as Bill has pointed out, impact what's happening in the field in oil sands development as well as our petrochemical industry here in Alberta. One of the ways to base this on and just jumping back for a minute, I've adapted this from Shell international's work on scenarios, work that we did with them when we were in Oxford. What this looks at is just a healthy reminder that when you look at your focus on things, there are events that are happening.

One of the things that Andrew Leach and I point out is that we don't use textbooks right now when we're teaching around the gas world. We did five years ago; we don't anymore. The reason is that anything that was written three to five years ago is outdated. It might be helpful, might be interesting, but the world is so rapidly changing around natural gas and the focus on that, and what's happening in that world is that we find it's better not to try and buy a textbook that wastes students' money and is outdated before it gets out in print.

Events are rapidly changing. It impacts trends, patterns. As you are concerned with policy and governance issues, what are the kinds of structures that need to be robust and innovative enough to meet those? Having said that, one of the things that we do when we're doing the scenario works is that we try to identify what the key drivers are that are really impacting and that are also mostly the higher uncertainty issues. As Peter Howard pointed out in a presentation to you on September 10, what we looked at, very similar to this, is that high uncertainty and high impact is where unconventional natural gas is eventually going. You have to understand that this market is changing dramatically.

Building on Bill's presentation, understand that we're moving from a regional market – and regional here is referring to a North American market with natural gas – to a more continental regional market. The gas that is being pipelined from Russia and Gazprom into China and South Korea will dramatically change this and make it much more of a continental perspective. LNG brings it to where we move to more of a global market. The entry costs for that, though, are very, very expensive. Right now Chevron, with the overruns, is well over \$60 billion U.S. for their Australian.

That's going to mean that a lot of natural gas has to be pumped to be able to recover costs for that Chevron project.

What we're looking at and the other evolution with this – and it's a little different from what Bill was talking about – is the evolution of the market itself. We use in North America what is called gas-on-gas pricing. In other words, gas competes with gas for whatever price you're going to pay, so whether through Henry hub or from the hub here in Alberta. These are interdependent on each other. When you go international, the market price that you pay in, for example, Japan or China is based on a gas-to-price ratio. Okay? So whatever the price of oil is, then you take usually a 1 to 6 ratio given the energy value of natural gas, and that's the price that you're going to be paying. It gives you a much higher, inflated price. That market is collapsing. Okay? That is collapsing.

The best example of it, for further reading, is the energy centre at Oxford University. It has gotten into quite a debate back and forth over the last several months with Gazprom, the big national gas company for Russia, over the fact Russia is trying to hold on to their way of pricing. It works to their benefit to have it priced with oil, especially when oil is well over \$100 a barrel. But if you're moving towards gas-on-gas pricing, that's collapsing. For example, this deal I told you about that Goldboro and the company that Alfred Sorensen heads, called Pieridae, have right now with the Germans is basically undermining the pricing system that Gazprom might have. So you're having these global, international types of issues going on just as the market itself and the very way the market structures are being changed.

The implications for Canada, for Alberta are that if we're expecting that we're going to get premium pricing by the time we get to the market in the Pacific Rim, our scenarios challenge that assumption quite strongly. Okay? You're not going to be looking for that. The pricing mechanisms will change dramatically. We can go through a lot of the detail on that, but right now timewise we'll just give you that overview.

5:00

The basic point about scenarios as opposed to forecasting is that scenarios should make you feel very uncomfortable. They should challenge your assumptions and go, "The way you think the world may turn out to be: it's probably not going to happen that way." That's part of what this is, so if I make you feel very uncomfortable when you attend the presentation, then I've done my work here.

The scenarios. As you can see – and I won't go into all the details – what we looked at, the final two key drivers, is how an unconventional natural gas market is going to play out. I've just illustrated that. That's a huge uncertainty, and it will reflect for yourself as policy- and decision-makers that you're going to be needing to look at very robust, very highly innovative types of strategies to meet that kind of world. The other one that this looks at is interprovincial co-operation, and that, again, is a very uncertain world. We look at Gateway. We look at what's happening with the west-east pipeline. I know I've been on the news more than enough about that issue. As we look at that co-operation, what that's going to look like in the future is very, very uncertain. Both of these have high impacts on the decisions that you're going to be making.

What these scenarios do is play out – and this is just a very high level to give a bit of context to it. For example, Island Alberta, in the bottom right, is imagining and looking and developing the forecasting models to say: what is an island? What does it look like? We do have, certainly in the natural gas markets, advantages that will accrue to Alberta because of that, but we don't have the interprovincial co-operation that we're looking for. That's very

low. So what would that look like? Well, you're going to be looking at a world where you want to really be supporting the petrochemical industry here, a world where you're making sure our natural gas supports the oil sands industry. That's how that kind of thing plays out here.

Taking a look at your mandate briefly, what are the kinds of things that we'd recommend from those scenarios that we've worked on? You have a mandate for looking at consumer use of natural gas. We'd strongly recommend that the carbon thinking and metrics are not dominant. We're still Sony's Beta. Nobody else has bought into our carbon way of doing things except seven provinces in China, with which we do not have bilateral agreements. It's interesting that Quebec rolled out their plan in January, and they already have a bilateral agreement with California. So it's like who you're cool with gives you that credibility. Unfortunately, we've chosen to go it alone.

The problem is the metrics around carbon thinking. Ontario made a big mistake, and it's something that our group actually pointed out in papers to them a few years ago. The cost of solar photovoltaic, for them to do it, was actually \$750 a tonne, so it made no economic sense as a carbon reduction program. We need to instill into our population an energy literacy, and natural gas allows us a very easy and a very effective way of getting that kind of carbon thinking.

