



COMMISSION OF INQUIRY  
RESPECTING THE MUSKRAT FALLS PROJECT

---

Transcript | Phase 1

Volume 3

*Commissioner: Honourable Justice Richard LeBlanc*

Wednesday

19 September 2018

**CLERK (Mulrooney):** This Commission of Inquiry is now open.

The Honourable Justice Richard LeBlanc presiding as Commissioner.

Please be seated.

**THE COMMISSIONER:** All right. Good morning, everyone.

My apologies for starting a bit late this morning. My understanding is that additional exhibits had to be added for the purposes of display for the hearings and, hopefully, we'll make sure that we can get started on time from here on out.

Mr. Learmonth, do you want to call our next witness?

**MR. LEARMONTH:** (Inaudible) the first witness today is Dr. Jason Churchill

**THE COMMISSIONER:** Dr. Jason Churchill. Come right up here, Sir, please, if you would. And if you could remain standing at this time.

Sir, you can either provide your evidence to this Inquiry under oath or alternatively by affirming. Either one is equally acceptable. Which would you prefer to do?

**DR. CHURCHILL:** Under oath is fine.

**THE COMMISSIONER:** Under oath.

**CLERK:** Could you take the *Bible* in your right hand, please.

Do you swear that the evidence you shall give to this Inquiry shall be the truth, the whole truth and nothing but the truth, so help you God?

**DR. CHURCHILL:** I do.

**CLERK:** State your full name for the record, please.

**DR. CHURCHILL:** Jason Lemone Churchill.

**MR. LEARMONTH:** Okay.

**THE COMMISSIONER:** You can be seated there, Sir.

**MR. LEARMONTH:** Commissioner, I'm going to be seeking to have Dr. Churchill qualified as an expert in the following area of expertise: historian and researcher with particular expertise in energy politics, especially pertaining to negotiations to develop the hydroelectric resources of the Churchill River in Labrador. That's the area of expertise.

And I'm going to now refer to exhibit P-00007, which I would ask Madam Clerk to put on the screen, which is the curriculum vitae of Dr. Churchill.

Where do you live, Dr. Churchill?

**DR. CHURCHILL:** I live in North Gower, which is just South of Ottawa, currently.

**MR. LEARMONTH:** Yeah. And how long have you lived there?

**DR. CHURCHILL:** I've lived there since 2005.

**MR. LEARMONTH:** And what is your present occupation?

**DR. CHURCHILL:** I currently work as a senior regulatory framework officer in the Canadian Nuclear Safety Commission.

**MR. LEARMONTH:** Yeah. And in addition –

**THE COMMISSIONER:** Sorry, I didn't hear what you just said.

**DR. CHURCHILL:** I work at the Canadian Nuclear Safety Commission, senior framework officer. But this is completely separate.

**THE COMMISSIONER:** Yeah.

**MR. LEARMONTH:** And in addition to your day job, we'll call it, you also engage in research on various historical topics. Is that correct?

**DR. CHURCHILL:** Yes, it is.

**MR. LEARMONTH:** Yeah. I'd like you to refer to your curriculum vitae. I want to ask you some questions, first, about your educational background.

**DR. CHURCHILL:** Okay.

**MR. LEARMONTH:** When did you finish high school?

**DR. CHURCHILL:** I finished high school in 1991.

**MR. LEARMONTH:** Yeah. And what educational pursuits did you take after you graduated from high school, and where?

**DR. CHURCHILL:** Okay. I first did my undergrad at Memorial University in Newfoundland and I specialized in Newfoundland history and political science. From there, I went to the University of Ottawa where I did a masters degree, and my master's thesis was on the politics of hydroelectric development on the Churchill River from 1949 to 1984 or '88. And from there, I went on to do a doctorate at the University of Waterloo. And my doctorate thesis there was on a protest to public policy development during the Trudeau era.

**MR. LEARMONTH:** Okay. So you received your Ph.D. in history?

**DR. CHURCHILL:** Yes.

**MR. LEARMONTH:** In 2006?

**DR. CHURCHILL:** Yes.

**MR. LEARMONTH:** And just give us a short summary of your work history since you finished your Ph.D. in history.

**DR. CHURCHILL:** Okay, so in addition to my academic background dealing with Churchill River powering and natural resources, I've also worked at the Centre for International Governance Innovation and I worked at the Conference Board of Canada for several years. And while at the Conference Board, I worked in their Energy Policy Unit.

And some of the projects that we worked on while at the Conference Board related to the need for strategic energy framework for Canada. I also worked on projects related to climate change and adaptation, as well as water governance and sustainable development.

I worked on their major project called Mission Possible, and one of the things I did within there

was discussing the need and possibility of establishing a national power grid. And that's something I will be referring to in the presentation when I get to it in a few minutes.

And so I have an academic background when it comes to history and the Churchill River, but I also have a broader understanding of the political and setting when it comes to resource development decisions.

**MR. LEARMONTH:** Yes.

And what – referring to page 7 of your CV. I understand you had some experience in teaching as well?

**DR. CHURCHILL:** Yes, I used to teach at the University of Waterloo. I used to teach the post-Confederation course. I taught that for several years. I had teaching assistant once before that, but I've also been a guest lecturer at the Western University – excuse me. And I have an upcoming guest lecture as well at the University of Carleton, but that's gonna be related to another matter.

**MR. LEARMONTH:** Yes.

Your CV indicates that you have various publications that you have – that have been circulated. Could you refer to page 9 of your CV, I just wanna take you some – through some of these.

**DR. CHURCHILL:** Okay, so I have direct publications and some publications where I was part of a research team.

Directly related to Churchill Falls, I had an article published at Newfoundland Studies [sp *Newfoundland and Labrador Studies*], which was a version of my master's thesis that got reworked to make that. I also – I've also published things related to Newfoundland and Great War, but that's a separate issue.

I've also done public presentations related to Churchill Falls. In 2001, in Ottawa, I gave a presentation at a public history conference talking about how the impact that the 1969 Churchill Falls contract had on political culture in Newfoundland over the subsequent decades. So I've also published in that area.

And, also related directly to Churchill Falls, in 2003 I did a report for the Royal Commission headed by Vic Young. And that examined the story of Churchill Falls and extended the 1949 period up to 2002, which came up to the end of the Tobin government. We did not get into Premier Grimes's time in power because it was still ongoing at that time.

**MR. LEARMONTH:** Right.

So your – the report that we're going to have a look at today after you're qualified is an update from the –

**DR. CHURCHILL:** Yep.

**MR. LEARMONTH:** – earlier publication that you referred to?

**DR. CHURCHILL:** Yeah, it's an update. And one of the things with the 2002, 2003 report that was submitted is that I was explicitly asked to draw lessons learned and make recommendations. And so that report reflects that order that I'd been given to do.

And so this report that I prepared for the Commission of Inquiry, it's more – it's less towards that and more just a general laying out of the facts of what happened.

**MR. LEARMONTH:** Yes.

Could you please advise what steps you did, or took, in carrying out your research for this assignment for the Commission?

**DR. CHURCHILL:** Okay.

I leveraged the work that I had already taken, starting with my master's and coming up through – and with the Royal Commission report as well. In addition to that, the new research I did for this particular project is I did extensive research related to – well, online research related to the Federal Energy Regulatory Commission of the United States, their online archive. 'Cause, as I'll discuss in a little bit, they play an important part in changes to the North American energy markets that have had a direct impact on Canadian electricity sector.

I also had a research trip to Newfoundland where I got into some sources that were available now that were not available when I was doing my previous research. For example, John Crosbie's papers are a wealth of information. And so I went into those, and I went into members like Fred Rowe. So I conducted archival research as well. Those are just two. I could mention others that I went into as well.

And I also conducted an interview with former premier Kathy Dunderdale. That was quite helpful in terms of helping provide some background information for the report.

**MR. LEARMONTH:** Thank you.

Commissioner, as I indicated earlier, I'm going to ask that Dr. Churchill be declared an expert and authorized to give opinion evidence in the area of expertise that I identified earlier. This will be based on his oral evidence today and his curriculum vitae. I'd ask whether any counsel have any objections to the qualification that I'm seeking and, if so, could the counsel rise and state the objection.

**MR. SIMMONS:** I have no objection, Mr. Commissioner, but I –

**THE COMMISSIONER:** Did you have some questions?

**MR. SIMMONS:** I have one question that I would like to ask.

**THE COMMISSIONER:** Sure, go ahead. Why don't you – the other mic that's there, why don't you proceed to ask your question from there.

**MR. SIMMONS:** Certainly. Thank you.

Mr. Churchill, you've just described the sources for the research work that you've done for this paper, and one of the things you mentioned is that you'd done some online research into the, what we sometimes call FERC, the Federal –

**DR. CHURCHILL:** Yup.

**MR. SIMMONS:** – United States Federal Energy Regulatory Commission work.

And my question is simply: Had you had any exposure prior to doing that research for this project to that regulation in the United States and had you done any prior work to familiarize yourself with that before undertaking this project?

**DR. CHURCHILL:** Thank you for the question.

Yes, I had. Because it was actually a large part of the recommendations that I put into a report in 2002, because FERC, as you just referred to, they started their – deregulating the US energy sector in 1992, is when it really started. And what they did when they deregulated their energy sector, they said that if you're selling into the US market you have to – if you're a monopoly, you have to grant access to your infrastructure to third parties.

And then in 2000, they had also brought in another order that said if you're – if people are using your infrastructure, you can only charge them what it costs you to run the electricity through the same lines.

And I mention this because that meant that if you have a monopoly that owns electricity lines, they could not gouge third parties wishing to sell into that system and it couldn't be used as an artificial barrier. So I got into all of those details for the 2002 report before, and I leveraged that when it came to the crafting of this particular document.

**MR. SIMMONS:** Thank you very much, Mr. Churchill.

**THE COMMISSIONER:** So at this stage, is there anyone who has any further questions to ask related to Dr. Churchill's qualifications and or any objection to his being accepted as an expert for the purpose of providing opinion evidence to the Commission? No?

All right. So in the circumstances, based upon what I've heard and based upon the CV that's been provided, as well as the oral testimony of Mr. Churchill, I am prepared to acknowledge that he can provide opinion evidence on the basis that he is a historian and a researcher, particularly with regards energy, politics and policy. Particularly, I think he has an expertise

with regards to history related to the Churchill Falls – Churchill River, rather, and in the circumstances I will permit him to testify in those areas.

**MR. LEARMONTH:** In the area that I specified earlier –

**THE COMMISSIONER:** Correct.

**MR. LEARMONTH:** – Commissioner? Thank you.

Before asking Dr. Churchill to present his paper and make some opening comments, I'd ask Madam Clerk to enter the following exhibits into evidence.

Exhibit P-00008, which is, A History of Negotiations to Develop Hydroelectric Resources of the Churchill River from 1949 to 2007, dated August 16, 2008. That's Dr. Churchill's main paper, and that's Exhibit P-00008.

**THE COMMISSIONER:** It's 2018?

**DR. CHURCHILL:** Yeah.

**MR. LEARMONTH:** 2018, yes.

**THE COMMISSIONER:** Yes, okay.

**MR. LEARMONTH:** It's Exhibit P-00008.

The next exhibit is P-00009, which is the agreement dated May 2, 2018, between Dr. Jason Churchill and the Commission for this assignment.

Next, P-00137; it's a Government of Newfoundland and Labrador paper dated August 2, 1976 re lease dated May 16, 1961.

Next, P-00138, it's a letter dated June 25, 1980 from Victor Young, V. L. Young, A.D. Hunt and W. S. Read to the Honourable Leo D. Barry, Q.C. and the Honourable Marc Lalonde, re report outlining immediate opportunities for development of substantial untapped hydroelectric potential of the Churchill River.

Next, P-00139, which is a Government of Newfoundland and Labrador paper dated August

7, 1980 re revenue and energy requirements of the province.

Next, P-00140, Government of Newfoundland paper dated October 23, 1987 re attempt to resolve the Upper Churchill power contract dispute.

Next, P-00152, which has just been circulated a little while ago to the parties, which are the speaking notes that Dr. Churchill will refer to during his oral presentation.

Last, Exhibit P-00153, which is a summary paper of his qualifications, and that's the last exhibit. May they be entered into evidence, Commissioner?

**THE COMMISSIONER:** All right, has the CV of Dr. Churchill already been entered?

**MR. LEARMONTH:** Yes, but the one – yes, that was entered, I believe.

**THE COMMISSIONER:** As P-00007.

**MR. LEARMONTH:** P-00007, yes.

**THE COMMISSIONER:** That was previously entered, okay. All right, those documents will be marked as numbered.

**MR. LEARMONTH:** Yeah.

Okay, now turn –

**THE COMMISSIONER:** I assume there's no objection to any of those papers. I think they're – some of those were suggested by some of the parties in any event, okay.

**MR. LEARMONTH:** Thank you.

Dr. Churchill, can you now begin your presentation?

**DR. CHURCHILL:** Okay, thank you.

I want to thank the Commission for this opportunity to provide a synopsis of the historical background paper prepared for this Commission called *A History of Negotiations to Develop the Hydroelectric Resources of the Churchill River from 1949 to 2007*. After this

point, I'll be referring to that as the "background paper."

And so the paper provides a general overview of the historical nature of negotiations from Confederation to the publication in 2007 of Newfoundland and Labrador's energy strategy called *Focusing Our Energy*. The aim of this oral presentation is to bring into focus the influence that the history of attempts to develop the Churchill River have on the crafting of the 2007 energy strategy. In particular, I want to draw attention to two key issues that have dominated and shaped negotiations over the decades and how those experiences are reflected in *Focusing Our Energy*.

The first issue involves the struggle of successive Newfoundland and Labrador governments to find the means of gaining unfettered access to the North American energy markets. That is selling energy directly into the marketplace in lieu of having to first sell electricity produced from Labrador directly to Hydro-Québec. This inability to gain direct access weakened Newfoundland's relative bargaining position when it came to negotiations.

The second issue that I want to draw attention to is –

**THE COMMISSIONER:** Just if – if you could just slow down just a bit –

**DR. CHURCHILL:** Okay, sorry.

**THE COMMISSIONER:** – I was trying to take notes as you go and –

**DR. CHURCHILL:** Okay.

**THE COMMISSIONER:** – sorry, just slow it down a bit.

**DR. CHURCHILL:** Okay.

The second issue concerns the signing of the 1969 Upper Churchill Contract which enabled construction to proceed but in the longer term provided the lion's share of profits from the Upper Churchill facility to Quebec and not to the owner of the resource, the Province of Newfoundland and Labrador. The contract

expires in 2041 and the province will assume full control over the Upper Churchill facility. It is, therefore, not surprising that the province's energy strategy kept a firm eye on 2041 and sought to ensure that the province was in as strong a position as possible to reap the benefits at that time.

In September of 2007, the Danny Williams Government released its much-anticipated *Focusing Our Energy* – an Energy Plan for Newfoundland and Labrador. The plan expressed great optimism for the future and argued that the province was at a watershed; it had faced great challenges in the past that had taught some hard lessons, but those lessons had been learned and the province was now potentially on the cusp of sustained prosperity. This prosperity would be enabled through the prudent development of the province's vast natural resources.

While the background paper and this presentation today only examines the energy strategy in terms of the hydroelectric development of the Churchill River, there is no doubt that there's a strong – it had a strong influence over other natural resource sectors as well. However, that would be a story for another day.

While the background paper nominally starts in 1949, its actual starting point occurs 22 years earlier in 1927. In that year, the highest court in the British Empire, the Judicial Committee of the Privy Council, or the JCPC, ruled in Newfoundland's favour against Canada concerning who had jurisdiction over the Coast of Labrador and where the border between the two colonies should've been established. The JCPC decision provided Newfoundland with jurisdictional control over the vast inland territory in Labrador that included the Churchill River watershed.

It would be difficult to overstate the decision's importance to the subsequent history of negotiations to develop Churchill River's hydroelectric potential. Having jurisdiction over the Churchill River enabled Newfoundland to pursue hydroelectric developments. However, Labrador is bound by the North Atlantic to the east and by Quebec to the south and west. As a result, the Churchill River's hydroelectric

resources are isolated from the Eastern Canadian and America energy markets. Newfoundland's relatively small population and industrial base meant that gaining access to those markets was a prerequisite to the economic viability of potential projects. Over the subsequent decades, the geographic reality provided Quebec with a significant negotiating advantage concerning potential Churchill River projects.

*Focusing Our Energy* was published 80 years after the JCPC decision, and yet the implications from that decision remained apparent. Quebec's insistence on being the sole broker for Labrador power was evident in the 1960s and had remained the same into the 2000s.

Quebec's position was firmly established by Quebec Premier Jean Lesage in 1965, when he stated that Quebec would never allow a transmission line through its territory and that any electricity that ever entered Quebec territory would – quote – become property of Hydro-Québec.

The history of negotiations to develop the Churchill River is largely the story of three key groups of political actors reacting to the two dominant forces mentioned a moment ago: the geographic isolation of Churchill River energy from the energy markets, and the legacy associated with the 1969 contract.

So those actors are: Hydro-Québec and the Quebec government. The second actor is the federal government. And the third actor is the Newfoundland and Labrador government. And within that category I'm including the British Newfoundland Company, which was established in 1953 with the express purpose of establishing – or exploiting Labrador's resources; and BRINCO, during negotiations, during 1960s represented the province's interests. So I've included them in that category.

The first two groups being Hydro-Québec, Quebec and the federal government have been consistent in their responses to both the idea of market access and to the 1969 contract.

I'll start with Quebec. Quebec has insisted consistently that it was to be the sole broker for all electricity that entered its territory, meaning that all electricity produced in Labrador for sale

into the Canadian or American marketplaces would first have to be sold to Hydro-Québec. This was their stance in the 1960s and it persisted up until – within the context of this study – to 2005, which I will get to in a minute. They further held when it came to the 1969 contract that a contract is a contract, and the 1969 contract was entered into in good faith and its terms and provisions ought to be respected.

The federal government has also consistently maintained that the question of export of electrical power from Labrador was a matter of negotiation between the two provinces – between Quebec and Newfoundland. And it would not impose measures that would interfere with what Quebec considered to be within their jurisdictional authority to control the shipping of power through its territory.

While there are numerous examples that can be provided to support the claim concerning the federal government, I want to discuss two examples now that I think are representative of the overall federal approach and attitude. The first thing I want to draw attention to is the idea of establishing a national power grid. The idea of a national power grid was to link various energy sources across Canada to areas that have high demand.

The idea of an integrated national electricity system was first introduced in to the House of Commons by Prime Minister John Diefenbaker in 1962. Many Members of Parliament pushed the prime minister to move forward quickly with the project. They viewed the initiative as a major – in quotes – nation-building exercise, similar to earlier major construction projects such as the building of the Canadian Pacific railroad and the Trans-Canada Highway; however, the prime minister, instead, decided to establish a committee on long-distance transmission to study the matter. It was set up in 1952 and met for five years. Quebec opposed the idea from the outset. Again, this is consistent with their overall approach.

After five years of study, the committee's final report concluded that without Quebec participation, a national power grid was not possible, and all that could be accomplished was a series of regional inter-ties. The final report also stated that – in quotation marks – there was

no doubt that an improved network would assist in the marketing of Nelson and Churchill River power. Now, the reference to the Nelson River is in Manitoba, and it was another major hydroelectric site that was relatively isolated from the larger markets. Despite this, the overall benefits of the – of a national power grid were perceived as marginal and further study was deemed unwarranted.

And that pretty well concludes chapter one of the idea of a national power grid. However, the idea of a national power grid came back to the fore over 40 years later as a possible means to help Canada meet its international obligations under the Kyoto Accord. In 1997, the United Nations Convention on Climate Change met in Kyoto, Japan, and negotiated the Kyoto Accord. And this committed Canada and 36 other industrialized countries to reduce their carbon emissions by 5.2 per cent below 1997 levels by 2012.

A year later, Prime Minister Jean Chrétien signed the Accord and pledged that Canada would go further. Canada would reduce its greenhouse gas emissions by 6 per cent below 1990 levels by 2012. To put in perspective what that pledge meant, to accomplish this Canada would have to have found the means to cut emissions by 240 megatons over what was expected to be emitted under a situation as normal circumstances in 2010. So it was a major task.

At the time, Newfoundland politicians argued that the case that developing the Lower Churchill Projects alone could provide 15 per cent of Canada's obligations to cut the GHG emissions. And it was within that context of establishing a national power grid and getting these electric resources into marketplaces that was seen as a potential to help Canada reach its goals.

Quebec opposed the idea of it, not as strongly as they had when it was first mentioned in the 1960s. What they insisted at this particular time was that they had to agree to anything – any plans that were made, and they felt it was right for them to be compensated for any infrastructure that they had previously established that would be used for a national power grid.



It's interesting. The federal government response, which is what I want to draw attention to here, was reflected by the federal minister responsible, Ralph Goodale, who said that the federal government would not impose a grid on Quebec and the province would have to agree to plans.

We also see the second example I want to give, in terms of the overall federal attitude to the transmission of Churchill Falls energy, was evident in the passing of Bill 108 in the 1980s. Now, Bill 108 was meant to update the *National Energy Board Act* to provide the NEB with powers with regards to electricity, similar to what they had for the transmission of oil and natural gas across borders.

The bill successfully passed; however, federal Minister Marc Lalonde insisted that the only path forward for Lower Churchill Projects was first to have a negotiated agreement between Quebec and Newfoundland. So while the federal government was offered and was willing to act as a mediator, it was not willing to enact further measures until an agreement was struck between the two provinces.

So the *National Energy Board Act* was changed to grant this power, but that power would only be used after the negotiations between the two provinces. So it was – essentially, there was no real forward movement, from the Newfoundland perspective, on strengthening the province's negotiating position. Now, having said that, it would not be fair to argue that the federal government refused to offer assistance to Newfoundland and Labrador in their hopes of advancing hydroelectric developments; the province was not abandoned by the federal government.

An early example is how in 1965 Prime Minister Lester Pearson's government passed the *Public Utilities Income Act*. The act substantially increased the transfer to the provinces of taxes collected from utilities. And to aid in negotiations over the cost at which Hydro-Québec would have to pay for Churchill Falls power, the Smallwood government passed the additional savings on to BRINCO who then were able to reduce the cost of electricity which Hydro-Québec would have to pay.

So, in addition to that legislative act, the federal government has also provided substantial funding over the decades and often provided background research resources and helped with feasibility studies. The best example of the federal government willing to assist was in the creation of the Lower Churchill Development Corporation in the 1970s. This corporation was owned 49 per cent by the federal government and 51 per cent by Newfoundland and Labrador. Its mandate was to develop the Gull Island and Muskrat Falls sites and to supervise the construction of an accompanying transmission line to the Island.

To lay the groundwork, a \$14.9 million feasibility study was commissioned to investigate the potential of the Lower Churchill River. Ironically, it's also the Lower Churchill Development Corporations that illustrates the limits of federal government assistance. The lack of a co-operative spirit between Newfoundland and Quebec prevented, according to the LCDC – in quotation marks – “any meaningful negotiations for the sale of surplus energy from LCDC. Without a resolution of the problem associated with access through Quebec, the value of the Eastern North American markets [became] somewhat academic” – end quote.

