COMMISSION OF INQUIRY
RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 1	Volume 6

Commissioner: Honourable Justice Richard LeBlanc

Tuesday	25 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.

Ms. O'Brien, (inaudible).

MS. O'BRIEN: Good morning, Commissioner.

Before we begin today's proceedings, I am seeking to enter some further exhibits. These are exhibits that will be referred to by counsel for the parties withstanding during the cross examination of the Grant Thornton witnesses.

Seeking to enter Exhibits P-00257 through to P-00264.

THE COMMISSIONER: All right.

Any objection to that from any counsel?

Okay. In the circumstances there be marked as numbered.

Anything else?

MS. O'BRIEN: Thank you, Commissioner.

THE COMMISSIONER: All right.

Mr. Malamed and Mr. Shaffer, you remain affirmed at this time.

Mr. Budden, when you're ready.

MR. BUDDEN: Good morning, Mr. Commissioner.

THE COMMISSIONER: Morning.

MR. BUDDEN: Perhaps we could have P-00014 called up again. I'll be referring to it in a moment or two.

Gentlemen, I'd like to pick up where I left off yesterday, which was a discussion of the financing costs of the Interconnect Island Option. You would firstly acknowledge, I assume, that financing is inherently a cost of any construction project.

MR. SHAFFER: I don't know of any, but in this one that was my understanding.

MR. BUDDEN: Okay. And that even in a relatively low-interest environment, if you're borrowing or if you're financing a multi-billion dollar project, you're obviously incurring significant financing costs.

MR. SHAFFER: Significant is a relative term but you're incurring financing costs.

MR. BUDDEN: Okay. And are you aware of any pre-sanction estimate of the financing costs for the Muskrat Falls megaproject?

MR. SHAFFER: I am not, maybe Mr. Malamed is.

MR. BUDDEN: Pardon?

MR. SHAFFER: I'm not. I just don't recall it. Maybe Mr. Malamed is –

MR. MALAMED: Sure.

MR. SHAFFER: – can't answer that.

MR. MALAMED: Could you ask that question again, please?

MR. BUDDEN: Are you aware of any pre-sanction estimate of the financing costs of the Muskrat Falls Project, the financing costs?

MR. MALAMED: I'm not.

MR. BUDDEN: Okay. Are you aware of any estimate at all: post-sanction, current, anything you guys have done?

MR. SHAFFER: I can tell you that I know the financing costs were – if I recall correctly – were included in the CPW calculation.

MR. BUDDEN: Okay. And can you draw my attention to those?

MR. SHAFFER: I'm sorry?

MR. BUDDEN: I said – you say they were included in the –

MR. SHAFFER: CPW calculation.

MR. BUDDEN: Okay, can you draw my attention to where that is?

MR. SHAFFER: Well, it's in our detailed work papers back in St. John's.

MR. BUDDEN: Okay.

MR. SHAFFER: But I know it was part of what the Nalcor project team was including in the calculation.

MR. BUDDEN: Okay. So you have them, they've been completed but you don't have them with you now.

MR. SHAFFER: That's correct.

MR. BUDDEN: Okay.

MR. SHAFFER: But if I can, if you turn to the table that indicated the sensitivity analysis. If you recall, a couple of the sensitivity analyses that were included for the DG3, sensitivity analyses were if financing costs went up 50 basis points or went down 50 basis points.

MR. BUDDEN: You have the site for that table there in front of you now, could we turn to it?

MR. SHAFFER: Turn your attention to page 55, specifically to look at the fourth line from the bottom. You see the following lines it's talking about increasing and decreasing the interest rate by various points –

MR. BUDDEN: Okay.

MR. SHAFFER: – and the impact it would have on the CPW.

MR. BUDDEN: Would you agree that to exclude financing costs from the CPW for the Interconnected Island Option would be to understate the CPW for the Interconnected Island Option?

MR. SHAFFER: Yes, but this table indicates it was included.

MR. BUDDEN: Okay. They briefly returned to that with a follow-up question, but for now, I'd like to move onto operational management costs.

When you spoke Friday, you noted that in 2017 Nalcor recalculated operational management costs, and the recalculations saw the figure go from an estimate of $34 million at sanction to a revised figure of $109 million from 2020.

And do I understand – this perhaps would be a question for Mr. Malamed because you're the one who answered it on Friday. Do I understand you correctly that the CPW consequence of this would be about a billion dollars?

MR. SHAFFER: That was actually – I answered it and –

MR. BUDDEN: Did you? Okay.

MR. SHAFFER: – I don't know if it specifically would be a billion dollars, but based on the present value of that financing costs difference over an approximate 50-year period at a discount rate of 7 per cent would be approximately a billion dollars, and that's excluding inflation.

MR. BUDDEN: Okay. You describe it as a back-of-the-envelope calculation, but I presume you have some confidence in it or you wouldn't have used it.

MR. SHAFFER: Yeah, that was probably a bad term. It was a computer program we have that's called TValue that calculates present values. That's what I use.

MR. BUDDEN: And your discount rate was 7 per cent, you said?

MR. SHAFFER: Yes.

MR. BUDDEN: Okay. And what was your escalation rate?

MR. SHAFFER: I said I didn't use one. I said I didn't take inflation into account.

MR. BUDDEN: Okay. Fair enough. Yeah.

We could perhaps now go to page 24 of your report. And if we look at the – I'm looking at here at the capex figures for Gull Island and Muskrat Falls, and they are exactly the same, which I presume is – or can you explain why they would be exactly the same at $6,582,000,000?

MR. SHAFFER: No, but if you look at the note that we have below the table –

MR. BUDDEN: The footnote, yes.

MR. SHAFFER: – I mean that pretty much explains it.

MR. BUDDEN: So that's a notional figure rather obviously than a precise estimate.

MR. SHAFFER: Well I'm not sure what you mean by that.

MR. BUDDEN: Okay, so, well it's not an actual cost estimate – project cost estimate.

MR. SHAFFER: I think the footnote speaks for itself.

MR. BUDDEN: Okay. Fair enough.

In the same chart, if we look under reliability under the Hydro-Québec option, perhaps you could just read what is stated there.

MR. MALAMED: Sure.

"Interconnected to the North American Grid however, continuity of supply not assured."

MR. BUDDEN: Okay.

I guess I would suggest to you that continuity of supply – if a contract was in place with Hydro-Québec, continuity of supply presumably wouldn't be a risk. You would agree with me there?

MR. MALAMED: I wouldn't know what the details of that contract were so that'd be difficult to answer.

MR. BUDDEN: Okay but there's no doubt, I presume, nobody suggesting Hydro-Québec would be unable to deliver on a contact.

MR. MALAMED: I have not seen anything to say that they would not be able to deliver.

MR. BUDDEN: Okay, which I would suggest brings us back to the fundamental point that you guys have raised that if you don't talk to somebody, if you don't have discussions, you're not going to arrive at a contract with Hydro-Québec.

MR. MALAMED: So that's not our comment. It's – the findings and observations was that there was not that formal discussion.

MR. BUDDEN: Right. And absent of formal discussion, you're not going to arrive at a contract.

MR. MALAMED: I'm sorry?

MR. BUDDEN: And absent formal discussions, you're not going to arrive at a contract.

MR. MALAMED: I can't necessarily say because I'm not a contracting expert, but I'm going to believe that they'd have to speak to each other.

MR. BUDDEN: Okay.

Can you explain why the capex for purchasing power from Hydro-Québec was over $350 million higher than was either the Muskrat Falls or Gull Island capex? Do you have an explanation for that working from the same chart?

MR. MALAMED: I don't – I don't have an explanation for that.

MR. BUDDEN: Pardon?

MR. MALAMED: I do not have an explanation for that. We did not go into the detail of Hydro-Québec because I was supposed to go into the two options. That was our mandate.

MR. BUDDEN: Okay.

I'd like to move on to a discussion of macroeconomics. And you conclude in your report and you were – that the – Nalcor's use of macroeconomics to calculate their load forecast was essentially that it was appropriate for them to use the various tools of macroeconomics to do so. So it's a general observation that you found that they were correct in so utilizing that tool.

MR. MALAMED: I saw that it was appropriate for them to use macroeconomics, yes.

MR. BUDDEN: Okay.

And, obviously, there are a variety of macroeconomic predictors; you've acknowledged several of them there.

MR. MALAMED: Yes.

MR. BUDDEN: Okay.

The – and in some of those instances with – particularly with respect to population and economic growth estimates, they have used the Government of Newfoundland figures, which appear to be the most optimistic of the various projections available to them.

MR. MALAMED: I can't talk about their optimism but I can tell you that they did use the Government of Newfoundland and Labrador Department of Finance information.

MR. BUDDEN: Okay.

And you looked at the other figures and are you – would you agree that the economic projections arising out of the Newfoundland figures were more positive for the future of Newfoundland's economic growth than were some of the other – the Conference Board of Canada figures, for example?

MR. MALAMED: From the review that I did I am saying that those numbers are greater than the others, yes.

MR. BUDDEN: Okay, so you're agreeing with me.

MR. MALAMED: Yes.

MR. BUDDEN: Okay.

Obviously, it is helpful for an Interconnected Island Option that the figures unfolded that way. Did you see any evidence of cherry-picking by Nalcor of the macroeconomic sources they used?

MR. MALAMED: I did not assess which ones they used and which ones they didn't. I just looked at what was used so I don't know that I can answer the question in terms of cherry-picking.

MR. BUDDEN: Okay.

So I guess in answering my question, did you see any – did you yourself see any evidence of a conscious decision to use optimistic forecasts as opposed to less optimistic forecasts?

MR. MALAMED: Again, going back to what we were engaged to do, it really is identifying the findings and the observations of what was done. And I think that's what the report is showing.

MR. BUDDEN: So you did make an observation they used macroeconomic data. You didn't make a judgment as to whether they used appropriate macroeconomic data?

MR. MALAMED: That's correct.

MR. BUDDEN: Okay.

You were examined near the end of your evidence yesterday about your approach to transmission losses and particularly with regard to the difference, I presume, between using a 5.15 figure, which is what Nalcor used for transmission power loss, and a 9.2 figure, which was the – NS USARB [sp NSUARB] figure. You recall that discussion I presume?

MR. MALAMED: I do.

MR. BUDDEN: Okay.

Did you attempt to quantify – you know, other than acknowledging there's a difference, have you at any point in your working papers perhaps – because I don't see in your report. Have you made any attempt to quantify the difference between using those two figures?

MR. MALAMED: No.

MR. BUDDEN: Okay. Are you able to even offer a suggestion as to whether this is substantial or an insubstantial difference?

MR. MALAMED: I would have to go back and test it.

MR. BUDDEN: Okay.

Mr. Shaffer, you spoke of a management reserve in your evidence on Friday. In this context, what is management reserve?

MR. SHAFFER: It's an amount that's set aside to cover the strategic risk exposure that's controlled by the shareholder and the Gatekeeper.

MR. BUDDEN: Okay.

Is it a normal feature of megaproject development to have such a management reserve?

MR. SHAFFER: I had been told it is.

MR. BUDDEN: Okay, told by …?

MR. SHAFFER: John Hollmann has indicated that, as I believe Mr. Westney indicated it also.

MR. BUDDEN: Okay.

And in this instance was a management reserve – was there anything exceptional about the extent of that reserve that you were able to observe?

MR. SHAFFER: Not sure I understand the question.

MR. BUDDEN: Okay.

Conceptually, you have said that it is appropriate to have a management reserve. Was the size of this management reserve in line with what you might expect?

MR. SHAFFER: Well, I can only tell you what I was told by Mr. Hollmann about it. And what Mr. Hollmann indicated when we interviewed and talked to him about it was that there's two types of risks: There's risks that are event-driven –

MR. BUDDEN: That are …?

MR. SHAFFER: – event-driven, that may or may not occur, for example, a tornado; and then there's fact-driven risk, that's a hundred per cent certain it's going to happen, you just don't know how bad it's going to be. Think of it as you know it's going to snow, you just don't know how much it's going to snow.

And then back then that labour shortage was a fact of what was going on in Canada at the time, and it was a hundred per cent certain that it was going to happen, the question is how bad was it going to be? And he indicated every risk analyst knows that productivity will not be your target productivity. And there was a huge track record of megaprojects in Canada where the productivity was coming in at two to three times what was being estimated.

And – but his point was it was it a hundred per cent certain, and he said that's the definition of a contingency. And that's what he told me.

MR. BUDDEN: Okay.

So I guess in answer to my question: Was the management reserve in line with what you might expect for a megaproject of this sort, are you in a position to comment on that?

MR. SHAFFER: I'm not.

MR. BUDDEN: Okay

I'd like to return, Mr. Commissioner – I've just a couple of points in cluing up, and I'd like to return to Exhibit P-00041, which is, as we discussed yesterday, the report of the Joint Review Panel dated August 2011. And perhaps we could turn to page 11 of that report. I'll contextualize it a little more than I did yesterday.

Perhaps you could scroll down a little further to the third paragraph, and for – I will – I'll just start off by reading off the first little bit here, then I'll ask you to speak to some of it.

This paragraph reads: "The joint review panel ("the Panel") was appointed by the Newfoundland and Labrador Minister of Environment and Conservation and the Minister for Intergovernmental Affairs, and the federal

Minister of the Environment. The Terms of Reference issued by the Ministers required the Panel to assess the environmental" impacts "of the Project, including:" – and there's the first two bullet points I'm particularly interested in – "consideration of the need for and purpose of the Project." The second bullet point, "alternatives to the Project and alternative means of carrying out the Project."

And I should say, the project in this case wasn't necessarily the Muskrat Falls; it was hydro development on the Lower Churchill generally.

Perhaps we could then scroll down a little farther to the fourth paragraph, and the first sentence or two really highlights what it – how it proceeded.

"The Panel reviewed extensive information provided by Nalcor and other participants during the course of the review, and held a 30-day public hearing in nine locations in Newfoundland and Labrador and in Quebec from March 3 to April 15, 2011." – which clearly is well pre-sanction.

Could we now turn to page 68 of the same exhibit?

So, first, I would suggest to you that this is a hearing process broadly similar to the USARB process that took place in – NSUARB process that took place in Nova Scotia that you have already dealt with in your report.

Would you agree with that?

MR. SHAFFER: I'll take your word for it.

MR. BUDDEN: Okay.

If we can scroll a little further down that paragraph, we have a section there that's boldface and in a box. A little further, please, on 68. Yes.

The – could you please read that short passage in that box?

MR. MALAMED: "The Panel concludes that Nalcor's analysis that showed Muskrat Falls to be the best and least cost way to meet domestic demand requirements is inadequate and an independent analysis of economic, energy and broad-based environmental considerations of alternatives is required."

MR. BUDDEN: Thank you.

And if you can scroll down a little further to the recommendations portion. And the – they're calling there for further analysis, but perhaps you could read the bullet point.

MR. MALAMED: "The analysis should address the following considerations:" Bullet number one: "why Nalcor's least cost alternative to meet domestic demand to 2067 does not include Churchill Falls power which would be available in large quantities from 2041, or any recall power in excess of Labrador's needs prior to that date, especially since both would be available at near zero generation cost (recognizing that there would be transmission costs involved)."

MR. BUDDEN: Okay.

The part there I'm particularly interested in is: "why Nalcor's least cost alternative to meet domestic demand … does not include Churchill Falls power which would be available in large quantities from 2041."

Would you agree that that critique of Nalcor is quite similar to the NSUARB's critique of Nalcor's proposal to develop the Lower Churchill?

MR. MALAMED: I don't know if I'd call it a critique. I would call it that …

MR. BUDDEN: Put it this way, is it consistent with the findings of the NSUARB on that point?

MR. MALAMED: Let me just open up this, the page with the NSUARB that we've quoted.

So the NSUARB says: "while legitimate questions remain about the availability of Market-priced Energy from Nalcor over the first 24 years of the Maritime Link, the evidence clearly shows that there should be no shortage of Market-priced Energy when the Churchill Falls arrangement with Hydro Quebec comes to a conclusion in 2041."

MR. BUDDEN: The – if you go back to your own exhibit, page 8, line 14 thereabouts. Okay.

MR. MALAMED: Yes.

MR. BUDDEN: And perhaps you could just read again that line?

MR. MALAMED: Maintaining the Isolated Island System until that time, following the –

MR. BUDDEN: Are we on page 8, line 14?

MR. MALAMED: I'm sorry.

MR. BUDDEN: That would be – if you're looking from your paper copy, that would be page 5 of your paper copy.

MR. MALAMED: Page 8, line 14.

"The findings and observations noted above suggest that Nalcor may have inappropriately eliminated the options of importing power from Hydro Quebec or deferring the development of LCP until 2041when power was available from the Upper Churchill, from proceeding to Phase Two analysis."

MR. BUDDEN: So your conclusion at this stage of your report was that the Nalcor – you echoed the, or you noted the NSUARB's finding that Nalcor may have inappropriately eliminated this option. And from that you further concluded that they, too – that Nalcor had inappropriately eliminated at the DG1 stage, I believe.

Would you agree that the findings of the Joint Review Panel echo those of the Nova Scotia UARB in its, you know, its general statement?

MR. MALAMED: From what I read so far in the – what I can see, they have similarities.

MR. BUDDEN: Okay.

And therefore would be inconsistent with Nalcor's conclusion on this issue.

MR. MALAMED: I don' know if I can answer that question.

MR. BUDDEN: Okay.

Would you also agree that the report of the Joint Review Panel, dated August 2011, supports your conclusion, Grant Thornton's conclusion that, quote: Nalcor may have inappropriately eliminated the 2041 option?

MR. MALAMED: That's not a conclusion. That's a finding or observation.

MR. BUDDEN: Okay.

Well, then it – or rephrase it as: it supports your finding or observation.

MR. MALAMED: It does appear to support it.

MR. BUDDEN: Thank you.

Perhaps you could turn to page 64 of your report, which again is P-00014. Page 61 of your paper copy.

Would you scroll down to line 16 – which is out of sight. Would you just briefly read that paragraph on line 16 to 23?

MR. MALAMED: Yeah.

MR. SHAFFER: I'll take it. "With regards to the concrete pour, the DG3 Project Cost and Schedule Risk Analysis Report includes an email from SNC Lead Estimator to the Deputy General Project Manager regarding the schedule for the concrete pour. In the email, the SNC Lead Estimator summarized his opinion regarding the concrete pour schedule planned for work packaged CH0007, and stated that 'This is a quite aggressive schedule because of the huge quantities involved in a relatively short period of time and although the day/cycle ratio seems to me reasonable, the fact remains that, running at a pace of some 480m3/day, for almost three consecutive years, at every day, will remain quite a challenge! I suggest we put a time or money provision in our contingency plan, to overcome a possible failure that may occur.'"

MR. BUDDEN: Okay.

So I'm suggesting to you this is a real-life example as to why people in the know at Nalcor – I note here this was to the deputy general project manager, so at the high, high levels of Nalcor, people knew that, as regard scheduling, this was a P1 project, there was virtually no chance they were gonna finish as per their schedule. You would acknowledge that appears to be something that was known at Nalcor?

MR. SHAFFER: Well, I think the email speaks for itself. I'm not sure if – when the P1 was indicated in the Westney reports, whether or not that preceded or was after the date of this email.

MR. BUDDEN: Okay. But it's consistent with a P1 finding – this kind of, you know, we're speaking about a very aggressive schedule – or rather a quite aggressive schedule. So even then they knew that they had problems with their schedule.

MR. SHAFFER: Well, as he says, it seemed to be quite a challenge.

MR. BUDDEN: Yeah. And scheduling overruns have real-life cost consequences, don't they?

MR. SHAFFER: Yes.

MR. BUDDEN: Okay.

And did your report attempt to identify what P-factor should have been included in the CPW analysis for the Interconnected Island Option to reflect scheduling overruns?

MR. SHAFFER: No.

MR. BUDDEN: Okay.

And if a P-factor was included there, that obviously would have led to a higher cost estimation for the CPW for the Interconnected Island Option?

MR. SHAFFER: Well, as we all know, strategic risk was left out of the CPW calculation.

MR. BUDDEN: Okay.

MR. SHAFFER: So I guess the answer would be yes, of course.

MR. BUDDEN: And as we described – discussed yesterday, your own experts believe that the P50 Nalcor used was incorrect, that a P70 to P90 should've been used for construction costs?

MR. SHAFFER: I don't know if the term incorrect is really fair. I think – what I testified to is that they have seen clients use higher P-factors.

MR. BUDDEN: Okay.

And these are your own experts who Grant Thornton has relied on?

MR. SHAFFER: One of them. The other was folks that Nalcor used.

MR. BUDDEN: Okay.

Do you feel that you – with regard to risk generally, the risk of the Interconnected Island Option versus the risk of the Isolated Island Option, we've seen a discussion of risk around scheduling; we've seen a discussion of risk around project costs, and it, obviously, would be an issue for financing as well.

Do you see sort of a systemic pattern – or I guess I would put to you, there's a systemic pattern where the risk of the Interconnected Island Option has been downplayed, would you agree with that?

MR. SHAFFER: I think the report speaks for itself and my testimony speaks for itself. I'm not in a position to say it was downplayed or not.

MR. BUDDEN: Okay, thank you.

Those are my questions.

THE COMMISSIONER: Okay.

Edmund Martin?

MR. SMITH: Good morning, gentlemen.

MR. MALAMED: Good morning.

MR. SHAFFER: Good morning.

MR. SMITH: My name is Harold Smith, and I am representing Mr. Edmund Martin, former CEO of Nalcor.

And I think you'll find that my approach this morning is a bit different than some of the previous examiners, and bear with me, I think a little bit, and we won't take too long, and we'll be done.

THE COMMISSIONER: Can I just ask you, Mr. Smith, just to speak up just a bit –

MR. SMITH: I'll try.