Heavy-duty transport. I think this agrees with what Peter and Bill have already said. When you look at the economics of this, stand back and let the market innovate, something we strongly recommended to the Alberta Energy Regulator. In fact, Jim Ellis and Gerry Protti have responded in the media and to us as well saying that one of the things that they'll be looking at is moving towards and making sure that regulations will help to innovate, allowing the marketplace to do that innovation. For example, Canadian National Railway is looking at innovating with natural gas use within the engines. They still haven't come up yet with where they're expanding that. They still haven't finished their studies. We were talking to them again this morning. As that comes forward, they'll be looking at ways of how that innovation might be expanded. Given that they spend a billion dollars, actually closer to \$2 billion now, on diesel a year, for them to move into the market is a huge impact. We have the numbers if you're interested in that.

LNG expansion. Be mindful here. Getting to the marketplace first matters. The trouble is that you went from five years with a new type of technology, part of which was developed down in Nisku and combined two old technologies, to give us our natural gas revolution on this continent. So the regulatory systems need to be able to adapt and change quickly to those kinds of things. That's part of what this is about.

I've already talked about market differences.

The last one, really, when I look at your mandate, is energy literacy on natural gas. One of the things I would strongly recommend – and this comes from a presentation I did last week with APEGGA, the engineering association, and others. Right now what we're seeing is still an attitude that technology will win the day and that if we have the best technology and we get there with the technology, that's going to do the day. It's a fallacy, but it's still very much how we are perceived internationally.

Then social licence is more about strategic alignment. So what are the partners that want our natural gas internationally? Heat values, heat content, are going to be a huge consideration if we're going to give a lot of the ethane, propylene, propane not as much, if we're giving heat value and robbing our petrochemical industry. So the systematic approach to these is really, really critical, one of the key lessons I had hoped you'd take away from this.

The science-based metrics will win people to our thinking: that hasn't worked really well for us. We need to rethink our metric systems of how we can win people to thinking of what we're doing.

Finally, the economy will trump environment in public decision-making: that's not proven to be the case.

In all of these, when you're moving forward on energy literacy on natural gas, easier than that of the oil sands, it's important to keep these in mind moving forward.

I'll leave that. I have a lot of slides on, oh, different things that tie into this, but if those are needed, we'll come back to them.

The Chair: Thank you very much, Mr. Dixon. It's a lot to think about.

We'll open up the floor for questions. Please direct them to whichever economist you would like to respond or to both. All right. I'm creating a list here. I'll start with Ms Fenske.

Ms Fenske: Thank you very much. This is to Mr. Gwozd. You mentioned the benefits of the gas royalty in kind. The question I'd have for you is: what are some of the risks that we should be aware of if we try to utilize that model that you identified?

The Chair: Mr. Gwozd?

Ms Fenske: I can hold that question until later, certainly.

Mr. Hileman: Was that question for Bill?

The Chair: Yes.

Mr. Hileman: Okay. I'm sorry. He stepped out of the room.

I'm Mike Hileman. I'm with Solomon Associates, the group that Ziff Energy is now affiliated with. I didn't hear the first part of your question. I know you are asking about some of the pitfalls of something. What was the first part again?

Ms Fenske: He identified a gas royalty in kind structure where the province would not retain the royalty but, rather, would use those dollars to transport the gas overseas. He certainly made it look like a good idea, but what would be the risks that need to be identified in that?

Mr. Hileman: Well, I think the major reason that government entities and other types of groups go for royalty in kind is because they want to participate in the upgrade that's happening beyond the wellhead. One of the dangers is that the world gas price falls, and you would have been better off taking just a flat percentage royalty.

Bill, the question was about some of the pitfalls of going with a royalty in kind sort of scheme.

5:10

Mr. Gwozd: The royalty in kind scheme is really a concept that Minister Hughes developed, in my opinion, on the oil pipeline scheme, where he takes his oil in kind. When I had my meeting with Minister Hughes a month ago, he was quite positive. He believes in his own concept, so we suggested he may want to look at the gas in kind concept in order to get more money for the government. That was the concept.

Mr. Hileman: Just to add, it's not a new concept at all. It's been around for decades. One of the early users of it was the state of Alaska with Alaska north slope crude. In the early years for many years they took their royalty in the form of barrels of crude oil, that they then marketed on their own.

The Chair: Okay. All right. Does that satisfy? Do you want to ask the other economist the same question?

Ms Fenske: Well, I could ask, certainly, if you have an opinion.

Mr. Dixon: Yeah. I mean, I think the problem is that you've got the opportunity cost. Actually, I helped develop the BRIK program. I used to work in the Alberta government. Originally the purpose was envisioned for the upgrader, and that was because of Venezuela if we go back into the history of it. History matters in these things. None of us were competing with the upgrading capacity of the United States, which was originally developed for Venezuela. We needed to find a way to drive the market to create and allow an opportunity for jobs. Now, from an opportunity cost point of view, when Suncor shut Voyageur down and took some time to do that, it was because of the opportunity cost. It's far more money that you're going to make putting money into a SAGD plant than you are into an upgrader.

I think I was the voice on CBC when Redwater was going on, basically saying: "Look, it's a nice political idea, but from an economic point of view, sorry; it doesn't really cut it." It may not make me really popular with some people in government, but there it is. The truth to power.

It's the same thing with the opportunity costs here. I'll be interested to crunch numbers, but my gut reaction says, taking a look at it, that the opportunity costs – and, as I said earlier, you're basing this on the assumption that you're going to get the market price that's out there right now, \$12 to \$16 in China and Japan. They want rich gas, rich gas meaning that you've got all the liquids in there. If you give rich gas to them, then are you mindful of what that will do to the petrochemical industry here over the next 20 years? That's a huge concern with opportunity costs. It gets complex and interrelated that way.

Given that that pricing market is probably going to collapse – I can't go into too many details; I know they're confidential. With the Pieridae deal with E.ON in Germany, they're looking at some very innovative pricing mechanisms to account for how you deal with that. Okay?