By 1981, the LCDC was frustrated and had become pessimistic towards the prospect of initial Lower Churchill development. It stated that the solutions to the issues that were at play required – quote – legal, legislative and/ or provincial solutions beyond the mandate of the LCDC – end quote. In 1982, the LCDC decided to curtail its operations and they decided to do so – and, again, this is the last quote I'll use from them – “until a more favourable climate for development [had] been established” – end quote. So we see within this the limits of federal assistance had been reached in terms of market access.

The examples just mentioned give an indication of the federal government's consistent attitude towards negotiations from 1949 to the early 2000s. In terms of the sanctity of the 1969 contract, the federal perspective was also in line with Quebec's. This was evident when the – when Brian Peckford's government was sending its water rights revision act [sp *Water Rights Reversion Act*] through the court system and it

ended up at the Supreme Court of Canada. This Act sought to reclaim water rights given to the Churchill Falls (Labrador) Corporation in 1961. This was a lease that enabled the Churchill Falls Project to proceed. A reversion of the water rights would have placed the province in a significantly stronger position to renegotiate revenue sharing agreements related to Upper Churchill Falls.

The federal government intervened in the Supreme Court of Canada case and supported the Quebec position. Hydro-Québec argued that the real purpose of the act was to interfere with the 1969 contract. In May 1984, the Supreme Court of Canada delivered its decision, which agreed with Hydro-Québec-federal government perspective and the court ruled that the Water Rights Revision Act, the actual purpose of it, was outside the actual legislation itself, and it was indeed intended to interfere with the 1969 contract, and therefore, it was not legitimate.

So overall the Quebec and federal government positions on the transmission of electricity through Quebec, and on the 1969 contract, more or less, generally speaking, have been consistent and largely aligned from the 1960s up into the 2000s.

Now, the third actor that I mention in this story is the Province of Newfoundland and Labrador, again, including BRINCO. Now, the province has not been consistent in its approach and at various times have tried numerous strategies to both mitigate the geographically imposed weakened negotiating position because of the isolation of the Churchill River from the energy markets. And it also has tried various things when it comes to improving terms related to the 1969 contract.

It starts with the Smallwood era. The Smallwood era was marked by attempts to find alternatives to going through Quebec territory to start with. In particular, feasibility studies were launched to investigate what was termed the Anglo-Saxon route. This route would bring power from Labrador, down through Newfoundland, across the Gulf, into the Maritimes and then onto the New England energy markets.

The route would span the distance of 1,710 miles, and it would cost – in 1960s dollars – 931

million. So it was certainly a substantial project that would have been undertaken. But the studies that were done by two different engineering companies showed that the route made the project not economically feasible. It wasn't economically feasible either for domestic use – say, in the Maritime provinces – or for export sales into the US energy markets because the cost of that project would cause the cost of the electricity to increase to such an extent that it would no longer be sold at a competitive price in the American markets. So the idea was rejected.

Smallwood government also contemplated requesting the federal government to use Section 92(10)(c) of the *British North America Act* to declare the Churchill River in the general interest of Canada. This move, in theory, could have enabled the federal government to overrule any jurisdictional roadblocks to development, which would – may have been offered by Quebec.

There was a great deal of controversy over if the offer was actually made, and the nature of that, but in the end, while the Smallwood government may have never formally requested the federal government to declare the Churchill Falls Project to be in the national interest, it was certainly a major item for consideration.

But in the end, in 1966, there was a letter of intent signed that allowed the Churchill Falls Project to begin, and three years later, the final Churchill Falls Project was signed.

So in the interest of getting the Upper Churchill developed after 17 years of arduous negotiations, the Smallwood government enabled BRINCO to agree to the idea of Hydro-Québec purchasing virtually all the output from the Upper Churchill facility, with the exception of 300 megawatts that the province could recall under certain circumstances, and then have Hydro-Québec resell into the domestic and international markets.

In doing so, the Smallwood government secured short-term economic benefits through the construction phase. However, the 1969 contract did not address the core issue of market access for Labrador power. Ultimately, the 1969 contract itself became an albatross about the neck of subsequent negotiators attempting to

secure final agreements on sites about the Lower Churchill, at Gull Island and Muskrat Falls.

So that provides the general context of what would happen for all the decades since.

In response, the next two Conservative governments, under Frank Moores and Brian Peckford – their strategy and approach was to use the courts and legislation to both secure market access and find redress for the 1969 contract. And they also sought to demand additional power from the Upper Churchill.

Attempts were also made to engage with federal government in a more forceful way to essentially override Quebec objections. However, as mentioned previously, the federal government maintained the position that the question of getting Labrador electricity to market was an interjurisdictional affair. Newfoundland and Quebec would have to come to agreement.

The federal government offered technical and financial assistance but would only go so far. From the perspective of developing the Lower Churchill, the Moores and Peckford eras achieved little in – beyond the gathering of technical baseline environmental information and numerous engineering studies, which could be of use when and if the projects were eventually started.

A return to Liberal governments, from Clyde Wells to Roger Grimes, saw the emergence of an entirely different approach. Those governments did not directly challenge the right of Quebec to be the sole broker of Labrador power. The Wells government at one point received a substantial offer from Hydro-Québec to develop the Gull Island site. The key point for this summary, within the story I'm telling here, is that the offer was predicated on virtually all the power being sold to Hydro-Québec who would then resell the power.

The same approach was repeated in draft agreements that was developed for Brian Tobin and Roger Grimes's governments.

Meanwhile, the government's approach to securing greater benefits from the 1969 contract varied by premier. Premier Wells attempted – he had a two-pronged approach, and it involved

privatizing Newfoundland Hydro, and in conjunction with that, he attempted to bring in the *Electrical Power Control Act* or EPCA. With a private company in control of hydroelectric operations, the government would have appeared to have been regulating an industry rather than being directly involved in interfering with established contracts. The government would have been the regulator, not the owner/operator. However, Wells's plans were thwarted by a determined opposition to the idea of privatizing of Newfoundland Hydro from the general public.

The next premier, Brian Tobin, shifted approach from legislative means and used moral persuasion. Tobin conducted a strong Canadian public relations campaign to bring pressure to bear on Quebec to provide Newfoundland and Labrador with greater benefits from the Upper Churchill. One of the areas that Tobin highlighted was the future stability of CF(L)Co. Tobin told national audiences how he felt it was unfair and absurd that the owner/operator of the lucrative Churchill Falls facility would be facing insolvency within years due to a lack of revenues from power sales.

Of all the premiers discussed, it is only Tobin's government that succeeded in increasing benefits to the province. He did this through two side agreements. The first, which was the shareholders' agreement, and it allowed the Newfoundland government to put money into CF(L)Co if an infusion of cash was needed. This measure ensured that Newfoundland would maintain its controlling 66 per cent of the company. Previous to this agreement, only Hydro-Québec had the right to inject funding and they could have used that injection of funding to get more control to buy additional shares in CF(L)Co and, therefore, increase the amount of control they had.

The second side agreement that the Tobin government developed was a Guaranteed Winter Availability Contract known as GWAC. The GWAC guaranteed Hydro-Québec 682 megawatts of additional power from the Churchill Falls facility during the winter months, and the contract was to run from 1998 until the 1969 contract expires in 2041. The GWAC was to be periodically renegotiated and it had an escalation clause. With that agreement,

CF(L)Co's future financial stability was secured and the province was expected to net an additional billion dollars over the course of the remaining years on the 1969 contract

What I want to draw attention to within this presentation is the fact that Tobin was successful in securing benefits for the province; however, the agreements – the side agreements that were signed in no way shaped or touched any of provisions that were in the 1969 contract. They were side agreements too, and so the contract remained as it was.

The next government under Roger Grimes also did not challenge the 1969 contract; however, what Premier Grimes did, he wanted – he launched a public relations campaign in relation to a draft agreement to develop Gull Island that was developed – that was ready in 2002.

He wanted to be sure that the people of Newfoundland and Labrador understood that the precede mistakes of the 1969 contract were not to be repeated within the draft 2002 Gull Island agreement. In particular, he said that no – Newfoundland and Labrador was going to wholly own the project. There was going to be an escalation clause and the province would have the right to recall power when industrial or other demands required.

The draft Gull Island agreement would have involved selling the bulk of the power produced to Hydro-Québec for resale, and it took matters a step further and proposed that Hydro-Québec was also to arrange for the financing of the project.

So that encapsulates the various approaches from Confederation up to the end of the Grimes campaign. And the experience of the Smallwood, Wells and Tobin governments show that when Hydro-Québec was ensured of its sole-broker status, meaningful negotiations occurred on the Lower Churchill and development of substantial draft agreements were negotiated.

This contrasted with the approach that had been taken by Premier Moores and Peckford, who sought to exert what they perceived as Newfoundland's constitutional and economic rights to untethered market access.

The various approaches taken by Newfoundland and Labrador governments over the decades since Confederation, regarding development of the Churchill River, was reflected upon in 2003 by the Royal Commission on Renewing and Strengthening Our Place in Canada. This Commission was headed by Vic Young who was a long-term veteran of the negotiations between Hydro-Québec and Newfoundland.

The approach that the Grimes government had taken was described by the Commission in its final report as a quote: recipe for failure, as having Hydro-Québec to be the lender and purchaser would put the province in a weak position.

The Commission also rejected Premier Frank Moores and Brian Peckford's governments' position when it said, quote: issues related to Churchill Falls should not be directly linked with negotiations to develop Gull Island.

In short, the Commission's finding rejected the shortcomings and ultimate failures of Newfoundland and Labrador government since Confederation to achieve fair and equitable arrangements for the province to develop Churchill River power.

It's within that broader historical context that Danny Williams' government embarked on drafting an energy policy that would guide energy policy and natural resource development decisions in the province going forward to 2041 and beyond.

The Williams government did not immediately attempt to engage in negotiations, however, when it came to power. Instead they first decided to study the current circumstances using all the experts and research required and to survey the realms of possibilities before developing actual negotiating strategies.

It was also a time of significant change within the energy sector. As I mentioned earlier, starting 1992 and into the 2000s, the American electric industry was going through a fundamental change of how it operated and this had major impact on Canada. The goal of the changes – the FERC changes – was to ensure that monopolistic utilities selling into the US market, practice what was known as fair-market

practices. That their infrastructure was made available to third parties and that the transmission rates for using those infrastructure was not excessive.

So the potential implication for that from Newfoundland and Labrador's perspective in 2003 to 2007 was that Hydro-Québec's status as sole broker may have become more difficult to maintain. But in addition to those changes, the early 2000s was also a time of emerging energy shortages in areas of Canada, especially in places like Ontario, but also the Maritimes. And there was substantial interest in non-greenhouse gas emitting energy sources as part of the global fight against climate change.

So a key step in learning about the current state of possibilities for the Williams' government came in January 2005 when the government released a request for expressions of interest and proposals for development of the Lower Churchill hydro resource. The process was open to any group that had an interest and ability to make a proposal. The initiative was described as the first in a four-step process leading to Lower Churchill development.

The government received 25 proposals; however, it was a joint proposal from Hydro-Québec and Ontario to develop the Lower Churchill that attracted the most attention. TD Bank, in one of their economic analysis, stated that the Lower Churchill's quote: day in the sun may have finally arrived. It was also described in *The Global and Mail* and other national media as being a win-win-win situation for each of the provinces involved. And there was – there seemed to be – reading media reports – a bit of a momentum in favour of this proposal.

However, from Newfoundland's perspective, the Quebec/Ontario proposal was predicated on the same assumptions that date back to the Upper Churchill contract negotiations. Labrador power would be sold to Hydro-Québec, who would then resell the power to the customer. The proposal did not contain any provision for the wheeling of power through Quebec, but rather insisted that Newfoundland negotiate terms with Hydro-Québec, which would, in effect, retain exclusive rights to sell Churchill River power in the North American energy markets.

The Williams' government rejected the Hydro-Québec/Ontario proposal, and announced in May 2005 that the province would develop the Lower Churchill, itself, and would continue to seek partners to ensure that Lower Churchill sites were developed with the maximum benefits accruing to the people of the province.

In lieu of selling to Hydro-Québec, the premier announced that it had submitted an application to Quebec that would grant wheeling rights to the North American markets. They never thought this was possible because of the changes that were made in the – changes that were made to the American energy markets.

The government had made a major decision concerning the general principle that it was accept going forward, and now it turns its attention to understanding the broader context. In November 2005, the government released a discussion paper to engage citizens in creating a comprehensive Energy Plan for the province. Those discussions and input eventually led to the *Focusing Our Energy* report.

Shaping the future and the lessons learned from the previous four decades of Churchill River negotiations were evident in *Focusing Our Energy*. The 1969 contract, which expires in 2041, as mentioned, looms large throughout the entire document and is mentioned on ten separate occasions. A critical part of the province's Energy Plan was to ensure that CF(L)Co maintains the Churchill Falls facility such that it's in optimum condition in 2041.

*Focusing Our Energy's* overall message concerning Churchill River hydroelectric developments was that the government planned to have the province in the best possible position to reap the maximum benefits of sustainable hydroelectric developments in Labrador over the long term.

The government had spent nearly four years since coming into power in 2003 studying multiple aspects of the past, present and possible futures of hydroelectric development in Labrador. However, at the time – 2005, 2007 – it was not clear if an effective means had emerged that would allow the province to get Labrador energy to market without having to first sell to Hydro-Québec.

The ability to wheel power to the markets remained dependent upon external circumstances and political decisions at the national and international levels. The previous decades of experience in attempting to secure hydroelectric developments in Labrador had shown that if Newfoundland and Labrador was dependent on Hydro-Québec as its only customer, it put the province in a weakened negotiating position. Former Newfoundland and Labrador Energy Minister, Mr. William Marshall once stated: “If parties [could] not negotiate on equal footing, inequities [were] bound to result.”

It’s within that context of ending Hydro-Québec’s status as the sole broker for Churchill River electricity that *Focusing Our Energy* stressed the vital importance of building a transmission line to the Island to ensure the province was able to fully realize the benefits of its hydroelectric resources in Labrador.

The energy strategy noted, on numerous occasions, the fact that the 1969 contract expires in 2041 and the province assumes full control over the Churchill Falls facility. However, the power lines that connect the generation station to the North American energy markets will remain owned, operated and controlled by Hydro-Québec. So from the perspective of 2005, 2007, it was far from clear that the province would be able to use the changes in the US energy markets, the energy demands of Ontario and the Maritimes, or the concerns that was going on with – related to mitigating climate change to improve its bargaining position.

Consequently, in 2041 it was conceivable that the province would not be in any better position to negotiate access to the markets than it had been in the 1960s or in any decade since. Moreover, the province had negotiated provisional power supply arrangements with American customers, but without access to the markets, such arrangements were moot.

The Peckford government had signed MOUs with New England states, as did the Williams government, but they had no way of getting – of fulfilling those MOUs without first selling electricity to Quebec.

So, the background paper strongly recommends anyone interested in this topic to read Ian Blue’s article called: *Off the Grid: Jurisdiction and the Canadian energy sector*. It was written in 2007, and it provides an in-depth analysis of the profound impact on the Canadian electricity sector of changes that were brought in the US energy markets. And he also talks about some of the implications for the Canadian electricity sector and how some of the jurisdictional and regulatory structures had the potential to prevent Canadian utilities from fully realizing the potential benefits.

In short, it provides an excellent snapshot of the broader regulatory and market setting that existed in 2007 when *Focusing Our Energy* was published.

Uncertainty of access was a prime driver in the energy sector – in the energy strategy’s focus and the need for a transmission line from Labrador to the Island and then across the Gulf of St. Lawrence through the Maritimes and into the United States. The transmission line would fundamentally alter future discussions concerning market access. *Focusing Our Energy* had acknowledged that the province’s “direct transmission access to export markets [was] extremely limited.”

The plan noted that the government was examining two potential export routes. The first and most direct route was through Quebec. And unlike in previous decades, they saw an opportunity through Quebec’s Open Access Transmission Tariff which was developed in response to FERC changes. And the other route was the transmission line.

So in conclusion, the long history of attempts to sign final agreements on developing hydroelectric sites on the Churchill River influenced the writing of *Focusing Our Energy*. For Newfoundland and Labrador from 1949 to 2007, governments, individuals and market circumstances may have changed but the core issue of getting electricity from Churchill River sites to the potentially lucrative North American energy markets did not.

Since 1969, technical feasibility, economic conditions and environmental imperatives had

not facilitated the signing of final agreements to develop the Lower Churchill. The historical context is reflected in the 2007 report's insistence on a flexible strategy approach to future negotiations to harness the remaining power of the Churchill River. The inclusion of the Labrador-Island Transmission Link has added a new wrinkle to the established narrative. Time will tell if that means things have changed utterly, or if the goals of Newfoundland and Labrador premiers from Confederation to 2007 to reap the full rewards of the Churchill River's hydroelectric process, if that will still remain elusive.

Thank you.

**THE COMMISSIONER:** All right.

Questions, Mr. Learmonth?

**MR. LEARMONTH:** I don't have (inaudible), but at this point Dr. Churchill will be open to receive questions from counsel in the order determined by you, Commissioner.

However, first, in an effort to assist the parties in answering your questions, I would ask Madam Clerk to bring up the map of Labrador, which was shown on the screen yesterday. I believe it is contained in Exhibit P-00053.

Yes. Oh, it's up there. That may be of assistance to counsel.

**THE COMMISSIONER:** All right.

Thank you, Mr. Learmonth.

The Government of Newfoundland and Labrador.

**MR. RALPH:** No questions, Commissioner.

**THE COMMISSIONER:** All right.

Nalcor Energy.

**MR. SIMMONS:** Thank you, Commissioner.

Good morning, Mr. Churchill. My name is Dan Simmons. I'm with the counsel for Nalcor Energy.

A very fascinating presentation this morning on paper, and I just have a couple points that I wanted to ask you some further questions on.

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** And I wonder, Madam Clerk, could we bring up, please, Mr. Churchill's paper. And if we can go, please, to page 17.

**THE COMMISSIONER:** P-00008.

**MR. SIMMONS:** Page – P-00008, I think.

So, Mr. Churchill, you've told a story this morning in which the Province of Quebec and Hydro-Québec have played a very central role in the entire history of attempts to develop the Lower Churchill and in the development of the Upper Churchill project and the subsequent attempts to change the terms of the contract –

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** – and consequences of the development of that project.

On page 17 of your report, this is where you're up to the Tobin era and you've described here, as you did in your evidence, that there were two side agreements, you called them, entered into. One is a Shareholders' Agreement and the other was the Guaranteed Winter Availability Contract or the GWAC.

Would I be correct in saying that those two agreements are probably the only example since 1969 of successfully negotiating any terms between either the Province of Quebec and Hydro-Québec on one side or the Province of Newfoundland and its corporate entities on the other?

**DR. CHURCHILL:** Your question is does it related to the Upper Churchill contract in 1969?

**MR. SIMMONS:** Either the Upper or the Lower Churchill contracts.

**DR. CHURCHILL:** Yeah, well, certainly the only agreements that were reached in any way, shape or form that was related to the –

**MR. SIMMONS:** Yes.

**DR. CHURCHILL:** – 1969 contract. And as I said, it didn't actually touch the terms of that contract itself, it was done on the side. I'm not aware of any other –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – agreements that were secured between Hydro-Québec and the Newfoundland government related to the Lower Churchill outside of that.

**MR. SIMMONS:** And in relation to the Lower Churchill, you've told us how there were different strategies adopted by different governments of the Province of Newfoundland and Labrador under different political regimes and that some progress had been made, at some points, in attempting to reach an agreement for development of the Lower Churchill, but no agreements were ever finalized.

**DR. CHURCHILL:** Yeah.

**MR. SIMMONS:** So there were no agreements ever reached with either Hydro-Québec or the Province of Quebec to do that?

**DR. CHURCHILL:** For development, no there was not.

**MR. SIMMONS:** No, okay.

Now, in the section of your report dealing with the Shareholders' Agreement –

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** – and let me back up first. CF(L)Co or Churchill Falls (Labrador) Corporation, am I correct and you understand it to be that that's a company in which the shares are owned partly by the Province of Newfoundland and Labrador and partly by Hydro-Québec.

**DR. CHURCHILL:** Yes, it is. The CF(L)Co was set up and it's 34 per cent Hydro-Québec and 66 per cent Newfoundland and Labrador.

**MR. SIMMONS:** All right.

And the Shareholders' Agreement that you refer to here, have you had an opportunity to review the terms of the Shareholders' Agreement or do you rely on other sources of information about its contents for what you've prepared in your paper here?

**DR. CHURCHILL:** I did both of it. I reviewed the actual Shareholders' Agreement –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – and then I also examined the different – from people that are obviously in fields that are – that's not my area of expertise –

**MR. SIMMONS:** Right.

**DR. CHURCHILL:** – and other people that have commented on that particular topic.

**MR. SIMMONS:** All right. The footnotes in your report, I think, refer to press releases at the time from –

**DR. CHURCHILL:** Right.

**MR. SIMMONS:** – the Newfoundland and Labrador Government; they don't actually reference the Shareholders' Agreement –

**DR. CHURCHILL:** Yeah, no.

**MR. SIMMONS:** – itself. And I notice that for the GWAC Agreement, it's similar, the footnotes refer –

**DR. CHURCHILL:** Right.

**MR. SIMMONS:** – to the press releases that were there.

So my question then comes to – in your report, you've described what some of the benefits to Newfoundland and Labrador were that were achieved from those agreements.

**DR. CHURCHILL:** Right.



**MR. SIMMONS:** And do you know if there were also benefits that were achieved on the other side of the equation for Hydro-Québec or the Province of Quebec in those agreements as well?

**DR. CHURCHILL:** With the GWAC Agreement there certainly was because the winter guaranteed availability contract –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – provided Hydro-Québec with stability and in terms of their winter supply of electricity. There's a really good article – and if you give me a minute, I can look it up in my references.

**MR. SIMMONS:** Certainly, yes. Yeah.

**DR. CHURCHILL:** Because there's a court case that's going on now that sort of involves that, and it was done for Hydro-Québec. It was an engineering – it was a report from Acres Bechtel – would I be able to get the reference and submit it after? It's in the references, but I gotta look through them individually.

**MR. SIMMONS:** Okay.

**THE COMMISSIONER:** Satisfactory to you Mr. –?

**MR. SIMMONS:** Yes, it is.

Mr. Churchill –

**DR. CHURCHILL:** I can tell you –

**MR. SIMMONS:** – for the –

**DR. CHURCHILL:** – what the source is and what it does.

**MR. SIMMONS:** Yeah. For the –

**DR. CHURCHILL:** Is that it – this report that was done for Hydro-Québec for a case that's currently going on, he goes into and he talks about the importance of the winter availability contract to Hydro-Québec and how it helps them stabilize the – their infrastructure and what they do within Quebec. Like, for example, it allows for maintenance; it's important for maintaining

maintenance schedules for other power plants that Hydro-Québec own. And so he goes into a great deal of detail about the importance of that GWAC to Hydro-Québec itself.

**MR. SIMMONS:** Okay. Thank you.

So in the course of the work that you've done for this paper or otherwise, have you had any occasion to investigate or learn about how difficult or easy it was, or what had to be done, in order to achieve these two – just these two side agreements?

**DR. CHURCHILL:** I'm not privy to any of the background –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – to any of the background conversations or any of the background sources that may shed further light on that.

I know that the – I think Tobin's – it certainly appeared that Tobin's national campaign where he sought to bring pressure on Hydro-Québec and he also – and one of the things that I don't really get into in any of the reports, is the importance of personal relationships within this setting. And the impression I got was that Lucien Bouchard, who was Quebec premier at the time, and Tobin, also had an affinity. And so they were able to use that to then move forward on negotiations. But I don't have any inside information on the actual mechanics of how it happened.