THE COMMISSIONER: I don't think you need to get any closer to the mic, and maybe they'll – this little comment might alert the crew in the back just to turn up the mic just a bit.

MR. SMITH: I've noticed that there's a whistle sometimes if it gets turned up too high.

THE COMMISSIONER: Right.

MR. SMITH: I'll do my best.

THE COMMISSIONER: Thank you.

MR. SMITH: Now, I want to start with, if I could, your – P-00013, which is the engagement letter for Grant Thornton of February 3, 2018, and I'm focusing on page 4 of that letter.

The scope of sanctioning phase, and I'm trying to – because we've heard a number of times it was inside or outside our terms of engagement, I wanted to get an understanding as to whether the interpretation I have of this terms of engagement is in line with your comments.

I note that the document starts off by: "The forensic audit shall include only an investigation of the options that were considered by Nalcor to address the electricity needs of Newfoundland and Labrador's Island Interconnected customers. The forensic audit shall include an investigation of the assumptions or forecasts on which Nalcor's analysis of the options was based."

And then it goes on to say: "The forensic audit shall include an investigation of Nalcor's financial analysis of the Project and of the Isolated Island option from which Nalcor determined that the project was the least-cost option for the supply of power to Newfoundland and Labrador's Island interconnected system over the period 2011-2067."

Now, I'm interpreting – and please correct me if I'm wrong, but I'm interpreting that as you were to look at all of the options that were – went into the discussion, of which I believe you did, okay, but particular emphasis, it seems, on the Interconnected Option, notably the hydro project that we've been talking about, Muskrat Falls, and, on the other side, the Isolated Option.

Is that a fair –?

MR. MALAMED: That's correct.

MR. SMITH: I'm correct? Okay. So – and then it says: "The Audit shall be conducted in accordance with the Standard Practices for Investigation [sp Investigative] and Forensic Accounting Engagements of the Chartered Professional Accountants of Canada."

And I believe that document was presented to us, and it appears to be P-00244. Could I have that one? Thank you. And in the P-00244, I have a couple of questions in terms of how you approached the forensic audit that you've delivered to us.

The first one is – I note that in the "Application of the Definition" on page 11. Okay, item .12: "Professional accounting skills, investigative skills, and an investigative mindset should each be applied to every IFA engagement … not all of their sub-components will be applied in every IFA engagement."

And .14, an investigator mindset is also necessary for all IFA engagements. In dealing with dispute-related engagements, the investigative mindset is employed to assist in determining and evaluating procedures, findings and conclusions.

Was it your interpretation of this particular engagement, that it fell into the category of – if you will – dispute-related engagement? Is this a dispute-related engagement that you would apply that particular principle to?

MR. MALAMED: I'm just looking for a paragraph for you. I apologize. I'll be one minute.

MR. SMITH: Oh no, that's fine. Take your time.

MR. MALAMED: The first part of my answer is that the forensic accounting standards in front of you are recommendations, and they're not prescriptive. It's not a must for each of these. When I look at investigative and forensic accounting engagements, under the definition are those that "… require the application of professional accounting skills and investigative skills in an investigative mindset …."

MR. SMITH: You're reading from where, Sir?

MR. MALAMED: Page 10. The definition of engagements.

MR. SMITH: Yes?

MR. MALAMED: Point 08(a).

MR. SMITH: Point 08(a)? Okay. Thank you.

MR. MALAMED: "… and involve disputes or anticipated disputes, or where there are risks, concerns or allegations of fraud or other illegal or unethical conduct."

I understand that there are anticipated disputes, in terms of preparing for today. The definition of forensic – it explained that it's preparing information to be used in a courtroom or in a procedure such as this.

MR. SMITH: Okay. All right.

So in answer to my question, which is under the application of the definition, was this viewed as a dispute-related engagement?

MR. MALAMED: I think it would be unfair to call it a dispute.

MR. SMITH: Okay. So .12 would be more applicable in this context, would it? That is: application is professional accounting skills, investigative skills and investigative mindset applied to the engagement.

MR. MALAMED: Correct.

MR. SMITH: Okay.

MR. MALAMED: Which is some of that, correct.

MR. SMITH: Okay.

I'd ask you then to turn to page 15, Madam Clerk. And I'm looking at item .03 under General: "When planning the extent of the scope of work for a particular IFA engagement, IFA practitioners should consider: (a) developing hypotheses, as applicable, for the purpose of addressing the circumstances and context of the engagement …."

Did you develop such hypotheses?

MR. MALAMED: We did.

MR. SMITH: Okay. Could you elaborate on what they were?

MR. MALAMED: We get an understanding of the scenario of what has occurred, and we hypothesized that it really comes down to what was included and what was excluded, and to get an understanding of that and to see how it was assessed.

MR. SMITH: Okay. And would the exclusion and inclusion be in relation to, you know, particularly the second paragraph of your engagement, which is comparison between the Isolated and the Interconnected?

MR. MALAMED: Could you clarify that question for me?

MR. SMITH: I was – well I was going to say is, that, you know, you said you were developing hypotheses that you would effectively – excuse me – determine what was included and what wasn't included in terms of what went on at the time of sanction.

MR. MALAMED: To identify what was.

MR. SMITH: Yeah.

MR. MALAMED: Yes.

MR. SMITH: To identify. Now, that identification, was that limited only to the Interconnected Island, or was it intended to be related to the Isolated Island Option?

MR. MALAMED: It would apply to both.

MR. SMITH: Apply to both. Thank you.

Now, I'm going to – it's not an exhibit I'm afraid, but there is a – in March of this year, there was a decision of the Commissioner, Mr. Justice LeBlanc, as to the scope of the terms of reference and what he understood them to be. Were you provided with his decision of March 14, 2018?

MR. MALAMED: I believe I was, yes.

MR. SMITH: Okay.

And a part of that decision, and I can refer you to a page, I apologize that it is not an exhibit itself, it's just the rules that we try to follow when we're – in regard to this Commission. We know that Mr. Justice LeBlanc, the Commissioner, set out the guiding principles. Do you recall any of those guiding principles?

MR. MALAMED: I'd have to –

MR. SMITH: You'd have to –

MR. MALAMED: – look at this paper in front of me?

MR. SMITH: – have to look at it, okay.

THE COMMISSIONER: Okay Mr. Smith, would it help if I was – I actually have a copy of that in front of me.

MR. SMITH: Yes.

THE COMMISSIONER: If I were to provide that to Mr. Malamed, would that assist you?

MR. SMITH: I'm sure it would indeed assist, your Lordship.

MR. MALAMED: Yes.

MR. SMITH: I'd like you to turn to page 8.

MR. MALAMED: Yes.

MR. SMITH: Which I understand is the – essentially, a summary of the guiding principles to be applied in relation to this Commission of Inquiry.

MR. MALAMED: Okay.

MR. SMITH: Okay. And looking at it now on page 8, there are independence, cooperation, thoroughness, expeditious, openness to the public and fairness. I'd like you to focus on fairness for a moment. Fairness that the Inquiry balance the interests of the public in learning what happened with the rights of those involved who are to be treated fairly. I believe Mr. Martin is one of those people involved.

MR. MALAMED: Okay.

MR. SMITH: And entitled to be treated fairly, correct?

MR. MALAMED: Yes.

MR. SMITH: In an investigative inquiry it is important to be reminded that implicit in being fair is a need to guard against inappropriate reliance on hindsight. Any evaluation of past conduct must be done in the context of the knowledge that was available at the time, not what we know today.

MR. MALAMED: Yes.

MR. SMITH: Okay. Now I'm going to draw your attention then to a series of questions that I have respecting whether or not fairness has been extended and maybe you could comment by saying whether or not it's your belief that fairness was extended to the parties in the preparation and presentation of your forensic audit.

MR. MALAMED: Okay. I just want to say though, that I'm not a judge to be able to –

MR. SMITH: No.

MR. MALAMED: – give you my expertise if it's fairness or not.

MR. SMITH: I'm not asking for expertise, I just wanted your opinion, just generally, whether or not you believe you acted fairly in the presentation of the report and the presentation of this Commission.

MR. MALAMED: Okay.

MR. SMITH: What's your view?

MR. MALAMED: I thought you –

MR. SMITH: Do you believe that you were acting fairly?

MR. MALAMED: I believe that we acted fairly, yes.

MR. SMITH: Yeah. Okay.

In that regard, I'd like to, perhaps, first of all look at the phrasing that you used in your report. Now, I could turn to – well, let's turn to P-00135 first, okay. That is the presentation to the Commission.

And I'm interested in the part of the page – excuse me, 135. Oh, I apologize; that should be P-00014. I apologize, P-00014, and if I could, page 26.

Now, at – let's scroll down, please. I must be using a different – not the exhibit. Just give me a second.

THE COMMISSIONER: You might be using the report.

MR. SMITH: I might be –

THE COMMISSIONER: At page 23, maybe?

MR. SMITH: Yeah. I don't have a table of concordance right with me, but could I – is there page numbers on the bottom of this? Could you go to the bottom?

Yeah, that's 20. Could you go to 26 where the number is at the bottom?

THE COMMISSIONER: Okay.

MR. LEARMONTH: That's the number we use.

MR. SMITH: Oh yeah.

MR. LEARMONTH: And it's different from the one on the bottom. So use the one on the top.

MR. SMITH: Yeah. I know the difficulty is yet – I don't know the – excuse me.

MR. LEARMONTH: Yeah.

MR. SMITH: At 26? Yeah, keep going. Yes, so page 29 of the exhibit. I'm just trying to find the exhibit, okay?

Now, would you scroll up? And could you perhaps go to the page before that? Oh, here it is. Okay.

This is the area of your report where you identify that the – Nalcor may have eliminated the deferred 2041 option. And the way you phrase that – can we go down again, scroll down, excuse me. Okay, excuse me, stop.

You'll note that in lines there are, I think, five reasons why 2041 was excluded by Nalcor. Perhaps we go up to line 10 or 11? Okay, yes, 13. So from line 13 to line 22, there are at least four options – four discussions of maintaining the Isolated system. There's also considerable risk and uncertainty regarding security of supply; "deferring the project also means deferring the province's ability to fully capitalize on the value of its tremendous energy resources; and deferring the Muskrat Falls development represents a more costly approach to supplying power and adds a layer of cost and uncertainty as power for domestic customers will be tied to the fossil fuel prices as well as the ability to extend the life …."

Now, what I'm getting to is your conclusion at 25, Nalcor's decision – line 25: "Nalcor's decision to eliminate the deferred 2041 option was supported in part by a rationale which was inconsistent with a finding of the NSUARB in relation to the" – I'm sorry, the Maritime Link – "portion of the Muskrat Falls Project."

So, again, I'm focusing on the fairness of the conclusion. The conclusion is that Nalcor's decision to eliminate the deferred option was supported in part by the rationale.

When you made a presentation to the Commissioner, Nalcor may have inappropriately eliminated two option. And if you proceed to P-00135 and look at the discussion regarding this – in this area, the document provided to the – excuse me, the document 00135 discusses the wait until 2041. It also makes reference to their – to the NSUARB and that's P –

THE COMMISSIONER: At page 16?

MR. SMITH: Page 16. Yes, Commissioner, page 16 in 00135. Okay.

And then this is a statement – and I'm taking a long time to get to my point, but this is my – this is the statement: Nalcor's finding contradicts a Nova Scotia Utility Review Board finding.

MR. MALAMED: Yes.

MR. SMITH: It contradicts it.

That Nova Scotia UARB finding was after sanction.

MR. MALAMED: Mm-hmm.

MR. SMITH: So from a fairness perspective, and the principles set out by this Commission, you're – used – you effectively used hindsight to criticize the decision at Gate 1.

Is that correct, Sir?

MR. MALAMED: I just need to get the quote of the NSUARB.

MR. SMITH: Okay.

It's on page 16 of 00135 in front of you on the screen.

MR. MALAMED: That I see.

MR. SMITH: Yeah.

MR. MALAMED: But I want to know the source.

MR. SMITH: Okay.

MR. MALAMED: Do you have the source for me?

MR. SMITH: The source from the NSRB [sp NSUARB]? That's paragraph 200, and if you want to call up the P-00245.

THE COMMISSIONER: Page 200?

MR. SMITH: Page 65.

THE COMMISSIONER: Sixty-five.

MR. SMITH: Paragraph 200. This appears to be the source of your quote.

MR. MALAMED: You're correct. It's from the 2013 report. But I'd also like to bring your attention to line five on the same page, page 29.

MR SMITH: Twenty-nine of your report or –?

MR. MALAMED: My report.

MR. SMITH: Okay.

MR. MALAMED: "Subsequent to Nalcor's decision not to advance the deferral of the LCP beyond phase one screening, the GNL Department of Natural Resources released 'Upper Churchill: Can we wait until 2041?' in November 2012. This report concluded that the power contract between" Newfoundland and Labrador "and Hydro Quebec expires in 2041. At that time the province will obtain much more control over Upper Churchill power than currently exists. However, DNR highlights that the Upper Churchill power is not exclusively owned by GNL."

MR. SMITH: It's not exclusively owned by the Government of Newfoundland.

MR. MALAMED: Right.

MR SMITH: But if you look at the Nova Scotia UARB decision upon which you relied for your statement. I'm not gonna call it a conclusion, I've learned from your evidence that it's not necessarily conclusions, it's more either observations or statements. But if you look at that internally in that decision, particularly, you know, paragraphs 127 and 189 and also 202, which I'll refer to shortly, the decision of the Nova Scotia UARB not only is after the sanction, which in itself is, you know, on its face, unfair, but more particularly, there's no foundation in the decision for that conclusion that was made. In fact, if you look at paragraph 127 of that decision – can maybe bring that up again, the 245, page 44.

You can see that the evidence before the commission in Nova Scotia was that Hydro-Québec were not interested in entering into long-term power contracts before 2041, and if you look at paragraph 189, page 62, you can see that there's a fundamental error in the evidence before the Nova Scotia UARB, perpetrated by the Nova Scotia power Maritime Link who the – take the quote there, the quote at page – at sorry, at paragraph 189, Nalcor has available the surplus power from Muskrat Falls Project, which is 40 per cent of the 4.93 terawatts annual production, which is approximately 2 terawatts. In addition, Nalcor has available 300 megawatts of recall energy from Upper Churchill, which it now – which it will now have access to market through existing routes and the Maritime Link. In 2041 – and this is the important section here – 2041, the Upper Churchill reverts to ownership of Newfoundland and Labrador.

And you just read my exhibit that I would refer to, is that in 2041 it doesn't revert to Newfoundland and Labrador, it reverts to Churchill Falls (Labrador) Corporation, which is partly owned by Hydro-Québec.

MR. MALAMED: (Inaudible.)

MR. SMITH: So, my question is: In terms of your report, in terms of your statement to this Commission, you took the position that the Nova Scotia UARB contradicts the position of Nalcor. It contradicts it. But you took no steps whatsoever to determine if NSUARB conclusions were supported on the evidence. You just took the bold statement, correct?

MR. MALAMED: No. What I've said before in my testimony, and what I'm going to tell you again is that we weren't engaged to look into the depth of the assessments that were done. Our role was to report on the findings, and I guess subsequently to this, if you want us to go in deeper, we can always look at it in –

MR. SMITH: Yeah.

MR. MALAMED: – more detail.

MR. SHAFFER: If I may respond. If you look at page 7 of our report.

MR. SMITH: P-00014?

MR. SHAFFER: Yes.

MR. SMITH: Page 7?

MR. SHAFFER: Yeah, red 7, black page 4. In particular, lines 10 through 14.

MR. SMITH: You say line 7, page 4?

MR. SHAFFER: Red page 7 on the exhibit.

MR. SMITH: Yes.

MR. SHAFFER: Is black page 4 at the bottom.

MR. SMITH: Got it.

MR. SHAFFER: Lines 10 through 14.

MR. SMITH: Okay.

MR. SHAFFER: Or in particular, lines 10 through 12, and I can read it, but – should I read it?

MR. SMITH: I understand. It says: "Unless stated otherwise, within the body of this report, Grant Thornton" … "has relied upon information provided by Nalcor and third party sources in the preparation of the report, whom Grant Thornton LLP believe to be reliable." Okay? "Information was obtained from Nalcor through responses to" … "specific document requests, written responses prepared by Nalcor, evidence submitted by interviewees, and researches performed in the document management system administered by the Commission."

That's what that paragraph says, okay? But that doesn't change the fact that the Nova Scotia UARB findings were after sanction, and on its face, therefore, unfair, 'cause that's using retroactive, or hindsight, if you will, to question the decision.

Now, what's more curious to me and Mr. Martin, okay, is the phraseology chosen to report this. It's not: We observe or it appears that maybe, okay, that there is contradictory views to their position. But rather, it says it was eliminated because of it.

If you look at the Grant Thornton findings on deferred Churchill power, page – that's 135, page 16, it – there's a – it appears it's a – it says

– as a finding it says contradicts the Nova Scotia and Review Board finding. No, well, you would – do you agree with me that a finding of that board is a quasi-judicial finding? It is a determination by that board, that statement and your finding is somehow different, that you look at finding and the use of the word "finding" as merely an observation?

Doesn't that 'connotate' to the reader that you have examined this in accordance with your standards and have found that Nalcor is wrong and that the NSUARB are correct. Isn't that what it looks like when you read it?

MR. MALAMED: No, I don't believe that it says that. I don't believe that it says one is right and one is wrong.

MR. SMITH: Yeah.

MR. MALAMED: It just says that it's different.

MR. SMITH: Yeah, but you said that – you used the word "finding" in relation to the Review Board – that's a finding of the Review Board. That's a finding – after the crucible of evidence, cross-examination, et cetera, that's a finding of the board. And yet you come out and say Nalcor's finding is contradicted by that finding.

MR. MALAMED: So what I've said previously in my testimony – and I believe that "contradicted" was one of the words – it could all say "different." Maybe – I'm fine to change the word from "contradicts" to "different."

MR. SMITH: Okay. So in the context you were aware – I mean your report was going to be made public to the general public and to the press?

MR. MALAMED: Yes.

MR. SMITH: Okay?

And there was no red flag, no danger in making statements whereby once we have the benefit of cross-examination, we now learn that they're not findings at all, they're really just observations in many cases. Isn't that unfair on its – you know in its – in the presentation of this information?

MR. MALAMED: I believe that we explain – and we've explained in the report as well as during testimony that it's not our conclusion, it's not Grant Thornton's conclusion, it is our observations and findings from the work that we've looked at.

MR. SMITH: Okay.

But it's difficult, you would agree, that for the public to make such a fine point on the word "finding." You know, in other words, they see a finding from a forensic expert, okay, as conclusive?

MR. MALAMED: The sources of our findings are all footnoted throughout the report.

MR. SMITH: Okay.

Now, the next step I wanted to look at in terms of the conclusion that you make, okay, is that at page 15 of C – of P-00135 – at page 15 of 00135 is the presentation to the Commission. And, again, I'm looking at fairness to Mr. Martin and his team.

In that, you outline why was the option eliminated, okay: Difficulty in determining environmental and policy frameworks 30 years out; risk of maintaining reliable supply through Holyrood until 2041; rates tied to highly volatile fossil fuels for the first 30 years; remaining dependence on fossil fuel generation for 30 years; and prospect of additional investment in Holyrood increases probability this option will be more expensive than projected.

Now, those were a series of reasons. I looked at your report and if you look at that – look at your report in this area, you can see that – and I'm trying to – I believe it's page – sorry, P-00014, page 25, lines 24 to 36.

MR. MALAMED: Page?

MR. SMITH: Page 24, I think I'm using the correct –

THE COMMISSIONER: Page 24 with the black –

MR. SMITH: Page 24 with the black, yes.

THE COMMISSIONER: Okay, if you can – if you – you don't have the version there with the –

MR. SMITH: I –

THE COMMISSIONER: – red numbers, do you, because that's the one we've been using –

MR. SMITH: Yeah.

THE COMMISSIONER: – up to now.

MR. SMITH: Yeah, I agree – I apologize, but –

THE COMMISSIONER: Okay.

MR. SMITH: – these things come at us so quickly in the evenings and things that I must have missed the –

THE COMMISSIONER: So you're looking at the black number, what number?

MR. SMITH: Yeah, just give me a second. I think it's – the black number is 24 to 36, but – I'm sorry, page 25 which would – it actually turns out to be closer to 30.

THE COMMISSIONER: Page 25 which might be P – page 28.

MR. SMITH: Twenty-eight.

THE COMMISSIONER: Yeah.

So if you look at the screen, are we on the right page there now?

MR. SMITH: Yeah, I just – there yeah.

UNIDENTIFIED MALE SPEAKER: Mr. Commissioner, I think it generally works to add three to the black numbers.

THE COMMISSIONER: Okay. Well, that's a good rule of thumb so it'll help me a lot.

So we're at 28, Mr. Smith. Is that the right page?

MR. SMITH: Yes.

THE COMMISSIONER: If you look at the screen –

MR. SMITH: Yeah, I'm looking at the screen and my copy. Oh yes, you're right. That is the page. Thank you.

Line 24 sets out the same reasons why the action was eliminated. And I think it was pointed out yesterday that the uncertainty around availability of supply is in your report, but it's not in your position to the Commissioner, not in your summary.

MR. MALAMED: I'd like to answer your question but these, again, are not my conclusions.

MR. SMITH: Okay.

All I'm suggesting to you is that the conclusions or the findings that you found for Nalcor as to why it rejected waiting to 2041 are listed from lines 24 to 36 –

MR. MALAMED: Okay.

MR. SMITH: – on your actual report.

MR. MALAMED: Okay and you're comparing that to my presentation.

MR. SMITH: And I'm comparing it to your presentation, which does not seem to have the wording: uncertainty around availability of supply.

MR. MALAMED: I believe that when I made my presentation, I explained that it does not include everything that is in my report and we're using it as a summary and a tool to take you through the presentation.