Ms Fenske: Have you done a look-see at, just as you said, whether we should retain some of the components of the gas here versus shipping them off?

Mr. Dixon: Yeah. I mean, right now you've got 11 major facilities being built in the petrochemical industry on this continent. Ten are down in the United States; one is in Quebec. None are here. You know, we are not mindful of what we've done to that industry and the value that we have in it. We need to rethink that. It's coming down to what is going to come out of this.

Ms Fenske: Thank you.

The Chair: Okay. Ms Calahasen has a question. If anybody else has one, just put your arm up. Also, a reminder to Messrs. Bikman, Cao, Stier, Barnes, Hale, and Lemke: we know you're there, and if you've got questions, I'll be calling on you as soon as Ms Calahasen asks her question.

Ms Calahasen: Thank you very much to both presenters for the information that you have provided to us. There's a lot to think about. I think that the big picture has to be looked at at all times. I realize that. However, is there much benefit for one LNG project over another, or does the majority of the benefit accrue from the increased export of gas from the North American market, no matter where it happens?

Mr. Dixon: Is there one benefit? Of the 20-some that are on the table right now, it's a question of who gets to the market first.

Ms Calahasen: As you indicated earlier, yeah.

Mr. Dixon: Right. You've got a different market play going on in the Pacific Rim than what you do in the European market, but as we move to that globalization that we're talking about, will it matter one over the other? Not particularly. I mean, if the Americans get there first, we're shut out. If we can get there first, we'll try and shut out the Americans. The economic rent that's going to be there, I believe, is not going to be as much as everyone is thinking it will be, and these scenarios caution us to think about that.

Ms Calahasen: That's a very interesting thing to think about. Then what does that mean in terms of how we prepare ourselves to ensure that we can be first on the market?

Mr. Dixon: Well, if we look at the history of it, what we're in now is a new world where energy is a technology game. Having said that, the technology is so rapidly changing. Can the regulations be robust enough to account for that and deal with that? The issues that we see, the fiasco, from an international perspective, around directive 074 – you know, they were trying to drive that technology. Was that maybe the best directive in which to do that? That's the type of thinking that needs to go forward – and this stuff will be shared with the Alberta Energy Regulator, the research that we had done last year with them – realizing that this is really a key to that.

Another key is of course dealing with the environmental organizations on how this is playing out. They very much, you know, are part of that scene.

Ms Calahasen: Is the whole notion – sorry, Madam Chair. May I continue?

The Chair: Yes. I would encourage you also – if Mr. Gwozd can pipe in on these, maybe we'll let him.

Ms Calahasen: Oh, yeah. That would be excellent.

The Chair: But go with your question.

Ms Calahasen: Okay. When I look at your information, learning with the future, the strategic options you have in there, you talk about some of the things that could create some real possibility of being able to move into the 2035 year. If that's to shape the energy potential within Canada and knowing that there's no difference in terms of whether or not one project or not does it, how, then, do we make sure that we continue to move in the direction that we have to go in order for us to be able to, I guess, be in the share? I look at this, and I really begin to see all sorts of circles, right? Those circles now have a play in what's going on. How do we make sure that those circles come together so that we can be on top of what's going to happen?

The Chair: I think we're talking about competitiveness.

Mr. Dixon: Yeah. Competitive advantages.

Ms Calahasen: It's a question that both can answer, certainly.

Mr. Dixon: I can start with a quick answer, but, Bill, if you want to go first.

Mr. Gwozd: First of all, the speaker who shared the question wasn't quite at the microphone, so it's difficult to hear the actual words that are being spoken, and same for the other speaker. I couldn't quite hear the question, but I do recall an earlier question about the advantages of some projects versus advantages of other projects. If you want, I can share a few comments on that question right now and then address the second question just shared.

Ms Calahasen: That'll help. Sure.

The Chair: That sounds good. The second question relates to competitiveness. Why don't you start with the first question, go to the second one, and then we'll come back to you, Mr. Dixon.

Mr. Gwozd: Okay. My comment on the competitiveness. Can you see a chart entitled U.S. versus Canada LNG?

Ms Calahasen: No.

5:20

Mr. Gwozd: On the competitiveness of projects, there's a lot of what we call intrinsic advantages for Canada. For example, the gas price in Canada is lower than in the U.S., which means the feedstock price for Canadian energy projects carries a big advantage over U.S.-based projects.

Second, even though this year didn't have any major hurricanes that caused the water to shake and bake in the Gulf of Mexico – if that trend continues for the next 35 years, then the advantage of no hurricanes doesn't materialize. But I think we will have hurricanes, and it will cause the water to shake and bake, and as a result the reliability of supply to the U.S. is weakened.

Third, the Panama Canal, while it's a nice place to take a cruise boat, is a monopoly on ships traversing through it. So as a consequence, boats going through will pay some toll in the future, unknown. Of course, the toll may rise because it's a monopoly.

Fourth, the distance to Asia from the U.S. Gulf project is longer; therefore, the toll is higher.

Fifth, the U.S. has what we call a free trade system. They only allow square dancing with countries that have signed free trade agreements.

Sixth, Canada allows export licences longer than 20 years.

Seventh, there's also the risk in the U.S. that if there's an interruption on supplies, they can interrupt the LNG supply.

When we count, we see a lot of natural advantages for Canada. Some folks think that with brownfield in the U.S., if you have a regasifier, a microwave oven, and they want to convert it to a refrigerator, it's an advantage. It may be; it may not be.

So on the first question, I think Canada has a huge competitive advantage over the U.S. projects. That was the first.

The second question you had raised related to LNG projects, and I couldn't quite make out all of the words of the question. I wanted to use this chart to address them. Could you just summarize the second question again, please?

Ms Calahasen: Well, my first question had to do with: is there any benefit for one LNG project over another?