**MR. SIMMONS:** Yeah. Yeah. So those are impressions you've drawn from the political climate that existed at the time –

**DR. CHURCHILL:** Right.

**MR. SIMMONS:** – as opposed to having any actual knowledge of what was involved in order to achieve these – the negotiation and the completion of these side agreements at this time.

**DR. CHURCHILL:** Right. The information that I gleaned from this, though, is I had read through – in terms of getting broader general context – I'd gone through the *Hansards* and I'd gone through the different – all of the media

reports that were out there, like you were saying, and I'd also investigated the Quebec *Hansards*.

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** And so if it was publicly available I reviewed it, but I think what you're asking for is if I had any access to information that was beyond that – and in this particular case, not for those two agreements.

**MR. SIMMONS:** All right.

'Cause a conclusion we can draw from your description, over many decades of dealings with the Province of Quebec and Hydro-Québec –

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** – in attempting to develop the lower Churchill River, is that it's been very challenging and that the demands on the Quebec side have been very stringent and been maintained over –

**DR. CHURCHILL:** Right.

**MR. SIMMONS:** – a substantial period of time.

And can we draw anything from the negotiation of these two side agreements that would contradict that or to say, looks like it's easy to make a deal with Hydro-Québec? Is that the kind of conclusion we can draw from this experience?

**DR. CHURCHILL:** I wouldn't draw that conclusion and the reason I wouldn't draw that conclusion –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – is that when you look at what these two contracts did, there was no – Hydro-Québec didn't lose revenues out of these side agreements. The fundamental aspects I've talked about in here that I – and I think there have been two that have driven all negotiations –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – from the 1960s to 2007.

The fundamental aspect about Quebec being the, you know, sole broker for Labrador electricity was not impacted by either of these agreements. The 1969 contract itself was not impacted in any way by these agreements and so – yet helped stabilize CF(L)Co. But in terms of actual impacts on the two core issues, that I think dominated the negotiations, there were no – there was no fundamental change in that. They were possible but they were possible because they didn't alter those two facts.

**MR. SIMMONS:** Good. Yes. Thank you.

My only other question relates to what happens in 2041 –

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** – when the 1969 power purchase agreement expires. And the phrase that you've used in your report and in your presentation is to say that in 2041 the province assumes full control over the Churchill Falls facility.

**DR. CHURCHILL:** Mm-hmm.

**MR. SIMMONS:** Now this is a bit of a technical quibble maybe –

**DR. CHURCHILL:** Okay.

**MR. SIMMONS:** – but would you agree with me that it is Churchill Falls Labrador Corporation that now actually controls the operation –

**DR. CHURCHILL:** Right.

**MR. SIMMONS:** – of the facility and will continue to do so after 2041.

**DR. CHURCHILL:** Mm-hmm, right.

**MR. SIMMONS:** Yeah, and that what changes in 2041 is not so much a change in the control of the facility as it is that Churchill Falls Labrador Corporation will no longer be bound to Hydro-Québec by the 1969 contract.

**DR. CHURCHILL:** Yeah, perhaps it could have been phrased more –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – eloquently? But the point is that in 2041 the 1969 contract expires –

**MR. SIMMONS:** Mm-hmm.

**DR. CHURCHILL:** – and at that point the owner of the resource will – through CF(L)Co – and – of course which is 34 per cent owned by Hydro-Québec –

**MR. SIMMONS:** Right.

**DR. CHURCHILL:** – but even within that context –

**MR. SIMMONS:** Right.

**DR. CHURCHILL:** – they will have essentially a fresh start. It will be a chance to develop it – again, in terms of get secure market access and all the rest of it again.

**MR. SIMMONS:** Right.

**DR. CHURCHILL:** The point that I made though, is that 2041 does not change the fundamental isolation of the Churchill River resource from the North American energy markets.

**MR. SIMMONS:** Good. Thank you very much, Mr. Churchill.

**DR. CHURCHILL:** Right, okay.

**THE COMMISSIONER:** All right, the Concerned Citizens Coalition.

**MR. BUDDEN:** Good morning, Dr. Churchill.

My name is Geoff Budden. I'm the lawyer for the Concerned Citizens Coalition, which is a not-for-profit corporation that has been established by individuals who, for many years, have been concerned about the various aspects of the Muskrat Falls Development.

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** I have questions based on – there are three exhibits that I will be referring to – at least two. They would be your report, which

is P-00008 and your supplementary report of this morning, which is P-00152. And I may at one point have to refer to P-00029, which is the *Focusing Our Energy*, of course, the 2007 report of the Newfoundland government.

So first perhaps you can turn to page 7 of your report P-00008, your main report.

**DR. CHURCHILL:** Okay.

**MR. BUDDEN:** And I'd like you to review the paragraph, the first full paragraph, the one that begins with: "Without the possibility."

**DR. CHURCHILL:** This is my – the main report?

**MR. BUDDEN:** Yes it is. It's on the screen in front of you as well.

**DR. CHURCHILL:** You say it's page 7? Okay, I'll read it off the screen.

**MR. BUDDEN:** Sure. Yeah, the numbering of the pages – it's 7 at the top of the page, 5 at the bottom. That may be confusing you. But, in any event, just perhaps take a second to look at that.

**DR. CHURCHILL:** All right.

**MR. BUDDEN:** Okay. Just as an aside, the Anglo-Saxon route essentially is named that because it involved getting power to markets in the States and elsewhere, perhaps in Canada, that didn't involve having to deal with anybody who spoke French. It was basically an Anglo route to getting the power out.

**DR. CHURCHILL:** Yeah, it's an unfortunate term, but that is definitely the term that was used at the time, and since.

**MR. BUDDEN:** And since, yep.

**DR. CHURCHILL:** For that particular one. The current transmission line that's been discussed – there may have been one, like, media report that said – made some reference to it, but it has not been referred to as that. It's the Maritime Transmission Link.

**MR. BUDDEN:** But, essentially, the Maritime Transmission Link is the old Anglo-Saxon route.

**DR. CHURCHILL:** It follows the same path, yes.

**MR. BUDDEN:** 'Course.

Would it – from that paragraph – what I get from that paragraph is that: in 1965, the Anglo-Saxon route had been thoroughly considered by the appropriate professionals, and had been deemed as not being economically feasible as a way of getting Labrador hydroelectric power to market.

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** So that was – it was well studied in 1965, and that was the conclusion.

**DR. CHURCHILL:** Yeah, that was the conclusion of Acres Canadian Bechtel, and what happened with that – no, sorry, that was the conclusion of Preece, Cardew & Rider, and what happened once they made that determination, the government said: okay, well, if that's gonna increase the mill rate so, it's not gonna be sold to the American market. What about domestic Canadian consumption? And this is when the Acres Bechtel report came in and said, you know, it doesn't – it's not economical feasible for the – for domestic consumption either.

**MR. BUDDEN:** So it wasn't a technical challenge; it was an economic challenge.

**DR. CHURCHILL:** Yeah, the technical feasibility was there based on the technologies that they had in 1965 –

**MR. BUDDEN:** Sure.

**DR. CHURCHILL:** – is what they concluded.

**MR. BUDDEN:** Okay. Perhaps you can next turn to page 12, and the second full paragraph – the one beginning with “When approached...”

**THE COMMISSIONER:** It's gonna be on page 10 of your copy.

**MR. BUDDEN:** I'm sorry, yes, page –

**DR. CHURCHILL:** Okay.

**MR. BUDDEN:** – 12, the big number at the top. Ten – the littler one at the lower-right.

**THE COMMISSIONER:** Second full paragraph on page 10.

**DR. CHURCHILL:** Yeah, I got it here, thank you. Okay.

**MR. BUDDEN:** Is your sense that this was a consideration of the economic feasibility of the whole Anglo-Saxon route, or just of the link to the Island of Newfoundland?

**DR. CHURCHILL:** I can't say 100 per cent for sure on that. My – I'm not an economist and I didn't review the actual cost benefit analysis that would have been done with this.

My understanding is that that would have involved a transmission link to the Island.

**MR. BUDDEN:** Okay, and this 1975 report concluded that that was not an economically feasible way of delivering power from Labrador to the Island.

**DR. CHURCHILL:** The largest thing that had happened with that particular report is that the cost had gone up significantly. I mention it in that paragraph; how the cost of the project had increased and the federal government, for reasons known to the federal government, decided not to get involved.

**MR. BUDDEN:** Sure and the reasons being that it wasn't economically – considered economically viable.

**DR. CHURCHILL:** That would be something that would be in the federal government papers. I didn't read but that's the – that's what happened once the prices went up, the federal government backed out.

**MR. BUDDEN:** Sure.

Perhaps you can next turn to page 26 –

**DR. CHURCHILL:** What, sorry?

**MR. BUDDEN:** Perhaps turn to page 26 or 24.

**DR. CHURCHILL:** Twenty-six.

**MR. BUDDEN:** We've now moved forward some years, obviously. The paragraph, there's two paragraphs there I'd like you to just have a quick glance through, they begin at: "A transmission line from Labrador..." which is I believe the third full paragraph.

So we're now at 2007, the publication of *Focusing Our Energy*.

**DR. CHURCHILL:** Uh-huh.

**MR. BUDDEN:** Are you aware of any studies that had been completed in the interval from 1975 forward which had approached the issue of the economic feasibility of the Anglo-Saxon route, or for that matter, the Island route and had made a conclusion as to the economic viability of that route for delivering hydroelectric power from Labrador?

**DR. CHURCHILL:** There would have been – I didn't get into it in the report I prepared because of the confines that I had but that information would have been part of environmental assessment that was done for the Gull Island site that was submitted to the Canadian Environmental Assessment Agency and if you're looking for that information, if you go in and research those reports that came out there that's where that type of information would be found.

So, I'm not aware of formal government commissioned ones but they would have done that as a part of their submissions.

**MR. BUDDEN:** Okay.

And you make a reference –

**THE COMMISSIONER:** Excuse me just for a second.

So when was that submission?

**DR. CHURCHILL:** That submission was in – I'll get back to you and let you know the exact year of it.

**THE COMMISSIONER:** So you can't recall exactly when. Was it –?

**DR. CHURCHILL:** It was for the Gull Island site in the – I believe it was in the late 1980s, but I'll get to you the actual date.

**THE COMMISSIONER:** Was it in the late 1980s or was it in the early 2000s?

**DR. CHURCHILL:** It was in the – it was before. Okay, it's not the one – sorry, to clarify, the Gull Island site has actually gone through two environmental assessments. The one you're – I think you're referring to is the second one that was submitted. There was an earlier one that had been submitted and that's what I'm referring to in the interim. And that's why I can't remember what the specific year was on it, but it's been submitted twice.

**MR. BUDDEN:** So to your knowledge, at the time the focusing the future [sp *Focusing Our Energy*] report was released – which is P-00029 of our exhibits – to your knowledge was the Government of Newfoundland at that time – of Newfoundland and Labrador – were they informed by an economic study that had concluded that the Anglo-Saxon route was economically viable, to your knowledge?

**DR. CHURCHILL:** It wouldn't have been referred to as the Anglo-Saxon route because –

**MR. BUDDEN:** Oh –

**DR. CHURCHILL:** – that has too much of a negative connotation –

**MR. BUDDEN:** Of course.

**DR. CHURCHILL:** – associated with it. It brings in all kinds of other issues. I know that the – I'd be surprised if they hadn't, and the reason I say that is that –

**MR. BUDDEN:** Sorry, you'd be surprised if ...?

**DR. CHURCHILL:** If they had not had those studies. Again, I'm not privy to everything that goes to Cabinet. This is the – but I know that when they came to power in 2003 they spent four years and they engaged experts from all kinds of various fields in order to look at all the aspects that were involved in – when it came to electricity strategy; you know what had

happened, what the current status was, what were the possibilities in 2007 and the broader context of that and what were some possible futures.

And so I can't tell you a specific one, but I know that they did extensive exhaustive studies on various aspects of energy policy going forward from 2007 and those are reflected in the report.

**MR. BUDDEN:** Perhaps we could briefly have a look at Exhibit P-00029, which is the *Focusing Our Energy* exhibit, particularly page 51, I believe it is.

**UNIDENTIFIED MALE SPEAKER:** I don't think I have that.

**UNIDENTIFIED FEMALE SPEAKER:** On what page?

**MR. BUDDEN:** Fifty-one. I think it's 51. It might be 50. But perhaps we go to 51 and then I can – yeah, that's it. There's a section there beginning on page 51, Dr. Churchill, which is headed: Transmission for Export.

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** And that it's a fairly brief discussion you would agree. I believe it's about two pages? Okay.

And if you can scroll down just a tiny bit further to the second numbered paragraph, I believe it is, on the next page. Ah, yes, there it is. The paragraph 2, the headline there is: Two export routes are being investigated and pursued. And one is, of course, the route westward through Quebec; the second is the, what was formerly called the Anglo-Saxon route which is now more politely referred to as the Maritime Link –

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** – Island-Maritime Link. You would agree that is a discussion of that option?

**DR. CHURCHILL:** At ...?

**MR. BUDDEN:** At paragraph 2 there in front of you?

**DR. CHURCHILL:** Yes and I also think it reflects the preferred – yeah, it reflects what I talked about in the paper that I presented where the preferred route, the most direct route, is through Quebec to the energy markets. And so bullet one in that particular part of the report talks about how they hope that they will be able to use the changes that have happened in the American energy markets, through the FERC deregulation, to get an open-access tariff – get an agreement so they could go through. And so they were appealing to the Régie de l'énergie, it's the Quebec regulator that grants those permissions.

The second point on there, it's almost as if it's – if that doesn't work, because they talk to – one of the things that the report talks about is need for flexibility. And so it's essentially – it's almost like a backup plan. If we cannot get access without Quebec dictating terms, then we're looking at this option.

You got to remember, in 2007 decisions weren't taken. What the 2007 report talks about is here are the possibilities, here are different ways we could go and future circumstances will dictate which way we go. And that's the context, I think, that this report needs to be read in.

**MR. BUDDEN:** And the context, again, being there are two possible ways of getting power out of Quebec: One westward through –

**DR. CHURCHILL:** (Inaudible.)

**MR. BUDDEN:** – Quebec, the other the – down through Newfoundland and then on to the Maritimes. That's it.

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** Those are the two options.

Could you turn to page 27 of your report, back to your main report now.

**DR. CHURCHILL:** Back to P-00008? You're saying back to P-00008?

**MR. BUDDEN:** Yes, I'm sorry, P-00008. Yeah.

**DR. CHURCHILL:** P-00008?

**MR. BUDDEN:** So it might be 25 in your copy.

**DR. CHURCHILL:** Twenty-five? Okay.

**MR. BUDDEN:** Yeah.

And the first full paragraph of that, if you go down about a half dozen lines there is a sentence, I'll just read to save time: "While not necessarily ensuring a level negotiating table, having a viable alternate route to the markets significantly strengthened the provinces' relative negotiating position when discussing Labrador's vast hydroelectric resources."

That's your –

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** – writing there.

**DR. CHURCHILL:** Yup.

**MR. BUDDEN:** So, clearly, the assumption in there is that this is indeed a viable alternative route.

**DR. CHURCHILL:** The – okay, having – yeah, okay, it depends how you define viable. What I meant by that sentence is having a physical transmission line there meant that the core issue that I've discussed in the paper, about Quebec being the sole broker for Labrador electricity, that's the particular conversation that changes.

And so any future negotiations – and, again, this is looking at it from perspective of 2007 – having an alternative that didn't involve only going through Quebec territory, it would change the nature of discussions when it came to negotiations between Newfoundland and Hydro-Québec.

**MR. BUDDEN:** But acknowledging everything hinges on the word "viable." You would agree you used the word "viable" so, obviously –

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** – if it's not a viable route, then it's a – then you really have two options, one of which isn't viable.

**DR. CHURCHILL:** It depends how you define viable. My reference is having – because you can look at it from an economic perspective – and I am not an expert in that area and I will not comment on economics. But you also have an engineering perspective where you have the physical thing existing; you know, you physically have another means of market access and it's only at that level that I'm referring to.

Now, your definition of viable, it may be more involved. It may be – no, it may be more (inaudible) and you may say it's not viable, but within the context of that sentence I was referring to having a physical means of accessing the markets.

**MR. BUDDEN:** Sure.

Just before I move on I'll just explore that one a little tiny bit further. In 1965 your paper – and you clearly thought it was relevant because you included it –

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** In 1965 this was looked at and was deemed non-viable.

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** You would acknowledge that.

**DR. CHURCHILL:** Right, based on 1965 technologies and practices.

**MR. BUDDEN:** Of course. Are you aware of any study that has come to an alternate conclusion? I'm not asking or speculating whether one exists or doesn't exist, I'm asking are you, Jason Churchill historian, have you encountered in your report an alternate study that asserts the opposite, that such a route is economically viable?

**DR. CHURCHILL:** I have not, but my study ends in 2007 so I'm not aware of that.

**MR. BUDDEN:** So as of 2007 you had not encountered any such study.

**DR. CHURCHILL:** Right, but you also have to remember, as of 2007 the report – and I was only asked to report on the influences that went

into *Focusing Our Energy*. In 2007 that report itself is about options, right? And at that point there's no doubt the most direct, the most economically feasible route was through Quebec territory. The question was could you get there. And so from – again, this was within the context of 2007. And so, the preferred option was still going through Quebec territory, and the question was could you do it. And so when I say viable, it's about physically having another route.

**MR. BUDDEN:** Okay.

Page 13 of your Exhibit P-00152, this is the one that we – I just received a few moments ago, but I'm looking at the last clause, I guess, the – well the sentence that begins, "The Williams' government" and then – but the part I'm particularly interested in is, "first they decided to study the current circumstances using all the expertise required and survey the realms of possibilities" –

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** – "before developing negotiating strategies."

What do you rely on in support of that assertion you make there?

**DR. CHURCHILL:** There was a couple of things that happened with that. It was the reading of *Hansards*, but it was also an interview that I conducted with former Premier Dunderdale, and I asked her, given the importance of the Lower Churchill, why was there four years there were you didn't have negotiations on developing the Lower Churchill?

So I asked for what was the approach, what was the strategy that the Williams government came into power with, and I mentioned this in the report – and that's what I attempted to capture in that comment, was that what they thought was first necessary to do was to have as much information about what was available, available to them so that from that base of – information base they could then make decisions going forward.

**MR. BUDDEN:** So you're relying on what she said, so we'd obviously have to ask her what underlies that assertion?

**DR. CHURCHILL:** Yeah, it's also evident, though, from when you read *Hansards* related to this time that the government was doing significant research on various areas.

**MR. BUDDEN:** Okay.

Page 24 of your P-00008 report – I don't have a lot more, but I do have few more questions. And I'm looking at the four-phase process, as you discuss it there.

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** I guess what happened to that process? Where did it go?

**DR. CHURCHILL:** In 2007, the process was they were – the next was going to get the actual proposals coming in for development and they would be making decisions from that point.

And so, the reason I don't get into what happened afterwards with that is that my paper ends in 2007 and those other phases emerged after that point.

**MR. BUDDEN:** Okay.

So, you're not in a position to comment on how that ultimately played out?

**DR. CHURCHILL:** Ultimately played out, no, I did not address that in my paper.

**MR. BUDDEN:** Okay.

Page 9, the 1969 Churchill Falls contract – same exhibit,

**THE COMMISSIONER:** What exhibit are you referring to now?

**MR. BUDDEN:** P-00008, Mr. Justice.

**THE COMMISSIONER:** P-00008.

**MR. BUDDEN:** That first paragraph under negotiating the final details, I was struck by some of the language you used there. You speak of – you use the term "extort" at one point and at another point you talk about CF(L)Co's bargaining capacity being virtually non-existent.



Elsewhere in your paper, however –

**DR. CHURCHILL:** I don't – can you point out the where extort –?

**THE COMMISSIONER:** If you go to page 7 and you look under the heading: Negotiating the final details –

**DR. CHURCHILL:** Oh, okay. Yep.

**MR. BUDDEN:** Yeah.

So in line 1, 2, 3, 4, 7 you use the word “extort” – sorry, 6, and a couple of lines down –

**DR. CHURCHILL:** Yeah.

**MR. BUDDEN:** – you speak about the negotiating position being virtually non-existent, or the bargaining position.

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** And – which is obviously fairly strong language and it would suggest Newfoundland was in a very weak position in 1969. Elsewhere in your report you speak of –

**DR. CHURCHILL:** Can I clarify something right here –

**MR. BUDDEN:** Of course.

**DR. CHURCHILL:** – before we go on?

If you read that sentence what I'm actually referring to, in that sentence, is the article written by Mr. Feehan and Baker, and they – it's within the context of – they're talking about – when you read their article, it's their impression that Hydro-Québec was able to use inside information that it had in order to extort. So, it's in reference to that article and that's the impression that they gave to the article, and I'm talking about how it was controversial.

**MR. BUDDEN:** You're basically accusing him of breaching his fiduciary duty or something approaching that.

**DR. CHURCHILL:** I'm not a lawyer, Sir.

**MR. BUDDEN:** Yeah. Okay.

But the end of the circumstances you would seem to be suggesting that Newfoundland's position in 1969 was a very weak one.

**DR. CHURCHILL:** BRINCO's position was in a – BRINCO was in a very weak position and even without reference of that article, earlier I had written, consistently written, that by the time the final agreement was signed, BRINCO was in a bad economic condition and so was CF(L)Co.

**MR. BUDDEN:** Okay.

**DR. CHURCHILL:** And without the – and without an agreement it's not likely. I'm not gonna say it would have because you should never say things would definitely work out one way or the other.

It's not likely that the company would have survived if they had not been able to secure a final agreement.

**MR. BUDDEN:** Okay.

And what would the practical consequences of that have been?

**DR. CHURCHILL:** It didn't happen, so –

**MR. BUDDEN:** Yeah, okay.

**DR. CHURCHILL:** – it's the – I mean, if you listen to Joey Smallwood, when, you know, he talked about an inability to get this, and this sort of comes through I think what Smallwood was thinking, 'cause at one point you gotta remember that Smallwood was pushed to nationalize BRINCO. And Smallwood's attitude then was that if they did that – if they dissolved BRINCO – the quote he used – one of Smallwood's beautiful quotes – he said Newfoundland would stink in the nostrils of businessmen everywhere.

**MR. BUDDEN:** Mmm.

**DR. CHURCHILL:** Because of the people – you know, the Rothschilds, Winston Churchill that were involved in the actual contract.

So, I suspect from Smallwood government's perspective, it probably would have been a

similar sentiment but I can't definitely say because it didn't happen.

**MR. BUDDEN:** Okay.

And to what degree did Smallwood's domestic political circumstances play a role in the striking of the deal in 1969?

**DR. CHURCHILL:** It depends what you mean is – in what aspect? I mean, he certainly was heavily personally invested and he thought this was a great – that this was a great project to move forward and there were going to be significant economic benefits to Newfoundland and Labrador during the construction phase.

And there was also the expectation in 1969 – you gotta remember this is four years before the energy crisis hit in 1973 – that there would be future developments as well – that this was the start of exploiting the hydroelectric resources of the Churchill River.

So beyond those – beyond that broad, general context, I'm not sure what you're asking.