MR. SMITH: Okay.

And the reason I raise it is because even though it's not in your summary, okay, at page 16, Nalcor's finding contradicts a Nova Scotia Utility and Review Board ruling, which we've just gone over. So that even though it's not in the summary, you're referring now back to item number 1 at line 26 and 27. Correct?

MR. MALAMED: Could you ask that question again?

MR. SMITH: Just saying is that it – when we look at the actual report, okay, there's a reference to uncertainty around availability that does not appear at page 15 of 135, but yet page 16 of 135 you start to take the position that the – or finding if you will, or observation that the position of Nalcor was contradicted by the ex post facto ruling of the Nova Scotia UARB.

MR. MALAMED: Because it was a long question, I'm gonna try and answer it.

MR. SMITH: Okay, try. I can shorten it if I need to.

MR. MALAMED: Again, my presentation was not all-inclusive, comprehensive of my report or I would have put my entire report and read word for word what's in it.

MR. SMITH: All right. Let me move then to another area (inaudible).

THE COMMISSIONER: Maybe – did you want to add something, Mr. Malamed, to what you were just going to say? I think –

MR. SMITH: Oh.

THE COMMISSIONER: – he was gonna add something.

MR. SMITH: Oh, all right.

THE COMMISSIONER: So let's let him answer the question.

MR. SMITH: Were you going to add something?

MR. MALAMED: I was.

MR. SMITH: Okay.

MR. MALAMED: Your interruption threw me off a bit. Could I ask you to ask me the question again, please?

MR. SMITH: I was more – I was interested in your comment that you said that your summary on the P-00135 was not intended to include everything that was in your report.

MR. MALAMED: That's correct. But what I was suggesting was if there is confusion from the presentation, I'm very happy to read the report in full for everybody.

MR. SMITH: Okay. Very good.

Now, again, my thrust here is how fair is what you presented to the Commission, to Mr. Martin and his team, okay?

MR. MALAMED: Can I finish my previous –?

MR. SMITH: Sure.

MR. MALAMED: I just want to take you back to the page that you referred me to, page 28 of our report in red and 25 of our report in black.

MR. SMITH: Right.

MR. MALAMED: And if we could just have those one, two, three bullets, the numbered ones? This information, the source of this information is from Nalcor's submission to the PUB.

MR. SMITH: Right, fine.

MR. MALAMED: That's just what I wanted to make sure that we –

MR. SMITH: Oh, okay.

MR. MALAMED: – that –

MR. SMITH: So, this is what –

MR. MALAMED: This is –

MR. SMITH: – Nalcor said it relied upon in removing the 2041 – or waiting 'til 2041 –

MR. MALAMED: Correct.

MR. SMITH: – at Gate 1.

MR. MALAMED: At Gate –

MR. SMITH: At the first Gate.

MR. MALAMED: This is not from the first Gate.

MR. SMITH: Okay, which one is this?

MR. MALAMED: This would be from Gate – in phase 2.

MR. SMITH: In Gate 2?

MR. MALAMED: Gate 2.

MR. SMITH: Okay. So, when we look at the elimination of 2041 power, and we look at the reasons, one through five, it's fair to say that the only criticism you have of those reasons, the only criticism that I can find in your report or in your presentation to the Commission was that it was contradicted by the NSUARB six months later.

MR. MALAMED: Again, it's not my conclusion, my opinion, it is my observation, what it is that I saw is what it is that I'm reporting. What I aimed to do was to be able to take complex issues, a complex story and to explain that story.

MR. SMITH: Okay. And I turn to page 29 of Exhibit 00014.

THE COMMISSIONER: Red 29 or –?

MR. SMITH: Red 29.

THE COMMISSIONER: Okay.

MR. SMITH: I've got the red numbers now.

I direct your attention to line 25 and 26.

MR. MALAMED: Yes.

MR. SMITH: Nalcor's decision to eliminate the deferred 2041 option was supported in part by a rationale which is inconsistent with the finding of the US – or NSUARB in relation to the Maritime Link portion of the Muskrat Falls Project.
Now, to a reader – to the – to someone reading that, that suggests that one of the five rationales provided by Nalcor to the PUB of Newfoundland, as you pointed out and which are on the previous page we just talked about, one of the five was able to be – it was suggested that the whole of 2041 option may have been premature, the elimination of that.

MR. MALAMED: Yes, that's what's in the report.

MR. SMITH: And that's how your report reads?

MR. MALAMED: Correct.

MR. SMITH: Correct.

Where did you discover that all five of the reasons for eliminating 2041 were not alternative reasons but were cumulative?

MR. MALAMED: I'm not saying that they are alternatives and I'm not saying that they are inclusive. What I'm saying are these are what I observed and this one is different.

MR. SMITH: Okay.

And you're suggesting that that's fair in terms of the team that eliminated 2041 because you found something that occurred after.

MR. MALAMED: I'm not saying that they made the wrong decision or the right decision. I'm simply highlighting that there is two different decisions.

MR. SMITH: Yes.

My difficulty is, is that an individual reading your report, knowing you're, you know, professional accountants and forensic experts, is looking at that wording and saying, yeah, I knew it, they eliminated 2041 and they shouldn't have.

MR. MALAMED: In no way have I said that they should have.

MR. SMITH: Yeah.

MR. MALAMED: I said they may have –

MR. SMITH: Right.

MR. MALAMED: – eliminated –

MR. SMITH: Yeah.

MR. MALAMED: – because you used the word, I believe, prematurely.

MR. SMITH: Right.

And I have P-00135 presentation, I believe, it's page 5. There were two options that may have inappropriately eliminated; notice that, you know, inappropriately.

Why is a phrase inappropriately included here when, in relation to 2041, the foundation is purely an observation? Why did you use the words inappropriately eliminated as opposed to may have eliminated two options? But inappropriately eliminated suggests to the reader some kind of mala fides or, you know, that they didn't act appropriately.

MR. MALAMED: Sure. I think I understand your confusion.

Nalcor may have inappropriately eliminated two options. If we took the positive that – of that statement, Nalcor eliminated two options, I need to be able to convey to the reader that these two options were excluded and possibly they should not have been excluded.

That possibly they should not have been excluded, I chose the word "inappropriately." If what they did appropriately eliminated it, then I would not be bringing up any concerns. I've just commented on this is the action they would have taken, so if I'm going to say that possibly that action was incorrect, from appropriate, I would use the word "inappropriate."

MR. SMITH: But how are the public or the press, for example, able to understand the nuance of your wording that you presented to this Commission?

MR. MALAMED: I believe that the public reading may have, the words – and I quote – may have. So, again, number one says Nalcor may have inappropriately. It does not say Nalcor inappropriately, it says may have.

MR. SMITH: Okay.

MR. MALAMED: As well as during my testimony I've been explaining, and in my report, that these are not my conclusions, these are the findings and observations.

MR. SMITH: Okay.

But it's a – I suggest to you it's a bit of a stretch to say that something is a finding and not a conclusion.

MR. MALAMED: I don't believe that. To me, that is a stretch. I think that we can – I think that you can ask me words that I've chosen to use versus words that –

MR. SMITH: Yeah.

MR. MALAMED: – you would prefer me to have used.

MR. SMITH: Okay.

MR. MALAMED: But I don't think that it causes confusion.

MR. SMITH: Would you not agree, though, that the wording that you did use gives the impression or inference that the elimination was based on the issue of an apparent conflict between the Nova Scotia UARB and Nalcor's view of the five reasons it chose not to go forward.

MR. MALAMED: I don't think I understand your question.

MR. SMITH: Okay.

You don't?

MR. MALAMED: Can you ask it again –

MR. SMITH: Sure.

MR. MALAMED: – or can you word it differently?

MR. SMITH: What I'm saying is looking at your phrasing, okay, inappropriate, eliminate, okay, those – the statements, wouldn't that give a clear impression that the elimination of the 2041 option was based on an issue of apparent conflict in empirical evidence?

MR. MALAMED: No, I don't believe my choice of words –

MR. SMITH: You don't think so?

MR. MALAMED: No.

MR. SMITH: Okay.

Okay. I question, how appropriate was it to use the Nova Scotia – forget about it was after the fact, but how appropriate was it to look at the Nova Scotia UARB decision when, on its face, no one testified from Nalcor, CF(L)Co, the Government of Newfoundland, Hydro?

MR. MALAMED: Again, in the depth in terms of who attended an assessment, that's not what I was engaged to do.

MR. SMITH: Okay.

MR. MALAMED: I do want to bring to attention – and I'm going to check the break for you – that I believe most, if not all, of the information that the NSUARB had was within the time frame that we're discussing.

MR. SMITH: Okay.

MR. MALAMED: I'm happy to try and check that for you at break (inaudible).

MR. SMITH: Yeah, but the decision was not rendered within the time frame.

MR. MALAMED: I'm going to go back and check if there was a draft as well that was distributed.

MR. SMITH: Did you refer to the draft in your –

MR. MALAMED: I'm going to –

MR. SMITH: – document?

MR. MALAMED: I'm going to have to go check my notes.

MR. SMITH: No, but did you refer to the draft when you made your comment in your report?

MR. MALAMED: I believe I referred to the report, but I'm going to check my records to see why it is that I did that.

MR. SMITH: Yes, but the footnote that appears to the – in relation to that particular aspect of your report refers to the July 2013 decision.

MR. MALAMED: I hear you about that.

MR. SMITH: Pardon?

MR. MALAMED: I understand what you're telling me.

MR. SMITH: Yeah.

MR. MALAMED: I need to check to be able to come back.

MR. SMITH: Okay.

I ask you to look at, again, if I could, the P-00245. And I'm going to direct your attention, if I could, to – I have it as page 66. Unfortunately, I don't have a red number. And it has paragraph 202. It's still 66, apparently.

So looking at paragraph 202, this is the NSUARB again, okay, making a comment. "The Board finds that Nalcor's letter from Mr. Martin to Mr. Huskilson of Emera, dated May 16, 2013," – also after sanction – "provides no reassurance that Nova Scotians will be the recipient of Market-priced Energy from Nalcor. Indeed, it raises more doubt about Nalcor's future intentions for the Maritime Link. Mr. Martin refers on several occasions to exports of power over the Maritime Link, but remains non-committal about" experts – sorry, "exports specifically destined for" the NSPI market – or sorry, "NSPI, and even fails to acknowledge NSPI's favourable negotiating position on price."

Within the NSUARB there is a clear indication from Mr. Martin that there is no – he's not in a position to offer any, quote unquote, 2041 power to Nova Scotia. So the determination that it's available is meaningless, isn't it?

MR. MALAMED: That's not for me to decide. That's just from the information that we were viewing.

MR. SHAFFER: Sir, may I ask a – is this paragraph referring to the power that Nalcor would provide Nova Scotia? Okay, and –

MR. SMITH: Because –

MR. SHAFFER: I'm not sure what the relationship is, then, to the –

MR. SMITH: Well, because –

MR. SHAFFER: – finding that we had.

MR. SMITH: Well, no – well, no, with respect, the quote taken from 200 indicates there's a surplus of market-ready power – market power. But in evidence before the NSUARB – in evidence before them, there was no indication from Mr. Martin that Nalcor would supply – could use that power or supply that power to Nova Scotia. So it's a –

THE COMMISSIONER: You might want to look at –

MR. SMITH: It's a meaning determination –

THE COMMISSIONER: Excuse me just for a second, Mr. Smith.

MR. SMITH: Yeah.

THE COMMISSIONER: You might want to look at paragraph 201, because I think that is referring to the situation until 2041 arrives.

MR. SMITH: Yeah.

THE COMMISSIONER: So that would be before Churchill Falls would – the situation would change. So in fairness to the two witnesses, I think you have to read all those paragraphs together to find out exactly what is meant by, what is being referred to in paragraph 202.

MR. SMITH: That's fair, Mr. Commissioner. And –

THE COMMISSIONER: Maybe what we can do is – it's 11 o'clock, so we'll take a break. That'll give Mr. Malamed and Mr. Shaffer an opportunity to review that, and I believe Mr. Malamed said he was going to check something for you as well.

So we'll take our break now and we'll come back and we'll continue, if that's okay with you?

MR. SMITH: That's fine.

THE COMMISSIONER: Okay, we're adjourned then for 10 minutes or so.

CLERK: All rise.

Recess

THE COMMISSIONER: All right, Mr. Smith, when you're ready.

MR. SMITH: Yeah. Thank you.

Mr. Malamed, did you have an opportunity to find the draft?

MR. MALAMED: I did.

I did have time to go look and I can tell you that I – there is no draft that I've found. You were correct that about 2013, but what I'd like you to know is even if I removed that comment, the findings are still the same in terms of availability of power.

MR. SMITH: Okay, P-00014, page 52.

I looked at your, I guess, final conclusions. And the final conclusions are – were observations – were that the Isolated Island may have been – CPW may have been overestimated, whereas the Interconnected may have been underestimated. Is a reverse possible from your review?

MR. MALAMED: What would the reverse be?

MR. SMITH: Reverse would be that the Interconnected was overpriced, or over CPW too much, and the Isolated was under too much.

MR. MALAMED: When we began this engagement it was that Isolated was greater than Interconnected, and that is why Interconnected was selected. If Interconnected was overstated and Isolated was understated, then the decision of Interconnected would be even more pronounced.

MR. SMITH: More what?

MR. MALAMED: Pronounced.

MR. SMITH: Pronounced, yes. So looking at – and the reason I'm asking this question is that there appears to be no concern that the Isolated may have been under the CPW, may have been undervalued. And I'm bringing you to this point at page – excuse me – 55 of your Exhibit 00014**.**

Okay. Now, I note that in the base case for Isolated of 10 billion and Interconnected at 8, there's a $2-billion difference. And that, essentially, has been what's been put forward during the course of the Commission so far, in terms of the CPW on the base cost.

And this sensitivity analysis talks about what happens if the price goes to expected. And my understanding of your testimony yesterday and Friday was that the recommendation of the expert, Westney, was that they use the expected and not the referenced price which was used by Nalcor. Okay?

And if you use the expected price, the price goes to – sorry, a $3-billion difference. And if you look at Isolated itself, it's approximately a little – around $600-million difference between what Nalcor used and what Nalcor … right?

MR. MALAMED: You're saying the 11,391 less the 10,778?

MR. SMITH: Right.

MR. MALAMED: I understand.

MR. SMITH: Okay. So, on the face of the materials before Grant Thornton, it is not the 600 million under what was recommended, a cause to look at Isolated and say Isolated was essentially under, the CPW for Isolated was under.

MR. SHAFFER: But the CPW – the work we did on the CPW calculations – we reviewed both calculations. Our team did that.

MR. SMITH: Right.

MR. SHAFFER: We didn't review one without the other.

MR. SMITH: Yeah. What –

MR. SHAFFER: And as far as the sensitivity here, analysis, that was done by Nalcor.

MR. SMITH: Right. I understand that.

MR. SHAFFER: Okay.

MR. SMITH: But that I'm saying, though, is that when you reviewed them, did you get a different?

MR. SHAFFER: Did I get a different what?

MR. SMITH: A different CPW for Isolated over the base case?

MR. SHAFFER: What's indicated in the report – in terms of looking at it, like a 1 per cent increase in fuel prices after 2030 and no increase in fuel prices after 2030, that's the work that we performed. In terms of what Nalcor did here, I don't believe we went to the extent that Nalcor did.

MR. SMITH: But in the – in – you would agree, though, that if the expected value, the expected price of oil was used instead of the reference price which was actually in the calculation, you would agree that $600 million is removed from the CPW of the Isolated?

MR. SHAFFER: Removed?

MR. SMITH: Well, not there.

MR. SHAFFER: I would agree that if you use a higher fuel price, it has a greater impact on the Isolated Island than it does in the Interconnected Option.

MR. SMITH: I think the point that comes to fore is that if you look at the choices that Nalcor made, and that one of those choices was to use reference as opposed to expected, that favoured the Isolated Option.

MR. SHAFFER: Can you rephrase that one more time, Sir?

MR. SMITH: Oh, I'm just – I point out to you that Nalcor's use of the reference price, as opposed to the expected price, favoured the Isolated Option.

MR. SHAFFER: Saying because – favoured the Isolated Option.

MR. SMITH: Terms of the CPW.

MR. SHAFFER: I guess I'm not sure what you mean by the term favoured.

MR. SMITH: Favoured – well, in other words, it caused the Isolated Option CPW to be lower than it would have been –

MR. SHAFFER: If they used a lower price –

MR. SMITH: Lower priced oil.

MR. SHAFFER: Yes, of course. I mean as we know – because as I testified to previously, that would have a greater impact on the Isolated. The lower the price and the higher price – it would go both ways.

MR. SMITH: Perhaps you could look at P-00071? This is a report of the Department of Natural Resources, the Government of Newfoundland in November 2012 about a month before sanction.

Could we look at page 15 and 16 of that document, please? Keep going. Yes.

There's a table attached to the document indicating for a number of power requirements for the industrial sector, mining particularly here.

MR. SHAFFER: Okay.

MR. SMITH: And this was information available prior to sanction that these projects were in various stages of development. And some of them they have, according to the charts, an indication as to what power would be necessary.

Now, we noted that you took Voisey's Bay out on the basis of their annual report. Why didn't you think about stating that the power requirement, or if you will, the load, might equally have been as – excuse me, may equally have been higher?

MR. SHAFFER: What –

MR. SMITH: On the one hand you took Voisey's Bay out and there're no specific reason other than the annual return which indicates the strip mine would be completed in 2023, but you didn't include the projects that were in the – on the drawing board.

MR. SHAFFER: What am I looking at here?

MR. SMITH: Pardon?

MR. SHAFFER: What is this? I'm trying to understand what this schedule means.

MR. SMITH: This is a government – the Department of Natural Resources indicating what the power requirements might be for the mining industry alone, okay?

MR. SHAFFER: For how long?

MR. SMITH: Well, scroll down, please. Okay. No, keep going. Up – out at least to 2020.

MR. SHAFFER: And this was all Voisey's Bay?

MR. SMITH: No.

MR. SHAFFER: Okay.

MR. SMITH: No, there's several mines, several under – environmental assessment under – ready to go, I think it is the pre-feasibility, infeasibility, et cetera. These are all projects the Government of Newfoundland and Labrador was aware of for the Labrador trench, which is where the iron ore is located. And these are all, you know, either in development or being upgraded, like IOC CEP2 and 3 were upgrades, had additional power requirements.

MR. SHAFFER: See that?

MR. MALAMED: Not yet.

MR. SHAFFER: Okay.

MR. SMITH: So my question is: On the one hand you said that the – that Nalcor failed to deal with Voisey's closure taken from the annual report – I think is where the source of the information came from – which really only said that it was with respect ending the strip mine.

MR. SHAFFER: We're looking to see in the report where we said that, so we're flipping through pages trying to find the right one.

MR. SMITH: Oh, Okay. Okay.

MR. MALAMED: If you can give us a couple of minutes, that'd be great.

It's right here.

MR. SHAFFER: What page is that?

MR. MALAMED: Thirty-three.

MR. SMITH: I think it's at a discussion of load.

MR. SHAFFER: It's on page 33 of our report.

MR. SMITH: Yeah.

MR. SHAFFER: We're at 33, lines 31 through 35. It says that the annual report indicated a projected exhaustion date of – for Voisey's Bay as of 2023. This report that you just showed us you said is through 2020. So I'm – I think it might be comparing apples and oranges.

MR. SMITH: But – well, the 2023 decline, if you will, or move in 2023, do you know what megawatts that was?

MR. SHAFFER: I would have to – not off the top of my head. I know there was a schedule that was prepared that showed us.

MR. SMITH: Right. And the scheduled projects or the projects under investment were – excuse me, were proceeding towards, as you know, up to 2020. So in terms of sanction, in terms of power requirements at sanction, why was the Vale pulled out for 2023 and none of these other power requirements considered?

MR. SHAFFER: You would have to ask Nalcor. They did the planning load forecast. We just noted it on what they gave us.

MR. SMITH: Okay.

But you had access to this particular document. I think it's referred to in your list of documents.

MR. SHAFFER: Can you show me where in our list of documents?

MR. SMITH: I – sorry. Oh perhaps I look at the appendices.

I just can't seem to find it quickly so – and I don't want to take too much more time because I'm near the end of my questions.

MR. SHAFFER: Okay.

MR. SMITH: But, in any event, the issue of the – of other industrial power requirements was available.

MR. SHAFFER: You would have to ask Nalcor why it was left off the planning load forecast then.

MR. SMITH: Okay.

But when you – when the planning load forecast Nalcor is suggesting suggested the shutdown of Vale?

MR. SHAFFER: Report speaks for itself what our finding is.

MR. SMITH: Yeah, but, again, you say on the one hand Nalcor didn't have it in their planning forecast all these industrial projects, but on the other hand you're saying that the industrial project it did have in its report was somehow flawed or incorrect based on the annual report of Vale. That's what I understand from your report that you relied upon an annual report of Vale.

MR. SHAFFER: I think you're misunderstanding. The term flawed or incorrect, we never said that in our report or in the presentation.

MR. SMITH: Okay.

So are you saying that your conclusions of maybe underestimated for the Interconnected and maybe overestimated for the Isolated Island, the reverse is now also possibly true in terms of in your investigation? Are you actually saying that?

MR. SHAFFER: We don't opine on that.

MR. SMITH: You don't opine.

Okay, so there's no –

MR. SHAFFER: No opinion on that.

MR. SMITH: There's no opinion here that – from Grant Thornton to say that in some way or another, the options were in fact incorrect.

MR. SHAFFER: Again, the term incorrect appears nowhere in our report.

MR. SMITH: No, it's nowhere in your report that indicates that there was an incorrect determination of the CPWs for Isolated or Interconnected?

MR. SHAFFER: The report speaks for itself.

MR. SMITH: Okay. Thank you.