Mr. Gwozd: Okay. All of the projects that we have up there all have good, strong advantages, so there's no real one. In green here – the KM project versus Douglas versus LNG Canada – they're all positive. They could all proceed on the same basis. They're going to make a lot of money on these projects. The ones in yellow have filed with the National Energy Board. Of course, Ziff Energy underpinned the application with our own independent studies. All LNG projects go through Ziff Energy/Solomon process here. The

ones in pink are ones that are being proposed for the future. They may come to fruition. We're not sure yet. So all of these projects have value-adds.

Go ahead, Mike.

Mr. Hileman: There are some differences in the LNG technologies. You see some, at least one, the pink one at the top left, talking about floating LNG, so whether you choose one technology or another is very specific to the site that you're looking at, you know, locating the LNG gas facility.

There are different technologies that could give one site versus another a little bit of an advantage. I didn't want to gloss over that every LNG plant is the same or looks the same. There are some critical choices you have to make.

Mr. Gwozd: Was there another question?

The Chair: Not now. I think we're going to move to Mr. Dixon's response to this question about competitiveness.

Mr. Dixon: Just on the LNG. Bill, great job on that. There's one thing to add in, though, and this might be helpful. The complexity is also that we are in what we call a regional gas market, which means international for Canada and the United States. As an example, the Pieridae project actually in Nova Scotia will be bringing gas up from the United States for the second train when it's developed. So this thing gets a little bit more complex that way. Whose gas where, and whose LNG, right?

And you're right. There are some differences in the technologies, but at the end of the day it's who signed the contract. It really comes down to that.

Now, the competitive advantage, going back to those four. That's actually the four in the graph that you referred to, and I'll just jump back to that. What was interesting when we did the scenarios is that these strategic thrusts were not what we intended. They came out of the research and were a bit of an amazement to us, saying that these are the ones that we have to look at, that are going to help us to be competitive into the future. These are really the critical ones that we saw that needed to be brought forward. So to answer your question about competitive advantage, it is these four that we said are really critical and should help to inform the Canada energy strategy, really what we are pushing for.

Now, to give you a quick take on it. The reason I talked about the engineers: that's a key component. For example, when the government announced the pipeline technology centre here in August, we phoned up people in the NRDC. We phoned up NGOs – you know, part of the 43 NGOs that have red targets on us with the oil sands – and we said: so what was the message you were hearing? Well, the message was not what we intended or what the government intended or the industry intended. It was that, well, our technologies are wanting on pipelines. So we've got to really work to improve it. That wasn't the intended message.

The reason that we've been saying – and this comes out of this whole understanding of literacy and the self-image – is that we've gotten where we are because we have very entrepreneurial engineers, and they've done extremely well for this province over the last 40, 50 years. However, the name of the game is changing, which includes that social licence. Natural sciences and social sciences need to now be involved together to maintain our competitive advantage. That's one example. Our dean has talked about this quite eloquently and Andrew Leach and other researchers that we have.

If that answers that question.

Ms Calahasen: Thank you very much.

The Chair: All right. I promised the folks on the phone I would call on them, so I will do that. Any questions from the phone-in folks?

Okay. Mr. Anglin has a question.

Mr. Anglin: Now, I'll just direct my question to all of the presenters, and if it's off topic, just say so, and we can address it another time.

The Chair: I will say so.

Mr. Anglin: Okay. No one mentioned anything about gas to methanol, methanol to gasoline. I know there's a plant down in Medicine Hat, and I just talked to a company down in Louisiana because we were dealing with this subject. My question is this. Is this a viable technology? If it is viable – I've heard about it in the past, but I've never known a whole lot about it – the second thing is: what would be the economics of it? What would be the ratio of gas prices to oil prices to make this an economical project if that's possible?

Mr. Gwozd: Do you want me to start first?

Mr. Dixon: It doesn't matter.

The Chair: Go ahead. Thank you.

Mr. Gwozd: Okay. I'll start first. Actually, we did talk about it in the presentations. When we use the word "gasoline," the proper word is "diesel."

Mr. Anglin: Okay.

Mr. Gwozd: They actually make diesel from the natural gas, which is a type of gasoline. What you're referring to is a handful of plants around the world. We call them natural gas to liquid projects, and methanol is one of the products. So there's a handful of these projects.

On an economic basis, which you asked about as well, I presented a similar chart here with a bit more detail. Here we're looking at a natural gas input price of around \$4 – we use a Henry hub price; in Alberta maybe it's \$3.50 – and we're using about a hundred dollars, where we have our capital costs at about \$115,000 per barrel per day for these facilities. So we think the economics of converting to diesel would work, and therefore it would be economic.

Your second question relates to what we call methanol. We looked at methanol in terms of that product as well. Methanol and urea and ammonia are what we call fertilizer builders, methanol for Methanex. We could make some natural gas and convert it into methanol. We had five or six world-scale plants in British Columbia, and we shut them down maybe 10 years ago or so. The problem is that when we make methanol or urea or ammonia – look at the scale on the far right-hand side in green. We're talking ammonia: very small quantities of natural gas. We don't make a lot of natural gas. If I go to a different chart, again, look at the far scale of natural gas. Just on the one sector of ammonia we're talking maybe 1 billion cubic feet of gas being used to make ammonia. We're looking for production volumes of 15 billion cubic feet. So going into liquids such as ammonia, methanol, or urea are not huge demand sinks that LNG carries. LNG carries a much, much larger volume of gas that can cover it.

I hope that addresses my comments.

5:30

Mr. Dixon: Yeah. I just actually did some work with my grad student on this the other day, so I'm sitting here trying to recall the

numbers off the top of my head. I think Bill is pretty much – the thing, though, that’s important to realize on the downside is the marketplace for this. Alberta suffers from having too small a market for these things. Part of the reason that you saw the shutdowns 10 years ago is: how do we cover the transportation costs to get to a larger marketplace? That needs to factor into these things as well.