**MR. BUDDEN:** Well, I guess it's – I won't pursue it any great length, but in 1969, as you would be aware, Premier Smallwood was in a difficult place politically –

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** – he was being challenged for the leadership there – the province was entering some economic tough times. To what degree was he responding, perhaps, to political pressure to deliver a victory?

**DR. CHURCHILL:** It's theoretically possible. I've not read any accounts, or any reports that have tied those two things together. And it's not a specific area of attention that I've examined.

**MR. BUDDEN:** Okay.

**DR. CHURCHILL:** So I can't really answer.

**MR. BUDDEN:** Final question on this line of questioning. The – was the presence or absence of a price-escalation clause an important issue in those 1969 negotiations and, if so, how did that play out as it did?

**DR. CHURCHILL:** The – if you look at early drafts of the 1969 agreement, there was an escalation clause there. Again, this is four years before the energy crisis hit and you really got a substantial escalation of energy prices. At the time, I think the overriding concern, backed up by what Smallwood said and the different sources that are available from the time, indicate Smallwood was all about development, and this was a key development thing and that was a price that now they wanted this contract.

BRINCO was in dire straights and, I think, Quebec – and this is nothing against Hydro-Québec at all, I mean, they were – they had a negotiating advantage, they knew it and they used it. And they consistently done that throughout the whole process. And so they used it to get the extra – these extra concessions put in. But in the end, it wasn't enough for Smallwood to tell BRINCO to walk away from the agreement.

**MR. BUDDEN:** Okay. So they're unhappy, but not so happy as to walk away.

**DR. CHURCHILL:** You could probably summarize it that way.

**MR. BUDDEN:** Yeah.

Page 22, same exhibit, P-00008. There is a discussion of the Gull Island negotiations and I have two quick questions about that.

The – I'm particularly interested in the draft agreement, or rather the reaction to the draft agreement, and you note that Mr. Dean MacDonald resigned from the Hydro board of directors.

**DR. CHURCHILL:** Mm-hmm.

**MR. BUDDEN:** Did other individuals resign from that board as well?

**DR. CHURCHILL:** Right.

**MR. BUDDEN:** Do you recall who they were?

**DR. CHURCHILL:** Not off hand, no.

**MR. BUDDEN:** Okay, fair enough.

**DR. CHURCHILL:** I can get – it's in the – but there was like news reports from the time had their names listed, I just thought Dean MacDonald was the key person that was listed there.

**MR. BUDDEN:** Sure. And can you briefly just highlight the concerns that Mr. MacDonald would have raised; Mr. Williams, in Opposition, would have raised. What was the problem they had with that draft agreement?

**DR. CHURCHILL:** There's two different things there. One of the – with Dean MacDonald, in particular, the provisions that he is claiming – this is again in media reports – was that he didn't think the province, within that draft agreement, had the ability to recall sufficient amounts of electricity from Gull Island when it would be needed for industrial or other concerns, and Williams shared that opinion as well.

**MR. BUDDEN:** Okay.

**DR. CHURCHILL:** And for Williams, one of the other key criticisms that he gave for the Gull Island agreement in – the draft agreement in general is that it was being presented in the absence of a bigger strategy. You know, how does this fit in more broadly?

And so that's another part of the reason why, when he comes into power to spend four years laying out how will this fit in. And so his other criticism of that draft agreement is that it was done in isolation, it was just agreement on that without the broader picture

**MR. BUDDEN:** Sure.

Final couple of questions are, I guess, I'll start by just asserting for your agreement or disagreement that really the whole period of your study, there would've been – just about throughout that period – negotiations in some form or other between the governments of Quebec, you know, through its agents, Hydro and so fourth, and the governments of Newfoundland, through its agents, over various aspects of the development of hydroelectric power in Labrador. That's pretty much a constant feature from the early '50s.

**DR. CHURCHILL:** It's pretty – yes, yeah, I mean, I'm – if you're implying that, you know, they never ended, like there was constant negotiations, I don't think that's accurate.

**MR. BUDDEN:** I (inaudible).

**DR. CHURCHILL:** But I've highlighted all the way through the different attempts and draft agreements that were developed. So, periodically, yeah, there were.

**MR. BUDDEN:** To what degree were these negotiations impacted by domestic political circumstances in each province?

**DR. CHURCHILL:** There were times when it had a heavy influence. I mentioned in passing the offer that was presented to Premier Wells. That came about at a time when Hydro-Québec was facing domestic criticism for the power supply that they had at the time. And so it could certainly have had a major influence.

One of the interesting things – and I mentioned this in the report; I didn't mention it this morning in my summary – is the Churchill Falls agreement itself in 1969 in terms of domestic politics, I think we're pretty well familiar with what it meant for Newfoundland.

But what was interesting – and I found this in the John Crosbie papers when I went back – he had these detailed meetings where he met with, you know, Robert Bourassa and Cournoyer, I think was the minister, energy minister at the time. And what they talked about was that how, from the Quebec perspective, it was politically unpalatable for them to touch the Churchill Falls deal itself because it would be – the phrase, I think, Cournoyer used was: actual political suicide for a Quebec premier to alter the terms of the 1969 contract. So it did occur on both sides.

**MR. BUDDEN:** Of course.

The – and really this whole series of decades-long negotiations produced one contract, which one side has bitterly regretted almost ever since, and a couple of minor contracts such as Tobin negotiated and a whole lot of walking away from the table frustrated.

**DR. CHURCHILL:** It depends how you define your terms minor. I mean, the fact that CF(L)Co was stabilized and Newfoundland was able to ensure that it didn't lose controlling interest in CF(L)Co. I think that's significant. In the extra billion dollars you can argue if that's –

**MR. BUDDEN:** Okay.

**DR. CHURCHILL:** – significant or not significant.

**MR. BUDDEN:** Okay.

The – can you comment on any possible connection between this politicized debate and the failure, in any respects, of these negotiations?

**DR. CHURCHILL:** Are you talking in general?

**MR. BUDDEN:** Yeah, it's just a general observation.

**DR. CHURCHILL:** Well, I mentioned a second ago about the perspective on 1969 contract from Quebec's perspective. So, yeah, it certainly – they quite often were politicized, and negotiators always had to have, you know, the – what was happening with their political masters in the background. And this goes back to the 1969 contract where Hydro-Québec had to convince the Quebec government, at the time, that this was a great deal and we need to go forward because the argument that they give is that they had other projects that politically could very well have been better for – at the time. But Churchill Falls deal in 1969 from Quebec perspective was seen as: You know what? It's worth waiting on those and getting this done.

**MR. BUDDEN:** Okay.

And I guess my final question: Do you – you're a historian, you've obviously studied the past, and that doesn't necessarily give, I suppose, any perfect guide to the future, but what lessons do you draw going forward as to the likely course of future negotiations between Newfoundland and Quebec? What kind of pressures will there be; possible impacts on likely success?

**DR. CHURCHILL:** I'll say this in regards to that question – well, I'll say two things. First

thing is that historians who dabble in the future, don't do well. And the second thing I'll say is that, I mean, when you look at the consistency of Hydro-Québec, and I know, quite often, Hydro-Québec can be deaminized within the general context. But when it comes down to it, Hydro-Québec is a company that has responsibilities for the people, for, you know, the people of Quebec, and they've always acted to maximize the benefits to them, and therefore, to the people of Quebec.

And so, I don't see that changing, which is why I think in 2041, the fact that they will retain as a course would the power lines that connect Labrador in. That won't change because they're corporation and they act in their own best interests. And so, that's the one thing I think that we can be sure is gonna be consistent going forward.

Other than that, it will all depend on circumstances. In 1969, the people have seen what was gonna happen in '73, what was gonna happen again with the second energy crisis in '89 and, you know, we don't know. We still don't know 100 per cent for sure if something may come up and the American energy markets change again. We don't know.

**MR. BUDDEN:** Okay.

**DR. CHURCHILL:** So what I think we can be fairly sure that Hydro-Québec will always look out to its own interests and use negotiating – any negotiating advantage that is has.

**MR. BUDDEN:** Thank you.

**DR. CHURCHILL:** Thank you.

**THE COMMISSIONER:** All right. I think we'll take our morning break. It's a bit late; I didn't realize it was this late. So we'll take 10 minutes and come back, and I'll proceed then with Edmund Martin.

**CLERK:** All rise.

### Recess

**THE COMMISSIONER:** All right, be seated there now.

All right, Edmund Martin?

(Inaudible.)

All right, if counsel for Edmund Martin wishes to proceed.

**MR. SMITH:** No questions.

**THE COMMISSIONER:** No questions?

Kathy Dunderdale.

**MS. E. BEST:** No questions. Thank you.

**THE COMMISSIONER:** Okay, former provincial government officials 2003 to 2015?

**MR. T. WILLIAMS:** Thank you.

**THE COMMISSIONER:** Thank you.

**MR. T. WILLIAMS:** Good day, Dr. Churchill.

**DR. CHURCHILL:** Good day, Sir.

**MR. T. WILLIAMS:** Doctor, I'd like to just start off by introducing myself. My name is Tom Williams; I represent a group of former government officials, being elected officials, for the period of 2003 to 2015.

**DR. CHURCHILL:** Okay.

**MR. T. WILLIAMS:** Okay?

First of all, I'd like to start off by congratulating you on your paper; it was certainly a very interesting read. I didn't know it was – having been saturated in all things Muskrat for the last six months – six-plus months – I didn't know if it was only the lawyers and the Commissioner who would find it, but it truly was a very interesting synopsis of where things have been from Confederation to 2007.

On those notes, I'm more interested in terms of my couple of questions – and I only have a couple of brief questions for you. And I wanted to address the resolve of the governments in the past. I know your paper goes through in some detail some of the efforts that have been made by various administrations over the years in respect to the recall for power, various

legislative, you know, challenges with the Water Rights Reversion Act, the Supreme Court challenges, things of that nature.

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** But in preparations for the hearings, we were able to come across some minutes-in-council and I've asked that we have these put into evidence today because I would be interested in getting your comments with respect to some of the specific orders-in-council. And I'll take them only in isolation and I appreciate the fact that you have not obviously had the opportunity to review all government documentation over the –

**DR. CHURCHILL:** Correct.

**MR. T. WILLIAMS:** – span of 50-odd years. But in your report, and I refer to page 12 –

**DR. CHURCHILL:** P-00008?

**MR. T. WILLIAMS:** And I'm referring to page 12 – yes, correct.

In your chronology – I think we're around the second paragraph. In your chronology of events in – particularly in around the year of 1976, this was during the Moores administration, you outlined at pages 12 and 13 – I'm not going to take you to any specific reference, but you had gone through failed negotiations with Quebec regarding the Gull Island project. And you went on to speak about how the minister of energy at the time, I think, Mr. Crosbie, had attempted to get recall for the additional 800 megawatts.

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** There's an exhibit that I'd like to bring your attention to, being exhibit P-00137, if I could, Madam Clerk.

And this was a minute of council, Executive Council. And this is dated August 2, 1976, and I don't know if you've had an opportunity to review this prior to your taking the stand today.

**DR. CHURCHILL:** I'm not sure (inaudible).

**MR. T. WILLIAMS:** It would only have been entered – in fairness to you, it would have only been entered into evidence yesterday.

**DR. CHURCHILL:** Okay.

No, I had not had a chance to read it.

**MR. T. WILLIAMS:** Okay.

And I'm just going to get your brief comment on it. I'll – maybe if I can focus your attention on page 2 of that. The early – page 1 gives the early history of the lease agreement. And if we go to page 2 – and I'm referring to the paragraph where it starts – the next paragraph down if we can go, I think it's "AND WHEREAS the Government ...."

**DR. CHURCHILL:** Right.

**MR. T. WILLIAMS:** And again this is dated August 2, 1976. And, again, this would have been at the time that matters would have been ongoing with Quebec trying to negotiate a deal. There was no such luck. I know and I think the – ultimately, the Government of Newfoundland had the matter referred to the Supreme Court for which they were not successful.

But at this paragraph, it states – and this was the directive, obviously, as an executive – in council. It says: "AND WHEREAS the Government has caused an investigation to be made of the future needs of power and energy in the Island of Newfoundland (hereinafter called the 'Island') and on the basis of the investigation has concluded that additional power and energy will be needed in the Island, commencing in the year 1983 and continuing thereafter;

"AND WHEREAS the Government proposes to meet the increased need in the Island by transmitting hydroelectric power from Labrador ...."

And finally: "AND WHEREAS, towards that end, the Government has decided to invoke the said provisions of Clause 2 of Part 1 of the Upper Churchill Lease and to cause transmission facilities to be constructed from the said Upper Churchill Watershed to the Island ...." This, obviously, is referring to the Labrador-Island Link, I trust?

**DR. CHURCHILL:** I think that's a logical assumption.

**MR. T. WILLIAMS:** Okay and had this concept been considered in your reviews prior to, in any definite form?

**DR. CHURCHILL:** Well, the Anglo-Saxon route in 1965, that was mentioned earlier, that was certainly considered as a route – as a potential.

Melvin Baker's book – he actually wrote a really good book in 1999 on the history of Newfoundland and Labrador Hydro. And he talks about how for a long period of time it was – the economic research that had been done showed that the tie-in was the most economic means for future development for future power supply for Newfoundland. And so that would be captured within this general time period.

**MR. T. WILLIAMS:** Okay.

And would there be any historical significance to the fact that only, I guess, seven years subsequent to the original contract being signed in '69 that government would be so forceful with trying to move forward with the Labrador-Island Link?

**DR. CHURCHILL:** I'm not sure what you mean – what you're looking for in terms of significance?

**MR. T. WILLIAMS:** I just wonder do you see any particular significance to the fact that government had done an order of council at this point in time, specifically with respect to pursuit of the Labrador-Island Link this early in the history of the project.

**DR. CHURCHILL:** Well, the thing was within five – within a few years of the 1969 contract, by the mid-1970s, the Moores government was already looking for alternatives to get at the 1969 contract and to get more power for the Island. So I think that this certainly is in line with the other discussions that they were having at the time about how can we improve the 1969 contract and how can we get more power here.

I don't see how that's exceptional. It's –

**MR. T. WILLIAMS:** You don't see any exceptional significance –

**DR. CHURCHILL:** No.

**MR. T. WILLIAMS:** – to that at that point in time?

**DR. CHURCHILL:** No, not at – I think it's consistent with the other discussions that were happening at the time.

**MR. T. WILLIAMS:** Okay.

And if I could refer you next to Exhibit P-00139 and, again, this is a minute of council dated August 7, 1980.

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** And this would have been during the Peckford era.

**DR. CHURCHILL:** Peckford, right.

**MR. T. WILLIAMS:** Can you put in context exactly what – how relations are with the status of the project at this point in time –

**DR. CHURCHILL:** I think that the –

**MR. T. WILLIAMS:** – in terms of the status of developments with respect to any of the Churchill projects in the early 1980 period.

**DR. CHURCHILL:** Well, when the – one of the things that the Peckford government had was, as Moores had before, they ran the resolution of the 1969 – the redress of some form of that to be tied in. They – I'm not sure what you're looking for in terms of broader context. I've laid them –

**MR. T. WILLIAMS:** In terms of what the status of pursuit of the Churchill development would be in the early '80s.

**DR. CHURCHILL:** It was tied up in the courts and there were some negotiations that were going on at various times. So there was – that hadn't really changed.

**MR. T. WILLIAMS:** And would this be reflected, I guess, in – again, you probably have

not had the benefit of seeing this minute in council, I trust?

**DR. CHURCHILL:** No, I hadn't.

**MR. T. WILLIAMS:** Okay, I don't know if you'd like to take it – a second to review it. I do want to bring your attention to paragraphs 7 through 10 –

**DR. CHURCHILL:** Okay.

**MR. T. WILLIAMS:** – in this document.

Okay, and if we could just look at those specific references – and here there's a directive "that a proposal be made to the Government of Canada stating that Gull Island is the Lower Churchill development site preferred by the Government of Newfoundland and Labrador."

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** "This proposal to request the commitment from the Government of Canada to the project and that the Government of Canada accept responsibility for resolving the problem of the transmission of power through the Province of Quebec, in the National Interest."

**DR. CHURCHILL:** Okay.

**MR. T. WILLIAMS:** Had this – if you could put this in historical context for us in terms of status and matters at that point in time?

**DR. CHURCHILL:** Okay, the – I understand now what you're getting at, sorry for taking a while.

During this whole period, there was a great deal of back and forth where you have the Peckford government – and I've mentioned it in passing in the report – they were pushing the federal government to exert what they considered – what Newfoundland government considered to be Newfoundland's constitutional rights for market access.

And there was a great deal of correspondence back and forth between – especially between Energy Minister Marshall in Newfoundland and his federal counterpart, Marc Lalonde. And this

fits within the pattern of what Newfoundland was asking and then the federal response to it. And I mentioned previously, the federal government has been consistent and so Newfoundland would push, they would pursue, and the federal government response was consistently: This is an interjurisdictional affair. Newfoundland and Quebec must come to terms on access.

So it may have been proposed, but the federal government response was consistent, and that's detailed in some of Marc Lalonde's correspondence with Energy Minister Marshall.

**MR. T. WILLIAMS:** Would that be then consistent with the other directives here – paragraph 8 states:

“in the event that the Government of Canada will not give commitment to the Gull Island Project and will not accept responsibility for resolving the problem of transmission of power through the Province of Quebec, then an alternate proposal be made to the Government of Canada recognizing the above facts and stating that development of the Muskrat site would be an acceptable second choice of the Government of Newfoundland and Labrador as a joint Federal/Provincial project.”

**DR. CHURCHILL:** They would've proposed that. I'm not sure what you're getting at by asking. The – they were looking for a backup plan, there's no doubt, and that would've involved – they needed a transmission line from Muskrat to the Island to fully supply that link. There was nothing at that time in terms of potential major industrial projects in Labrador.

During the Moores' administration there was some talk of an aluminum smelter, but that never came to fruition, and so what they're looking at with developing Muskrat Falls, if they're not looking at selling it into the North American energy markets, then it had to go somewhere in order to be feasible to develop.

**MR. T. WILLIAMS:** Okay. Paragraph 9, it states: “that the long term energy policy of the Province consider the Upper Churchill as source of domestic energy requirements and ... development of the Lower Churchill be

considered” export – “be considered for export purposes.”

Were you aware in your review of any further development of any formal policies in that regard?

**DR. CHURCHILL:** Well, like, the policies and discussions that came up during the Peckford time in office and Frank Moores's time in office – as I said in the paper, nothing was concluded in the end, right, that ultimately facilitated the finalization of agreements that would have permitted development on the Lower Churchill. So what you have with this – Lower Churchill being – it's moot, right? It's a moot point because it never happened. This is what the government wanted to happen. This is what they're proposing. But in the end, it never happened.

The – and I think the reason it didn't happen was because at the consistency of approaches from the three main actors I talked about in the presentation this morning. And so they may have proposed all these things, and there's obviously a great deal of effort and time put into it, but in the end, it never materialized in what was being presented. You know, there's been numerous speeches – Frank Moores gave one in the House of Assembly where he went through and making similar demands, and it didn't materialize.

**MR. T. WILLIAMS:** The next paragraph, and this is the last one I'll refer you to in this Exhibit. Paragraph 10 says: “in preparation for the success of the efforts to recall Upper Churchill power, the development of Lower Churchill potential, as recommended by the Lower Churchill Development Corporation –

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** – that Newfoundland Hydro commence immediately to draw up plans for the construction of a transmission line from Labrador to the Island.”

And in furtherance of that theme, if we could just go to the next exhibit, because it's somewhat connected although the timing's a little different. The Exhibit is P-00138, I'm sorry.



And this is a letter from – signed by Victor Young, the chairman of the Lower Churchill Development Corporation and other officers of the corporation and it's directed to the provincial and federal ministers of Energy and again if I could quote from that it states: "The Board of Directors of The Lower Churchill Development Corporation Limited is pleased to submit a report outlining the immediate opportunities which exist for the development of the substantial untapped hydro-electric potential of the Churchill River."

The beginning of the second paragraph – it goes on: It is the view of the two hydroelectric – "it is our view that the two hydro-electric sites at Gull Island and Muskrat Falls, which can together produce the energy equivalence of 27 million barrels of oil annually, should be exploited at the earliest opportunity."

There seems to be a stronger thrust at this point in time, in 1980. You have the provincial government with the order-in-council and then you have the joint federal – what I will call a joint federal corporation, the Lower Churchill, looking to move this forward. Is – from a historical perspective, do you see any significance to the efforts that are then being moved forward, not only by the government but through the Lower Churchill Development Corporation?

**DR. CHURCHILL:** (Inaudible) concisely with it – with this – now – and you've mentioned – the previous reference that you made to section 10, it mentions the successful recall. That successful recall – there was only 200 megawatts that were available, and that wasn't sufficiently economic to justify a transmission line being built to the Island.

And so what's interesting about this is – you see here, especially on your second exhibit, there's an imperative there, right? You know, the energy crisis that was happening early 1980s, there was all this stuff going on and so there's a bit of an imperative there. There is an energy imperative. You see a similar imperative happening with the Kyoto Accord and these global efforts to combat global climate change.

And one of the points that I make in the paper that really talks about the strength of the core

issues that have dominated negotiations from 1960 to 2007 is that no – nothing external – energy crisis; environmental, if you want to refer to global warming as an environmental crisis; energy supplier, you know, Ontario shutting down their coal plants. None of these external imperatives – and that's the context I think in which this was being written, talking about replacing that amount of oil. None of those things were able to fundamentally alter or shift the core issues that I talked about in the presentation this morning.

So it's significant, but it's significant in showing that even this situation wasn't sufficient to change the overall negotiating setting.

**MR. T. WILLIAMS:** And I guess that holds true all the way through to the end of your report.

The last exhibit I will refer you to would be Exhibit P-00140, please, 00140. And again it's another minute, an order-in-council. This one being some seven years later, October 23, 1987. Again, it's the Peckford administration –

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** – and I think Mr. Marshall was Minister of Energy at the time. And if I can draw your attention to the paragraph (d) and it says: "the Honourable the Prime Minister be informed be informed that if no deal with Quebec is possible by next spring, the Province of Newfoundland requires federal assistance to undertake the Muskrat Falls project on a high priority basis."

And, again, this is running with the consistent theme that you've outlined in your report that governments in the past have been reluctant – not have been reluctant, have been dogged to get this project moving on a number of fronts but have always been stifled by one factor or another.

**DR. CHURCHILL:** Yeah. I mean, negotiations and developments always happen within a context. And I laid out the attitudes and general consistencies and approaches by the three different actors. And they are consistent throughout the – throughout this – throughout the time period that I discussed.

So it was – you know, the request for federal assistance – and I said, they did assist. The federal government has provided substantial amounts of funding over the years for different studies and stuff; but, in the end, none of it was sufficient to actually secure development agreements for the Lower Churchill.

**MR. T. WILLIAMS:** In conclusion, in your review of this time period of some 50-plus years, and your comments in relation to the 2007 Energy Plan, had you seen the amount of work that was put into the Energy Plan had been exercised by any other of the previous administrations before moving forward with any strategy and development of the Lower Churchill?

**DR. CHURCHILL:** It depends on what you're referring to. Like, if you look at the amount of money – the millions on top of millions of dollars that Newfoundland has invested in Gull Island sites when it came to, you know, the environmental – the engineering studies. And at one point when they were negotiating one of the agreements, they wanted that recognized.

There has been significant effort but it's different, right? If you have – when you get Frank Moores and Peckford, in particular, there was a lot of judicial effort put in, you know, and developing legislation. That's where their efforts tended to be concentrated.