Thank you, Mr. Commissioner, that's all the questions I have.

THE COMMISSIONER: All right, Kathy Dunderdale.

MS. E. BEST: Good morning.

MR. SHAFFER: Good morning.

MS. E. BEST: I don't have very many questions. We should be fairly quick.

Mr. Simmons had asked you about the reasonableness of the $34 million operating cost figure, and I believe you said you didn't assess the reasonableness of that figure, right?

MR. SHAFFER: That's correct.

MS. E. BEST: So I'd just like to ask you about the $109 million operating cost figure. You didn't assess the reasonableness of that figure either, did you?

MR. SHAFFER: That's correct.

MS. E. BEST: Okay.

And building on Mr. Smith's points with respect to fairness and the fact of reviewing certain things in hindsight, that $109 million operating cost figure – that also became known after 2012, is that right?

MR. SHAFFER: Well, I believe it was announced in June of '17; however, I felt it was important enough to raise to the Commissioner, only in the regards of was it possible that some of those circumstances were in effect at the time of the sanctioning and the CPW calculation. And that's the only reason why I brought it up.

MS. E. BEST: Okay, but that $109 million operating cost figure was not known in 2012 to your knowledge.

MR. SHAFFER: That's correct. Yes.

MS. E. BEST: Thank you.

So I want to move to something else. I want to look at the CPW and how you compared the two options there: the Interconnected Option, which I refer to as the Muskrat Falls option, and the Isolated Island Option that I call the Holyrood option.

MR. MALAMED: What page are you on, I'm sorry?

MS. E. BEST: I'm not on a page yet.

MR. MALAMED: Oh, okay.

MS. E. BEST: But, actually, I will ask the Clerk to pull up a document: P-00014 please, page 55. I want to look at the table there with the purple.

So just looking at this table here you can see right away the highest number on there is the $15.435-billion number, right? You see that number?

MR. MALAMED: Yes.

MS. E. BEST: Okay, I want to ask you about that number. So what I take that number to mean is that if we'd gone with the Holyrood – so Isolated Island Option – and if the price of oil went up, then project costs would be over $15 billion and we'd be in a worse-off position than we're in today. Does that sound right?

MR. MALAMED: That's sounds correct from the schedule that we're looking at.

MS. E. BEST: Thank you.

And that's not really far-fetched, is it, because I think in around 2008 we had an oil price that was about 20 per cent higher than it was in 2012. Do you know that?

MR. SHAFFER: From what I remember, yes.

MS. E. BEST: Thank you.

And that $15-billion – or I guess almost $15.5-billion figure that you see there, that doesn't account for any cost overruns, right? I mean –

MR. SHAFFER: It does –

MS. E. BEST: – we have Dr. Flyvbjerg saying that all projects go into overrun. So if you're accepting that – if you are accepting that – then the likelihood that that $15.435-billion figure for the Holyrood option would've been potentially even higher than that. Would you agree?

MR. SHAFFER: I guess in that case would the Interconnected Option also be higher? So what would be the delta between the two at that point, I couldn't tell you.

MS. E. BEST: Yeah, I'm just asking about the Isolated Island Option, so the Holyrood option there now. So that would be even higher.

MR. SHAFFER: Well, I guess if – under the Isolated Option if the price of fuel and there were overruns on Isolated only, yes, it would be a greater difference than the Interconnected because you're assuming no overruns in Interconnected at that point.

MS. E. BEST: Okay.

So we'd potentially be – so if the price of oil went up to what it was in 2008, we'd be potentially – and if we'd gone with the Isolated Island Option, we'd potentially, according to this, be in a much worse-off position than we're in today, right?

MR. SHAFFER: I'm not opining on that, no. I mean –

MS. E. BEST: You can't –?

MR. SHAFFER: – the number speaks for itself. This is something that Nalcor did.

MS. E. BEST: Yes.

MR. SHAFFER: And so they never ran a comparison of what you're describing right now. In addition, the comparison they ran in DG2 was they assumed capital cost increases for – I'm sorry, for this, for DG3 – they're increasing capex for both options, if you look a little bit below there.

MS. E. BEST: Okay, but you accept that $15.435-billion number there?

MR. MALAMED: Just to add in, that 15.435-billion number, yes, I see the number, but it may have also changed the two options themselves.

MS. E. BEST: So all that I'm asking you is that if the fuel price went high as it had, say, for example, in 2008, we'd be looking at a project cost today that would be approximately $15.435 billion?

MR. SHAFFER: Assuming the assumptions that were used to run these numbers, you know, were correct so to speak, sure.

MS. E. BEST: Yes.

MR. SHAFFER: I mean, let's take it for face value and that's what it says.

MS. E. BEST: That's what you've done throughout your report, you've stated, right?

MR. SHAFFER: I'm sorry?

MS. E. BEST: You have taken those – you have taken the numbers that have been provided to you, right, and assumed that – and you have relied on them. That's what you've done throughout your report, you've stated, right?

MR. SHAFFER: Not on the sensitivity analysis, no. There – the only thing we did as far as I – that I can recall is already what's in the report of the impact of fuel prices going up 1 per cent or, I believe, staying the same or being reduced 1 per cent after 2030.

MS. E. BEST: Okay.

But you would agree with me that, according to this chart here, the highest potential cost for this project would've occurred if fuel prices had gone high?

MR. SHAFFER: That's what it indicates, yes.

MS. E. BEST: Thank you.

THE COMMISSIONER: Former provincial government officials.

MR. T. WILLIAMS: Morning, gentlemen.

My name is Tom Williams. I represent a group known as former government officials, elected officials, being former politicians, former premiers, ministers of Energy, with the exception of Premier Dunderdale.

I only have one question or a couple of questions arising from that, and that's from very early in your report. I think, Mr. Malamed, you were, when being asked – and maybe even when you were being qualified – you had indicated that in preparation for your report you had an opportunity to interview a significant number of people. I think you mentioned the number – now, I'm certainly not holding you to it – 40-plus people in preparation of your report. Is that correct?

MR. MALAMED: Correct.

MR. T. WILLIAMS: Okay.

And in doing so did you receive full co-operation from those individuals and disclose your requested documentation, et cetera?

MR. MALAMED: Yes.

MR. T. WILLIAMS: Okay.

And would it be fair to say that you had the opportunity to canvass the relevant issues with those individuals who you felt could add any substance or – and furtherance to the scope of your review?

MR. MALAMED: Yes.

MR. T. WILLIAMS: Okay.

And during the course of your investigation I trust you did not interview any of the elected politicians and premiers or ministers of Natural Resources during the period of time in question?

MR. MALAMED: I think that's correct.

MR. T. WILLIAMS: Okay.

And can I assume from that and conclude that had you felt that they had anything further to add to the scope of your review, you would have had an opportunity to interview or ask questions of those individuals?

MR. MALAMED: Yes.

MR. T. WILLIAMS: Okay and you chose not to do so.

MR. MALAMED: At this point, no.

MR. T. WILLIAMS: Okay, at the time of filing your report?

MR. MALAMED: Nope.

MR. T. WILLIAMS: Right, okay. Thank you.

That's all the questions, I think. Mr. Simmons and Mr. Smith have canvassed everything adequate.

Thank you.

THE COMMISSIONER: Julia Mullaley and Charles Bown?

MR. FITZGERALD: No questions.

THE COMMISSIONER: Robert Thompson?

MR. COFFEY: No questions.

THE COMMISSIONER: Consumer Advocate?

MR. PEDDIGREW: Justice, unfortunately for everybody I'm probably going be a little bit longer than the people who just went before me. I could get started, certainly I'm ready to, but if you'd prefer to –

THE COMMISSIONER: Well, we have 45 more minutes before lunch.

MR. PEDDIGREW: Okay, right.

THE COMMISSIONER: So why don't you get started and move on from there?

MR. PEDDIGREW: Okay.

Good morning, gentlemen. My name is Christopher Peddigrew and I'm acting on behalf of the Consumer Advocate for the Province of Newfoundland and Labrador.

The Consumer Advocate is appointed by the – under the *Public Utilities Act* to represent the interests of the domestic and general service customers in the province and so, essentially, I'm here today representing the approximately 300,000 ratepayers in the province.

And so what I would like to canvass – and I'm gonna be certainly referring to your report. I do recognize from much of the previous questioning that, you know, the limits and the scope of your report, and so I'm not gonna be looking for conclusions on certain issues. I realize that the purpose of your report was to identify certain issues that will likely be considered further throughout this inquiry. But there are, I guess – and I appreciate as well that there were a lot of documents, two and half million documents; you were relying on others to, you know, present certain issues and documents to you for review.

And so there may be documents or issues that may not have been presented – may not have been raised. And my intent today is to raise some of those and just get your thoughts on them and whether they would have an impact on your report. Or just from a general forensic and investigative accounting point of view, what your thoughts would be on some of those issues.

Before I get into some questions, I just would like to point out, I'm gonna be referring extensively to the Public Utilities Board of the province with some of my questions. And the PUB – as I'll refer to it – is an independent, quasi-judicial administrative body. It's appointed by government and it operates primarily under the authority of the *Public Utilities Act*, okay? It's, I guess, equivalent to the NSUARB in Nova Scotia. One of the responsibilities of the PUB is to set rates for the ratepayers in the province and ensure that ratepayers are charged a fair rate. So obviously something like the Muskrat Falls Project is of extreme importance to the PUB and to the Consumer Advocate.

So the first question, or the first area I'd like to direct your attention to is the *Electrical Power Control Act*. And Madam Clerk, that's Exhibit P-00087, if you could call that up, please.

MR. SHAFFER: Commissioner, would you like your book back?

THE COMMISSIONER: I can get it after, that's fine.

MR. SHAFFER: Okay.

THE COMMISSIONER: You can just close it there and I can get it back.

MR. PEDDIGREW: Okay.

And I note on page 15 of your report, which we don't need to call up now, but I know on page 15 of your report in regards to the nuclear option you did refer to section 3(f) of the *Electrical Power Control Act*, and if we could just scroll down, Madam Clerk, to section 3(f).

And I guess the preamble to paragraph (f) there just talks about what the Public Utilities Board can do. But it cannot plan for the future supply – the "power supply of the province shall not include nuclear power." So I know you refer to that on page 15 of your report as to why nuclear was not analyzed further. I just would ask you – Madam Clerk, if you could go up to paragraph 3(b), and actually, just go a little bit higher up to the beginning part of paragraph 3 – right there, okay.

So paragraph 3 starts: "It is declared to be policy of the province that …" – and if we could go down to 3(b) – "all sources and facilities for the production, transmission and distribution of power in the province should be managed and operated in a manner …." And I'd first like to direct your attention to subparagraph 3, which says "that would result in power being delivered to consumers in the province at the lowest possible cost consistent with reliable service, …."

During your discussions with Nalcor officials, did they raise or discuss the requirements of section 3(b)(iii) under the EPCA?

MR. SHAFFER: I don't recall.

MR. PEDDIGREW: So there was no – you did not raise the issue or you didn't see any documentation relating to that section of the EPCA in relation to the screening principles that were identified by Nalcor?

MR. SHAFFER: I didn't. Mr. Malamed?

MR. MALAMED: I did not.

MR. PEDDIGREW: In the course of your review of documentation, did you see any reference to section 3(b) of the EPCA?

MR. SHAFFER: Of other documentation besides this, you mean?

MR. PEDDIGREW: Pardon me?

MR. SHAFFER: Of other documentation besides this, you mean?

MR. PEDDIGREW: Yes, other documentation besides this.

MR. SHAFFER: I just don't recall.

MR. MALAMED: (Inaudible) we have seen least cost, but I guess my question for you is: Is this document one of the documents that we've referred to in our appendices?

MR. PEDDIGREW: It is referred to on page 15 of your report, but just in relation to 3(f), the nuclear option.

Was there any discussion or do you know the origin to the phrase least-cost option that we see throughout much of the documentation?

MR. SHAFFER: I do not know the origin of that.

MR. PEDDIGREW: I mean, it's different – I would point out – than what's in section 3(b) sub (iii) which refers to lowest possible cost. But you would agree with me that throughout all the documentation that you were asked to look at in order to prepare your report, you were asked to look at the least-cost option as opposed to what was the lowest possible cost?

MR. SHAFFER: I guess, I viewed it one and the same with the CPW, the way it was working.

MR. PEDDIGREW: Well, I guess, what I would suggest is that least-cost option would be as between the two options that were presented by Nalcor. Is that fair?

MR. SHAFFER: That's fair.

MR. PEDDIGREW: And is it fair to say there might be other options, besides those two, that could be lower than one of those two options?

MR. SHAFFER: I'm not sure. Nalcor would be in a better position to answer that.

MR. PEDDIGREW: But it's possible?

MR. SHAFFER: It's possible, sure.

MR. PEDDIGREW: There are some options that appear in some of the documentation that don't appear to be specifically addressed in your report, things like increasing capacity at the Bay d'Espoir hydroelectric facility or the Cat Arm.

Do you know to what extent, if any, those options were considered by Nalcor? Did you have any of those discussions?

MR. MALAMED: I did not.

MR. PEDDIGREW: Mr. Shaffer?

MR. SHAFFER: I did not.

MR. PEDDIGREW: So on page 13 of your report, which is Exhibit P-00014, and if we just scroll down a little bit, beginning at line 9.

So is it your understanding that the options identified in paragraph 9 were those that were identified by Nalcor?

MR. SHAFFER: Yes.

MR. PEDDIGREW: I'd like to take you now to Exhibit P-00052. Okay.

So, gentlemen, this is a decision from the Board of Commissioners of Public Utilities, the PUB, in relation to a reference question that was put to it by the Government of Newfoundland and Labrador. As I explained earlier, the PUB is a quasi-judicial administrative body responsible for, among other things, the regulation and supervision of public utilities in the province and it approves rates.

So this – the decision here resulted from a reference question that was given by government to the PUB on June 17, 2011. Are you aware of that reference question that was put to the PUB?

MR. SHAFFER: You would have to show it to me.

MR. PEDDIGREW: Okay.

So I would like to take you to page 3 of Exhibit P-00052. It's on the first paragraph there under Executive Summary.

So this is the question that government was asking the Public Utilities Board to consider. The "Government issued a reference to the Board of Commissioners of Public Utilities … pursuant to section 5 of the *Electrical Power Control Act*, directing the Board to review and report on whether the Muskrat Falls generation facility and the Labrador-Island Link transmission line represents the least-cost option for the supply of power to Island Interconnected customers over the period of 2011-2067 as compared to the isolated Island development scenario," that being the reference question.

So now that we've looked at what government asked the PUB to look at, what I'd like to do now is take you to exhibit P-00005. So this is a timeline of key events in relation to the Muskrat Falls Project. I realize with the volume of documentation you were asked to review, you know, things that may have occurred in a certain sequence, certain events, certain reports, you know, may not necessarily have had significance, or the import of them may not have been, I guess, fully appreciated. And so what I'd like to do is bring you through a timeline of some key events and ask you some questions.

So if we could scroll down there to, I think it's the third or fourth page, the June 17, 2011, date. So this is a reference I spoke of a moment ago where the Government of Newfoundland and Labrador submits the reference question to the PUB in relation to whether the Isolated or Interconnected Option is the least-cost option. Scrolling down to June 30, 2011, the Public Utilities Board engages Manitoba Hydro International, an electrical power consulting company owned by Manitoba Hydro, to advise the PUB, so a couple weeks after the reference question was put to the PUB.

If we look – scroll down a little bit further to August 25 – and I'll be asking you some questions about this document as well, but at this point on August 25, 2011, a Joint Review Panel of federal and provincial appointees "files a report containing 83 recommendations, including recommending an independent review of whether the Project was the least-cost option for meeting domestic demand." And the project, in that JRP case, was in reference to the Lower Churchill Project, generally Gull Island and Muskrat Falls.

Scroll down a little bit further on September 14, Navigant Consulting provides government with a report – or sorry, provides Nalcor with a report – concluding that Muskrat Falls Project is the least – the long-term least-cost option for the Island of Newfoundland, the same question the PUB was asked to consider.

And then on September 22 – and this is a key item I'd like to bring to your attention – so the PUB writes the minister of Natural Resources with government and indicates that the PUB cannot meet the December 30, 2011, deadline, but at this point it is not formally requesting an extension because we cannot provide a realistic alternate date until we have a better idea as to when Nalcor will answer the outstanding information requests. At this stage the PUB have been seeking additional information from Nalcor, which is taking longer than they thought they would need in order to render their decision by the end of the year.

We turn to the next page – or, sorry, we move to December, 2011. About three months after the PUB requested that extension, the minister of Natural Resources replies and says that it's imperative that its report – the PUBs report be received by March 31. And in response, the PUB requests on December 16 that they have an extension until June 30, 2012 and the request is denied by the Department of Natural Resources on December 23.

After Christmas, on January 27, 2012, Manitoba Hydro provides the PUB with its report. And in Manitoba Hydro's report it concludes that the Muskrat Falls generation station and Labrador-Island Link HVDC project represents the least-cost option of the two alternatives when considered together with the underlying assumptions and inputs provided by Nalcor.

On March 30, 2012, the PUB releases its report. So were you aware, I guess, in performing your audit that the PUB had requested an extension from the government in relation to the timeline for providing its report?

MR. SHAFFER: At one point it was explained to me the process, what you just went through, and that I was aware that the PUB really couldn't conclude anything, as was explained to me.

MR. PEDDIGREW: Yesterday, during questioning from Mr. Simmons on behalf of Nalcor, I believe he characterized that the PUB declined to answer that reference question and I wouldn't agree with that characterization. And rather than try to characterize it myself, what I'd like to do is take you to what the PUB actually said. And that would be at –

MR. SHAFFER: I'm not sure what I – which question you're talking about?

MR. PEDDIGREW: The reference question being: What's the least-cost option?

MR. SHAFFER: Okay.

MR. PEDDIGREW: Yes, so back to Exhibit P-00052 and towards the bottom of page 5. So this is the Executive Summary, the conclusion paragraph, in the Executive Summary.

So what the PUB actually said – they didn't decline to answer the reference question, but what they said is that "the information which was made available during the review was considerably less detailed and comprehensive than the information that Nalcor has today and will have at Decision Gate 3. As Nalcor explained, there can be significant changes as a project proceeds through the planning process and, further, that proceeding through Decision Gate 2 does not ensure that the project will be sanctioned. Nalcor decided in November 2010 at Decision Gate 2 to move to the next phase in the planning process and commence detailed design. The Board was not asked to determine whether the decision was correct. Rather, the Board" – and again, the board being the PUB – "was asked to determine whether the Interconnected Option represents the least-cost option for the supply of power to the Island Interconnected customers."

And this is the key statement here. "The Board does not believe that it is possible to make a least-cost determination based on a concept study or feasibility level of information generally from November 2010 which was intended only to ground Nalcor's decision to move to the next phase of the analysis, especially given that so much additional work has already been done to define the project and costs and to further eliminate uncertainties."

So I would submit that what the PUB was essentially saying – and, actually, it's probably best just to read the bolded paragraph here: "The Board concludes that the information provided by Nalcor in the review is not detailed, complete or current enough to determine whether the Interconnected Option represents the least-cost option for the supply of power to Island Interconnected customers over the period of 2011-2067, as compared to the Isolated Island Option."

So I would submit, or it seems certainly that the PUB's conclusion at this point is somewhat at odds with Manitoba Hydro's and with the Navigant consulting report. Is that – would you generally agree with that statement?

MR. SHAFFER: Seems that way.

MR. PEDDIGREW: Are you aware that immediately after receiving the PUB's decision that government began discussions with Manitoba Hydro about retaining them directly?

MR. SHAFFER: Versus the PUB retaining them that was on the timeline you mean?

MR. PEDDIGREW: Correct.

MR. SHAFFER: I know that the government did retain them because it's in our report on page 6.

MR. PEDDIGREW: Okay.

MR. SHAFFER: But I think your question was, was I aware after the PUB couldn't answer – well, what it says here – they couldn't present a – conclude on anything. Was I aware that it was right after that that they had hired MHI? No.

MR. PEDDIGREW: Okay.

I'd like to take you to Exhibit 00257.

MR. MALAMED: Do we have 00257? (Inaudible.)

MR. PEDDIGREW: If we could scroll down to the bottom of that document. Okay, sorry, that's the – back up to the top. Okay.

So March 30 was a Friday. So two days later, which would be Sunday, April 1, there's an email from Gilbert Bennett, with Nalcor, to a PL Wilson, who is with Manitoba Hydro.

"Hello Paul,

"Charles Bown, the Associate Deputy Minister for Energy with the Government of Newfoundland and Labrador, asked me to pass along a message to you.

"He would like to have a conversation with you sometime today. He can be reached at …. His email address is …."

So no discussion there about the topic, but if we move to P-00258. And what we have here is Paul Wilson from Manitoba Hydro providing Charles Bown, with government, a copy of Manitoba Hydro's letter to M. Greene. And so are you aware that M. Greene, Maureen Greene, would be an employee with the Public Utilities Board?

So if we scroll down further – okay, it's a copy of a letter from Manitoba Hydro to Maureen Greene. And if we could scroll up a little bit higher just to see the date – from February 2012. So it's in relation to the Public Utilities Board's retention of Manitoba Hydro and what the terms of that retention would be. And now that retention letter is being provided directly to officials from government.

So is that something that had been pointed out to you at all throughout the – your investigation?

MR. SHAFFER: No.

MR. PEDDIGREW: Okay.

If we could move to Exhibit P-00260. And if we could scroll down towards the bottom of that document. I'm sorry, if we could just go back up a little bit to the bottom email. Okay.

This is an email on April 2; and, again, just to put it in context, we're about three or four days removed from the PUB's decision here, where it did not endorse the Muskrat Falls option as the least-cost option.