The issue, though, you’ve asked is a much larger and more important one. How do we innovate and develop innovations for this? That not only includes, for example, chemical use from the oil sands, using that in a different way, but: how do we do that with natural gas? How do we provide for that? That’s a much larger question that you’ve asked in addition to the economics, of course.

Mr. Anglin: Thank you.

Mr. Dixon: You bet.

The Chair: Mr. Bilous, you had a question?

Mr. Bilous: I do. Thank you, Madam Chair. Mr. Dixon, earlier you referred to regulations that are restricting I don’t want to say innovative technologies but industry’s ability to innovate and to how regulations need to keep up with how quickly the reality of the development of, let’s say, natural gas is changing. I’m wondering if both of our presenters can comment a little more specifically on how regulations are restricting industry’s ability to innovate. What regulations are acting as speed bumps or road-blocks?

Mr. Dixon: Bill, do you want to speak next, or do you want me to?

Mr. Gwozd: Just to understand, I want to rephrase the question to make sure I’ve paraphrased the question right. Is the question mostly with regard to regulations on fracking? Is that really where the focus is, or is it regulations as a generic, much broader question?

Mr. Bilous: I mean, that’s, I guess, part of my question. You gentlemen would know better than I. Is it regulations more to do with fracking, or is that one half of the puzzle, and the other piece is just regulations in general? I mean, if you can speak to both of those briefly, that would be greatly appreciated.

Mr. Gwozd: My comments are very simple. Regulations overall are not an impact on the development of LNG export projects or on the development of gas processing or pipeline facilities, so we really don’t have any specific issues at a macro level. You could nitpick a few places on that, but at the end of the day it’s not going to be a significant factor.

The one that’s making the press is really an educational matter on fracking. Fracking has been under way for a long, long period of time, and you’re talking about different zones. You’re talking about, you know, the height of the Calgary Tower in terms of fractures. Surface water is in the surface, and fractures are way deep below the ground, below, you know, half a mile of concrete. The stone is like concrete.

This fracking issue is really an educational factor. We need to get out and prepare more education for the average person on the street, to educate them and explain to them that the fracture does not impact drinking water. They’re totally mutually exclusive. One is on the ground, and one is much, much deeper in the formation. The fracture doesn’t impact drinking water. They’re

just totally different topics. But the press and some folks make a big issue out of that. They’re not linked together. Those are my brief comments.

Mr. Dixon: The interesting issue around energy literacy is that the assumption is that if we educate people, they’ll come to agree with us. That’s basically been the approach with the oil sands. How has that battle been working?

Ms Fenske: Not well.

Mr. Dixon: Not well. So that needs to maybe be rethought. That’s one issue.

To answer it generally and then come down to gas, our regulatory system in many ways is one of the best in the world. For example, our flaring regulatory requirements under directive 050, et cetera, are adopted by the World Bank, the IMF, and other groups. They’re very, very effective regulations that we’ve had.

Having said that, not all are that way; for example, the regulatory environment we have around pipelines. What I taught in pipelines three years ago in regulations and what I would do today are quite different. For example, if you ask Enbridge and TransCanada what’s coming up in the pipeline world from a technology point of view that’s scaring them, they’ll talk about farmers, and they’ll talk about farmers that now have GPS on their combines, and they’ll talk about how they also have grain counters and digital grain counting, so they will know exactly how much damage is being caused by the laying of pipelines, whether for natural gas or for oil. It’s a whole new world for them in pipelines. I mean, right now to remediate a pipeline, if you’ve got a lot of rain or it gets really dry and you have damage, especially in the agricultural zone of this province or other areas, you’re looking at a minimum of \$250 a metre. It’s got pipeline companies concerned about how you do that.

Have the regulations promoted dealing with that? Not really. So there are these gaps, as an example. A lot of times it has to do with command and control versus outcome. If you’re moving towards an outcome and a market-based instrument for your regulatory control, in most cases that would be probably more beneficial, driving industry to get to an outcome that you so achieve as opposed to prescribing a type of technology, as an example. You know, that’s simplified, but it gives an overview.

I mention this specifically, how you want to be able to take a look at these, but that way of thinking, just coming back on track, with liquefied natural gas and for the gas markets – okay? – is that again you’re seeing that the Alberta Energy Regulator is reviewing, looking for those ways of trying to develop innovation. I know they’re working on that. Gerry Protti, Jim Ellis, and their group are working on that now, as we speak. Not to steal their thunder as they get more prepared to be able to answer those, but certainly I think the thinking is going in the right direction.

Mr. Bilous: Okay. I mean, part of where this came from and why I was asking it is that it almost sounded like the current regulations that are in place are hampering industry from moving forward, but now with your further explanation it sounds like they’re working, to an extent, in tandem.

Mr. Dixon: Hopefully, yeah. A lot of it surrounds the social issues, the social licence issue that we need to deal with to get access to markets. The economic access to markets: well, what’s the main metric for pipelines today? It’s how many spills per thousand kilometres. I think most of us Albertans felt embarrassed for the Premier down in Red Deer when she had to speak and was using that metric and it really didn’t mean anything. The whole set

of metrics for how we think about this industry needs to be revisited. That's part of what that's about. That would then come into how the regulatory regime is established for that purpose.

5:40

I'll give you an example on an industry side. The main driver for the Canadian National Railway when it comes to a train derailment, the metric, is how fast you can get the main line open, because economically that's viable. The train derailment is in the past. Okay. We've got to clean it up. They have pre-laid track that they can bring in, as they did in Wabamun, and lay that track. However, the metric that challenged how our regulatory system here was is that metric used by the railway. Well, now you've got a spill of liquids into Wabamun Lake. Now what's going to happen? You've now got this whole social licence issue. Now the railway has to develop a different type of metric to account for that as well, and industry is still working on those things and how they work. Now, how does the regulator work with them to achieve that kind of a metric, where you're working not only to get the main line open, economically viable, but also to achieve a social licence in the event of a spill? It needs to become much more complex that way, if that explains it as an example.