The thing that was, I think, possibly different – because I haven't examined to the same level any of those previous governments – but what appears to be slightly different with the Williams approach was the comprehensive nature of it. Of first – and, again, this comes back to the criticism that he had of the Grimes Gull Island agreement where it was done within the context of this – of a development without the broader context of the, what's the broader energy picture, what are we trying to achieve.

And so it's the comprehensiveness that may – and I can't go beyond may 'cause I said I haven't studied the other premiers. But I think it's the comprehensiveness of approach that may be different in terms of the time leading up to the *Focusing Our Energy* report.

**MR. T. WILLIAMS:** What elements would you have come across – whether in preparation for the writing of your paper or interviews that you've done – that would lead you to use the word of a comprehensive consideration or review in preparation of that report?

**DR. CHURCHILL:** Well there's news reports where – at various points where, you know, they talked about the need to look broader. Certainly, the interview with Ms. Dunderdale illustrated that as well, and what she had said was consistent with the others things that I had been reading in the *Hansards* and in newspapers as well. So I know that they were looking for a broad understanding of what was happening in the energy field in general.

**MR. T. WILLIAMS:** Okay.

And I guess just to wrap things up, on page 24 of your report, your personal report, exhibit, I think it's 00008, you had mentioned: "*Focusing Our Energy* also provides evidence that the Williams' government had studied issues associated with" the "developments since [the] 1960s to develop the Lower Churchill River and incorporated lessons learned."

**DR. CHURCHILL:** Mm-hmm.

**MR. T. WILLIAMS:** Are you in a position, having done a historical review and spent much time on this, as to offer an opinion as to the satisfactory nature of that plan? Do you feel that it encumbered – you know, considered the issues of and the lessons learned over the previous 50-plus years?

**DR. CHURCHILL:** Well, I give a couple of specific examples – and I'm not saying that the Williams' government was unique in this, by the way.

If you look at when they changed the *Electrical Power Control Act*, when you read about that section in the energy report, immediately afterwards they add in the fact that none of these changes that we're making to the *Electrical Power Control Act* will have any impact on existing contracts. And they use the phrase: including the 1969 Upper Churchill contract. So they're cognizance of that. And so – 'cause they

learned from what happened with the Wells' administration.

And, actually, when Premier Wells was in government he had learned from what happened with the Water Rights revision act. One of the reasons why the Water Rights revision act that the Supreme Court of Canada gave for rejecting it, for Newfoundland losing that case, was the comments that were made by Premier Peckford and others talking about that: now, finally we'll get control of the water lease back.

It was key to the 1969 – that was used as evidence against Newfoundland's case that, no, this is – it's within Newfoundland's jurisdiction and so we have the right to do this. What Supreme Court of Canada said is that it's ultra vires, it's outside the intent – you're a lawyer, you should know better than I do. But the – it's outside the intent of the legislation, and that's why they ultimately concluded, based on some of these external things, that the purpose of the Water Rights reversion act was indeed to find the means of getting at the 1969 contract.

So Clyde Wells, one of the things that he was doing when he came in with his two-pronged approach of privatizing Hydro and bringing in the *Electrical Power Control Act*, one of the things that he attempted to do was to minimize the amount anybody said on it in terms of public comments and all the rest of the stuff. Now, it didn't turn out 'cause of public outcry against the privatization idea, but that lesson was learned by him. And you can see that, again, they – by the time you get to 2007 – 2005, 2007 – I think it became – it's pretty obvious that there are certain avenues that will no longer work.

Now, if you go back to – look at the court cases that the Province of Newfoundland and Labrador were not successful with, right? You know, the 800 megawatts recall, the Water Rights reversion act. Now, these things that went to court meant that – by 2007, it was clear that those established methods had been tried, right? Those means have been tried and they're found wanting, if you're looking at it from a results perspective. And, so that's – I think that lessons were learned, and that's part of the reason why they said: okay, what now?

I think that the 2003 Royal Commission report, I think their conclusion, that I mentioned – the (inaudible) presentation and in the paper – where they say, you know, that: we haven't had success, and none of the approaches or strategies that have been used from Confederation to 2002, 2003 had ultimately enabled the province to fully capitalize on the hydroelectric resources of the Churchill River.

And so, the question is: if all this had been tried for decades and decades, if you're – you know, when Premier Williams came into power, the questions is: What now? And if you're starting with a question of what now, it makes sense that you would try to do this to get a comprehensive understanding of what the lay of the land was.

**MR. T. WILLIAMS:** Can I read into your response that that 2003 to 2007 period provided an opportune time to revisit this project and possible proposals, having learned from the lessons of the past?

**DR. CHURCHILL:** Well, that's – well, there's two things with that, right? That's part of the reason why they released, in 2005, the request for proposals, to find out what's possible, what's out there, what's the interest level, what's involved.

And you also have the public discussions, right? They released the discussion paper before they released the final energy policy, and so that provided the opportunity for citizens and different groups to also be involved in development of that policy. So it was an opportune time, and they attempted to cast their net broadly.

**MR. T. WILLIAMS:** All right, that's fine.

That's all the questions I have. Thank you.

I only wish I'll be around to read 2007 to 2057, to see where we go.

Thank you very much for your time.

**DR. CHURCHILL:** Thank you.

**THE COMMISSIONER:** All right.

Next, Julia Mullaley and Charles Bown.

**MR. FITZGERALD:** Dr. Churchill, my name is Andrew Fitzgerald and I represent two senior public servants that were involved at the project at different stages. And I just have a few questions about your report and the energy policy, which is cited in your report.

**DR. CHURCHILL:** Mm-hmm.

**MR. FITZGERALD:** So, in preparing your report, you obviously reviewed the 2007 *Focusing Our Energy*, the energy policy.

**DR. CHURCHILL:** Yes.

**MR. FITZGERALD:** Okay.

Would you agree with me that that document is visionary and, I guess, exploratory?

**DR. CHURCHILL:** It's certainly – that was its intent. And I think there's significant – you can certainly – again, it's a government source, but they released also some follow-up reports that I think pretty clearly indicate that it was used as a basis for some subsequent decisions that ended up being made, but that's beyond the scope of my paper.

**MR. FITZGERALD:** No, no, I understand that, but you did review the energy policy.

**DR. CHURCHILL:** Yup.

**MR. FITZGERALD:** In reviewing the energy policy would you also agree with me that it was not limited to hydroelectricity?

**DR. CHURCHILL:** No, that's obvious. It's – it also applied to, like, all the natural resource sector from mining to oil and gas.

**MR. FITZGERALD:** I note when I review your report there's obviously a focus on the Upper Churchill development and the Lower Churchill development, and then you subsequently refer to *Focusing Our Energy*, the energy policy that explores other options.

**DR. CHURCHILL:** Mmm.

**MR. FITZGERALD:** Was there any comprehensive – in drafting your report, did you find any other comprehensive energy policy

from a previous administration that looked at other options, because when I read it, it looks like a preoccupation with just the Churchill River. The previous –

**DR. CHURCHILL:** You're talking about in the 2007 report, not in my report.

**MR. FITZGERALD:** No –

**DR. CHURCHILL:** Because I was told to be obsessed with (inaudible).

**MR. FITZGERALD:** No, no, I understand that, but in your report you come – you take us through the history –

**DR. CHURCHILL:** Right.

**MR. FITZGERALD:** – and then we get to 2007 and you reference the *Focusing Our Energy* –

**DR. CHURCHILL:** Yeah.

**MR. FITZGERALD:** – document. Was there any document similar to that where the governments, the previous governments, looked at different energy options? Did you come across anything like that in your research?

**DR. CHURCHILL:** There would've been study – not directly, no.

**MR. FITZGERALD:** Okay.

**DR. CHURCHILL:** But that doesn't mean that alternate energy options wasn't actually pursued and examined by previous governments.

**MR. FITZGERALD:** No, I accept that, but my question was you didn't find a strategic –

**DR. CHURCHILL:** It certainly wasn't as public a document as what the 2007 document was.

**MR. FITZGERALD:** Okay, but did you find any previous strategic Energy Plan?

**DR. CHURCHILL:** Not – no.

**MR. FITZGERALD:** Okay.

**DR. CHURCHILL:** Not directly. There were some that were out like the – again, coming back to the Water Rights Reversion Act, the government published some materials talking about the importance of it and how this will lead in, but not in a comprehensive manner that applied to multiple areas.

**MR. FITZGERALD:** Yes, yeah, and that's the point I'm trying to get at, with respect, is that I see the Energy Plan as dealing with oil and gas; it references wind, it references other –

**DR. CHURCHILL:** Mm-hmm.

**MR. FITZGERALD:** – areas. And, quite frankly, I was just wondering was there any other document like that in – by previous governments that set everything out and here's what our plan is, with respect to all natural resources.

**DR. CHURCHILL:** No, but it was also – wind energy was something that had come into vogue in a great deal. If you look back to, say, 1960s and '70s, it may have existed but it certainly didn't have the broad popular coverage as what wind energy currently has in alternative energies. And part of that's been brought on by concerns over greenhouse gas emissions and climate change. So it was a different – it's also produced during a different time.

**MR. FITZGERALD:** No, and I accept all of that.

**DR. CHURCHILL:** Yeah.

**MR. FITZGERALD:** And I don't mean to be – so your answer is, no, you didn't find any previous energy policy where everything was set out with respect to the different sectors?

**DR. CHURCHILL:** Right.

**MR. FITZGERALD:** Thank you.

With respect to your report – I think that's P-00008. It's page 23 of the report; I'm not exactly sure of the page of the exhibit. Twenty-three on the bottom of the page, it's in the section –

**MS. O'BRIEN:** Be P –

**MR. FITZGERALD:** – just above Transmission Line to the Island.

**DR. CHURCHILL:** Okay, yeah.

**MS. O'BRIEN:** P25.

**MR. FITZGERALD:** Third paragraph – second paragraph down on page – if we can go up a bit. Okay, right here. That paragraph: while utmost – while of utmost. Yes, please.

It states: "While of utmost importance (as it had been in previous decades), developing the Lower Churchill was presented as an ultimate goal, but not one that would be achieved at any costs."

**DR. CHURCHILL:** Right.

**MR. FITZGERALD:** That's in your report.

**DR. CHURCHILL:** Mm-hmm.

**MR. FITZGERALD:** The footnote you reference there is 167.

**DR. CHURCHILL:** Right.

**MR. FITZGERALD:** I'll just take you there. And your reference – take your time, Doctor, I don't want to rush.

**DR. CHURCHILL:** Okay, yeah.

**MR. FITZGERALD:** That was a – it's entitled: Dunderdale Interview – Getting the Right Deal.

**DR. CHURCHILL:** No, sorry that's a – there's actually two references there. Getting the Right Deal refers to the link, and that goes to a news article where Dean MacDonald actually made that comment as well.

**MR. FITZGERALD:** Okay, and the second –

**DR. CHURCHILL:** And, but the – sorry, but Ms. Dunderdale's interview certainly reflected that. And she talked about how – the willingness of the Williams government to walk away from a deal that wasn't going to be a deal that was going to be secured at any cost.

**MR. FITZGERALD:** When, approximately, did the interview with former minister and former Premier Dunderdale take place?

**DR. CHURCHILL:** August. It was August.

**MR. FITZGERALD:** Of what year?

**DR. CHURCHILL:** This year.

**MR. FITZGERALD:** Okay.

And the paragraph continues to say: “The electricity chapter of ... *Focusing Our Energy* reflected caution towards future developments when it stated that if plans to develop the Lower Churchill did not proceed as planned then the province had a back up plan to fill expected demand using a combination of thermal, wind and small hydroelectric developments.”

As I read this paragraph, the first reference to former Premier Dunderdale saying that this was not going to proceed at all costs, and I read the following sentence which says that other options were being explored.

**DR. CHURCHILL:** Mm-hmm.

**MR. FITZGERALD:** I guess I’m trying to tie that in to the energy policy. As I read that it seems to me that at the time of the energy policy in 2007 there wasn’t a pre-determination that it was Lower Churchill at all costs. Would you agree with me?

**DR. CHURCHILL:** Say that again, sorry? I missed the last part of your point.

**MR. FITZGERALD:** It seems to me as of 2007

–

**DR. CHURCHILL:** Right.

**MR. FITZGERALD:** – it wasn’t the Lower Churchill at any and all costs. It seems like other options were going to continue to be explored. Would you agree with me?

**DR. CHURCHILL:** That’s in the actual – it’s in the energy policy itself, *Focusing Our Energy*.

**MR. FITZGERALD:** Well –

**DR. CHURCHILL:** Yeah, because they do talk about the other possible energy sources that were available, if things did not proceed.

**MR. FITZGERALD:** I know it does, I just wanted to make sure you agree with me.

**DR. CHURCHILL:** Okay.

**MR. FITZGERALD:** With respect to the energy policy, I just want to direct you to that of one final question, I believe. And that’s Exhibit P-00029, I believe.

I think you go to page – I think you cite Dr. – page 32 in the footnote of the energy policy.

**DR. CHURCHILL:** For your last comment?

**MR. FITZGERALD:** With respect to that last paragraph, I’ll just double-check here.

**DR. CHURCHILL:** Is this in relation to your last comment?

**MR. FITZGERALD:** It is.

**DR. CHURCHILL:** Okay.

**MR. FITZGERALD:** Yes, page 32, which is page 32 of the actual – sorry –

**DR. CHURCHILL:** Yeah, not the exhibit, the actual document itself.

**MR. FITZGERALD:** Of the actual document, my apologies.

**DR. CHURCHILL:** So it’s, I think you’re now on 24 –

**MR. FITZGERALD:** Yes.

**DR. CHURCHILL:** I think, so it’s down a little bit.

**CLERK:** Have a page?

**DR. CHURCHILL:** Just keep going, on page 32 in the actual report, not the exhibit page. So just keep scrolling.

**MR. FITZGERALD:** Yeah, just keep scrolling down a few more pages.

**CLERK:** (Inaudible) took 32.

**MR. FITZGERALD:** Thirty-two –

**DR. CHURCHILL:** Yeah.

**MR. FITZGERALD:** – on the bottom of the page, yes.

**DR. CHURCHILL:** Yeah.

**MR. FITZGERALD:** No, the other way, please. Keep going down, please. Okay, right here.

So you reference in your report to other options being considered, I guess, in the energy policy comes from this page?

**DR. CHURCHILL:** Yes. Yeah, I need to see the full page.

**MR. FITZGERALD:** So do I.

Okay, no. Can we go down a little bit further? Up, sorry. Thank you.

**DR. CHURCHILL:** At the third bullet on the left-hand side.

**MR. FITZGERALD:** What does that say?

**DR. CHURCHILL:** Well, it's: Conduct a comprehensive study of all potential long-term electrical supply options in the event the Lower Churchill project does not proceed.

**MR. FITZGERALD:** And if we go to the paragraph to the right there, there's a reference that Newfoundland and Labrador Hydro was "studying these sources in parallel with planning for the Lower Churchill to ensure the future energy supply for the province is secured. NLH is also studying the potential for landing gas in the province and from our offshore resources to fuel a thermal electricity generating plant."

So, basically speaking, in your research you've pointed to the Energy Plan to point out that it wasn't just hydroelectricity that was being considered at that time.

**DR. CHURCHILL:** No, the reason I included that in the report is to reinforce the idea of

flexibility that I talked about as one of the key aspects of it. And I think this illustrates it that, obviously, the preferred option – if the preferred option was not available, the plan said we need to be flexible in order to be able to incorporate other aspects.

**MR. FITZGERALD:** Thank you, Doctor. Those are all my questions.

**DR. CHURCHILL:** Okay. Thank you.

**THE COMMISSIONER:** All right, Robert Thompson?

**MR. COFFEY:** And good day, Dr. Churchill.

Dr. Churchill, I just have one question. It relates to Exhibit P-00008, footnote 156, which is a reference to your interview of former Premier Dunderdale.

**DR. CHURCHILL:** Mm-hmm.

**MR. COFFEY:** Do you have any recording of that interview, or a transcript of it, or detailed notes?

**DR. CHURCHILL:** I have detailed notes. They're handwritten, but the interview itself was not recorded.

**MR. COFFEY:** Okay.

**DR. CHURCHILL:** But her lawyers were in the room, as well, for that discussion.

**MR. COFFEY:** Okay.

And have those notes been made available to Commission counsel?

**DR. CHURCHILL:** No, they haven't. They weren't requested. I used them –

**MR. COFFEY:** Okay.

**DR. CHURCHILL:** – as an input.

**MR. COFFEY:** Thank you.

Thank you, Commissioner.

**THE COMMISSIONER:** I'm assuming if we wanted to get a copy of those notes they would be made available to us?

**DR. CHURCHILL:** Absolutely. I would move them from handwritten and do – I would type them up and send that.

**THE COMMISSIONER:** Mr. Learmonth, I wonder if you might follow up to get those notes, please, for the Commission.

Thank you.

All right, the Consumer Advocate?

**MR. PEDDIGREW:** Hi. Good afternoon, Doctor. My name is Christopher Peddigrew; I'm representing the Consumer Advocate – represents the ratepayers of the province.

Just a question about Exhibit P-00008, your main report.

**DR. CHURCHILL:** Mm-hmm.

**MR. PEDDIGREW:** I want to bring you to page 13 of that report, page 13 on the top.

**DR. CHURCHILL:** Oh, on top. Okay, yeah.

**MR. PEDDIGREW:** Sorry, I'm using the page references on top, but actually I'm gonna be referring to the last paragraph on that page 13.

**DR. CHURCHILL:** Okay.

**MR. PEDDIGREW:** Okay.

There's some discussion there about – sorry, excuse me, page 15.

**DR. CHURCHILL:** Oh, okay.

**MR. PEDDIGREW:** And towards the bottom of that page.

**THE COMMISSIONER:** Page 13 in your document there, I think.

**DR. CHURCHILL:** Oh, it's page – oh, so it's –

**MR. PEDDIGREW:** Sorry, page 13 –

**DR. CHURCHILL:** Yep.

**MR. PEDDIGREW:** – of your –

**DR. CHURCHILL:** Okay.

**MR. PEDDIGREW:** document.

**DR. CHURCHILL:** Gotcha.

**MR. PEDDIGREW:** But page 15 based on the exhibit page references.

**DR. CHURCHILL:** Right.

**MR. PEDDIGREW:** The bottom of that page indicates: while discussions on furthering – so this in reference to the Water Rights Reversion Act and the Supreme Court of Canada case. So “While discussions on further developing sites on the Churchill River occurred during the” Supreme Court of Canada’s “deliberations, no progress was made. Shortly before the” Supreme Court of Canada’s “May decision, Quebec contacted Newfoundland with an offer of some changes to the terms of the 1969 contract ....”

Can you put any context or elaboration on, I guess, the circumstances that lead Quebec to contact Newfoundland or what was happening – what might've motivated that at the time?

**DR. CHURCHILL:** One of the things that I discussed in – when I did the 2002 report for the Royal Commission in terms of lessons learned, I mean, Quebec has been largely obstinate – consistent as I put it in this report here – with their opinion that they should receive and resell any power that goes into their territory. That does not mean there hasn't been times in the past when Hydro-Québec has actually approached Newfoundland.

They had no idea what was gonna happen with the Supreme Court case, and it could've potentially been, like hedging bets. And the reason I say that – and I'm not making that – I'm not saying that's the case because I can't back that up, but it's interesting that after – soon after the court case was resolved in favour of Quebec with the recall case, it stopped. Those discussions did not go any further.



A similar thing happened with the draft agreement that was provided to Premier Wells. That came about at a time when Hydro-Québec was facing domestic provincial pressures within Quebec; it was getting criticized. By the time the Wells' government pursued further, those pressures had passed. And so, the negotiations did not go any further.

So, it doesn't mean that they haven't, at various times, been willing to enter into discussions.

**MR. PEDDIGREW:** Okay. And do you have any other information about, I guess, the nature of those discussions that took place before the Supreme Court's decision?

**DR. CHURCHILL:** There was offers made. I wasn't able to get access to any detailed correspondence that went back and forth between those two groups, between the province and Quebec at that time, if that's what you're looking for.

**MR. PEDDIGREW:** But as you say in your report, eventually those discussions were terminated unsuccessfully.

**DR. CHURCHILL:** Right.

**MR. PEDDIGREW:** Just a question about – and I realize your report generally focuses on the time period up to about 2007.

**DR. CHURCHILL:** Mm-hmm.

**MR. PEDDIGREW:** Can you provide any comment on how the prevalence of shale oil – I guess, the growth of the use of shale oil in the US in 2011-2012, how that might be captured in your report if you were updating your report today?

**DR. CHURCHILL:** It would depend on what the parameters of the report were going to be.

The report that I looked at talked about flexibility and talked about – not how – in the 2007 energy policy there is a needed flexibility. And so it would certainly be looked at within the context of, here's the other options that are available and here's a broad energy landscape as it laid it out in front of us. So that would be changed if it was done for any other time period.

I have made reference this morning in the presentation that there was a broader context happening here in terms of they weren't just looking at hydroelectricity, they were looking at broader areas as well. But this was, again, about the overall high-level strategy, and we need to be flexible going forward is what the message that came out of this 2007 report. And what I think you're referring to would be a bit more specific in terms of economic analysis and studies. And I think that level of detail is at a lower level than what the strategic energy framework could've potentially been looking at 'cause this is the, like the broad strokes within – which policy happens.

**MR. PEDDIGREW:** Okay.

And so no additional comments then on how, I guess, the growth of the shale industry in the United States might impact the two options that have been identified, either a route through Quebec or a Maritime Link.

**DR. CHURCHILL:** It would've been a separate study.

**MR. PEDDIGREW:** Okay.

Thanks very much.

**DR. CHURCHILL:** Thank you.

**THE COMMISSIONER:** Okay. The Innu government is not here. Nunatsiavut is not here. NunatuKavut is not here. Oh, yes –

**MR. PEDDIGREW:** NunatuKavut is here but I don't have any questions –

**THE COMMISSIONER:** Thank you. Sorry.

**MR. PEDDIGREW:** – Mr. Commissioner.

**THE COMMISSIONER:** The Conseil des Innu is not here.

Grand Riverkeepers Labrador Land Protectors.

**MS. URQUHART:** Good Afternoon, Dr. Churchill.

Caitlin Urquhart, and I'm representing the Grand Riverkeepers and Labrador Land Protectors, and

they're some local citizens' organizations that are particularly interested in environmental protection and, particularly, with the Churchill River.

**DR. CHURCHILL:** Mm-hmm.

**MS. URQUHART:** So we read your report with great interest and certainly appreciated that.

I had a few – one point of clarification. Earlier, we discussed the Gull Island and Muskrat Falls Project environmental assessment review panel which had been conducted. And I can confirm that that report was issued in December of 1980, I believe is –

**DR. CHURCHILL:** Yup.

**MS. URQUHART:** – the report that we were – that you were referring to. So I just wanted to put that on the record, and I expect that that may come into the exhibits later on in evidence.

**DR. CHURCHILL:** Yeah.

**MS. URQUHART:** I want to clarify in P-00008 at page 19 you refer to the Kyoto Accord and the search for non-GHG-emitting energy sources. And I just wanted to clarify that hydroelectric projects are –

**DR. CHURCHILL:** Are – no.

**MS. URQUHART:** – not non-GHG-emitting energy sources –

**DR. CHURCHILL:** Right.

**MS. URQUHART:** – while they are relatively lower than, say, fossil fuel-producing energy sources there. I just wanted to clarify for the record that you would agree with that.