So Mr. Bown, again, an official with government, is writing to Manitoba Hydro and saying: "Paul

"A face to face on wed I likely not feasible. We can discuss our kick off meeting after I receive your 'needs' listing. I have a lot of open time tomorrow for a conversation. I want Nalcor ready for to receive you and have data/timelines react. I don't want to waste your time."

If we could scroll up to the next email. The other way actually, sorry. Thank you.

Mr. Wilson from Manitoba Hydro replies to Mr. Bown and says: "Charles, thanks for the update and we can talk tomorrow. I have a 9:00 am conference call tomorrow on another matter but I am available ….

"I saw the printed news release ….

"Attached is a draft SOW …."

So if we scroll down past the emails, what we see here is a draft of a Scope of Services agreement between the government and Manitoba Hydro.

Again, were you aware that this was taking place so soon after the PUB had issued its decision?

MR. SHAFFER: I was not.

MR. PEDDIGREW: If we could go up to document 261 – P-00261. And if we scroll down again towards the bottom, the initial email in this chain. And at this point now we're at about April 15, and Paul Wilson is advising Mr. Bown with government that himself and Al Snyder will be travelling to St. John's and would want to meet on a Tuesday morning.

If we could scroll up to the next email. A little bit higher please. Okay.

So Mr. Bown is then advising Brian Crawley at Nalcor Energy that Manitoba Hydro "will be in town tomorrow. Please advise on availability of Nalcor staff to meet. I would like to discuss structure of the meeting with you later today."

And again a bit higher.

And Mr. Crawley responds to Mr. Bown. It says: "Thanks Charles. Tomorrow is fine. The Terms of Reference and the review are obviously Government's call, but whatever we can do to support we obviously will. Gilbert," – presuming that means Gilbert Bennett – "Paul Humphries and Paul Harrington know MHI are going to be in town early this week and we will be available."

Again, were you aware – I think I know your answer, but these conversations were taking place in mid-April. It seems like there's certainly a conversation happening whereby government are looking to retain Manitoba Hydro directly, who were the PUB's expert in relation to their March 30 decision.

MR. SHAFFER: I was not –

MR. PEDDIGREW: Were you aware that these conversations were taking place so soon?

MR. SHAFFER: I was not aware.

MR. PEDDIGREW: Mr. Malamed?

MR. MALAMED: I was not aware.

MR. PEDDIGREW: So we're now aware that government had refused the PUB's request for an extension of time and additional information, had insisted on a March 30 deadline for the PUB to file its report and told – government told the PUB that – I'm sorry, the PUB had told government that it did not have sufficient time or sufficient information to answer government's reference question.

What I'd like to do now is just go back to the document P-00052, Exhibit P-00052, and pages 3 and 4. Starting on page 3.

And so I alluded to it briefly earlier about the findings of Manitoba Hydro when they provided their report to the PUB for purposes of the PUB's report. And so if we scroll down to the next page, under the heading: MHI's Report and Findings, and if we keep going down the list – below the list of bullets.

So the conclusion of Manitoba Hydro to the PUB was that, "when considered together with the underlying assumptions and inputs provided by Nalcor, the Interconnected Option represents the least-cost option of the two alternatives reviewed. MHI noted, however, that the risks and uncertainties associated with the key inputs are magnified by the project's scope and length of the analysis period, and changes in key inputs and assumptions can impact the results of the analysis and shift the preference for the least cost option."

But Manitoba Hydro had concluded at this point, based on the information they were given – you would agree that the least-cost option was the Interconnected Island option. Would you agree with that?

MR. SHAFFER: Yes.

MR. PEDDIGREW: So, again, to boil this down, at this point we have – I will ask you if you would agree. We have the PUB disagreeing with the position that the Muskrat Falls, the Interconnected Island Option is the least-cost option or at least saying it doesn't have enough information to make that decision –

MR. SHAFFER: Right.

MR. PEDDIGREW: – at this point.

And we have Manitoba Hydro essentially saying: based on what we know, it is the least-cost option. And we know that government is now talking, in early April, to Manitoba Hydro directly.

Has anybody pointed out to you the Cabinet directive that was issued by government on April 26, 2012? Is that something that you came across in your reviews?

MR. SHAFFER: I don't recall.

MR. PEDDIGREW: Okay.

If we could go to Exhibit P-00005, please, which is the timeline, and if we could scroll down to April 26, 2012. And while this is a summary, but – this is a summary of – and again, timing is key here. The context of the time is key.

We're talking very shortly after or during the same time that government is in the process of retaining Manitoba Hydro directly. "GNL issues a cabinet directive on amending legislation to meet the requirements of the Commitment Letter. When passed, the legislation exempts Muskrat Falls Project from PUB oversight, allows GNL to direct the PUB to include the costs of the Muskrat Falls Project in NL Hydro's regulated rates, requires NL Hydro enter into a power purchase agreement and transmission funding agreement with Nalcor to cover Nalcor's costs, makes NL Hydro the sole supplier of electricity to NP and industrial customers, removes the MFP from borrowing limits, and limits Crown liability."

So a pretty extensive piece of legislation.

Based on the timing of Decision Gate 3 report from Manitoba Hydro to government which came out in late October, 2012 – that's where the cost of $6.2 billion, I believe, was identified – I'm not aware, and I don't know if you've come across, were there any elasticity studies commissioned by Nalcor or by government in or around that time period that would indicate what the impact of increased power rates would be?

MR. SHAFFER: I don't recall any.

MR. PEDDIGREW: Mr. Malamed?

MR. MALAMED: I just want to have one quick check. Bear with me for a minute.

Could you ask your question again? I apologize.

MR. PEDDIGREW: I guess what I'm wondering is before Decision Gate 3, before the report was provided by Manitoba Hydro to government in the lead up to Decision Gate 3, which was late October 2012, are you aware whether there were any elasticity studies that were commissioned by government or by Nalcor?

MR. MALAMED: I'm not aware of them.

MR. PEDDIGREW: Okay.

So what we see from the Cabinet directive of April 26, 2012, is that government is directing that the PUB include the cost of the Muskrat Falls Project and customer rates, and I would suggest they were doing so without knowing what cost – what the cost would be, what the rates would be.

MR. SHAFFER: Sir, can we go back to your prior question?

MR. PEDDIGREW: Sure.

MR. SHAFFER: Because I believe our conclusion was that elasticity was left off – was not considered in the general – in the industrial sector, which – I take that to mean it was considered in the domestic sector.

MR. PEDDIGREW: And I'm gonna ask – have some questions for you on that as well. I believe there were – what the report said was that elasticity factors were considered.

I guess my question was: Were there any separate elasticity studies that were …?

MR. SHAFFER: I'm not aware of any.

MR. PEDDIGREW: I just – back to my question.

In April 2012, government is directing the Public Utilities Board to include the cost of the

Muskrat Falls Project in customer rates before it knew what the cost would be. Do you find that – I guess, from a forensic accounting point of view or an investigation point of view: Do you find that interesting at all? That government is saddling the ratepayers with the cost of a project that they don't know what the cost will be.

MR. MALAMED: I don't know that – in terms of forensic accounting investigation, I can't tell you if that would or would not alert me to a need for further steps.

MR. PEDDIGREW: Do you find that interesting at all that that's the timing of the events here?

MR. MALAMED: It's interesting, sure.

MR. PEDDIGREW: Do you think it would've been appropriate – before tying the ratepayers to the obligation to pay for that project, might it have been appropriate to get an elasticity study before making that decision?

MR. MALAMED: I'm not the one who can be answering that question.

MR. PEDDIGREW: Mr. Shaffer?

MR. SHAFFER: Nor I.

MR. PEDDIGREW: Would you grant me that it would seem reasonable to want to know what the cost of something is before you tie your ratepayers into paying for it?

MR. SHAFFER: I'm not gonna comment on that. I can't.

MR. PEDDIGREW: Okay.

So would you agree with this characterization that rather than grant the PUB additional time to consider the question, the reference question – and the PUB had only requested an extension until June 30, 2012 – government essentially bypassed the PUB and went direct to Manitoba Hydro to commission a report.

Would you agree with that characterization of what transpired?

MR. SHAFFER: Based on the documentation you showed me, it appears that way, yes.

MR. PEDDIGREW: Would you agree that if the PUB felt it didn't have sufficient information or time requesting that extension, would be prudent in all circumstances to request that extension, request the additional information?

MR. MALAMED: Again, I don't think that we're the ones who are gonna be asked that question. It's probably a better question for PUB, Nalcor.

MR. PEDDIGREW: Right. I mean, I'm not asking for you to definitively say: yes, it would've been better. I guess what I'm asking is: do you feel it would've been more appropriate – or it was appropriate for the PUB to seek additional time and information if it did not feel it had the appropriate amount of time?

MR. MALAMED: With what I was engaged to do – with what we were engaged to do, that assessment is really not under our engagement.

MR. SHAFFER: I will say, as doing project work in general, if you lack information, I personally request more time from the client.

MR. PEDDIGREW: Thank you.

Just going back for a moment to one of the questions Mr. Smith asked you during his examination. He made reference to why you considered the Nova Scotia equivalent of our Public Utilities Board – why you considered their report, I guess, in commissioning your report. I suppose if the PUB process had gone through – if the PUB had been, I guess, allowed to extend its time and get the information, and if people from Nalcor, if people from Hydro, if people from government had been witnesses and had given information at a PUB hearing, is it fair to say you probably would've considered that sort of report – maybe along with the Nova Scotia report, but certainly you would've considered that in your report as well, had it happened?

MR. SHAFFER: That's a fair statement.

MR. PEDDIGREW: In knowing that government avoided the public hearing process that would've transpired at the PUB, would you agree this creates some level of concern about the transparency of that process?

MR. SHAFFER: I'm not going to comment on that either.

MR. PEDDIGREW: I mean, we've got a public regulator, the Public Utilities Board –

MR. FITZGERALD: Justice, I've been listening to this for about a half hour, and I don't mean to object a cross-examination, but these witnesses, who are experts for a particular field – a very narrow expertise that they were called to give evidence on – they don't have the expertise to get into what the Public Utilities Board should and should not have done. These questions really don't go to this report. It's just, like, lay opinion. It would be like taking someone off the street and say: well, what do you think should've been done? I think it's just going a bit too far.

THE COMMISSIONER: Okay. Any response, Mr. Peddigrew?

MR. PEDDIGREW: I believe they're valid questions, Justice. I believe the witnesses were presented with a great deal of documentation. They've been asked their opinions on – not only in providing their report, but in terms of cross-examination – about the basis for their opinions, the basis for their observations, conclusions. They've been challenged on a lot of that, and I believe that some context about how a lot of these events transpired, the timing of them, who knew what and when, I think, is important. And I think it's good to get their take on some of these events.

THE COMMISSIONER: I guess my response to this would be as follows: I do think that the context that basically was in place at the time all of these events were happening is very important. I'm not sure, however, that that context is properly obtained from these two witnesses.

Now, in fairness to you and in fairness to who may follow, I have sat here and allowed a great deal of ambit with regards to the examination. And I kind of see this as people standing up and trying to make their points without there being the appropriate factual foundation put before the Commission.

I think the opportunity to make those points will basically arise once the factual evidence is presented. So I think you'll get an opportunity, for instance, with regard to the PUB's involvement; I think you'll get an opportunity to ask questions of individuals who will be there and more properly able to answer some of these questions.

So I have to agree with Mr. Fitzgerald in the sense that your questions are a little wider than I would've allowed, but in saying that I'd also say that so were others that were asked. And you just happened to be the first one now that happens to get an objection raised and so I, who's trying to sit here and be quiet, so now I'm going to deal with it.

So I think what I'm going to ask all counsel to do is to be patient. There's a lot of evidence to come and I think the facts and the factual foundation for some of the things that you want to ask about will be there and the appropriate people will be there to answer them.

I'm going to ask you, Mr. Peddigrew, to consider how I have qualified this – these two witnesses and try to keep your questions to the qualifications of these witnesses. What you're asking are opinions that, for one thing, are matters that I'm going to decide I'm not so sure that I really want to hear answers from these two witnesses on that, but I won't be deciding anything until I hear all of the evidence.

So we're at lunchtime now, so that'll give you an opportunity to sort of – to just look at your questions. And what I ask you to do – and to no fault to you because, as I say, you just happened to be the first one that there's an objection to – just try to line up your questions in line with the decision that I gave with regards to qualification of these witnesses if you can.

MR. PEDDIGREW: I will do that, Justice, yes.

THE COMMISSIONER: Thank you very much.

MR. PEDDIGREW: Thank you.

THE COMMISSIONER: All right, so we'll adjourn until then at 2 o'clock this afternoon.

CLERK: All rise.

Recess

THE COMMISSIONER: All right, Mr. Peddigrew, when you're ready.

MR. PEDDIGREW: Thank you, Commissioner.

Before I get started, just one point of clarification. In the morning session, I was referring to Manitoba Hydro, and my friend from Manitoba Hydro International clarified for me that it's Manitoba Hydro International, so I just wanted to clarify that for every time I referred to Manitoba Hydro, I was of course referring to Manitoba Hydro International.

THE COMMISSIONER: Okay.

MR. PEDDIGREW: So in terms of additional questions, Commissioner, I've taken your instructions into account, and certainly pared down some of the questions I did originally have. Rome wasn't built in a day, and some of it can be saved for later, certainly.

You were asked yesterday during cross-examination by Mr. Simmons whether you had any reason to question the October 2012 report of MHI. Given that government was already aware of MHI's predisposition to endorse the Interconnected Island Option, wouldn't you agree that that somehow calls into question some of the value of MHI's report, if they had a predisposition to favouring the Interconnected Island Option?

MR. MALAMED: I have no comment on that.

MR. PEDDIGREW: No comment on that at all?

I'd like to take you to pages 15 to 17 of P-00014 – your own report.

So just some questions about the option of natural gas or liquefied natural gas. Again, just referring this morning to the fact that the PUB issued its report on March 30. The PUB would've had – if we could scroll down there a little bit further. Okay, that's good. Thank you. So February 13, 2012, we see in line 33, there's a report from Dr. Stephen Bruneau dealing with natural gas, and Dr. Bruneau seems to suggest that it may be an option.

Then if we move on to the next page – a little bit further – and there we go, about right there. And we see that after the PUB had issued its decision, and I guess after Dr. Bruneau's report, the government commissioned two reports: one from Ziff Energy and then had the Ziff Energy report reviewed by the Mackenzie Group – and that's referenced on the next page.

So in terms of your, I guess, conclusion, if we move on to – I think it may be page 18 or 19 or probably even page 20 actually.

MR. MALAMED: I believe it's page 22.

MR. PEDDIGREW: Just give me one moment there. So yes page 22, under the findings and observations heading – okay. And just in the second bullet under section 1.1.11, you state that Nalcor's decision to eliminate natural gas and liquid natural gas as a power supply.

And then in the last sentence, the Government of Newfoundland engaged external experts that supported their decision based on our review. Nothing has come to our attention which would suggest that excluding natural gas and LNG was unreasonable.

So in making that conclusion, you're not necessarily saying that Dr. Bruneau was wrong in terms of his conclusions.

MR. MALAMED: I'm not saying that.

MR. PEDDIGREW: Some questions about the choice of the P50 in terms of a P-factor. And there was some questions about that yesterday, or I guess there's been questions about that every day. Did John Hollmann or SNC or Mr. Hennessey – I didn't get Mr. Hennessey's first name, it was –

MR. SHAFFER: Derek.

MR. PEDDIGREW: Derek Hennessey. Did either of those individuals make any reference to the Water Management Agreement issues and whether they were a factor in recommending a P-factor higher than P-50?

MR. SHAFFER: You mean recommended – I'm sorry, say that again.

MR. PEDDIGREW: Why they felt a P-factor higher than P50 would be more appropriate – did any of them reference water management issues as being a reason why they recommended a higher P-factor?

MR. SHAFFER: Well they didn't recommend a higher P-factor. What they told me was – I was asking what do they see and what do they use? SNC uses P85; Derek Hennessey said he sees his clients using a P75, and John Hollmann indicated he sees people in what he would consider to be as he quotes –this is him – best practices between P70 and P90. So – but the P factor – as I understand it – that's up to the decision-maker, what they're going to pick.

MR. PEDDIGREW: So did you ask these individuals why they would – why their practice would be to pick the higher P factor?

MR. SHAFFER: Well again, that's up to the decision-maker but this is what they see.

MR. PEDDIGREW: But did they explain to you why they go with the higher P factor as a decision-maker, or is that something that wasn't discussed?

MR. SHAFFER: No, no, they're not the decision-maker in these projects. The decision-maker in the project is obviously the project sponsor.

MR. PEDDIGREW: Okay, okay.

Did they say why the project they've been involved with, why they generally see – or the people they work with –choose a higher P factor? Was that part of your discussion?

MR. SHAFFER: We had some discussion about that in particular with John Hollmann, and I believe it's in the report of what Mr. Hollmann said and what he's seen. When he worked with the Department of Energy for, I think, in the United States, they go P90. And he talked a little bit of another – I forgot who it was exactly, but going through the report there was another one he said something like P70 to P90.

MR. PEDDIGREW: Is that something like across the board, they use that for every project – or in their experience that's what they've seen in every project, or does it – did it vary?

MR. SHAFFER: What he indicated was the Department of Energy all – well, I won't say all – but he said the Department of Energy used a P90 because they don't want to have to go back and get more money.

MR. PEDDIGREW: Some of the other reports that are footnoted in your report – there was a number of reports – so the Ziff Energy study and the Mackenzie study I just referred to, they were commissioned in, I believe, the October, November, 2012, or released in the October, November, 2012 time period. There was also a number of Department of Natural Resources, so government papers, that were released around the same time.

So, one about legal options; another entitled report: *Electricity Demand Forecast: Do We Need the Power?*; another that was referred to this morning; *Labrador Mining and Power: How Much and Where From?*; another from the Department of Natural Resources about *Muskrat Falls Will Stabilize Rates for Customers*; another, *Why Not Develop Gull Island First?*; and another *Upper Churchill: Can We Wait Until 2041*. And these reports were released generally, as I said, in October, November, 2012 time period, which was just weeks before sanction.

Do you know who at the Department of Natural Resources commissioned these reports, or was that anything that was discussed with – in the lead up to your report?

MR. MALAMED: It was not discussed.

MR. PEDDIGREW: And was there any discussion about the timing of the release of these reports so close to sanction?

MR. MALAMED: That was not discussed.

MR. PEDDIGREW: Returning for a moment to the issue of deferring to 2041, the 2041 option, are you aware of any or did it come to your attention during the course of your investigation – were any reports provided that were done by government in response to 2041, other than the Department of Natural Resources paper that they released themselves in November of 2012?

MR. MALAMED: Did I refer to one in my report?

MR. PEDDIGREW: Any studies or reports that were commissioned by government, besides that Department of Natural Resources paper on the 2041 issue?

MR. MALAMED: Not that I'm aware of offhand.

MR. SHAFFER: Is what you just referred to the same as the Reference to the Board, the Two Generation Expansion Options For The Least-Cost Supply?

MR. PEDDIGREW: No. What were you looking at there?

MR. SHAFFER: I'm looking at the appendix, Appendix B, of our report.

MR. PEDDIGREW: Okay, on the first page?

MR. SHAFFER: Yes. It's page 73 of the red.

MR. PEDDIGREW: Right. No, that – no, I'm referring to –

MR. SHAFFER: But that's – okay.

MR. PEDDIGREW: That's a – I believe what you're referring to are Manitoba Hydro International.

MR. SHAFFER: Yeah (inaudible).

MR. PEDDIGREW: That report to the PUB. Yeah.

MR. SHAFFER: Yeah, okay.

MR. PEDDIGREW: I was referring to a Department of Natural Resources paper that was released in November 2012.

So we see from some of the questioning this morning from Mr. Smith that – and I think he, I believe it was P-00245 was a decision of the NSUARB which was not released until, if we scroll down there, I think July 2013. So this was their decision where the Nova Scotia equivalent of our PUB indicated that it was approving the Maritime Link as the lowest cost option in Nova Scotia.

Did you see any reports during your investigation that were done by Nalcor that where they considered what would have happened had the NSUARB not sanctioned the Maritime Link Project?

MR. SHAFFER: What would have happened? I don't believe so.

MR. PEDDIGREW: I'm just wondering if you saw any documentation where government took that into consideration, what would happen if the Maritime Link was not sanctioned? The sanction occurred before the NSUARB made this decision. I'm just wondering if government provided or Nalcor provided you with anything showing that they considered that.

MR. SHAFFER: I don't recall.

MR. PEDDIGREW: Mr. Malamed?

MR. MALAMED: I don't either.

MR. PEDDIGREW: Okay.

Just going back to the issue of elasticity discussed in your report. It's on page 33, lines 12 and 13.

MR. MALAMED: Yes.

MR. PEDDIGREW: You know what, that may be page – it's possible that's page 36. I'm just wondering if I have the numbering off as well; right, okay, so, yes, mine's 12 and 13.

So in response to a question you posed to Nalcor, Nalcor replied: "It is confirmed that both 2010 Planning Load Forecast model and the

2012 Planning Load Forecast model for the Island system included price elasticity factors." Do you know what was meant by price elasticity factors?

MR. MALAMED: Those are the ones that I have listed underneath.

THE COMMISSIONER: Sorry, I didn't hear your answer. Could you just –?

MR. MALAMED: Those are the ones that I have listed underneath.

MR. PEDDIGREW: You mean in lines 14 through 16?

MR. MALAMED: That's correct.

MR. PEDDIGREW: So these factors were considered, but were you aware of or did government or Nalcor provide you with any elasticity studies that they commissioned? I believe your answer this morning to that was no.

MR. MALAMED: I still believe that's my answer. That is my answer.

MR. PEDDIGREW: Do you know if there was any discussion between Nalcor and its customer, Newfoundland Power – or Newfoundland Hydro's customer, Newfoundland Power – any discussions about any elasticity studies that Newfoundland Power may have done?