Mr. Bilous: Thank you.

Mr. Dixon: You're welcome.

The Chair: Thank you.

I've got a couple of questions myself, and then I'm just going to remind folks on the phone and people in the room that if you've got a question, just put your hand up, okay? I've got a question for each of the speakers, different questions.

Bill, I know you've done a lot of work on facility rationalization possibilities in Alberta, and natural gas was the backbone of our energy economy. Can you speak to what could be done in Alberta to more efficiently produce the natural gas that we are producing and that we could potentially produce?

Mr. Gwozd: Certainly. Very briefly, we've completed, as mentioned, four key facility infrastructure studies in Alberta. One of the key things we found in Alberta is that the producers in a way have a nice thing going with the Alberta government insofar as low-utilization processing plants get to capture a gas cost allowance for the facility that the Alberta government pays them. If they were to rationalize their gas plants – in other words, take two underutilized facilities and move the gaps together – the Alberta government would pay less in gas cost allowances. Our studies are showing that we're in the hundreds of millions of dollars that the Alberta government is paying for underutilized facilities. That's been under way for a long time.

We've specifically highlighted those conclusions in all four studies, and we're still surprised to this day that the Alberta government is not one of the 46 participants in the studies. The reason for that is that there hasn't been any real strategic review from the Alberta government to rationalize and save the extra money that they've been paying for a number of years because it's been going on for a long period of time.

We were the first ones to bring it to their attention. Minister Hughes got it right away. As soon as we showed it to him, four or five weeks ago, he was astonished and thought: yeah, this could be a big area of savings of money for the Alberta government. It goes up well beyond the hundreds of millions, up into the billions of dollars, so it's definitely an area for plant rationalization that would really cut costs for really no extra work by the Alberta government. That's our key conclusion for the Alberta govern-

ment. That's in writing and issued to all 46 subscribers, and the Alberta government is not one of the subscribers yet.

The Chair: All right. I guess you've got to be careful what you ask for.

The second question here is to Mr. Dixon. You talked about the potential tension between gas, and what we're trying to do with gas in Alberta, and the chemical marketplace. We've certainly seen in the United States companies like Dow saying: put a hold on export licences and permits for LNG facilities because we need the gas for the chemical industry.

Here we seem to have a much better relationship. Our committee is going to actually go out and tour the Williams site. That kind of upgrading in the province seems to make a lot of sense. Can you move that discussion a little deeper? I think we need to understand that better.

Mr. Dixon: Well, the first thing is that we have a transportation issue for our petrochemical. We're not close to our main markets. If we look at it historically, given that when we had stranded assets, our natural gas before Alliance pipeline was built, as an example, we were on a quota system for our natural gas, it allowed the liquids then to be developed inexpensively. We had that cheap feedstock, and the result was that it would cover off the transportation costs that we had to get to the eastern and southern markets. By taking that away, now we're reduced to a much smaller market. The question is: how do we bring that market down?

Two ways to look at this. How do we expand the market within here for our own products, and what kind of agreements can be put in place to expand our own markets? The second, quite importantly, is: how do we work with industry to cover off that transportation price differential? That's another issue. I mean, there are several ways that can be done, oftentimes with a royalty structure, where you want to do not so much the gas royalty in kind. Then how can you play with that to get more of that economic rent? So you change the structure of the royalty a bit, always a tricky thing to do.

The Chair: We've learned that. That's a very scary thing to propose to this committee.

I thought from your comments earlier that you were kind of going in a different direction in your comments about that. I view the two marketplaces as being synergistic, and you're setting it up as a competitive model. When we've got this much gas in this province, I still see that as quite synergistic.

Mr. Dixon: Yeah. I'm just reviewing what I said. I do see them as very much synergistic that way. They're part of a whole system, so if you're tweaking this side, this is going to go. It's like, for example, with the value of the petrochemical, and what we get from that is – and I don't have the numbers with me right now – definitely a multiple of natural gas. Do we want that natural gas going into the petrochemical or into those parts of it? Absolutely. You know, it's the same thinking that we have with oil sands; I mean, push our natural gas into hydrogen for use in the oil sands. The value there is just hugely important. Bill's slides indicate, you know, some of the numbers on that. Again, the same kind of thinking for the petrochemical industry, yes.

The Chair: Thank you.

We're at about 12 minutes to 6, and I think that because we've got other items on this agenda, we'll try to do a cut-off here at 6 for questions.

Folks on the phone, we haven't heard from you. Any questions? All right.

Ms Calahasen has a question, and if anybody else does, just let me know, okay?

Ms Calahasen: Thank you very much.

Mr. Hale: It's Jason here on the phone. I do have a question.

The Chair: Okay. Well, let Ms Calahasen go, and then you're next, Mr. Hale.

Ms Calahasen: Well, at our last meeting we heard of the great difference between the number and the sophistication of Alberta's gas plants versus British Columbia's. I know that Ziff Energy has been engaged in models of consolidating natural gas processing plants in Alberta. I'm just wondering: what recommendations did that report from Ziff Energy recommend?

Mr. Gwozd: Each report has eight chapters. Chapter 2 represents the summary of the report. There are no specific recommendations that are a single, boiled-down recommendation. We go through subrecommendations by individual plants and regions. For example, in the Montney area we had 24 specific recommendations for the facilities: how they are either rationalized or, where new facilities are required, how big, what year, and what type. For example, is it a sour plant? Is it a sweet plant? Is it required in 2018? Is it \$300 million or \$500 million? So we've sized and depicted those.

Many of the facilities show where there are existing pipes that are underutilized, where we can transport gas from plant A to plant B. In doing all of these strategies, we calculate the benefit of doing them and tabulate both the capital summary and then the operating cost summary year by year.