**DR. CHURCHILL:** You're referring to the consequences of flooding and the emissions that have emerged from that? Or are you talking about wheel to well type of – because, generally, when people talk about that – and that I do agree with what you said, but within the context the – it's generally what they refer to as operating. Like, so, when the plant is operating it's not like a coal plant in terms of emissions.

**MS. URQUHART:** So it's relatively lower but it does emit methane –

**DR. CHURCHILL:** Methane.

**MS. URQUHART:** – and other –

**DR. CHURCHILL:** Yeah.

**MS. URQUHART:** – greenhouse gasses.

**DR. CHURCHILL:** Right, but part of what that reflects – again, I'm agreeing with you – is if you – the parlance that's used during the time. Now, if you look at what Hydro-Québec was saying in the US energy markets at the time about no GHG emissions or non-GHG emitting, it was the terminology that was used and – because some of the US states actually wanted to bar high impact, you know anything bigger, essentially, than run-of-the-river hydro. So, yeah, you are correct, but it was a term that was certainly used in relation to hydro.

**MS. URQUHART:** And I guess that also speaks to the greater context of that time, that sort of run-of-the-river, the discussion around large –

**DR. CHURCHILL:** Mm-hmm.

**MS. URQUHART:** – reservoirs and the impact of these sort of megaprojects and run-of-the-river was a discussion that was being held in and around that same time.

**DR. CHURCHILL:** More generally, yes. It speaks to the broader context that I'd talked about.

**MS. URQUHART:** Thank you.

I just wanted to ask, actually – so I wanted to build on what actually my friend, Mr. Fitzgerald, had spoken about in terms of on page 25 of P-00008 where you discussed the backup plan. And I believe specifically this was to fill expected demand with thermal, wind and small hydro, and so we're speaking specifically of demand –

**DR. CHURCHILL:** Uh-huh.

**MS. URQUHART:** – from the Province of Newfoundland and Labrador, not energy markets more broadly.

**DR. CHURCHILL:** Well, there are two – there were two, because they saw in the growth of electricity – and, again, looking back to say something that – with Ontario with shutting down coal plants and stuff. So there was the external, but there’s also expected energy demand increase within the province.

**MS. URQUHART:** And so I guess I would look at – if, Madam Clerk – if I may, to P-00029, the *Focusing Our Energy* plan and on page 18 of that document. It looks just at the electricity assets from Newfoundland and Labrador.

**DR. CHURCHILL:** Mm-hmm.

**MS. URQUHART:** And I note there – so Churchill Falls is 5,428 megawatts. And it’s not actually indicated on this page specifically, but it goes on to state, later on in the *Focusing Our Energy* plan, that Gull Island and Muskrat Falls, their combined capacity was intended to be 2,800 megawatts.

**DR. CHURCHILL:** Uh-huh.

**MS. URQUHART:** Whereas – and that’s – within this plan it also states that the maximum, for example, for wind, would be 80 megawatts. And, again – and that’s limited by the – limited in terms of being able to access markets and then the same transmission issues that you mentioned.

So I guess I wonder if you can speak a little bit – and I know that, as you’ve said, you’re – you’ve been asked to be obsessed with the Churchill and the –

**DR. CHURCHILL:** Mm-hmm.

**MS. URQUHART:** – hydroelectric project specifically, but to what extent – you’ve mentioned this extensive investigation that happened leading up the Energy Plan, but to what extent were these options, in terms of thermal, wind and solar investigated prior to this strategy?

**DR. CHURCHILL:** My understanding is that they were studied. I think the broader – again, this puts into – within the realm and the idea that it’d need to be flexible. If you look at what – for example, if they were looking at something like small hydro development, small river hydro developments, when Premier Tobin was in, he brought in a moratorium on small hydro developments. And the reason he did that was, in large part, opposition that came from, like, salmon anglers and stuff.

So there’s a discussion of alternatives and I think they did the – they did a series of energy potentials. But there’s always a gap between energy potential and what’s feasible based on society, based on technology, based on political realities and broader context. And so I think all that needs to be wrapped up in same question as well, but it was certainly looked at.

**MS. URQUHART:** Okay. And I guess that just, you know, in comparison, clearly the maximum that they felt that could be produced from wind, thermal and small hydro would not, sort of come close to the full potential of what they were looking at in terms of Gull Island and Muskrat Falls.

**DR. CHURCHILL:** That seems to be what the report indicates.

**MS. URQUHART:** I just wanted to clarify that.

Thank you.

**DR. CHURCHILL:** Okay. Thank you.

**THE COMMISSIONER:** Former Nalcor board members?

**MR. GRIFFIN:** No questions, Commissioner.

**THE COMMISSIONER:** All right, Manitoba Hydro International?

**MS. VAN IDERSTINE:** No questions. Thank you.

**THE COMMISSIONER:** Okay.

Have I missed anybody? No? Okay.

All right, any redirect, Mr. Learmonth?

**MR. LEARMONTH:** No.

**THE COMMISSIONER:** All right.

Mr. Churchill, thank you very much.

**DR. CHURCHILL:** Thank you.

**THE COMMISSIONER:** We'll take our break here now – it's 12:30 – and we'll start again this afternoon at 2.

**CLERK:** All rise.

### Recess

**THE COMMISSIONER:** All right. Good afternoon.

Next witness, Ms. O'Brien.

**MS. O'BRIEN:** Thank you, Commissioner.

Our next witness is Stan Marshall, president and CEO of Nalcor Energy. Before Mr. Marshall begins, I would like to make a few comments and then I'm gonna ask to have the relevant exhibits entered.

I'd just like to make clear, Commissioner, that today Mr. Marshall is here to give us a presentation on the Muskrat Falls Project. So after I introduce him, I'm going to sit down and he's gonna take us through that presentation.

He's not gonna be highlighting any of the benefits of the project, or any of the challenges that the project has faced; it's really gonna be a factual presentation and, as such, once he's finished his presentation, counsel will be able to ask him questions to clarify on the presentation, but it's been made clear that no one will be cross-examining Mr. Marshall at large, shall we say. He will be called back as a witness in phase 2 of the Inquiry and then, you know, he'll get to say his piece and people will be able to cross-examine him more widely.

The exhibits that we would like to enter are, generally, Mr. Marshall's presentation and then there's a number of videos embedded in that presentation, so they will actually go in as separate exhibits. So these would be Exhibits P-00136 and P-00141 through to P-00151.

Could those please be entered, Commissioner?

**THE COMMISSIONER:** All right.

Those exhibits, then, will be entered.

**MS. O'BRIEN:** Thank you very much.

I'll now turn matters over to Mr. Marshall and ask Madam Clerk to please bring up Exhibit P-00136 for him.

**MR. S. MARSHALL:** Mr. Commissioner, counsel, good afternoon. Let me say that I'm generally pleased to be here to have this opportunity to try to help explain the basis of the Muskrat Falls Project.

Obviously, to do that in an audience like this, I have to do some simplification, and so my apologies to all electrical engineers out there in the audience who might say that I'm a little bit off my mark. But I'm trying to get everybody, like I said, a basic understanding – that was my challenge – an overview of the project with an explanation including all of the basic terms to help everybody try to understand the basic issues, without dealing with those issues.

So I do it through a series of slides. And due to a last-minute change, the last topic there should have been changed. Really, it's going to be transmission access. That was just changed yesterday before – just as the thing was being printed, so it doesn't really change anything. So I'm going to talk about a basic electrical system, talk about the Churchill River system, get into the Muskrat Falls Project, talk about the generation aspects and transmissions aspects and a little bit about how this ties in with a bigger picture.

So let me begin – I have to start off with some basic electrical terms 'cause there's three things you need to understand if you talk about electricity. One of them is voltage, one is – another one is power capacity and the third one is energy. So let me start with voltage. I think you're all familiar with in your house you have 110 volts; you plug in your kettle, that's what you get. The highest voltage would be 220 if you have a dryer or an oven. And at those levels the voltage can be dangerous. I mean people can get killed at 110 volts.

The higher the voltage, the more dangerous it becomes. So as you try to deliver electricity to your home, you're trying to get it at a level which provides you with the energy without being too – overly dangerous. In Europe, of course, your – the basic service is up above 220. So there's no (inaudible).

To think of voltage, my analogy is if you think about a hose. If you're out there with a hose with water going through it, with a nozzle on the end, and the nozzle is fully opened, the water just comes out, flows gently at the end of the nozzle. If you want to get more intensity into the flow of the current, you start closing your nozzle. And you'll see the water start to go further and further, so the intensity of the spray rises. 'Cause what you're doing is you're – as you close the nozzle, you're increasing the pressure inside of the hose and causing the amount of water being ejected to have more intensity as it were.

And that's the word I use, intensity, which cause it to go further. So, no analogy is ever complete but if you look at voltage, it's similar. Voltage is really the intensity of the current. We all understand there's currents going down the wire and it's not matters going down the wire, it's electromagnetic charge. So – but if you think of voltage as being the intensity of that current, then you'll get the right picture.

And instead of a nozzle, we use transformers. All a transformer's doing is changing the voltage. The amount of power coming in and going out of a transformer is generally the same, except for small losses in the transformer – very small amounts – but what you're doing is you step up. You're generating electricity, you start coming out of the generator with very low voltage. You want to bring it up and transmit it at a very high voltage, because at a high voltage level, losses are less and you can transport electricity at a high voltage.

But when you come to the home, you need to step it down again. So you go through a series, or bring it down through transformers. So the transformer is just really like a hose, bringing up the intensity of the charge. So that's the first thing you need to understand. That's all voltage is.

And there's standard voltages. I used to talk about 110 in the home. The voltages will go up. The highest voltages we have in Newfoundland is – I think it's – it is – 735 kilovolts, which is used by Hydro-Québec on this line going from Churchill Falls. Again, the higher the voltage generated, the lower the loss is. That's why you're trying to step up these very high charges.

The voltage you see on the Muskrat Falls system is 315 kV, and I've given you the multiples there in that chart, how you get from the basic unit: first up to the kilovolts, megavolts, gigavolts, teravolts. We don't use those because they're so high, but those prefixes are used when you talk about energy. You'll see, for example, when you talk about production from Muskrat Falls is about 4.9 terawatt hours. So the prefixes all are the same; I've just given you ones that are commonly used in industry and you'll find in referencing materials here. So when it comes to voltage, usually we talk about kilovolts, thousands of volts. So just think about volts as being that intensity of the charge, current going down the line.

Then you have the difference between power and energy. And this is the fundamental thing you need to understand because frequently it's misunderstood. And the best analogy there is if you got a big pickup truck. You got a pickup truck and you're going on a journey with a very heavy load, which goes, at some places, up a very steep hill. So to get to your destination, you need two things.

You need the capacity of the engine to get you up that steep hill. That's capacity. In a mechanical setting, it's used – referred to as horsepower, 350 horsepower or something like that. Well, the electrical equivalent is megawatts or kilowatts. In fact, one horsepower is equal to three quarters, 0.75 kilowatts, so it's a direct correspondence there between capacity in horse power and capacity in megawatts.

The other thing you needed for your journey is gasoline in your engine. All the energy that that vehicle's gonna burn is in the gasoline, usually measured in BTUs or some metric of that. In the electrical system, it's measured in kilowatt hours, megawatt hours, gigawatt hours, terawatt hours.

So you got to have that energy there; you got to have the capacity. Without having two of them, you're not gonna satisfy the requirements for your journey, nor are we in the electrical utility industry gonna satisfy the needs of our customers. So we have to build a system that meets the highest demand of our customers – with some reserve for, you know, units being out, lines being down and we have to provide enough energy.

If you bear those units in mind, we'll make a lot of progress. In Newfoundland, you know, the best thing to understand it, we have a winter-peaking system. In other words, our load in winter is substantially higher than it is in summer, and basically our Island load is about 7,800 megawatts and summer is going somewhere closer to 700 megawatts. So we have to have that capacity.

Then over the year we have so much energy to burn, so we have to have the energy requirement as well built into those units. And if you look at our existing system, this basically captures the hydro system on the Island. It doesn't include Newfoundland Power's – they has about 100 megawatts of generation in Corner Brook Pulp and Paper, and doesn't talk about CF(L)Co.

Just – if you look at this chart there, this is a fundamental hydro system on the Island, and I'm showing what the hydro capacity is: oil-fired, gas turbines and diesel. Diesel is mostly in very isolated areas and you can pretty well forget about it in Labrador.

But in terms of order of dispatch, which units do you put on first, a hydro plant typically has a very high capital cost, very low operating cost. So in terms of day-to-day usage, you're gonna use as much hydro as you have available to you, but you – because of seasonality, you have an extra re-conductive capacity throughout the year, but you're gonna – so you're gonna dispatch your hydro plants first.

And in any isolated system, then, you'll have capacity which is not normally required. This is for the peak. This – you know, this is for meeting that capacity of the cold day in February in Newfoundland. That's typically, in most systems, thermal; because thermal has lower capital costs, higher operating. So after

you meet – try to meet all your needs through hydro, then you move on to the thermal.

Now, the biggest unit we have in our system is the Holyrood Generating Station. It has 490 megawatts. This varies because some days a unit is maybe downgraded because of – particular equipment is out of service. The driver for Muskrat Falls is the fact that this is a very old plant. It's reached the end of its useful life; it has to be replaced.

So you get 400 megawatts of power – of capacity – being removed, but that plant is only operated one-third of the time. So if you were to – sorry – multiply the capacity by the number of hours in a year, which is 8,760, you'll get the number of megawatt hours that theoretically it can produce. But it's only operating one-third of the time so you multiply that by one-third. So it's producing around – and it depends on the year, how much water we get, so how much hydro production we get – but in a typical year, number of year – last year say, it's one-third of the time. It's operating one-third of the time. So it's around, say, 1.5 terawatt hours.

The gas turbines are used mostly just for peaking or standby on a very cold day when we have problems with our other units. So it's order of dispatch, the general philosophy of how you design a system, build a system. There's a little small bit of wind on the system, two small ones, but they're inconsequential in terms of the overall system. But the big driver is the fact that Holyrood is coming out of service: you're losing the capacity and you're losing the energy associated with that.

The other thing you need to understand in our system is, for the first time ever, we're gonna have a DC line. Up to this point in time, all of our lines have been alternating current, which is a typical low-voltage way of generating for the most part, with smaller systems. We use – typically DC systems are used when there's greater volt transfer of power. That's one use. The other use is when you're trying to tie together various systems, big systems, and there's problems on the AC trying to synchronize all the different aspects of the current and voltage.

The big interties tend to be DC because there's a very – I'll come back in the next slide to talk a little bit more about it, but it's simpler to tie in big systems. Like, the big interties between Quebec, for example, and New England are all DC links.

In this case, our transmission system is gonna tie in for the first time the Island of Newfoundland with the Quebec system through Labrador and the Maritime system through Nova Scotia. It's a pretty complex piece of work. It's assisted by the fact that the two links are DC. So that's a great advantage, and really it drives almost a necessity for that.

Here's my attempt to explain the difference between DC and AC, and I apologize again to the electrical engineers over there, but if you have a battery, which you're generating electricity with a chemical reaction, it's DC. Current just flows one on – all the time. Obviously, it's very low voltage: 1.5 volts in the centre of the battery. You have no trouble touching the terminals.

Alternating current has certain advantages, but the big thing about it, if you look at how the electricity is generated on a big scale, it's through rotary machines. Like at Muskrat Falls, you have a big stator electrical field and you have a turbine rotating around it. So you have this variation of an electrical field which is inducing a current. So, by nature, it's up and down as the rotor – as the stator – rotor goes through the stator fields.

So, if you look at this diagram you have before you, through convention it evolved that there were three phases; we commonly refer to A, B and C phase. You could've had more, but it wasn't necessary. You would have to have more wires; fewer than that, you would notice the glitches. You know, lights would dim. So three met the needs and was the most economical.

But if you look at the – and I'll attempt to use my finger. Just look at the red one, which is A phase. So if you take what's happening, just focus on one phase, the red one. As the stator comes in – as the rotor comes in the stator field, electrical field, it starts to induce a current. It peaks at 315, it starts to leave the field and the opposite pole comes into the field and generates

a negative charge, and comes back to where it started. That's a cycle. From here to here is a cycle. By convention in North America, we have 60 cycles a second; other parts of the world, maybe 50 cycles a second. Here, it's 60.

So they go – the speed cycle takes one-sixtieth of a second. So the bottom axis there is time, so it looks like that's not too bad, a sixtieth of a second, but remember now we're dealing with electromagnetic force, which is travelling at the speed of light, which is 300,000 kilometres a second or 186 miles a second. So if you look at what happens to this current from the time here, one-sixtieth of a second here, around to here, the signal has travelled 5,000 kilometres. For all intents and purposes, we should consider that electromagnetic fields are moving, you know, instantaneously. But you have three of them and you'll see as you go out, if you get a look at lines, there are three – there are four generators. Each one of them has three wires coming out of it for each phase.

What do converters do? So coming out of generators, you have AC current in three phases. If you look at the bottom line, look at each phase. The area above is about the same as the area below, and if you add up all three phases they cancel each other out. What you're doing when you put it into a converter – in this case you're looking at solid-state converters – those converters, looking at it, take one phase at a time, you're taking – just look. The solid state – look at what would kick in when it reaches here. It'll maintain this charge until it reaches here – whoops, I need to go backward – and then the other one will kick in.

So what it's doing is that the converter is adding up all the positives in one area – in one line and adding up all the negatives in another line and creating the DC line you see up above. That's what it's doing, it's taking all these phases, taking all the positives, adding them up, taking all the negatives and adding them up, and creating a DC circuit, which has just one positive line and one negative line.

And, typically, you would have a line in the middle, which is the neutral. And if you're coming out of Muskrat Falls station with the DC line – you'll see the three lines – the neutral is going to the station at the Straits where it's just

going into the ocean. We're using the ocean as a conductor from there to Holyrood. So it explains the wires, what's happening in those pieces of equipment. And so you add up all the three phases, convert them all to – adding up all the positives, adding all the negatives and you've got DC.

Because we're dealing with electromagnetic force rather than energy, we can actually have our hose – go back to my nozzle one where we took the voltage and made it stronger. A transformer can actually operate in reverse and bring the voltage down and re-establish the current. And the converters can also operate in reverse: they can take the DC and through solid-state firing recreate a rough version of the AC phases. And there has to be other equipment to sort of smooth it out. They're all solid state, but that's all you're doing.

So the generators create the AC. In order to get more economy of transmission, you convert it to DC. You're taking in to Soldiers Pond as DC, then you're converting it back and then you're bringing down the voltage as well as you go to the customer. And that's the fundamental of what's going on.

So I've dealt with that. Nope, I'm going backwards. Sorry.

Let me talk a little bit now about the Churchill River system, and I know there was a map earlier talking about this, but to get this in perspective here. So here are the three sites that I've been talking about. You will frequently get reference to Muskrat Falls as a run-of-the-river plant, and run-of-the-river means that there's no control on the river; whatever comes in, goes out. And generally in isolation that's true, but in this system you have the Churchill Falls system right at the beginning. And Churchill Falls is not a run-of-river plant; it's a major reservoir, one of the largest reservoirs in the world, and has a great deal of capacity to store.

You've also heard about the guaranteed winter availability part of the agreement. So at Churchill Falls, in order to maximize the value, the reservoir is used to basically store electricity as water. So we're gonna produce electricity when our customer needs it, and our customer is telling us they want it generated in the winter,

the beginning of November, the end of March. That's when their system peaks; that's when our system peaks. So, yes, it's a run-of-river plant, but there will be a lot of water available when you need it because our – we have a customer with control on the river who has pretty well the same requirements.

If you look at – this shows the different elevations of the reservoirs. In the scheme that was proposed, it goes from the level in the reservoir going to the Churchill Falls station 475 metres, down to the tailrace from the Muskrat Falls plant, which is lower part of the river, you know, three to four metres, depending on a given day. The big head is obviously at the Upper Churchill. Gull Island would have a substantially slower – smaller head and Muskrat Falls had a very small head. It's a low – what they call a low-head plant.

But in terms of generating electricity, two factors: one is the head, the height of the water, the pressure coming in; the other thing is the amount of water going through it. So because you're farther downstream, you have more tributaries coming into the Churchill River, so the bottom line shows you the mean annual flow in cubic metres per second. So there's actually about 30 per cent more water going through Muskrat Falls than it is through the Upper Churchill, but because the head is a lot lower, then the output is a lot lower.

So, again, remember we talked about capacity? So you understand that now. This is the maximum they can – at any point in time they can operate at, the annual amount of energy produced in a given year if it's operating the whole time and the gross head, the height of the water, which – you know, which tells you how much energy can be produced from a unit metre of water and how many metres of water are flowing.

So just to do a comparison, the Upper Churchill has 11 generating units; Muskrat Falls has four. So the Muskrat Falls units are substantially larger than the one upstream. In fact, the ones at Muskrat Falls are some of the largest in the world for this particular type of generation. The type of generator used depends upon the head, so it's a different type of generating system here than is at the Upper Churchill, but that's just



because it's a much lower head. It's typically a big-volume, low-head plant.

And the generator there, as I'll show you in a little video later on, the type of generator you have here is like a big propeller in the vertical. And the water just comes down, hits the propeller, turns, causes the thing to spin and causes the generated current generates electricity. I have a video a little later on, but I wanted to get you – show you what the overall scheme was for this river.

So let's talk about the project itself. This is a slide I've used a lot of times to try to explain. So as I said a few moments ago, in terms of transmission, it's pretty complex. We're tying together three systems: the Island system, which has always been isolated, to Labrador and into Quebec and through Nova Scotia, through the Maritime Link. The introduction of direct current technology, adds to the complexity: it's still evolving, DC is still evolving. Some of you would've heard some issues, you know, recently, not unexpectedly. It's the latest technology in the world for bulk transmission of electricity – hydro DC lines.

So I'm gonna talk about each one of these components separately: the transmission link between Churchill Falls and Muskrat, the one from Muskrat to Soldier's Pond and just a brief word about the Maritime Link.

So Muskrat Falls, you know, is 824 megawatts of power in the actual plant and four units. The line between Churchill and Muskrat is a dual-high voltage AC line, 315 volts – kilovolts and the distance is 250 kilometres. The LIL, or Labrador-Infeed Line, is 1,100 kilometres at 350 DC, its rated capacity is 900 megawatts and includes the Strait of Belle Isle crossing, which is the SOBI – we call it. Here's our first view of the plant, which was taken fairly recently.

Again, I've indicated its capacity through four generating units is 824 megawatts and the annual average output is 4.9 terawatt hours. You would note that 4.9 terawatt hours is substantially higher than the 1.5 terawatt hours that Holyrood produces. So as I said earlier, when you have a hydro plant you're typically going to run it whenever it's available, as

opposed to a thermal plant when you run it just for – mostly for peaking purposes.

The three components of the unit are: the North Spur Dam, which is to your right over here and we're gonna come back to; the North Dam, which we'll come back to; the South Dam over here; and a little Transition Dam here. Then you got the powerhouse which is under construction here and a spillway which is operation here, so the water right now is coming downstream and going through the spillway. And I'm going to talk about how these were built, in what order and why.