MR. MALAMED: I'm not aware of it.

MR. PEDDIGREW: The same for you, Mr. Shaffer.

MR. SHAFFER: Same answer.

MR. PEDDIGREW: So I'd like to take you to page 37, so lines 10 and – well, we'll start at line 8: "In Nalcor's report filed in November 2011 to the P.U.B., Nalcor states that it has not explicitly incorporated utility sponsored CDM programs savings targets into its planning load forecast due to the uncertainty of achieving dependable firm outcomes. According to Nalcor in this report the response to CDM programs and initiatives has been modest and lagging targets."

Do you know what the basis was for Nalcor to reach that conclusion? Was there any discussion about that?

MR. MALAMED: There was no discussion about that.

MR. PEDDIGREW: Did Nalcor provide you with – to consider any long-term studies looking into what price the market would bear resulting from the cost of Muskrat Falls power – what prices customers were willing to pay?

MR. MALAMED: No.

MR. PEDDIGREW: Just in terms of other energy options, the forecasting in the case of the two considered options was a 50-year period. So I think we'd agree that the longer out you forecast, the higher the risk of some uncertainty.

I mean since the sanctioning of the project, you know, we're aware of things like Elon Musk has developed a hundred-megawatt battery, which is certainly developing technology. We're aware now that shale has impacted – shale energy has impacted the oil and gas market.

Did you find any studies whereby Nalcor had considered, I guess – other than the options put forward on page 13 of your report – they had considered whether there were any sort of developing or newer technologies that –

MR. MALAMED: Sure.

Can you turn to Exhibit P-00013 – I think it's P-00013, page 4. I just want to go over the scope of the sanctioning phase. I'm just going to read. In the middle it says: "The forensic audit shall include only an investigation of the options that were considered by Nalcor …." So only the options that were considered by them, not for us to come up with other options, that's not part of the engagement.

MR. PEDDIGREW: No, no, I wasn't asking whether you were asked to come up with better options, I just was inquiring whether anything was presented to you as part of your engagement.

MR. MALAMED: Aside from what's in the report?

MR. PEDDIGREW: Aside from …

MR. MALAMED: No.

MR. PEDDIGREW: And those are all my questions.

Thank you very much.

THE COMMISSIONER: All right.

Former Nalcor board members.

MS. G. BEST: No questions, Commissioner.

THE COMMISSIONER: Questioners – questions?

Manitoba Hydro International?

MS. VAN IDERSTINE: We have no questions.

Thank you, Commissioner.

THE COMMISSIONER: Thank you.

All right, any redirect?

MS. O'BRIEN: Thank you, Commissioner. I do have a short redirect.

The first exhibit, actually, I want to go to is the one that's actually up on the screen. So that is Exhibit P-00013 which is the engagement letter between the Commission and Grant Thornton. And the scope of the – of your work is right there in front of you.

You had some questions – I'll ask you, Mr. Malamed, you had some questions regarding what you might have uncovered about what Government of Newfoundland and Labrador did or what they might have known. I just want you to perhaps clarify, when you were doing your work we know from this, obviously, that you were looking into the options that were considered by Nalcor and you were doing an investigation of Nalcor's financial analysis of the project. Did you do any investigation of government's decision to sanction the project or whatever government might have done in relation to that?

MR. MALAMED: No.

MS. O'BRIEN: Okay.

MR. MALAMED: That's outside of our engagement.

MS. O'BRIEN: Okay. Thank you.

Next, I would like to go to a few questions for you, Mr. Shaffer, on management reserve. So I think in response to some questions from Mr. Budden you describe the management reserve as an amount set aside to cover strategic risk exposure, controlled by the Gatekeeper and/or the shareholder or words to that effect. Have I quoted you correctly?

MR. SHAFFER: You have.

MS. O'BRIEN: Okay. Thank you.

So the first question I wanted to ask was: Would you have done – because you did mention the shareholder in that answer and the shareholder, of course, is the Government of Newfoundland and Labrador. Did you do – in the course of your work did you come across any evidence that would show that the Government of Newfoundland and Labrador had set aside a reserve or amount of money to cover this, the strategic risk?

MR. SHAFFER: Not necessarily money that was set aside per se. What I did see was a – some sort of commitment letter between the government and Nalcor.

MS. O'BRIEN: Okay. And did that have a dollar amount associated with it?

MR. SHAFFER: I don't recall seeing a dollar amount in that letter.

MS. O'BRIEN: Okay.

And then other than that, did you see any evidence of a reserve being created by the Government of Newfoundland and Labrador?

MR. SHAFFER: No.

MS. O'BRIEN: Okay.

And with respect to Nalcor, because you had said it was controlled by the Gatekeeper or the shareholder – so the Gatekeeper, as you've testified already, was the CEO of Nalcor Energy, so Mr. Ed Martin at the time – did you see – in doing your audit work did you see any evidence that Nalcor had set aside a reserve, this management reserve, a reserve to cover strategic risk in its books or wherever one would normally, under regular accounting principles, set aside that kind of a fund?

MR. SHAFFER: No.

MS. O'BRIEN: Okay.

The other question I wanted to ask was a bit of a clarifying question in response to Mr. Budden's question on the – questions on the management reserve. I believe, he'd asked you to the effect of – asked your opinion on the size of the management reserve or how much was set aside for strategic risk. And in providing that answer you cited Mr. John Hollmann, I believe, and you talked about Mr. Hollmann had identified for you two types of risks: event-driven and fact-driven. Do you recall that evidence?

MR. SHAFFER: I do.

MS. O'BRIEN: Okay.

So the question I have for you – you said Mr. Hollmann went on to talk about a labour shortage and you – I believe you said that he referred to that as a hundred per cent chance of happening or words to that effect, and he referred to that as the definition of contingency. Have I summarized your testimony accurately?

MR. SHAFFER: I think so. His perspective was if it's 100 per cent certain it was going to occur, it should be part of the contingency.

MS. O'BRIEN: Okay. And just – did Mr. Hollmann relate this concept of contingency as he was using it to the cost estimate for the project or not?

MR. SHAFFER: I think we were talking more in generalities at that point, like, what should have been going on, what should have happened.

MS. O'BRIEN: Okay.

So not – so you weren't – were – was – were you talking to him about this idea of strategic risk management reserve or –

MR. SHAFFER: Oh sure. Yeah, we were talking about this project, if that was your question and I misunderstood you. You know, I explained to him what the company did and we chatted through it –

MS. O'BRIEN: Okay.

MR. SHAFFER: – and then this was his conclusion.

MS. O'BRIEN: Okay, I'm just trying to get – so his conclusion that – where did – Mr. Hollmann, what was he telling you about where labour shortage should be captured?

MR. SHAFFER: The risk – the labour shortage or potential it could have on productivity issues, that it was a hundred per cent certain there was a labour shortage and that is the definition of a contingency, that you're sure it's going to happen. That's when he got into the event-driven risk and the fact-based risk. And he considered that a fact-based risk, a hundred per cent certain it was going to happen, it's just a matter of how much and how bad it's going to be. And he said that is the definition of a contingency.

MS. O'BRIEN: Okay. Thank you.

Next, Madam Clerk, can you please bring up Exhibit P-00135, slide 5, which is page 5 of that exhibit.

This is – I just wanted to clarify, this question comes from a question or a series of questions that Mr. Smith was asking you. And this had to do with the summary of your findings and observations here on – that's shown on this slide, in particular point number 1. So this question would be for you, Mr. Malamed.

Mr. Smith had suggested, as I understood his question, that it might have been better if you had removed the word "inappropriately" from this bullet so that it read: Nalcor may have eliminated two options. And so I just wanted to ask a few clarifying questions around that. And I understand that Nalcor actually did eliminate far more than two options. Is that correct?

MR. MALAMED: Yes.

MS. O'BRIEN: Oh, your mic is not on.

MR. MALAMED: Yes.

MS. O'BRIEN: Okay.

And just to make sure that the evidence is clear, that with respect to the other options that Nalcor did eliminate in their phase 1 screening, am I right in understanding your evidence in chief is that Grant Thornton did not consider any of those eliminations to be unreasonable?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. And so on this point here you're just referring to the two options that you had – you raised some findings about?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. And so for those ones you weren't making a conclusion of them being reasonable or unreasonable, you just pointed out the findings with respect to them where you found a discrepancy or things that didn't match up.

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay, all right.

And those, of course, would be the 2041 option and the importing power from Quebec.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, I just wanted to clarify that.

Those are all my questions. Thank you, Commissioner.

THE COMMISSIONER: All right, thank you Mr. Malamed and Mr. Shaffer. You can step down.

MR. SHAFFER: Thank you.

THE COMMISSIONER: Ms. O'Brien.

MS. O'BRIEN: In terms of our next witness, Commissioner, we do have a panel presentation. We'd ask to take a short break because we do have to move some things about on the stage.

THE COMMISSIONER: Right.

Okay, so we'll just take a few breaks – a few minutes to break and so that we can then get set up for the panel.

Just adjourn for a few minutes.

CLERK: All rise.

Recess

MS. O'BRIEN: Thank you, Commissioner.

The next witnesses are forming a panel. We are one panel member short; Paul Stratton, who is supposed to be joining Mr. Bob Moulton, who's on – present on the stage, as well as Mr. Auburn Warren.

Mr. Stratton is ill presently. We hope he will be able to join us tomorrow morning, but we will be getting started with the evidence from these two gentlemen. And they are going to be giving testimony regarding the CPW analysis that Nalcor did, which you've already heard some evidence about.

THE COMMISSIONER: Yeah.

MS. O'BRIEN: Before Madam Clerk swears the witnesses I would ask to enter a few further exhibits. And they would be Exhibits P-00160 through to P-00165 and Exhibit P-00256.

THE COMMISSIONER: Any objection to those being entered? If not, then they'll be marked as numbered.

And so have the witnesses determined that they wish to be sworn?

MS. O'BRIEN: They have.

THE COMMISSIONER: Okay.

So, first of all, Mr. – the – Mr. Moulton, first of all, please, if you would just rise.

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?

MR. MOULTON: I do swear.

CLERK: Please state your full name for the record.

MR. MOULTON: My full name is Robert John Henderson Moulton.

CLERK: Thank you.

THE COMMISSIONER: All right, and Mr. Warren?

CLERK: 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?

MR. WARREN: I do.

CLERK: Please state your full name for the record.

MR. WARREN: Auburn Ernest Legrow Warren.

CLERK: Thank you.

THE COMMISSIONER: Thank you, Sir.

All right, Ms. O'Brien.

MS. O'BRIEN: Thank you.

I'll briefly introduce the panel. Mr. Stratton – Commissioner, who's not here – is a senior market analyst with Newfoundland and Labrador Hydro. And he is the gentleman who prepared the load forecasts that were used for the CPW analysis at both DG2 and DG3. So hopefully Mr. Stratton will be with us again tomorrow morning.

But, Mr. Moulton, who is here – Mr. Moulton, am I correct, you're the senior – you're a senior system planner with Newfoundland and Labrador Hydro?

MR. MOULTON: I was at the time that this work was done.

MS. O'BRIEN: Okay. Thank you.

And when the work was done at DG2 and DG3, you developed the generation plans that were used for the analysis. Is that right?

MR. MOULTON: I did.

MS. O'BRIEN: Thank you.

And, Mr. Warren, you are with Investment Evaluation at Nalcor. Is that correct?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

And is this a fair summary? That's a group that evaluates, for the purposes of the CPW analysis, how much money Newfoundland and Labrador Hydro would have to charge for the electricity to pay for the generation plans that Mr. Moulton had developed?

MR. WARREN: Yes.

MS. O'BRIEN: Great. Thank you.

Okay, Mr. Moulton, I'm going to start with you and I'm first going to begin with just a few questions on you background. So can you just give the Commissioner an overview, just of your education, and a brief overview of your work history?

MR. MOULTON: Okay.

I studied and received a Bachelor of Engineering, electrical option in power in 1985 and I received an MBA – and both of these were from Memorial – in 1995. I've worked with Newfoundland and Labrador Hydro since 1985, mostly in the area of planning. I've done interconnected generation planning, rural generation planning and distribution planning.

And that's what I've spent pretty well all my career at.

MS. O'BRIEN: Great. Thank you.

And is it right that since 2005 you have been the primary generation planning person at Newfoundland and Labrador Hydro?

MR. MOULTON: Up until the past year or two, yes, from 2005 to about 2016.

MS. O'BRIEN: Okay.

MR. MOULTON: I've moved out of that position now. I'm manager of rural planning and another person is manager of basically generation planning.

MS. O'BRIEN: Okay.

But at the years that we're looking at here today in the pre-sanction decision –

MR. MOULTON: Yes.

MS. O'BRIEN: – that was your position.

MR. MOULTON: Yes. That's correct.

MS. O'BRIEN: Okay.

MR. MOULTON: All right and I'll get back – Mr. Warren, I'll come to your credentials when I first ask you some more substantive questions. So the reason we have chosen the three of you for a panel – knowing that Mr. Stratton is not here – but that's because the three groups that you gentlemen represent between Newfoundland and Labrador Hydro and Nalcor, those three groups worked collaboratively together to do the CPW analysis at both Decision Gate 2 and at Decision Gate 3. Is that right, Mr. Moulton?

MR. MOULTON: Yes, that's correct.

MS. O'BRIEN: Okay.

We've been talking about CPW, which we know means cumulative present worth, but could you give the Commissioner a bit of an explanation as to what that means?

MR. WARREN: Well, in the terms that we used it – well, CPW was a method of bringing, I'll say, future costs back to the present. But in this context we were looking at the, I'll say, utility costs, capital costs and operating costs for – they're developing these for various generation plans to meet various reliability criteria. I'm going out over the study period 50 years. So, again, then we – all the costs of these plans would be brought back to the present – to a present year, to one particular year.

MS. O'BRIEN: Okay. And at Decision Gate 2 that would've been 2010 and at Decision Gate 3 it was 2012? Is that right?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

Now I'm going to ask to bring up an exhibit. Can I bring P-00256, please?

Now, we're going to get back – we are going to spend a little more time on the detail of the chart that's shown on this slide, but right now, Mr. Moulton, I'm going to ask you to explain the process that you went through to do the CPW analysis at a fairly high level. So we don't need to get into the – a lot of the detail that's on the bottom of the slide, but I thought it might be helpful to have this part of the chart here available to you so you can explain, in big picture terms, what it is that you did.

MR. MOULTON: Okay.

As we have on the chart the three groups: IE – IE – then IE rates, forecast and then generation expansion, it kind of was these three groups. To start off the IE, who developed the rates, they would provide a seed forecast to Mr. Stratton who completed our load forecast. Based on these rates, he would do a load forecast. Then that forecast would be sent to me and I would do – run it through our Strategist program that's been talked about before and – with all the other inputs and come up with a least-cost generation plan. So we'd look at the forecast, look at all the options. It would have to satisfy also all of our generation criteria.

So I'd take the results of that and send back to Investment Evaluation. They would produce a revenue requirement and come up with a set of rates. These rates would be fed back to Mr. Stratton to develop a forecast and the idea was – there is, as we've – there is some elasticity in the forecast. If the prices are higher, loads will go down; we'll require less capital investment. If prices go down, loads should go up and we may require more capital investment.

So we'd usually go around in that iteration until the generation expansion didn't change. We'd iterate in on it a bit until the generation expansion didn't change and at that point we'd say: Okay, we've got a stable generation expansion plan, the least cost and our CPW.

MS. O'BRIEN: Great. Okay.

So you said you started with the seed forecast and that would be from Investment Evaluation. So IE here on this chart in the red, that is Investment Evaluation?

MR. MOULTON: That's correct.

MS. O'BRIEN: And that would be a seed forecast for electricity rates.

MR. MOULTON: Yes.

MS. O'BRIEN: How much you'd charge people for electricity?

MR. MOULTON: Yes, yes.

MS. O'BRIEN: Okay.

So that's how it begins and then it would go – so when we have here the orange box, so forecast, that would be the load –

MR. MOULTON: Yes, that would be, that would be Mr. Stratton.

MS. O'BRIEN: That would be Mr. Stratton.

MR. MOULTON: Doing the load forecast.

MS. O'BRIEN: So when I see the initials PS up here, does that actually stand for Paul Stratton on this?

MR. MOULTON: I would assume, yes.

MS. O'BRIEN: Okay. And then the blue box – so that would be done by your group in generation planning, and up here we had the initials RH and BM, so BM would be you, Bob Moulton.

MR. MOULTON: BM would be me, yes.

MS. O'BRIEN: Okay, and RH?

MR. MOULTON: That would be Renée Hodder. She had just begun, she did – she was – she did – assisted on some of the work at that time, and she's the current manager now of, well, resource and production planning or generation planning.

MS. O'BRIEN: Okay. All right.

And so I understand that, generally, that this is – this type of analysis is something that you – not that you did it only two times ever at DG2 and DG3, this is something that you would do as – on as a – on –

MR. MOULTON: On a – typically, at least on an annual basis, and sometimes, we'd do checks semi-annually.

MS. O'BRIEN: Okay.

So this is work that's ongoing at Newfoundland and Labrador Hydro and Nalcor every year, essentially?

MR. MOULTON: For many years.

MS. O'BRIEN: Okay.

And so I understand when you typically do it in an annual basis, you're usually forecasting out for approximately 20 years, is that right?

MR. MOULTON: That was what we used, yeah. 20 years would be the typical forecast.

MS. O'BRIEN: Okay.

And at Decision Gate 2 and Decision Gate 3, you used a longer forecast window, is that correct?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

And what was the window used at those times?

MR. MOULTON: We ended up using a 50-year window.

MS. O'BRIEN: Okay. And we'll come back to that a –

MR. MOULTON: Yes.

MS. O'BRIEN: – little bit more later on. That was a very helpful explanation.

I'm going to get you to explain a little bit more what a generation plan looks like. And to assist you with that, I'm going to ask if we could please bring up Exhibit P-00161.

Now, I understand this is the project timeline for the Isolated Island option at DG3, I believe, is that right?

MR. MOULTON: Yes, that's correct.

MS. O'BRIEN: Okay, but can you just explain for the Commissioner what a generation plan is? And perhaps, you can use this schematic to assist you.

MR. MOULTON: Okay, well, going back to what I said earlier, a lot of different inputs into the generation expansion plan, but the generation expansion plan, which was the addition of generation, had to meet our – the first thing it had to do was meet the criteria, our reliability criteria. Then it also – satisfy our load forecast and meet the reliability criteria.

So in – and we had determined that in 2015, we were going to – if we didn't build anything, we were going to violate our capacity criteria. We weren't going to have enough – from a criteria point of view, we weren't going to have enough megawatts. So there was a decision – or through all the studies – made to build a – it says "New CT 50 MW," and CT stands for combustion turbine, which is a – it's a thermal generating unit that's usually used for peaking capacity. You can – it comes – you can turn it on really quickly. You can get it online really quickly.

MS. O'BRIEN: Okay.

MR. MOULTON: So that decision – so we were going to build. There were – in 2015, as well – underneath 2015, it says "New Wind." And we go back up to the top, Island Pond, which was an hydroelectric project, Portland Creek, Round Pond. So we were seeing either – well, it could be two things.

I think some of these things – the hydro plants, too, they could also be just cheaper than the existing plan. They would actually bring down the cost of the plan. As well, at that point, if we were going to keep Holyrood running 'til the 2032 and 2035, there was – well, some upgrade work and refurbishment.

So the first one is "Holyrood Upgrade," which means we would have added electrostatic precipitators and scrubbers to get rid of sulphur and particulate and to also put in low-NOx burners. And that would have been to meet environmental regulations.

And after that we'll see Holyrood refurb number 2, number 3 and number 4. And you'll see these are every five years. These were capital costs that we would have incurred to refurbish Holyrood to keep it going until we planned to retire it in 2032 and 2035. They're every – as you notice, they're every five years. Really, they were expenses that were occurring annually, but just for modelling purpose, we lumped them every five years. And again, that was just a modelling choice to make the model a little more efficient.

So, anyway, if we keep going, we can – typically, when we get beyond the three small hydros: Island, Portland Creek and Round Pond, we're either adding combustion turbines – CDs – CTs – or CCCTs, which were combined cycle combustion turbines.

These take – these – it's a form of a combustion turbine, but what it does, it takes the waste heat from a combustion turbine and uses it in another steam turbine and produces more energy. So it produces more efficiently, but again that's mainly meant for – instead of – as I said, a CT was meant to come on real quickly; these take longer to come on, but they're for your base load generation. So you'd – they're more – they cost a little more than CTs usually, but they're a little more efficient, and so you'd use them for your base load requirements.

The other main thing we do in this generation plan was wind. We had studied wind and we realized that we could bring wind farms onto the system, and also, I think – well, they'd add to the reliability, but I think they would also reduce the CPW. So as criteria go along, either we can save money or we can add – or we can save money, or we – we're gonna not meet criteria; we keep adding some generation.

If we go down onto the next line in 2040. Or even – before that, I should go back a little bit. As we see in – on the second line – I'm sorry, on the first line we see – in 2032 and 2033, we have two CCCTs going in, and these are to replace two units at Holyrood. And if we go down to the bottom where it's 2040, we have one coming on in actually 2036. That's basically as we're shutting down the three units at Holyrood. And in 2040, we also see "Replace CT 50 MW." And that's – basically, we gave the CTs a service life of 25 years, and so that was basically a replacement for the 2015 CT.

One point to make is that we didn't just automatically – you know, if the CT from 2015 was at the end of its life, it wasn't just a given we were going to replace it with another CT. What we would do was then say, okay, that CT is required. Now, are we violating our criteria, or are we going to violate our criteria? And if we were, we'd look for the least-cost replacement or the generation addition that would provide a – the lowest CPW to replace that. Just given everything here, a lot of times it did turn out that the, you know, CTs did get replaced with CTs, and wind farms did get replaced with wind farms.