5:50

Those are the types of recommendations that we have in the studies. One recommendation is on gas cost allowance. We've encouraged both the British Columbia government and the Alberta government to read about our gas cost allowance savings that they're going to make. When you get into the hundreds of millions and beyond, it's just a matter of having one government person read through it and say, "Yeah, I understand exactly what they mean," devise the appropriate policy, implement it, and then not pay the money. I'm still surprised to this day as an Albertan that we are still overpaying gas cost allowances. I'm quite sure Minister Hughes understands that.

Ms Calahasen: So you've identified some issues. You've identified some things. What are the barriers that are preventing this from happening, in your view?

Mr. Gwozd: I didn't quite hear the question.

Ms Calahasen: What are the barriers that are preventing the consolidation from occurring?

Mr. Gwozd: Oh, several. The producers themselves have a financial opportunity to consolidate. However, as the LNG facilities unfold, some of the facilities may be utilized in the future, and some will not. But at times there's no policy to drive them to consolidation.

Going back in time, you may be aware that the government policies allowed plants to proliferate. Anybody that wanted a plant could build it, own it, and operate it even if the utilization was fairly low. Now we've come to a time when many plants' utilization is

falling below almost the minimum turndown rate, and producers are finding nifty ways to keep them operating. Yet the best options are when you look at the whole strategy, all the plants combined, and find out what's best overall for the Alberta government.

There's no one company, apart from ourselves, that's done exactly that. What's best for the Alberta government overall as the resource owner? That's one of the key study focuses: if we owned everything, how would we own it, operate it, and run it? By finding billions of dollars in capital costs and then millions of operating cost dollars per year that could be saved, the subscribers are finding the huge value of the studies. They are implementing some of the recommendations where they save money, but why would they come and talk to you about cutting off your funding?

Ms Calahasen: Okay. Thanks. I had another question, but that's good. Thank you.

The Chair: Okay. Mr. Hale.

Mr. Hale: Yes. Thank you. I just have a quick question for both presenters. You mentioned that we're, I guess, in a race to provide LNG to these external markets. Where do you think we are at in that race compared to other countries and also compared to B.C.? We heard the presenter at the last meeting on how, you know, when these LNG lines are built to the west coast, they will be filled mostly with B.C.'s gas, not Alberta's. I'd just like your comments on that.

Mr. Gwozd: I'll share a few comments on that. The presenter that you had last time, from CERI, is a different type of company. Of course, they're funded by the Alberta government. Ziff Energy, of course, is funded by industry, so we have a different perspective.

We actually believe that gas from the Duvernay – the north Duvernay and the south Duvernay, which are both 100 per cent located in Alberta, actually have potential to move gas out to the west coast, recognizing that we're talking in the order of 15 billion cubic feet of gas. So the Dows of the world have to rest assured that we're looking at new drilling, new activity to generate 15 billion cubic feet of gas. The Montney, which is part in Alberta, part in B.C., will be harvested. The Horn River, which is dry gas, will also be harvested. The Duvernay, the south and north parts of the Duvernay in Alberta, will also be harvested, and that gas will move over. The studies are coming out in April of next year which will help validate that.

So there's not a race between countries. There's a lot of propaganda out there that is not correct, factually not correct. These LNG projects are going to go on for 35 years just being built in Alberta. LNG in 2021 will still happen. We'll still need LNG for your great-great-grandchildren and other countries. Whether we as Canadians get our LNG to the market in 2020 or 2025 or 2030, the LNG market is growing for a number of reasons, and many of the suppliers of LNG are falling. Their supply won't be available. So that market is not a race. I don't agree with the views of others that would say so.

Mr. Dixon: This is why Diefenbaker did not like economists: on one hand, on the other hand. Okay. I would be on the other hand in that from a market perspective, who's got the contracts for this? I mean, the IEA has pointed out that we're now in the golden age of gas and that gas is replacing a lot of other types of energy forms, nuclear being one of them, and Japan is moving in that direction strongly.

When we look at the future demands and the future supplies, well, one of the graphs we have – and I'll just jump to it here if you don't mind – takes a look at the unconventional gas plays in

China and what kind of a threat that would be for us. Basically, the message is that with gas plays and any type of reservoir plays the technology is different for each one. One of the things that's amazed us, for example, is when you take the Bakken play out of North Dakota. When that play gets north into Saskatchewan, you're not seeing the same kind of expansion. Part of it is that the geology changes, so part of the structure of how that plays out is as industry then develops the type of sand, the type of fracking technology that's needed.

We're seeing the same thing with China. How much of that natural gas will actually be produced? Right now that's lowballing it. To answer your question – are we going to be moving to more and more natural gas? – yes. Does it matter getting to the market first on these things? In our opinion, it does, because of who signed the contract. For example, with Goldboro, they've got the billion-dollar contract with Germany, and that matters to leverage these things.

The Chair: All right. Does that answer your question, Mr. Hale?

Mr. Hale: Yes, it does. Thank you.

The Chair: All right. Any other questions from the phones? Any other questions from the people in the room here? All right.

Well, gentlemen, I thank you. That's a lot of information to communicate. Your slide deck, Mr. Dixon, will be, I'm sure, reviewed a few times. Thank you very much, Bill, from Calgary. You did a good job of plugging in and communicating clearly from afar. Very helpful. Thank you.

Mr. Gwozd: Very good. I'm heading to Korea tomorrow, so it was a great time to catch up with you before I fly out.

The Chair: Good luck. I hope you're selling Alberta gas there.

Mr. Gwozd: Yeah. I'm going to China thereafter.

Mr. Dixon: I'm just going to Saskatchewan.

The Chair: All right. Thanks to you both.

To everyone else, to our phone-in folks: we have some decisions, too, on the scheduling of the next presenters and the stakeholder list.