So when you look at the transmission link, in addition to the actual water that's going from Churchill to Muskrat – don't forget now we have to put in terminal stations at both ends. At Churchill Falls it has to tie into the high-voltage system for Quebec, so we had to build a station there and we had to build a station at Muskrat, which is part of a bigger complex which will tie into Muskrat Falls and the converter station. Again, the Labrador-Island Link, we talked about the length of the cable. The DC in addition to the terminal stations required those two – a converter at each end and I'll talk about those in some detail.

The Maritime Link, which is really an integral part of all this because while the Nova Scotia consumer is paying for the building of the actual line, they're getting the power for – based on the contract – for free, so it falls to the Newfoundland consumer. It has – it's two lines operating at plus or minus – again, it's DC, operating at plus or minus 200 kV. It's a fairly substantial crossing at 170 kilometres. Its capacity is 500 megawatts in total, 250 megawatts per line. And they would have the same kind of structure – as I said on the LIL, they would have grounding stations over on the West Coast of Newfoundland and one in Nova Scotia.

A more thorough look now at the generating plant itself and I'm going to spend a little bit of time here. So how do you go about building a power station on a river? You know, you got a river flowing down, you just can't throw in rocks and build a dam. What you have to do is say: Okay, we have to eventually to work on the river bottom, to put a dam in there; before we do

that we have to be able to have a facility so the river – the water can go somewhere else. And that is the primary function of the spillway during construction.

So you start off by starting the work on the powerhouse and developing a spillway, and you – what you do is that this is over to one bank of the river – this is the normal way of constructing. You start on one bank of the river, you probably put a little cofferdam or berm on either side to make sure the water doesn't come over where you're working, and you build your spillway and you start to work on your powerhouse.

When your spillway is operational, then you can move to dam up the river. And here the original flow of the river is through here; this is close to the lower levels of the falls. So before you can start to work on this you have to divert the river through here, and that we did in the fall of 2016. Then you start throwing big rocks in the river – throw big rocks in the river as you slowly divert the water to go through the spillway. And then you've gone to smaller, smaller rocks until you have a temporary dam made up of big rocks and small rocks, and I'll come to that a little later on. Then you have our dry riverbed, then you can clean up the riverbed and you can start the work on your dam. So that's the sequence of doing this.

In this case, we have also over here, the water would go up to a higher level here. The South Dam is an earth-filled dam. So this is concrete – this is conventional concrete here, both in the spillway and the powerhouse. It's all this concrete with rebar stuck into it.

The North Dam is just a big block of cement and concrete, for the most part; compared to the rebar, it stays there by its own weight. So it's a lower grade of concrete; in this case it's called roller-compacted concrete, RCC. This is not unique to this project and you just – this is sort of a very dense – dense form of concrete. You just put it in a truck, you dump it off and you roll it – that's why it's called RCC. It's cheaper, it doesn't have the same strength as the conventional concrete – we don't need it – it's just a big blob of concrete in the river.

Over here, which is – the elevation is less. The other way of building dams is earth-filled dams and you see those in dikes as well. In an earth-filled dam, what you do, you start with very coarse material on the outside, to protect it, and as you come to the centre of the core, it's finer and finer materials and you very closely compact it. So it doesn't have to be very wide, but it's a very effective dam and that's what the South Dam is. All this is driven by costs and requirements on-site. None of this is in any way unique. This is a rocky knoll – we'll come to a little later on and we'll show you where the – the North Spur is actually on the other side of the rocky knoll here.

The other thing I'd point out is that the function of this dam is not only to divert the river and get the water going through the powerhouse, but when you start damming off rivers you have to allow for the variability of flow over long periods of time and what – the last thing you want is for water to inundate the powerhouse at some point in time, during a massive rainstorm or something else. So we have to provide for consequences of what happens, first of all, if the power plant can't take the water?

Well, your first method of operation – if you're running at full capacity and there's still too much water coming down and the water is rising, you open the spillway and try to discharge excess water. But that may not be good enough. Maybe every thousand years we have a massive flood and still you don't want your powerhouse to be inundated. So what you do in this case, you got a dam like this, it's set at certain levels that if all else fails, before water will go into the powerhouse it will spill over this. You'll see on the edges it's a bit higher here – that's to protect the embankment here, so that the water doesn't remove the soil on the side.

So what will happen in the worst-case scenario, water will come – and it could also happen – maybe your plant just has a technical problem and you have to shut it down, or maybe there's technical problems in the spillway. So you have to have a way for water to escape in all events, and that water will come over the top of this spillway. And it's shaped, so the top of it is rounded, it will come down this side and there's a curved section at the bottom which will force the water away from the base of the dam. You'll

see, if you go out on a tour with us, that's why it's shaped that way. So it's to allow for all eventualities of flow in the river that can be expected. But those are the basic elements of the plant and their chief function.

So this is actual photos of the construction going back to 2016. So here they are on the south bank beginning to construct the spillway and the power plant. At this point in time the lower falls is still visible here – as soon as I get my pointer, here we go. So here's the lower falls, here's the south bank, here's the beginning of construction on the power plant and the spillway, just digging – blasting through the rock and taking it out.

Here's a view looking downstream, the lower falls and the upper falls, and here is the construction activity on the south bank. At this point in time there is no interruption of the flow whatsoever. The elevation here is about – this is about, again, 3 to 4 metres, this is about 10 metres, the top of the upper falls is about 17 to 18 metres.

Here's where we are today. You can see, at this point in time, the North Dam is being topped out. It has reached full elevation here. They're now working on the higher elevation on the north abutment.

The other thing to note in here is that you'd dug a sustainably big hole. The bottom of the draft tube space, where the water comes out of the turbine and goes down, is very intricate. I mean, it's just like designing an aircraft wing. In order to get maximum efficiency you have to have a very smooth flow of the water. If you go up and see the site, it's very rounded, very shaped from the time it comes in to the time it's discharged. That's to get maximum efficiency out of the water.

In this setting, the bottom of the hole where the water is discharged is actually 30 metres below the level of the river. So you're actually about 100 feet below the level of the river here. So you got to be very careful that the water didn't backup. This was a major concern, so we built a berm along here, another cofferdam, so that in wintertime the water didn't backup and go down this river. You'll hear discussions of this. Imagine if the water went down there. It actually goes further down than this. This – you're

looking at where it comes out of the powerhouse. The powerhouse goes down even further.

Before there was control on the river, before we had the spillway and whatnot and the boom up here, what would happen, water coming down the river on a very cold day would get super cooled, and as it splashed up it would start to build a dam downstream, and water was backing up – this would be 50, 60 feet high pieces of ice, and water would backup to the site. So you got to be very careful in building all this so that you're protected – lower levels here of water going back in. And also, once you start working the North Dam, what's along here – this is a big hole.

We're now at the stage – once you get the gates here working, and you're finished working down here, this is a plug here you can actually move. And they're in the progress now – in the process right now of removing this plug. So by year-end, the water will flow back into the tailrace and the water level will come up to approximately right here, which is the level of the river.

So here's a bigger view, current view of the thing, and a video. And I'm gonna see if I can play the video for you. But before we do that, again, you'll see here – here, for the first time, you'll get a clear view of the North Spur, which is a natural feature. And we did work on that as well. But just watch this and get a view of what it actually looks like.

You see the North Spur coming in on your right of the screen. You're also seeing the thermal stations on the left-hand side of the screen, which are substantial. And there's a line coming down through here – this is a line coming down from the Upper Churchill. It crosses the river up here, you see it crossing the Spur; it crosses the river, it comes down to the thermal station. And here you see the boom being built just upstream. I'll come back and talk about the boom a little later, but here's the general layout of the site.

From here the power is going, and the next stop is Soldiers Pond on the Avalon. So the bulk excavation – we had earlier photographs – work started January 2013. He talked about the rock removal here. That part of it had been completed by 2013. You see the big hole there on the

bottom screen. You're looking on the bottom; here you're building the berm to protect the site and here's the actual hole.

And you're looking – this way you're looking upstream, if I'm right. Yeah, probably upstream. So here's the spillway – I've talked about this a little earlier, its primary purpose. There are five bays. It became fully functional in August of last year. Astaldi being the main contractor and ANDRITZ being – ANDRITZ are in charge of the gates up here, the five gates.

The work that was done up 'til then wasn't totally completed. The reason being, that until the North Dam is finished you want a level that will pass a lot more water through here. And there's a part in here called the rollways that are now working on this one and this one. As you get further along – you couldn't do it earlier because you needed extra capacity through the spillway in case of – the more water came down. Now that we got better control on the river, they're gonna put a rollway which allows for more smooth flow coming out of the spillway.

So here's some visuals of the construction. You're looking at: 2014 you see it's just a big hole; 2015 you're starting to see the spillway under construction; 2016 you see the spillway pretty well in isolation here. The basic structure's in place.

As I just mentioned, we're still doing work currently on the rollways. Before the rollways are built, all this area is open so you could pass a lot more water, but when we – ultimately, you want to put in better flow coming out of the spillway. So we're putting in now sort of this rollway, the curved area coming in. We couldn't do it earlier because we needed the full capacity of the spillways to ensure that we could pass all the water.

The North Dam; so I mentioned earlier how you go about building a north dam. This is just – there's some discussion on the bank, the river before we started to close. So in the fall – by 2016 we started to dump big rocks into the river. You see here that the first ones across, the river's still going through the rough rocks, and then you put another level of rough rocks in here and you can just put fine material in the middle, which becomes the cofferdam.

A cofferdam is just a temporary dam. You don't expect it to be perfect. We did have leakage there in construction, which is normal for a cofferdam, which required us to do grouting during the middle of the winter which was very inconvenient, being on a cofferdam at 40 below and you're pumping in grouting fluid, but the objective was to get – make sure we had a dry riverbed by the spring of 2017 to allow us to start work on the North Dam, and we did that.

The Transition Dam is quite simple, just a piece of concrete between the spillway and the power plant.

The South Dam I talked about earlier. I think there's another picture later on. At its top it's quite narrow. It only allows for one lane of traffic to go down through and access onto the top of the powerhouse. But you can see the coarse materials here on the side. Again, as you're building it you lay coarse materials. It gets finer and finer. So in the middle it's very, very fine, and that prevents the water from going through, and you roll it and compact it. And it's the same as on the other side. So that was done by the fall of 2017.

It goes right down to bedrock, starts with rock. You start putting in the soil, dumping in the materials. So you see it here; right here you can see the rocks at the base of the dam. They're starting to put in – dumping in materials on either side. You see here the coarse materials on the other side, the fine materials being put on the inside and rolled, and when it's finished you just put a barrier up on the outside.

The North Dam, which is the final – this is the last piece of major civil works for the whole project, and it's close to being completed now. We've actually reached the top of the dam here, top of the (inaudible). And you see the curvature down here. So the water will come out – this is the coffer dam over here. When the water rises in the reservoir, it'll come over the coffer dam, up to the level of the north dam, and in normal operation that's as high as you go. Like I say, if you have to spill, it'll come over the top of this, cascade down and hit what they call a flip bucket. It just – it's curved so the water will come down and flip and come out here away from the base of the dam; protects the dam.

This is an amount of – a massive amount of concrete being used here. In the last year alone, we poured about 250,000 cubic metres of concrete, both here and in the power plant. I think that's close to three times what they used on the Hibernia – or the Hebron platform in one year; we poured three times – almost three times as much. So the major contractor there was Barnard Pennecon, joint venture.

It's quite long when you get out there. You can see the different. Here we are in – looks like the spring of 2017, you'll see that here's your rocks now exposed. Here's the upper level of the coffer dam. The lower one just protected from the water coming up here. So the rocks are exposed. They will level off (inaudible) now what was the river bottom, with exposed rocks, take out all the loose rocks, get some bedrocks, you level it off then you start to build up. A very wide base you see here they're starting; a very wide base.

As you go up, the forces on a dam becomes less and less, so whereas the upstream side goes up vertical, here you can reduce the amount of concrete by stepping in. So it steps in and in and in. Up on the very top is very – not very wide at all. And here you see the flip buckets. The water would come over in an emergency. It would come over here, come down, cascade down, hit the flip buckets, bounce over and away from the dam.

Here you get a view – now we've got a view of the thing; time-lapsed view, I got it as slow as I can, but it's still pretty fast.

So here we are over the construction period. We did shut down for the winter by the way. The winter of 2017-18. Here we are in winter. If you look closer, you'll see them pouring – just dumping the trucks – dumps loads of cement or concrete and covering it with tarps to protect it overnight.

If you look – I should have – if you look very closely, I'll play this again, if you look down here you'll see that there's like a step going down the side of the dam, there's actually a gallery inside the dam. The dam is at (inaudible), the gallery allows you to, inside the dam, to go in and inspect it periodically and do remedial work in terms of grouting and whatnot.

I'll just play it again so you can see it. It's in this area here, you'll see that it's coming up because it's coming right through the dam, it's stepped up and the lower level goes downstream of the dam, this allows for inspection of the dam. Just look in this area, you'll see it.

You see it's starting to appear there now, the gallery that's going along here, it's going to come up and turn this way. You see it being build up now. Now it's making a turn. Now it's completely underneath the concrete. Again, this is a normal – a dam this size would have a gallery for inspections and this sort of thing, because a big block of concrete like this has to be – allow for expansion and whatnot and this – and for inspection. So, here we are on this one.

Let's turn our attention to the North Spur. So here – this work was done by Gilbert. It has a couple of features. This is a natural feature, materials laid down during the last ice age, different layers. It was recognized after you finished the Upper Churchill that this would – could be a natural feature, could be used for development in this area, it should be protected and become part of a dam rather than have to build a manmade structure there. So studies were ongoing since the 1960s for that; monitoring of the station was done.

In order to stabilize this bank, the work undertaken was to change the slope on this side and on this side, put materials, rip-rap heavy rock along the base here so the ice wouldn't affect it, the same on the upper side. And in addition, I think there's a picture a little later on here, but there is a – so sloping here, sloping there, (inaudible) materials here and more materials are going along the upper face and there's also, what we called, a cut-off wall. I think I'll probably a picture of it later on that'll show it a bit better.

But for a structure like this to fail, where you're talking about a mixture of soils, this would apply to an earth-filled dam like we described earlier, the south dam or natural feature. They just don't collapse. What would happen in that type of feature, before it would collapse, the water level pressure would rise in the structure, become more fluid, it'd start to move and it would eventually give way. So it's important to control the water level, put up pressure in the

dam and to monitor it for movement. It doesn't happen instantaneously.

So here – you look at this photo here, you're looking now downstream. You're looking downstream. Here's the power plant over here. Here's that rocky knoll. Here's the line coming down from the Upper Churchill. So you're looking downstream, you got different levels here. You can't see it very well, and this is looking upstream as well. The view is not – but there's a cut-off wall there, I hope that later on there's picture that shows it more clearly.

But this cut-off wall, what it does is, again, inhibits the flow of water. It doesn't – not meant to stop it entirely. It's about a little over a half a metre thick and what they do – this is very sandy material and you get people who specialize in this type of work, typically from Mississippi where they're building dikes and this sort of thing. They have a clamshell and they go down and just take out a narrow cut and it's bent like the concrete, and it's just actually pouring as they dig it out, in essence.

So it works as cut-off wall, and it goes down to just below the level of the base of the reservoir, it ties in with the – it starts with the rock – on the rock here, it comes along here, then it makes a turn and goes down this way so that the water won't come this way.

So these are the features of what you're doing – trying to achieve here. And then you have all this monitoring equipment, I have another slide showing that in a bit more detail.

So, this is upstream, you're looking downstream. Here's the sloping that's been done. There's some natural lakes over here with natural drainage so they wanted to control that. And the cut-off wall comes across here, ties into a rock on this side, comes back this way so that the water doesn't inundate from this direction.

So, that's generally the type of work that's been done. Here you see it before anything started, just clearing up here the right-of-away for the transmission line; natural thing.

Here you're start to see the lay down of materials upstream; hard, coarse materials. Here they put a finer material as well. And the cut-off

wall – if you look at here, eventually, the – when the reservoir is filled it'll come up to about right here, this level of coarse material.

Right now, the reservoir is at 24-metre level, the ultimate level is 39 metres. So we're up to 24. At natural state, it was about 18 metres. Of course, being a natural river, the elevation over the years, depending on the water-flow change within, you know, 100 years or a flood; a 50-year flood, that sort of thing.

So now you see the slope – this is downstream, you can see the coarser materials, the sloping that's been done, stabilization here. Upstream – more work upstream than downstream. This is upstream, again, looking at materials being laid down.

Now you're looking from north to south across the Spur. The power plant's over here, the river is coming down on either side of this knoll. You see the spillway over here. And you see – actually, you see the – this lower level here is where they did the cut-off wall coming across to cut-off this area. It goes along this face over here.

There's another view on the elevations. I think this is what they call the kettle lakes, natural drainage. I think they're at 29-metre level.

Just showing the amount of instrumentation on the Spur. Your – piezometers, you're just measuring, basically, water-pressure levels in a dam. You got 40 of those. Inclinerometers, they're there to measure any sort of shift in the slope of the dam, and the flow meter just measuring the amount of water coming out of the kettle lakes. So these things are – they're just to detect anything happening within the dam and to alert you if something might be happening.

Overall, there's all kinds of other instrumentation on the dam site, more piezometers and different dams. The accelerometer is just there for – primary for earthquakes.

In one of my earlier photos we talked about the boom upstream of the power plant. Here you see the lines coming from the Upper Churchill, crossing from the North Spur, crossing the river and going down to the power plant. The purpose

of this boom – as I mentioned earlier, in its natural state if water is really, really cold and open, it gets super cool so that when it splashes up it pretty well freezes instantaneously and will build up and up and up into a massive height, and you get a dam, a natural dam.

So when you're operating a power plant in very cold environments, what you're attempting to do is establish a stable ice cover upstream. When you get an ice cover upstream, you know, it's protected from the really cold elements, and so it doesn't get super cold.

There's a little short area between the boom and the power plant – it is open, but it's not enough to have the effect. So the primary purpose of the boom is to make sure that water doesn't become super cold. It also has secondary benefits in terms of collecting logs and debris going down the stream and safety in terms of people being up there kayaking or something and coming down. And once they get into the current coming into the power plant, it's almost impossible to escape, so the boom goes across the river and provides those features. Johnson is the – was the contractor for those booms.

It worked during the first winter; we had no problem. We just had – these are anchored. The boom was anchored at different places here, and – so the first year we had to move – some of the anchors moved. We had to go in and reset them – again, pretty normal.

**THE COMMISSIONER:** Mr. Marshall, just before you move on, I noticed that in one of your slides, on 39, you actually have a video of the North Spur –

**MR. S. MARSHALL:** Oh, sorry.

**THE COMMISSIONER:** – which you didn't play, and just wondering if you might –

**MR. S. MARSHALL:** Oh yeah.

Soon as I get my different (inaudible). Thank you, Mr. Commissioner.

So you can see that – the transmission lines coming down from the Upper Churchill. Two lines. I'm gonna stop that here for a sec, 'cause here you can see – again, you see that coarser

material – this would be the level which the water would arise, this coarser material right here. This will be inundated with water. And up here a little farther you saw the cut-off wall coming across the road there.

Here you can get a good view. You can see here the coarser material and the cut-off wall, which is of course below the ground now. So the water will come up to about this level here. And you see the gentle – I think it's a more gentle slope, now, on downstream. So there you have it.

So the accommodation area was expanded in 2017 to reach a peak workforce at the site. And at that point in time, we had about 2,500 people accommodated there in about 2,200 rooms. Some were doubled up. Currently we're down to about 1,525. Some people live in the – course, a lot of the workers live in Goose Bay and are from the area.

Looking at the powerhouse structure – I referred to this earlier, you know, upstream. On the top, here, you've got a movable piece of machinery for removing gates. It travels on tracks. You have to have gates upstream and downstream because – and there are four units here. There's two bays in each unit here and more upstream. If you ever need to work done below, you have to have a mean of isolating each bay to repair the turbines or whatever happens.

So I'll show you a video later on where it shows how it operates, but normal operation all the gates are open. But if you needed, for some reason, to shut down it down, we shut down one at a time. You can operate, say, three units; isolate the one. We bring in – barriers come down here; we throw in stoplogs. They're sort of temporary 'cause there's not much pressure down there.

Upstream, we have gates – big gates – and we have also accommodation for a more temporary type of structure. So if we ever need to repair the gate, we can actually isolate that and repair the gate, too. But you cannot – it's designed so that you only have to shut down one at a time, rather than the whole unit. Again, the main contractor here is Astaldi. And we have cranes inside – big cranes inside for moving the units, repairing the units.

So this is upstream. This is where we're working now. You're looking downstream. ANDRITZ were responsible for the gates and turbines. They're – have – putting in all the guys on this side. They're in the process now moving this over here. You have to bar off these things during construction because it's very fine tolerances on the tracks and – so they isolated the area and working – more of a comfort too, but also away from other debris and whatnot.

So this is upstream looking down. The water will come in here through those openings, go down into the powerhouse – into the unit, turn the turbines and then discharge from here. So this is downstream looking up. Again, you see the – here you got – each one of them has three up here, two down here.

Now you see the sequence of construction here: 2013, a big hole; not much more in 2014; 2015, they're starting construction. This was the temporary construction shutter that they worked on. Not the powerhouse, as ultimately built. So in 2016, we're coming out of the ground; 2017, we're almost finished. It was important to us to complete – to completely enclose the powerhouse by the winter of 2017, so they could work inside in a controlled environment to install the tubes for the turbines and whatnot. And that was done.

So again, here you are – I can't tell if it's upstream or downstream 'cause when you're looking up a hole, it could be either way. Here you're looking upstream, looking down at construction starting down here; 2015, you're looking across and seeing the dam – the powerhouse is starting to rise here. It's pouring concrete here now; 2016, we're in 2016, at this level, '17 – by the end of 2017, we had it pretty well covered in. You see the powerhouse coming across there, and here's where we are earlier this year.

So let's play this video. So here you can see, again, the big hole. The spillway's in operation. They're almost finished the north dam. You see the force of the water as well. This is the plug we're currently removing here.

So inside the powerhouse, by the winter of 2017 we're enclosed. There's four units. This unit you start looking at the one – you're looking from

south to north. The units are being built in sequence. Unit 1 is further along than 2, further along than 3, and Unit 4 is the least progress.

Here you get a sense of the shape, 'cause this is the lower level in the intake area, so the water is gonna come in here, it has to be distributed around – evenly around this hole, because the water's gonna go down through the centre here. The turbine's gonna be down in that hole. Your opening is in this thing here, and so in order to get an even distribution this had to be reduced as you go around it; it's like a snail's shell, all curved, all even reduction, and it's cut off here so that the water comes in, it's distributed around the opening, and down through the hole.

This is the powerhouse now looking from north to south. Here now you've got Unit 1 is right up to the generator floor; it's essentially done. They're ready now in the next few weeks to start installing the turbines. And this is the least one; we're now up to the level of this tube here. A lot of rebar goes in here because you're – there are a lot of stresses on the materials, very heavy rebar, very closely spaced. Now that we're up to this level, it becomes more like a conventional concrete wall.

So here, this is Unit 2, we have the best photographs here (inaudible). This is Unit 1 here; you're fairly far down the hole at this point in time. It still goes down a long way below this, but here you can see the shape where the water will be coming in and distributed around. So let's just play this and show you the construction.

Here you can see now where the water's coming in and being distributed around the draft tubes, the intake tubes, and here now this is the top of it. They're pouring concrete on the top of this now so it'll all be below the concrete level. You can see all the rebar around each unit.