Anyway, we keep a lot of the – some of the generation expansion editions out to 2067 – some are CTs and CCCTs, which are thermal. But a lot of them are probably because the load was growing and we needed more generation, and the replacement ones were because we had replaced the older ones. Typically – as I say, the CTs were typically added for capacity; the CCCTs were added for if we required energy, but they also provided capacity as well.

So I'm not sure. Is there any – is that –?

MS. O'BRIEN: No. That's very helpful.

So what we see here is – just to make sure that the evidence is clear – this is the generation – this was the generation plan, the optimized least-cost generation plan that you created for the Isolated Island Option following the CPW analysis that we just spoke about.

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay. So really what it shows is how you have to bring on new generation over the planning period that you're looking at –

MR. MOULTON: Yes.

MS. O'BRIEN: – and where all those pieces fit in.

MR. MOULTON: Yes.

MS. O'BRIEN: Okay, and it would be helpful at this time, I think, we'll look at the same plan that you developed for the integrated Island, and if we could please bring up Exhibit P-00162.

So, here we have the plan for the integrated Island. If you could – or Interconnected Island – so here I think we'd all notice right here you have on Muskrat Falls and the Labrador-Island Link coming on this system.

So, if you could give us just a quick overview of this one, please, Mr. Moulton, and as you're going through that if you could explain – you know, we're seeing Holyrood CP2, Holyrood CP5 –

MR. MOULTON: Yes.

MS. O'BRIEN: – going right out until 2067. So if you could please explain what's going on there?

MR. MOULTON: Okay.

Well, the first thing, as we can see, was a common piece of generation in both cases was the new CT – the new 50-megawatt CT in 2015.

Next, where the Muskrat Falls and the – well the – especially the Labrador-Island Link, the LIL, coming on. And it actually came on mid-year 2017.

The CP, again, that just – Holyrood was gonna be – was planned to be shut down a year or two. Once we established that the Muskrat Falls and the Maritime Link operated reliably, the plan was to dismantle Holyrood. But we were gonna keep the – one of the units as a synchronous condenser; it's just a device that helps support to getting electricity from Muskrat Falls to the Island and some other things.

MS. O'BRIEN: This would be what, I think, Mr. Marshall referred to it as like a flywheel on a –

MR. MOULTON: Yes.

MS. O'BRIEN: – to help keep the system stable.

MR. MOULTON: That's one of the – yes.

MS. O'BRIEN: Okay.

MR. MOULTON: That's correct.

So what the – the CP2, again, this is just modelling. It's the – the CP was just capital project, and I think that was just – it was actually, again, annual capital money to – just the capital that was required in for the Holyrood, whatever was left in Holyrood to, you know, just to keep it going, and it was modelled every five years. Instead of modelling annually for modelling efficiency, we modelled it every five years. So that's not an actual generating unit being added there. That's actually – it was just a way for us to add this additional money for Holyrood.

MS. O'BRIEN: Okay, and that's to keep it going as a synchronous condenser.

MR. MOULTON: That's to keep it going, yeah.

MS. O'BRIEN: So it's not actually generating electricity.

MR. MOULTON: No, no.

MS. O'BRIEN: Okay.

MR. MOULTON: And so again we go through, we see a new CT in 2032 and 2036. And so again that's just when – that would be – we start seeing, eventually seeing, with a growing load forecast, we start seeing capacity violations, criteria violations. So we, mainly for capacity as I said earlier, we add CTs. Eventually, we start replacing CTs, and getting out in 2060, we start requiring some energy so a CCCT gets added.

So, it's – given we had Muskrat Falls, I think there's just less, there's less generation added in this plan.

MS. O'BRIEN: Okay.

MR. MOULTON: But again that was the plan, that was the least-cost generation plan or the plan that gave the lowest CPW, satisfied the load forecast and satisfied the criteria requirements.

MS. O'BRIEN: Thank you.

So, we're going to get into some of these components in a little more detail, but just based on your evidence so far, I understand – so you would develop these plans, then you'd provide them to investment evaluation, which would be Mr. Auburn's team. They'd figure out how much money would be needed, what revenue would be required to get all these things built and keep them operating, keeping them maintained and then he'd come up with a seed forecast for electricity rates. That would go back to Mr. Stratton and he would figure out what the electricity load would be for the Island based on that.

MR. MOULTON: Yes, and they would include, of course, IE would include the other costs as operating costs. This would be the things from the generation expansion, they'd include the operating costs and other costs that were as well.

MS. O'BRIEN: Great, and we'll get into that in a little bit more detail shortly. Okay.

There was one question I had actually. Madam Clerk, could you just bring up again Exhibit P-00256. Just a couple of acronyms here I wanted to go over. P-E-T-S, pets, what's that?

MR. MOULTON: That's our – basically, engineering services department was called Project Execution and Technical Services at that time.

MS. O'BRIEN: Okay, great.

And, up here, there was, I think, DG3 would be Decision Gate 3.

MR. MOULTON: Mm-hmm.

MS. O'BRIEN: The SP before it, what does that mean?

MR. MOULTON: I'm sorry.

MS. O'BRIEN: Right here. Can you just see that?

MR. MOULTON: Oh, sorry, that would be, I assume, system planning DG3 deliverables.

MS. O'BRIEN: Okay, thank you.

MR. MOULTON: I'm assuming. Because over on the left-hand corner it says system planning DG3 information requirements, so.

MS. O'BRIEN: Okay.

I'm gonna bring up now P-00160. We're gonna jump to the end of the analysis now.

MR. MOULTON: Okay.

MS. O'BRIEN: So this is the comparison of the CPW estimates that you came up with for the two supply options. So, we're jumping right to the end, but if – and we have seen this before because Grant Thornton referenced it in their work, but if you could just explain to us what the outcome was.

MR. MOULTON: Well, the outcome was that the (inaudible) for the analysis that I did – the analysis that we did for the CPW, for the Interconnected Island Option, the CPW was 8.4 billion. For the Isolated Island Option, the CPW was 10.8 billion, leaving a difference of 2.4 billion.

And I just want to add to this, this analysis was what we call an incremental analysis, so these weren't the total operating costs. IE did – the revenue requirement that IE did, did include the total cost, but what we did in some of these cases, we had, for example, the operating – the O&M for all of our hydro plants. That was assumed that they were gonna be there; they were gonna be the same for all options that we did.

So they were going – they would not change. If you went through all the trouble of adding them in, you would just end up removing them at the end. The CPW numbers would be slightly different, but the 2,412,342 would be exactly the same.

So, in essence, this is – just shows the – yeah, the difference between the two CPWs for the two generation-expansion plans.

MS. O'BRIEN: Okay.

So, for instance, Bay d'Espoir, which is a hydro generation that we have on the Island, that was gonna be used under the Interconnected Island and it was gonna be used under the Isolated Island.

MR. MOULTON: Yeah, there was no – there were no plans to make any changes. There were no plans to shut it down at any point, and any O&M or capital that would be required to maintain it, would be assumed to be the same under both plans.

MS. O'BRIEN: Okay. So, when we look at the totals here, the 8.4 billion and the 10.8 billion, there's nothing in there for Bay d'Espoir.

MR. MOULTON: Not for the – no, there's not.

MS. O'BRIEN: Okay.

Now, if you could just explain – so under the Interconnected Island Option, the largest capital project there would, of course, be the Muskrat Falls Project. When we look at the fixed charges though, we have a small amount here for fixed charges, but we have a large amount here for power purchases.

So can you just explain why – you know, where are the costs of building the Muskrat Falls

Project captured under the Interconnected Island?

MR. MOULTON: Okay. Well, the fixed charges – as we just went through the two generation plans and as we see, we did add a number of generation projects in that plan. A number of CTs and CCCTs or of CTs at the end. So that would be where the fixed charges would have come from.

MS. O'BRIEN: Okay.

MR. MOULTON: Most of the Muskrat Falls – the cost of Muskrat Falls and the LIL would have been in the power purchases. We didn't actually model the – I'll say the actual capital cost, we modelled the – what the power purchases would be to the Island that would cover off the revenue required for that.

Now, there would be some other – in that 6467, there's also be – we had some other very minor power purchases. We have some non-utility generators that we buy from. But pretty well all of that would be the cost for buying the power from Muskrat Falls.

MS. O'BRIEN: Okay.

And the non-utility generators, where you'd also buy power from. For example, Corner Brook Pulp and Paper, I understand that they generate some of –

MR. MOULTON: (Inaudible.)

MS. O'BRIEN: They generate some electricity that Newfoundland and Labrador Hydro actually buys. Is that right?

MR. MOULTON: We do have a contract with them, yes. And two wind farms and a small hydro, and I think also some of the power from Exploits as well.

MS. O'BRIEN: Okay.

So when we sometimes see NUGS, N-U-G-S in the documents, this is the non-utility generators –

MR. MOULTON: That's correct.

MS. O'BRIEN: – those examples.

Okay. Thank you.

When you did the CPW analysis, did you assume that – I know that – the Maritime Link was not included in your analysis –

MR. MOULTON: No, it wasn't.

MS. O'BRIEN: – is that right?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

Did you assume then that all the – any excess power from Muskrat Falls, excess to the needs of the, our provincial customers – all the excess power, did you just assume that was spilled? In other words, the water just –

MR. MOULTON: That's correct. Yes, we did.

MS. O'BRIEN: – overflowed the dam, it didn't go through the turbines.

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

Those questions will be for Mr. Stratton tomorrow morning, hopefully.

So the next area of questioning I'd like to take you to, Mr. Moulton, is we've talked about what you did, I'd like you to talk a little bit more about how you did it. So I understand that you use – to generate these plans, to make the generation plans, you actually use a fairly sophisticated piece of software.

MR. MOULTON: That's correct.

MS. O'BRIEN: Can you please explain that for the Commissioner.

MR. MOULTON: Okay – I'm trying to think.

MS. O'BRIEN: And it may – I'll bring up a P-00256 again –

MR. MOULTON: That's –

MS. O'BRIEN: – just in case it's helpful for you to refer to that.

MR. MOULTON: That would be the one, yes.

Okay. The program we used was a program called Strategist, which was approved and supported by a company called Ventyx at the time. They've changed their names a number of times. It was also used by Nova Scotia Power and New Brunswick Power, and many other utilities in North America.

And what it was used – it had a number of modules. You could do a lot of different things with it. One of the things it could take – a given amount of generation and given – well, a lot of these interest rates down there, fuel cost, forced outage rates, fuel, all that kind of stuff, you could put all that in there and it would say – it could spit out saying here's the – here's what it'll cost you or here's what we suspect it'll cost you to run your utility for any given year that you put it in.

The other thing that it also did was it had another module called PROVIEW, and that's what we used to actually put all of this stuff in, put our alternatives in and all the characteristics of them, and that's what we would use then to generate the generation expansion plans and the CPW.

MS. O'BRIEN: So looking at this diagram here, so all these boxes here towards the bottom of the page, so these are all the inputs that you would have put into the Strategist software. Is that correct?

MR. MOULTON: That's correct.

MS. O'BRIEN: All right.

So we might just go through a few of them. I don't know if we'll hit all of them.

MR. MOULTON: Sure.

MS. O'BRIEN: The load forecast, so that's the piece of work that Mr. Stratton's gonna tell us about.

MR. MOULTON: That's correct, yes.

MS. O'BRIEN: Okay.

Load shape, can you explain that, please?

MR. MOULTON: Load shape, Strategist looked at – it looked at every hour in the year, what the load required for every hour of the year and did a probabilistic evaluation of whether we'd be able to meet load for that hour or not. So that was basically – the load shape was the hourly load. You know, it's low in the nighttime, comes up in the mornings, but the actual load for every hour, for every month of the year has an input into Strategist.

MS. O'BRIEN: Okay.

So is that something – because that's in blue, does that mean that's something that your group would have developed?

MR. MOULTON: Yes, we would've developed that.

MS. O'BRIEN: Okay.

Now, escalation series.

MR. MOULTON: Well, escalation series; again, capital cost, as we saw from the generation expansion, you know, a generating unit could be put in in any year. We started with 2012, we went to 2067.

So what we would start off with were the – call it direct costs. Just the cost of actually – capital cost of building in a given year, typically 2012. And so in order to see what the price – it's kind of typical, almost like inflation, not quite – of what it would cost to build it in 2013, 2014, 2015, 2016, we used what was called an escalation rate.

So that would – okay, it's almost like inflation. So that would say, okay, if the program looked at it and said, yeah, it's a good idea to build it in 2018, it would take the escalation rate and the 2012 cost and say, okay, here's the cost in 2018.

MS. O'BRIEN: And because that's in red, does that mean that would've come from Mr. Warren's group?

MR. MOULTON: The escalation series? Yes, that would come from investment evaluation.

MS. O'BRIEN: Okay. So I have some more questions for Mr. Warren.

The fuel price forecast, I understand that's one that Mr. Stratton's gonna be able to talk to us about.

MR. MOULTON: Yes.

MS. O'BRIEN: Discount rate and AFUDC, we're gonna have some questions for Mr. Warren now in a moment.

Forced outage rates, could you explain that for the Commissioner, please?

MR. MOULTON: Forced outage rates; well, these are basically the reliability measures of our various generating units. Unfortunately, it's not – they don't stay on all the time. And the other thing is that different types of generating units have different reliability rates.

So forced outage rates, it's almost like – you know, it's called forced. It's when they go off and we can't control it. Typically, thermal units would have a higher forced outage rate of 10 or 15 per cent. Hydro units would be down around 1 or 2 per cent.

And we developed these from our own experience, with our own units, what we had seen. We also looked at, you know, CEA database of forced outage rates for units across the country and other industry sources.

MS. O'BRIEN: Okay.

So that input would be important to ensure that your generation plan was meeting your reliability requirements. Is that –

MR. MOULTON: That's correct, yes.

MS. O'BRIEN: Okay.

Insurance rates, I think we can all guess what that is unless it's – this is because you have to keep it all insured.

MR. MOULTON: And they were – yeah, and they were there but they were a very small part.

MS. O'BRIEN: Okay.

So capital costing, this has to do with the cost of building things.

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay, so we'll get back to that one.

O&M is operation and maintenance costs.

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

MS. O'BRIEN: Okay. NUGs, I believe we've already talked about that, so that would be some of the power purchase inputs?

MR. MOULTON: Yes.

MS. O'BRIEN: Okay. Heat rates?

MR. MOULTON: Heat rates, basically, it's efficiency. So you can almost – it's the amount of energy you get out of a generating source, like kilowatt hours, compared to the amount of fuel you actually put in. It's almost like, I'll say, miles per gallon or kilowatt hours per litre. That's – it's a measure of efficiency. So some units are more efficiency than others, and of course, that goes into the final, overall cost that determines the CPW.

MS. O'BRIEN: Okay.

Wind energy here. So this would be the amount – would that be the amount of wind energy that the system can take or the cost or both?

MR. MOULTON: Okay, (inaudible). You skipped over hydro.

MS. O'BRIEN: Oh, sorry, yes. Let's go back to hydro energy, my apologies.

MR. MOULTON: Yeah, so we would put in – again, hydro energy, we've looked at the studies of our hydro systems, our dams and all that and the amount of water that we actually get in, you know, rain, snowfall, things like that for the last 50, 60, 70 years.

So we've developed a – we've lead – you know, we know – we've seen what our lowest inputs have been into that system, so that's very important when we are on – for an isolated Island, and we were – we couldn't call our neighbours to get any more power. We had to ensure that under firm energy circumstances that, you know, we would have – and our thermal energy – that we'd have enough energy to meet our leads – meet our needs.

It's also important – hydrology was also a part of looking at how much energy we think, you know, here's what we'd get into the reservoirs here. With different generating configurations, we may spill more or spill less. And that comes in when we get to the wind energy.

So basically the hydro energy is how much energy do we expect to get on average and, I'll say, on a firm basis and on a monthly basis as well. And of course, our hydro average, or – that being there to fulfill criteria, and of course, anything we got from hydro, we didn't – we also don't have to use fuel to burn or spend money on fuel to burn.

MS. O'BRIEN: Okay.

I'll let you go on to wind then because I know they are connected.

MR. MOULTON: Yes, and the – and we've got the hydrology there. Of course, if you build wind, it'll – unless you turn it off – it'll produce energy whenever the wind blows. So our dams can only hold so much water, so what we saw in the studies that the more wind energy that you would add – each subsequent wind farm would create the probability that you're going to spill a little more energy, so you wouldn't have quite as much energy in the – from your hydros.

And basically the effect of that is, is that you might build a wind farm; you thought you were going to get a, say, a 100 gigawatt hours out of it; the next one you'd get 100 gigawatt hours out of the same size, but you might spill 10. If you add another one, you might all together spill, say, 15. So it got to a point where the money, you know, the money we were saving on by putting in wind farms was counterbalanced by the spill, so at that point, that we shouldn't put any more wind farms from an economic point of view.

MS. O'BRIEN: I'm going to go over that a little bit more slowly too, because it's an important concept –

MR. MOULTON: Okay.

MS. O'BRIEN: – when we're talking about hydro, and I know it's a complicated concept in some ways.

But so for wind generation, you can only get the electricity out when the wind is blowing?

MR. MOULTON: Yes.

MS. O'BRIEN: Okay.

And so when the wind is blowing if you just had a wind farm alone, there's no way to store any excess energy that you might be generating but not needing while the wind is really blowing on that day, if you only had a wind farm?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

But the benefit of a hydroelectric generation, if – it has a reservoir –

MR. MOULTON: Yes.

MS. O'BRIEN: – so we basically have a pool above the dam, so that if you don't – if you – you can shut the gates on the dam; you can stop the water from coming through the turbines and generating electricity, and you can just let – as the rain falls and the snow melts, you can just let the water build up in the reservoir?

MR. MOULTON: Yes, that's correct.

MS. O'BRIEN: Okay.

So on a really windy day, you can let your wind turbines run at full tilt, and you can – you know, in my simple example – shut the gates on your hydro dam, let all the water that's – all the rain that day just build up in the reservoir and you can meet everyone's needs for electricity or energy for that day?

MR. MOULTON: That's correct.

MS. O'BRIEN: And then two days later, when everything dries up and it's really sunny again and it's nice and still and the wind's not blowing, now, all that water that you – the wind farm is not doing anything for you because you've got no wind, but you can open up the gates and all that water that you've saved in your reservoir can start coming through the turbines now creating electricity, and you can use it on the still day?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

So that sort of illustrates how those two pieces work together in a – I know it's a simplified way, but –

MR. MOULTON: No, that's –

MS. O'BRIEN: Okay.

MR. MOULTON: But as we've said, there's also if you have too many wind farms, and your reservoirs can only store so much water, so eventually – if you put in too many wind farms, eventually you won't be able to – you know, you won't be able to generate – you won't be able to get all the waters through the turbine, and eventually, you'll have to spill it.

MS. O'BRIEN: Okay, so –

MR. MOULTON: So there is an optimal –

MS. O'BRIEN: – your reservoir gets full –

MR. MOULTON: So there is an optimal number of wind farms that you can build.

MS. O'BRIEN: Okay, 'cause you don't – once water spills over the dam without going through the turbine, it's – from an electricity point of view, it's wasted water.

MR. MOULTON: It's wasted water.

MS. O'BRIEN: Okay.

MR. MOULTON: Spilled.

MS. O'BRIEN: Right. Two other concepts I'd like you to go over. You've mentioned them, and I think it's worthwhile having a little more explanation on them.

One is – you've talked about firm energy and you've talked about average energy. Can you explain the difference between those concepts?

MR. MOULTON: Yes. Well, and from a – thermal units, so, with – given a forced outage rate, typically, as long as you put in fuel, they'll put out energy to their capacity. But with – when you start talking about hydro units and wind units, the – over 60 or 70 years, you can look at and say, yes, here's what we expect on average to get for a particular month, for a particular year.

But as we know we have dry years and we have wet years. So what we called our – we had to supply our firm energy. What we had – what we – going back in the – three years in the late 1950s, we had three years in a row of low in-flows – low rainfall, low snowfall – into our reservoirs, and that's kind of what we use as a benchmark.

So basically, what we had to do was look at our – the amount of water we had in our reservoirs, which is like fuel; what we expect we're gonna get coming in rain, snow and all that stuff, which is, say, fuel being delivered; and how much our thermal plants could supply, and we had to make sure that if, at any time, if we went into another three-year cycle of very low in-flows, that we would have enough fuel, between water in our reservoirs and between what our thermal plants were able to put out, so that we could supply the Island needs, because on – in an isolated Island situation, we couldn't – there was nowhere else to get energy.

We couldn't ask our neighbour for any, so we had to make sure that at all times we had enough energy to supply our needs if we went into this three-year low input, low infeed to our reservoir cycle. So that's what we called was our firm energy. That was – what we're basically saying is from all we've seen in the last 70 years, that's the lowest amount of energy that we would get out of our hydros and wind, you know, for any given three-year period.

MS. O'BRIEN: So it's like the worst-case scenario?

MR. MOULTON: Worst-case – that's the better words for it, worst-case scenario.

MS. O'BRIEN: Okay. Thank you. We're just about done here. We have another one here – we have emission rates, emission limits.

Can you explain that input please?

MR. MOULTON: Well, for – we didn't use these – we didn't actually use these in the base case, but our thermal plant – well, the CT, CCCTs and Holyrood – well, Holyrood especially. Holyrood with the heavy fuel oil; Bunker C, you had sulfur emissions; SO_2. You also have particulate emissions and, of course, you have CO_2 emissions.

So going back to the Isolated Island plan in Holyrood, due to government regulations, we were gonna put in electrostatic precipitators and scrubbers to considerably reduce the amount of sulfur and particulate that it would be expressed into the atmosphere. And, of course, the other big one was CO_2. And CO_2 is basically more difficult to remedy. Basically, if you burn fuel, it's going to produce carbon emissions, unless you do put in some kind of carbon capture.