I want to first mention that my constituency office was contacted by the Chemical Industry Association of Canada a few weeks ago. As I mentioned at the beginning of this meeting, there are a lot more eyes on what we're talking about here than what we've seen in the past, so I think that's quite positive. I'd like to suggest that we add the Chemical Industry Association of Canada to our draft stakeholder list. If there are no objections, I'd like to let them know that they're welcome to make a written submission to our committee. There is no way that we will be able to hear directly from all of the people who want to present or that we want to hear from, so unless there are objections, what I'll be doing is just suggesting they make a written submission.

6:00

The draft schedule of the presenters up to early December was posted on the website last Friday. I presented this through our clerk to the working group and had no objections, so I want to bring it up today. There are a few names on that list that aren't on the draft stakeholder list, so I'd like to have these names added.

I just want to tag Jim Gray. I think his name was on the earlier draft, but just to tag that the reason we want to hear from Mr. Gray is that he is on the board of CN Rail, the group that Mr. Dixon mentioned was advocating for the use of LNG in rail cars, and

he's also on the board of Cequence, which is an Alberta- and B.C.-based gas producer. That's why we suggested that.

Idemitsu has entered into an LNG agreement with AltaGas. It's a Japanese refiner. So it gives us an angle at looking at the buyer perspective and somebody who is active in the marketplace here in western Canada.

Ferus is very involved with EnCana in LNG, CNG fuelling stations.

Alberta's Industrial Heartland Association was brought to us by one of our committee members, Ms Fenske. It's the place where Sasol would invest. It's the place where Williams Energy is investing. So from a different perspective, a community and industry association perspective, what's the attraction of value-adding? We had some reference to economics here today.

Chevron, as mentioned, has an approved LNG export permit for Kitimat, so a player in the LNG game, an American company, too, which is another perspective.

MEG Energy is a leader using natural gas in their cogen for oil sands facilities and operations.

If anybody has got any questions or comments about those individual companies or the proposed schedule that's in front of you, I open the floor now for those comments.

Okay. If anybody would like to move that

the Standing Committee on Resource Stewardship approve the draft fall schedule of presenters as circulated and authorize the committee clerk to organize those meetings and, should there be need to reschedule, that the committee clerk work with the chair in consultation with the working group to find new dates and times more suitable to the presenters and the committee.

Would anybody like to make that motion?

Mr. Sandhu: I so move.

The Chair: Perfect. Thank you, Mr. Sandhu. All in favour of that motion? Any objections? The motion is carried.

Good work, to our clerk, for getting us organized. That's very, very helpful.

I'd also like to point out that there was a research request made by Mr. Casey last meeting. Maybe we can just have a quick update on that from our chief researcher here.

Dr. Massolin: Thank you, Madam Chair. I will defer to Ms Zhang for that.

Ms Zhang: There was a research request regarding the amount of microgeneration in Alberta. We contacted the Alberta Utilities Commission, and they sent us a document, which we summarized in this table in the document that was posted on the internal website. The chart just breaks down, basically, the types of microgeneration by type. We have natural gas cogeneration, pumpjack, photovoltaic, wind, waste, heat recovery, and then the sum of the capacity of microgeneration. That information is available for you. Are there any questions?

Ms Calahasen: Is that the only information that you can get, just from that specific source, or are there other sources where you can get other information so that we can get a more comprehensive view as to what's going on?

Ms Zhang: We can look into that. This is the information that came from the Alberta Utilities Commission. It came from the Alberta Electric System Operator, from their documents. We can certainly look into other sources for that as well.

The Chair: Mr. Anglin has a question, and I think Mr. Casey has a comment as well.

Mr. Anglin: There would also be a number of these off the grid, which would not be registered with the AESO and not registered with the AUC. I might suggest that if you contact some of the industry members who supply the microgenerators, they might give you some additional figures. I'll give you an example of the microgenerators: the small operations on farms, the small operations for smaller businesses that have not connected to the grid. I don't have a clue how many would be out there, but the industry itself might be able to help you with those numbers.

Mr. Casey: Well, I guess I was somewhat surprised by the small number. I don't know what I expected, but I expected a larger number here for the actual total production and also the number of units. Do we know how this compares to B.C. and, say, Ontario, by any chance? Are there any kinds of comparison that we can make between B.C. and Ontario or any other provinces on any of this?

Ms Zhang: I don't have that information right now, but I can certainly look into that.

Mr. Casey: I would say B.C. and Ontario and maybe Quebec but likely Ontario given their history. I'd just like to know where we stand. If this is normal, this is normal, but the numbers seemed extremely low.

An Hon. Member: Yeah. They're very low.

Mr. Casey: That's what I thought, too. You know, I'd just like to know. If the other provinces are looking that way, so be it. If not, well, maybe this is an area that – you know, with only four utilizing natural gas, that to me is an incredibly low number given the price of natural gas today.

The Chair: Thank you.

Okay. We'll look forward to your getting back to us on that request.

Any other research requests out there? [A cellphone rang] Somebody is phoning in with a question?

All right. Last but not least, the bus tour to the Williams Energy facility near Redwater. We'd originally scheduled it for the 11th, but they had a plant operation that they needed to be working on, and we would have had to stay on the bus, which wouldn't have been much fun. I know our clerk has been working with everybody on possible dates, and the two dates that have come up are equally split: November 29, when 10 people can attend, and December 6, 11 people. So the winner is December 6, road trip to Redwater. So everybody put that in their calendar, and let's try to make it work. It'll be a Christmas party, too. Come on.

All right. The date of our next meeting is October 16 from 9:30 to 2:30. It's quite a big date. We've got a panel digging deep into issues, so it should be quite interesting. I look forward to seeing everybody.

If somebody would like to move a motion to adjourn, I'd be happy to accept that.

Ms Calahasen: I will. I'm the excited one today. I move that we adjourn.

The Chair: All right. All in favour? Any objections? Okay. The motion is carried.

Thank you very much.

[The committee adjourned at 6:09 p.m.]