So, now you're seeing just the walls coming up around where the generator will be. The generator will be – the turbine is down in the hole. In this picture you can actually see where the level where the water will be coming in way down here, that's three levels down. So it comes in here, go down further where the turbine will be. The generator will sit further up and that's where the – the shaft will come up and generate



electricity. I'll have a picture a little later on you'll see that.

Just show you again.

This is fairly complex work because the shapes, amount of rebar, and you're interacting because ANDRITZ is responsible for these steel pieces, where they're going to install the turbines and generators. So it's a back and forth between ANDRITZ, who's the mechanical contractor, and Astaldi, who is responsible for the concrete.

But you can see the next unit over here, how far it goes down, it's further behind. So you can see the height of the liner.

So looking ahead this year, as I said, the north dam is nearing completion. The focus will now be on installing the turbines and generators. The balance of the plant is just showing the electrical fit out, the control rooms and that sort of thing, completion of the gates and looking forward to empowerment next year to start to store water.

We talked about the rollways in the spillway finishing up next year and first power still on track for this.

The commissioning schedule, just talking about units, the sequence for the units, obviously. It's a – bear in mind you got four units. The most economic value will come from Unit 1 and 2. Unit 3 is sort of delegated to, in terms of contractual terms, to Emera. Unit 4 will not always be used anyway, it's like a spare. We'll use – at maximum flow it'll be used, but not all the year. So you get most of your value from the Nalcor perspective of Units 1 and 2.

Okay. So, this is a video which I hope will bring it all together for you. So this is a cross-sectional view. This is a tailrace where the water comes out. So, here – this is the intake. Here you'll see the gate; you'll see the operation of the gates here. There's operations here. This is a trash rack collecting trash. You know, big materials coming in from going in the generators. There's another line here. If we need to repair the gates, there's stoplogs and go to here. Just like we have here. These are stoplogs here. You'll see how they open – you can open them.

So the water will come in through the intake and, as I said, it goes down further, these will go way down here. It comes in. It gets distributed around – remember that snail-shaped structure I talked about – it's distributed around these holes. Water comes down and here's the impeller. Like I say, it's just like the propeller on a ship – vertical. As it passes through here – the throat – it turns this, turns the impeller. Turns this shaft. Goes up here. Here's the generator and the rotor's going around into the electric fields of the stator creating the electricity.

So, we'll show you a sequence here, sort of from start-up to electricity generation. I might play it a couple of times so you can get a good look at it.

So the waters is now collecting upstream and downstream. And you've isolated – your unit is isolated. It's just like we did a repair and now we're going back into operation, say. So, the water comes in – equalizes. The stoplogs are – downstream are removed. The gates are opened. Water begins to flow. The turbine begins to generate electricity.

So the bottom of this hole is, like I said, this – right here you're about 30 metres below the level of the river at this level. This is about a 39-metre level. I'll just show you again just so you get a good look at it. Here you see a crane on top that moves – allows for removal of gates and whatnot. The crane is inside; you'd need to replace the generators or turbines. The electricity comes out of the generator and goes into these transformers which are stacked up. They're a very fairly low voltage there, I think it's 15 kV. Ultimately, you're going to 300 – over 300 kV.

So let's talk about transmission. And the important point in all this is that if you look at dollar terms or in terms of the integrated technology, this is primarily a transmission project. All the focus is on generation, but the majority of the money goes into transmission and other technical challenges of transmission. For the most part, a generating plant is, you know, conventional, well proven. The only sort of unique aspect here is the North Spur.

So I've talked about this before in terms of the Labrador Transmission Assets, the line coming from Muskrat to Churchill, switchyards out there

and the LIL coming from here to down to Soldiers Pond. We just briefly mentioned of the grounding stations. When you have the DC line, positive and negative, there's a – in normal operation, you know, the positive and negatives outweigh each other, but if there's interruption or one – it happens to one pole, you need another line which they call the neutral.

So it's actually two wires coming from Muskrat to the Strait of Belle Isle with just one function and that's the neutral. From there, that's L'Anse Diable – L'Anse Diable – L'Anse au Diable and then another down at the point up in Conception Bay. And these are electrodes going to the water and using the water as the conductor to save having – to put a neutral wire from the Strait into Soldiers Pond. So that's the two things you're talking – the grounding station you're talking about here.

Because you're going underneath the ocean in the Strait of Belle Isle you have the transition compounds. I'll show a little bit about that as well – Strait crossing. And you have the big converter stations here at Muskrat to take from – to go from AC to DC and then one in Soldiers Pond to go from DC to AC. They're pretty complex and we'll just have a look at those.

So, again, this just tells you just again with the deal with Labrador transmission access, so I'll go through this pretty quickly because we've talked about it many times. It's – physically it's done, there's still a few little things to be patched up, but it's been in operation since last fall.

Just talking about the contractors there: Johnson's Construction for the clearing and Valard was the – is the principal line contractor on the whole line. Then you have the different other suppliers to it. I'd say fully energized last April, we jerry-rigged it for the winter so we could provide some protection to Goose Bay, because the line from Churchill to Goose Bay was in bad shape, so we just jerry-rigged the line to help out Goose Bay for the winter.

So here you see – oops, for some reason I've gone ahead here. You see that right away coming down, some of the clearing on the way – on the go there, on the dates. You see the foundations on the go here, the heavy

foundations. I should've just mentioned the number of towers. You got 1,262 towers installed and assembled. Like I say, at this point in time it's a dual line, two types of towers depending on whether you're just going straight ahead or you're making a turn. Obviously, if you're making a turn, there's more stresses on the structure so you – it's heavier construction.

Here you see it – at this point you're stringing, you're putting the conductor onto the structures. And I have a video here of that – I did have a video. I guess we don't have the video.

**UNIDENTIFIED FEMALE SPEAKER:**  
(Inaudible.)

**MR. S. MARSHALL:** Just to show you how it's done, how you string the lines.

I think we've seen all of that one, so I'll just move ahead.

These terminal stations are fairly complex. This is the one at Churchill Falls, tying into the existing system. Again, the yard was energized in 2017. The main contractor is Johnson Earthworks, GE Grid now I'm seeing for the first time, they did the substations; ABB for the transformers.

You'll see here under construction, 2014 just basically a pad, and here it is in 2017. Muskrat Falls here is much more complex, much more going on. So the lines are – 'cause the lines are coming in, had to come in from the Upper Churchill, they have them coming in from the Muskrat Falls station, and as the control centre. So that's all – they had to be combined, voltages put in place to prepare the power to go over to the converter stations. We'll speak to a little later on.

So here's the details on the Labrador Infeed line and the DC. I've gone over all that, so I won't – again, it's, in terms of construction, done. There's some work done on – to be done at the converter stations. These are very heavy towers. I have a picture (inaudible) you'll see the helicopters, using helicopters for installation; see the individual standing on the tower there. Again, Valard was the main contractor here, and then we have different suppliers of cable. It's a

long line; 3,215 towers, almost 2,000 on the Island and close to 1,300 in Labrador.

Also mentioned, there's a optical communications cable on the top. This one must be on the Island 'cause it doesn't have the grounding wires – or neutral wires, sorry. Just showing some of the clearing that went on, temporary ridges, whatnot. I think at one point we had more snow-clearing equipment on the road than the Newfoundland government had clearing roads, during construction. I could be wrong.

These are very heavy towers. Here you see a helicopter, and I'll show you that again, the video. You should be able to pick up the reference of it. Here you see the individuals in the bottom here, to get a sense of size.

It's a lot of very dangerous work. A lot of the work is dangerous, but the actual site has a great safety record. Some of you may recall what – there were two fatalities on another line. Newfoundland is not directly linked to this project.

Here's some of the equipment being used. And just to show you what the line looks like. I don't think it's gonna ...

The converter stations. Again, this technology is relatively new, solid-state conversion. A lot of it under construction around the world, still challenging. I've gone through most of the things here trying to explain how those work, so I don't think I'll spend a lot of the time there.

The one thing I haven't spoken about is synchronous condensers, which we'll see at the – not at the Muskrat Falls site, but it'll come up a little later on in at Soldiers Pond. And synchronous condensers, when you have these long lines and a lot of things happening on your system, possible interruptions, the way – again, I come back to my analogies. The way to describe a synchronous condenser: They're the equivalent of a flywheel on a machine.

A flywheel on a mechanical machine just takes out those little bumps, helps stabilize your operation. Synchronous condensers are basically just motors operated in sync with the current and help stabilize the flow of electricity. So just

think about them as big electrical flywheels, and you'll know what their purpose is.

So this is the one at Muskrat Falls convertor station. Power comes in in a conditioned state to go into the converters and comes out as DC.

So here's the Muskrat Falls station, the control room. Lines coming in both from Upper Churchill and from the Muskrat Falls station being combined, conditioned, going to the transformers. They go into converter stations, come out of the DC yard, where they're controlled, and from here it's all the way to Soldiers Pond. I do have reference to synchronous condensers here, like, support the voltage and inertia. Again, it's like a flywheel. Main contractor, again, GE Grid.

Here you see the big transformers going into the converter station. The most heaviest piece of equipment we have. We have seven there; one is a spare. So the converter stations – you have two poles. So it's basically a duplication both at Muskrat and Soldiers Pond. You can operate with one pole, and right now, in start-up that's – in commissioning that's what we're doing, just operating one pole. So if you have problems on the line – in the very short term, you can operate almost at the same capacity as two poles, but of course, you'd have to shut down pretty quickly.

We kept – the actual equipment that does the AC-to-DC conversion and vice versa, we refer to as valves as a (inaudible) – or your technology. It's all solid state today, but they still refer to it as valves.

So at this point in time, we've been energizing half the yard. Half the yard has gone from the contractor to our operations people. And we're in this phase of some days we operate, sorting out bugs – we go back and correct the bugs and come back and operate again. We've been up to 60 megawatts on the line. For technical reasons, until Muskrat Falls comes into operation, you can't operate any more than, say, 200 megawatts. And for safety reasons, probably around 100 megawatts a – I say safety. If it's too – if your load is too big and it trips or something, then you might take out – have a disruption on the system on the Island.

So our plan is, this winter, to be at, say, around 100 megawatts, 110 megawatts. Most days we're – when we're sorting out the bugs, is at around 40 megawatts. It's been down for a couple of weeks now to – replacing – when you start up something like this, a lot of – there are a lot of terminations, there are a lot of little pieces of small equipment and controls and that, so you have early failures. So when you start up, a lot of these little things will fail you. You go back in and fix those and start again.

The big issue now is the software. You know, this is being developed as you go along. So software is very, very challenging at this point in time.

This is a good view of the more – most complex yard (inaudible) at Soldiers Pond.

So the line – LIL is coming down here, along with a line from western Avalon, 'cause you're also bringing in power now from Bay d'Espoir. And by this part of the yard, the line coming from Labrador goes to the control yard, now you're converting back to DC – to AC, from DC to AC. So you're coming back to AC.

When you do that – if you're a musician, you know, you get harmonics and a vibrating in a musical instrument; you also get harmonics in an electrical system because of all these waves. And so you gotta smooth all this out in the filter yards.

This part of the yard here, from here to your right, is the AC yard. That was turned over to Hydro last year 'cause over on this side – this is all AC – this is (inaudible) we're controlling the lines coming in from Holyrood, western Avalon. So the lines coming in – all kinds of lines coming in here and then are going into St. John's. So this thing was – this part of the yard was turned over to Hydro last year, fully operational.

Here's a synchronous condenser building. You go in there, there's three big, like – would be like three big motors. When they're operational, they'll be turning around providing this capacitance or this stability of the line. Full size, a big yard, 50 acres. Again, the main contractor is GE Power.

You see that the rate of construction, (inaudible) inches of pad – 15, 17. You'll see here the AC yard, AC control building.

This is a view inside, looking at – this is solid-state transistors, they call them, which converts the – does the conversion from AC to DC and vice versa. Most of what you see here is actually cooling. As you do this, it throws off heat. So you have to put water, cooling the ones that were here to keep everything cooled off.

Here you see some of the big, heavy transformers coming to Soldiers Pond. It's reversed almost of Muskrat.

Here you look at the synchronous condensers. Again, they're just big motors turning around, providing that stability to the system.

Further view of the AC components of the yard, filter banks, control building. I've talked about those.

Again, part of this yard is operational and in start-up mode. The rest is left with the contractors still working on it. Good view of the yard overall. Line coming in from Labrador, converter station, synchronous condensers, DC control.

This is a view – I talked about the grounding stations earlier. Four to a point. There's a transition compound going – sorry, this is a transmission compound going to SOBI, the Strait of Belle Isle crossing. So maybe the next – go ahead a little bit first.

So here's the cables laid with the contour of the bottom, three cables. The grounding stations are up there and somewhere here.

You see the preparation work there.

So usually it's directional drilling – you've probably heard about – to take the cable away from the shoreline into deeper water, so it's not affected by scarring of the ice. And then, as you come out here, it's – the cable is protected by rock cover, about two kilometres. You see the drills going in at an angle. Picture of the cable. And the – joining the cables. Coring the rock for cover on the cable.

So a bit more about, you know, where we are in terms of transmission assets. So in early June – we just began testing in June – in May. In June, we had a little ceremony commemorating the fact that we can – we’re now about to start-up, operate the cables, shut them down again. But at this point in time, we have just one line of control. As – to be fully operational, you need a dual control line with automatic switching, so that if something happens in one control line, it automatically switches over to another without hesitation. So we’re still working on that.

But going into this winter, it’ll – this is an issue that’s come up that the – this is normal. You’ll get normal start-up issues: operating, shutting down. So that commission will be ongoing for the next – you can’t really – as I said a little earlier, you can’t really complete the commission of the cable until you got enough power to go into them for the design capability, and that won’t be available until Muskrat Falls is completed. Up until then, you’re sort of limited, maybe going up to about 200 megawatts. You just simply don’t have enough power to put through the cables.

This is the one that’s mistitled. I just want to talk a little bit about the transmission.

So we’re tying all these systems together: the Quebec system, the Island system, the Nova Scotia system. I’ve talked about, you know, the fact you got DC links makes it easier, but it’s still very, very complicated. We do have some access through Quebec. We have about 260 megawatts, 265 megawatts of access through Quebec. We have rights going through Nova Scotia. All those entities and entities dependent on them have criteria for stability. We have the, you know, stability rules which we have to observe, make sure they’re in place.

We will use the Maritime Link to – it’s designed to export power, but you can also import power, because the beauty of hydro is that you can actually use the – store the water, effectively storing electricity. You can’t store electricity directly in any degree, but on a given day it might be that the power in the Maritimes are very expensive, you might want to give a little bit more power. On a day it’s very cheap you want to cut back and maybe buy a little power

and let your water levels rise. So there’s lots of opportunity here.

A lot of things will have to be worked out over time. I mean, when you operate on an Isolated Island system, right, the operation of Bay d’Espoir, for example, you have to have enough – as I said, you have to have enough capacity every year. And where your water is variable you’d have to look at, you know, maybe three years of drought. So the way you operate your system in the past will be different than the way it’ll be in the future, now that we have other means of importing and exporting power. So a lot of things we sort out in operational terms over the years, and those were things we have to focus on in addition to sort of completing the normal work.

So, Mr. Chairman – Mr. Commissioner, that’s about it. I think I spoke a little bit too fast here. I allowed two hours, done it an hour and a half. But I certainly invite any questions you have on the presentation.

**THE COMMISSIONER:** All right. Maybe what we’ll do is, before we take some questions, we’ll take our break and for 10 minutes and then we’ll come back and, if there’s any questions, we’ll take them at that stage.

**CLERK:** All rise.

### Recess

**THE COMMISSIONER:** All right.

**MS. O’BRIEN:** Thank you, Commissioner.

I have one follow-up question on Mr. Marshall’s presentation.

Madam Clerk, could you please go to slide – or page 48.

Mr. Marshall, we have – we will be hearing some testimony later on with respect to the integrated cover system or the dome, as it were, that wasn’t successfully completed. Just while we’re here now with the photographs of that area, could you just explain to us where that system was intended to go?

**MR. S. MARSHALL:** You're looking at the page 48. In 2014 you see – you know, beginning construction of this temporary structure in the south bank. It's showing there in 2015 looking towards the south bank.

At various phases of construction of the power plant you'll see they're pouring almost the foundation here. So here is the temporary structure you're looking at here and also over here.

Of course, that was before my time so –

**MS. O'BRIEN:** Yes.

Thank you very much.

Those are all my questions, Commissioner. Other counsel may have questions for you, Mr. Marshall.

**MR. S. MARSHALL:** Thank you.

**THE COMMISSIONER:** All right.

The Government of Newfoundland and Labrador.

**MR. RALPH:** No questions.

**THE COMMISSIONER:** Concerned Citizens Coalition.

**MR. BUDDEN:** No questions, please.

Thank you.

**THE COMMISSIONER:** Edmund Martin.

**MR. SMITH:** Yes, just a couple of questions there, please.

**THE COMMISSIONER:** Okay.

**MR. SMITH:** Mr. Marshall, during your presentation you indicated that Nova Scotia received power for free. I was wondering if you could maybe elaborate a little bit on that.

**MR. S. MARSHALL:** Sure.

**THE COMMISSIONER:** Can we hold that because I don't really want to get into that part

of it right at the moment. There's gonna be a more appropriate time in these hearings that we're going to deal with this.

**MR. SMITH:** Oh, Mr. Commissioner, we're perfectly willing to do that.

**THE COMMISSIONER:** Okay.

**MR. SMITH:** Just that I thought, you know, we were allowed to do clarification.

**THE COMMISSIONER:** Right. Well, we'll get to clarification later on; right now this is about the physical structure.

**MR. SMITH:** Okay.

**THE COMMISSIONER:** So I'm not saying no to it later –

**MR. SMITH:** Yeah.

**THE COMMISSIONER:** – but I think it'll be more appropriately dealt with later on.

**MR. SMITH:** That's fine. We're prepared to wait for that.

**THE COMMISSIONER:** Thank you very much.

**MR. SMITH:** Thank you.

**THE COMMISSIONER:** Kathy Dunderdale.

**MS. E. BEST:** No questions.

Thank you.

**THE COMMISSIONER:** Former provincial government officials '03 to '15.

**MR. T. WILLIAMS:** No questions, Mr. Commissioner.

**THE COMMISSIONER:** Julia Mullaley and Charles Bown.

**MR. FITZGERALD:** No questions.

**THE COMMISSIONER:** Robert Thompson.

**MR. COFFEY:** No questions, Mr. Commissioner.

**THE COMMISSIONER:** Consumer Advocate.

**MR. PEDDIGREW:** No questions, Commissioner.

**THE COMMISSIONER:** NunatuKavut Community Council.

**MR. COOKE:** No questions, Commissioner.

**THE COMMISSIONER:** Grand Riverkeeper Labrador/Labrador Land Protectors?

**MS. URQUHART:** Thank you.

I just have two small points of clarification. You were referring to – when you were looking at slide 28, the cofferdam, you noted that you were pumping some fluid in. And I just didn't hear what you said and I was wondering if you could clarify what fluid that was that was being pumped in.

**MR. S. MARSHALL:** Sorry, could you repeat the question?

**MS. URQUHART:** So you had said in the winter that cofferdam, I think, which is in the bottom right-hand corner – you'd indicated you were –

**MR. S. MARSHALL:** Mmm.

**MS. URQUHART:** – they were pumping some sort of fluid in. And I just wanted to – I didn't catch what it was that was being pumped in.

**MR. S. MARSHALL:** Right. So, like you say, when you're building a cofferdam, which is a temporary structure, you expect it to leak a certain degree, but you want to be stable and there's a certain amount of leakage is acceptable. Some, you know, goes into that.

So after we had the cofferdam in place and started to raise the water level, we noticed that the seepage was occurring and the rates started to grow a bit and you could see that there was some materials in the water going through, which meant that you're leaching out some of the materials of the dam.

So the geotechnical experts said we should lower the level and do some grouting. That's – you know, you just put material – pump material into the structure that basically just stabilizes the materials in it, like a thick little bit of low-grade cement, as it were.

**MS. URQUHART:** Okay.

**MR. S. MARSHALL:** It's just – it's not what it is but, in essence, that's the same purpose. It just helps block some of those holes for you. And we did that and it achieved its purpose which allowed us to carry on in 2017.

**MS. URQUHART:** And the other question that I was wondering: On slide 40 there's a diagram there and I note when I zoom in I can't see the details. So I was just wondering if it'd be possible to get the actual diagram rather than the picture of a diagram for the –

**MR. S. MARSHALL:** Just with an explanation of what's there?

**MS. URQUHART:** Yes, that image there, the diagram, when I try and zoom in on it I can't actually read any of the writing. So I was wondering if it's possible just to get a copy of the actual original diagram so we can –

**MR. S. MARSHALL:** Oh sure.

**MS. URQUHART:** – see it properly.

**MR. S. MARSHALL:** Sure. I wouldn't think it'd be a problem.

**MS. URQUHART:** That's awesome.

Thank you.

**THE COMMISSIONER:** Thank you very much.

Former Nalcor board members?

**MR. GRIFFIN:** No questions, Commissioner.

**THE COMMISSIONER:** Manitoba Hydro International?

**MS. VAN IDERSTINE:** No questions.

Thank you.

**THE COMMISSIONER:** Okay.

Nalcor Energy?

**MR. SIMMONS:** No questions for Mr. Marshall.

Thank you, Commissioner.

**THE COMMISSIONER:** All right, thank you very much.

Mr. Marshall, before you step down, I just want to thank you for allowing us to make some arrangements for a tour tomorrow for some of the counsel here. I very much appreciate that opportunity. I think it will be helpful to counsel to see the actual physical structure of – physical structures.

Just a reminder for everybody going this is not a discovery-type procedure there; this is solely for the purpose of seeing it. There may well be questions related to what does this mean or what does that mean, but that's about the extent of it.

We will have one of our associate counsel that will be on the tour. And just remind you, Mr. Marshall, if you would, the idea here is basically to show the physical plant. And I don't really want to hear about discussions ongoing related to what might be future evidence in these hearings, but I do really appreciate the fact that you are doing this tomorrow for all the counsel that are going. So thank you very much.

Before we break this afternoon, it's come to my attention that there's an issue with regard to Friday and some of you potentially flying out. So I'm trying to get a handle on when those flights are. I was online and looked at the flights so I think the earliest flight that I could see was 5:25 in the evening. Is there anybody flying out earlier than 5:25 on Friday?

Okay, so if we go to – is there anybody on the 5:25 flight? What's the earliest flight that you're on?

Mr. Coffey is busily trying to find out which flight he's on.

**MR. COFFEY:** (Inaudible.)

**MS. URQUHART:** I'm on the 5:25 flight as well, Commissioner.

**THE COMMISSIONER:** Okay.

**MS. URQUHART:** Yes.

**THE COMMISSIONER:** So at least one of you. So what we'll try to do is we'll try to finish up by at least 4 o'clock. Ms. O'Brien is going to be doing the questioning primarily of the Grant Thornton witnesses. So she may decide to break a little earlier than that if it's a convenient place to break, but we'll certainly be finished by 4 o'clock if that's helpful to everybody.

All right, so I'll adjourn then. Good luck with your tour tomorrow and back on Friday morning at 9:30 for Grant Thornton.

Yeah, we're adjourned.

**CLERK:** All rise.

This Commission of Inquiry is now concluded for the day.