So that was – and again, these are – in a thermal world, of course, where they're important – the cost of mitigating them or having them there, that adds to the – if you're adding thermal units, that added to the cost of the, basically, the Isolated Island scenario.

MS. O'BRIEN: Yeah. But you said you did not use this input in your –

MR. MOULTON: No.

MS. O'BRIEN: – base case. So –

MR. MOULTON: No, we didn't use it in the base case.

MS. O'BRIEN: Okay. So you –

MR. MOULTON: Well, at the time, of course, we were – well, we were gonna mitigate the SO_2 and the particulate with the ESP and scrubbers, so I suppose that cost was in there. I should say the cost of CO_2 wasn't in the base case, but it was done as a sensitivity.

MS. O'BRIEN: Okay. So we'll get – but would that be the same as a carbon tax?

MR. MOULTON: Well, that's one of the forms – that was one of the forms that the cost of additional carbon could be in. There are others.

MS. O'BRIEN: Okay. So when you did the CPW analysis, you didn't use this input here, but we're gonna talk later on, probably tomorrow, about some sensitivities, and we'll come back to that.

MR. MOULTON: Sure.

MS. O'BRIEN: Okay. Unit capacities.

MR. MOULTON: Well, unit capacity is the – just the amount of electricity. I've referred to 50-megawatt combustion turbines, so, basically, that's just the amount of electricity; the amount of capacity you can get out of your unit at any given time.

MS. O'BRIEN: Okay. And here – NP. Would that by Newfoundland Power?

MR. MOULTON: That would – well, we model the – on the Island, we modelled the generation – Newfoundland Power has its own number of small hydro plants, a number of small thermal units, so we modelled these in Strategist as well, and all of their loads. And Deer Lake Power with Kruger, the same thing.

MS. O'BRIEN: Okay. And last on this page then, identified decisions. What does that block mean?

MR. MOULTON: That would be identified, I think, in the case the – for example, you know, Muskrat Falls and the LIL, that was the date that they were gonna come in. That was a – I'll say – a chosen date. So we said, no, come in service at this date within the model. The model wasn't left to decide when it should come in.

MS. O'BRIEN: Okay. All right, thank you very much for that

We'll give you a break now and we'll go to Mr. Warren.

So, Mr. Warren, can you start by telling us what your position is with the Investment Evaluation group at Nalcor?

MR. WARREN: Sure.

I am currently the general manager of Investment Evaluation, Treasury and Risk Management. At the time of sanction, I was manager of Investment Evaluation.

MS. O'BRIEN: And can you give the Commissioner, please, a brief overview of your education and your work history that led up to you having that position.

MR. WARREN: Sure.

So I graduated from Memorial University with a Bachelor of Commerce, co-op honours in 1996. Moved into industry with Grant Thornton, where I articled as a chartered accountant student; was successful in getting my chartered accountant designation in 1998. Shortly thereafter, I moved out into industry, worked with a couple of different companies before Nalcor, ranging in telecoms and just diversified local companies. Started with Nalcor Energy in late 2010, August 2010, and I've been there since.

MS. O'BRIEN: Great.

So, we've heard already that Investment Evaluation gives the seed forecast. So this is the first, this is – when looking at this chart here, so this is – to get this – when we talk about an iterative process, we kind of – means we go around the circle a few times until things stop changing, more or less.

MR. WARREN: Right.

MS. O'BRIEN: So you need an input to get that started, so I understand the first input comes from your group which is the seed forecast, I believe, Mr. Moulton referred to it.

Can you just explain for us, how do you come up with the initial seed forecast?

MR. WARREN: Sure.

So what we take is, at the initial stage, what we anticipate the total cost for the generation expansion plan. So, again, it's kind of where does the circle begin? We'll have an initial view of what the total cost that Bob would obviously would have. And we take those costs and factor in usage, based on the load forecast, and express them into effective rates that different customer classes would be required.

MS. O'BRIEN: Okay, and I know we'll hear a little bit more about the customer classes from Mr. Stratton, but we have had some evidence already from Grant Thornton.

So you would be doing a different, if I'm understanding you correctly, a different seed forecast for the domestic users, different one for general service users and a different one for industrial. Is that more or less correct?

MR. WARREN: That's my understanding, yes.

MS. O'BRIEN: Okay.

Now, we are – we have heard a little bit already and we're going to be hearing more that when you have to put the inputs into how everything is going to be paid for, what the revenue requirements is, there's two ways that you do it. And one is this PPA or Power Purchase Agreement, I know that was used on the Muskrat Falls Project.

Can you explain, please, for the Commissioner, you know, what that means, what you do?

MR. WARREN: Sure.

So on the Muskrat Falls component of the project, Muskrat Falls and the Labrador Transmission Assets, that is the generation asset. And what we – where we landed was we used a escalating supply price PPA.

Typically, regulated assets follow a regulated cost-of-service framework in which it's based on rate base and it declines over a period of time. With Muskrat Falls, we selected the PPA method largely in part because of the ratepayer benefits that it would provide. In particular, with respect to initialling Muskrat Falls the requirements for Island customers started off at roughly around two-terawatt hours and it increased over time.

So, in a regulated cost-of-service framework that would, basically, you'd be requiring the full recovery of Muskrat Falls in the initial period when customers are using it the least or receiving the least amount of energy. And that would have caused, obviously, significant cost to ratepayers at the first in service.

What we do with the escalating supply, escalating supply price is it requires or it provides flexibility by the equity holder, in this case the province, in flexibility in when they actually will receive the returns.

So our escalating supply PPA is based on the – what I call the Island strip, which is the energy over the Infeed which is the level of – the amount of gigawatt hours that is required by Hydro to service the load forecast.

MS. O'BRIEN: So you refer to it as the something strip?

MR. WARREN: I call it the Island strip.

MS. O'BRIEN: Oh.

MR. WARREN: So it's the strip of energy that's required by Island customers.

MS. O'BRIEN: Okay.

MR. WARREN: So we take that and we then calculate, in our financial models, what the supply price is required. And what we take there is that we look at all the various inputs: capital costs, timing and schedule, and amounts, and operating and maintenance costs, financing costs. We take all the costs associated and determine, based on that – the final PPA was based on providing the province a return of 8.4 per cent IRR on equity.

So it factors in the amount of equity that's required up front by the equity holder, and looks at the free cash flow. So it basically takes the requirements, multiply it by the supply price and that provides a series of free cash flows that will be provided to the province in the form of dividends, returns, and when you look at that that actually provides an 8.4 per cent IRR.

MS. O'BRIEN: Okay. I'm gonna break that down a bit and we'll go over it again –

MR. WARREN: Sure.

MS. O'BRIEN: – a little bit slower. It's very helpful, but it is for most of us it is – it's complex. So I just wanna make sure that I've got a clear picture. So you talked about normally you have a regulated cost-of-service pricing model, and just wanna make sure that we're clear on what that is, as compared to a power purchase agreement or a PPA.

MR. WARREN: Yup.

MS. O'BRIEN: So we've had evidence here already about the PUB and I understand – I'm gonna oversimplify perhaps, but I just wanna make sure we have the fundamentals right – that normally a utility has to come before the PUB and say: Look, for this – for the next year this is what it's going to cost us to supply the electricity for these customers. And they have to give evidence to show what it would cost them.

And then the regulator, or the PUB, would look at that and say whether they agree or don't agree. And they would say: Okay, that's what it's gonna cost you and we're gonna allow you to earn some profit on your operations. So they'd allow a rate of return that they're allowed to get – essentially profit. And then they say – they approve an amount of money and that is worked into what you'd have to charge, essentially, for the electricity to get that money, and they approve it. Is that correct?

MR. WARREN: That's a good high level – yeah.

MS. O'BRIEN: Okay, so that would be a regulated cost-of-service type scenario.

So if I understand from what you're saying, is that when you're talking about – you looked at the Muskrat Falls generating station and the Labrador Transmission Assets, so that line that goes from Muskrat Falls up to Churchill Falls, you looked at that as one generation piece.

MR. WARREN: Correct.

MS. O'BRIEN: Okay.

And the idea particularly with – that's a major capital project; it costs a lot of money to build a hydroelectric generating station.

MR. WARREN: Yeah.

MS. O'BRIEN: So if you did that for first year cost of service, the cost would be really, really high for that initial year.

MR. WARREN: Yes.

MS. O'BRIEN: Okay, or in the initial few years.

MR. WARREN: And especially factoring in, as I noted, up front you're not using – you're not requiring the full capacity of the generator at that point. You're only requiring, again, roughly two-terawatt hours.

MS. O'BRIEN: Okay.

So the users of the electricity of those terawatt hours, would be paying, essentially, for the entire generation asset in the very early years – the major costs of building it. And that would be – would, if you just did it on a cost-of-service basis that would result in a very high electricity rate – very high electricity rate for those first years.

MR. WARREN: Correct.

MS. O'BRIEN: Okay.

So rather than doing that, I understand that this was a decision that was taken – and we'll talk more about later on about who took the decision – but for the purposes of today's evidence, what you did is you basically took the full cost of doing that, took the lifetime of the project – the 50-year period – and you essentially tried to smooth out the payment of all those costs over the 50-year period. Is that –

MR. WARREN: So what we were trying to – we were trying to, again, take into account that initially we didn't require the full output of the generation unit –

MS. O'BRIEN: Mm-hmm.

MR. WARREN: – and we were trying to look at how could we best provide that generation unit based on that escalating supply price?

MS. O'BRIEN: Okay.

So the result would be that in the early years ratepayers would be paying less than they would under a cost-of-service model. But in the later years, like up, you know, as we get closer to the end of the 50-year period, people – those people in the future would be paying far more than what they likely would under a cost-of-service model.

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

MR. WARREN: But then – but again, the inverse of what I was saying, initially, is they would be in the later years using – they would be receiving a lot more of the output of the plant. And it actually provides – if you look at our submission, Nalcor's submission to the PUB during DG2, there's a really good description of, kind of, the methodology for the PPA and why it was selected. And that was one of the points in that – was intergenerational, it provided a balance of intergenerational benefit.

MS. O'BRIEN: Okay.

And that has been entered as an exhibit here; I believe it's Exhibit P-00077 –

MR. WARREN: Yes.

MS. O'BRIEN: – I stand to be corrected, and that was Nalcor's submission to the PUB in November of 2011.

MR. WARREN: Yes.

MS. O'BRIEN: Okay. Thank you.

Okay, so that – now, as you're – to create the PPA amount, you talked about a number of pieces that have to go into that. So one of those you said would be the capital cost estimate. So you would've – Investment Evaluation would've needed that input – how much – the capital cost estimates for the Muskrat Falls Project.

Is that a number that you developed yourselves or did somebody else give you that number?

MR. WARREN: No, the project management team would've provided us a schedule of – a timing schedule of required capital.

MS. O'BRIEN: Okay.

So when you say the project management team, would that be the project management team for the Lower Churchill Project?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

And so we're gonna hear more evidence about that team, but would that generally be the group that was headed up by Paul Harrington?

MR. WARREN: Yes.

MS. O'BRIEN: Okay. Thank you.

So they would've provided you the cost and you said also the schedule, so –

MR. WARREN: The timing yes.

MS. O'BRIEN: The timing. So like over the – how long the construction was expected to take and when they'd need the money over the construction period as well.

MR. WARREN: More importantly for our purposes the actual month, like a monthly cash flow profile.

MS. O'BRIEN: Okay.

And would they have provided that as well for – after the construction was done – for operation and maintenance costs? Would that group have provided the operation and maintenance costs as well?

MR. WARREN: I believe so, yes. Yeah.

MS. O'BRIEN: Now, I know that in the Isolated Island scenario it's not a cost of service – or sorry, it's not a PPA model, it's a cost-of-service model that you were working with, is that right?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

So – but you still need to have the – know the capital costs and the operation and maintenance costs to come up with a revenue requirement under that situation as well. Right?

MR. WARREN: Yes, but I believe that actually was an input that Mr. Moulton would've received as an input for his, I guess, various scenarios for Strategist.

MS. O'BRIEN: Okay, so you – so Investment Evaluation supplied what was needed, the revenue that was needed for the PPA model, but for the other elements in the Isolated Island, or you were using cost of service, these were inputs that Mr. Moulton took directly and put into Strategist?

MR. MOULTON: Yes.

MS. O'BRIEN: Okay.

And so, Mr. Moulton, I'll put this question to you, who provided you – let's look at DG3, okay, the Decision Gate 3 CPW analysis you did. Who provided the capital cost requirements that you would have needed to look at the Isolated Island Option?

MR. MOULTON: They were refreshed by the LCP people, but they were taken from a number of various things, studies that had been done in previous years, and they took the studies, went out to industry and consultants, had them refreshed, brought up to date and then supplied us with the numbers. And of course, these numbers – and the MHI looked at all these numbers, and they were happy that they were reasonable, and we were happy ourselves that they were reasonable.

MS. O'BRIEN: Now, you say that in systems planning you would have been doing these generation plans on an, approximately, an annual basis?

MR. MOULTON: That's correct.

MS. O'BRIEN: And so I would take it every year, like, knowing – you know, getting the prices for CTs and CCTs and wind, that would be something that you would be regularly doing as part of that work?

MR. MOULTON: That's correct.

MS. O'BRIEN: Okay.

And so how come then at Decision Gate 3 was the Lower Churchill Project management team involved in, you know, refreshing these numbers? Someone might say, well, you guys, that was your bread and butter of your work; you did it all the time. Why did the Lower Churchill Project management team get involved on that piece?

MR. MOULTON: Well, we – again, we used to refresh them every year, but sometimes it would be, you know, for example hydro studies are very expensive – to get at the full-blown study done within – in the millions of dollars. So we would take – in our normal studies, we might take a study, look at it. We might escalate it just up from one year to the next, or after a couple of years, we'd probably go out and do a little greater refresh.

But I think it just comes down that it was realized with the importance of the work that we were doing for DG3 that we would go out and make sure that we had all the numbers refreshed as good as we could. So it was a point of – I think they – it was more a resource. We didn't have the resources right at the time. So I think they did, so they went out to, as again, talk to consultants, looked at the market and made a full scope of all of the estimates that we had.

MS. O'BRIEN: Okay. And just to be clear here, that would again be Mr. Paul Harrington and his team, the team that worked under him, that you're referring to?

MR. MOULTON: That's correct.

MS. O'BRIEN: Yeah, okay, thank you.

Mr. Warren, I'll put this next question to you. We've heard some evidence from Grant Thornton already that there – on strategic risk. And a dollar amount or a dollar set aside to be there to fund strategic risk should those risks arise. And we've heard evidence from Grant Thornton that – in the CPW analysis – that there was no amount included for strategic risk on the input into the CPW analysis for the Muskrat Falls Project. Is that correct, to the best of your knowledge?

MR. WARREN: To my understanding, yes. It wasn't separately identified as it being zero or anything like that. Again, at the – what we were looking for as an input from the project management team of LCP was the timing of cash flows to feed into our financial models.

MS. O'BRIEN: Okay.

And at the time, did you understand that there was a dollar amounts in there for contingency or tactical contingencies in the cash flow amounts that they were giving you?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

And at the time, looking back at DG3 now, did you understand that there was not any dollars in the numbers they were giving you for strategic risk?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

And what was your understanding as to how Nalcor was going to be funding or dealing with strategic risk if it wasn't going to be an input into the CPW analysis?

MR. WARREN: My understanding was that it was an envelope that was to be held by the Gatekeeper, and it would've been dealt with at – by the Gatekeeper.

MS. O'BRIEN: And by the Gatekeeper you mean Mr. Ed Martin –

MR. WARREN: Yes.

MS. O'BRIEN: – who was CEO at the time? Okay.

And did you know how many dollars Mr. Martin had in that envelope. You said it was an envelope held by the Gatekeeper, but did you know the dollar amount that was being considered at the time?

MR. WARREN: No.

MS. O'BRIEN: Okay.

And what was you understanding – and I guess this might be a question more appropriate for Mr. Moulton. But with respect to contingency on the Isolated Island Option, you say those numbers were refreshed by the Lower Churchill Project team. What was your understanding as to what was included in those numbers for contingency?

MR. WARREN: I'm not exactly sure of the number – I think it's somewhere in the typical 15 to 20 per cent range, but I'm not exactly sure of what the number was used – whatever was appropriate for the particular technology and the particular estimate.

MS. O'BRIEN: And is that something that would have been determined by the project management team at the time at DG3?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

MR. WARREN: The estimator – yeah, whoever was doing the estimating. Yes.

MS. O'BRIEN: Okay.

But did you understand that to be the project management team?

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

Mr. – so you may not know the answer to this, but I'll put the question to you anyway. Mr. Shaffer of Grant Thornton testified that his team looked at about 80 per cent of the costs for the Isolated Island Option and found that Nalcor calculated, on average, a 16 per cent contingency, which was included in the CPW for the Isolated Island Option.

Do you know whether that's correct or not? I know it's within the range you just said.

MR. MOULTON: I don't know. No, I don't know if it's correct or not.

MS. O'BRIEN: Okay.

And we know that the information we have – at least to date – is that there was a 7 per cent contingency included for the Interconnected Island, so for the Muskrat Falls Project. Do either of you have any information to share as to why there would be that difference in the contingency between the two options?

MR. MOULTON: I don't know.

MS. O'BRIEN: Mr. Warren?

MR. WARREN: I don't either.

MS. O'BRIEN: We talked a little earlier about this escalation series, Mr. Warren – and maybe I'll come back from you. I've lost my mouse here. But it's – can you just – here we go, I had it for a second.

Madam Clerk, could you put the arrow on the page for me, please?

Thank you.

Right here. The escalation series input here – could you just explain – is that something that you and your team would have developed?

MR. WARREN: I think its part of the regular corporate assumptions that my group would have compiled just based on, I believe, corporate forecasts.

MS. O'BRIEN: Okay.

And would you have used that also for the Interconnected Island and the PPA as well? Did you develop your own escalation, or did you rely on the project management team?

MR. WARREN: The project management team would have – would have looked at escalation of project costs.

MS. O'BRIEN: Okay.

And would they have also looked at escalation for the Isolated Island? Do we know? Do you know, Mr. Warren?

MR. WARREN: I'm not aware.

MS. O'BRIEN: Mr. Moulton, do you know?

MR. MOULTON: I'm not totally sure, no.

MS. O'BRIEN: Okay. Thank you.

We had a little bit there already, Mr. Warren, you talked – when you were giving us an overview into the PPA, you talked about an internal rate of return, I believe, an IRR of 8.4 per cent. Another concept that we've – whether we've heard evidence on, I know we certainly will, this is an ROE, or return on equity.

Can you explain for the Commissioner what those terms mean, whether they differ, are they the same and how are they important inputs into the CPW analysis?

MR. WARREN: Sure.

So an ROE, return on equity, is in normal courses, under the regulated utility cost-of-service framework, and it's the level of return that the regulator allows the equity holder, either the investor-owned utility – or in our case, Hydro – to earn on its rate base. So, on its capital account it will earn a level of return.

It's a little bit different than the IRR. The IRR is a calculation based – and in – when I normally say IRR, I mean IRR on equity. It's the level of –

THE COMMISSIONER: (Inaudible.)

MR. WARREN: Sorry –

THE COMMISSIONER: (Inaudible.)

MS. O'BRIEN: Sorry. Commissioner, your microphone.

THE COMMISSIONER: Just to give me an idea as to what IRR means, maybe you could just briefly – like if it's an acronym –

MR. WARREN: Yes, so that's internal rate of return.

THE COMMISSIONER: Okay.

MR. WARREN: So that's a – it's a financial metric that looks at a series of cash flows. Generally, you have negative cash flows in the earlier period of investment and then it turns into – once it's into operations, provides returns, dividends. And when you – it just expresses the internal rate of return based on that series of cash flows. So it provides for the period of the study, starting from the first initial investment to the end period, what return is on for – what level of return, for the equity holder, it is earning based on that series of cash flows.

MS. O'BRIEN: Okay.

So how it – so in this case, would both have been inputs to the CPW, both an IRR rate and a ROE rate?

MR. WARREN: Yes, yeah.

MS. O'BRIEN: Okay.

And what were the numbers used and how were they selected?

MR. WARREN: So for sanction we used a 9.25 per cent long-term regulated return on equity, ROE.

MS. O'BRIEN: Okay.

MR. WARREN: And then we used that for all components that were requiring a – that was following a cost-of-service framework, and for DG3 we used a level – IRR was an input for the Muskrat Falls supply price and that was set at 8.4 per cent.

MS. O'BRIEN: Okay.

So you said one was at sanction and one at DG3, did you misspeak? Is it the same time period?

MR. WARREN: Yeah, it's the same time. Sorry.

MS. O'BRIEN: Okay, so you used both – for both the Isolated and the Interconnected you used a 9.25 ROE?

MR. WARREN: Yes.

MS. O'BRIEN: And then – but you needed also to have an IRR just for the Interconnected and you used 8.4 –

MR. WARREN: Yes.

MS. O'BRIEN: – for that. Okay.

And how were those numbers selected?

MR. WARREN: So the basis for the ROE, we followed the exact same methodology that we would normally follow with respect to our hydro general rate applications. So we would follow similar methodology that Newfoundland Power would've followed based on their capital cost experts reports. What that does look at is – looks at the various returns in the utility markets that would be expected to be earned by investor-owned utilities.

MS. O'BRIEN: Okay.

MR. WARREN: So when we looked at the risk-free rates and the premiums that would be added to it, using the methodology that was consistent, we found on a long-term basis – looking out, the period of study – a 9.25 per cent rate.

MS. O'BRIEN: Okay, and what about that 8.4 per cent?

MR. WARREN: The 8.4 was established at DG2 and as we progressed through the commercial agreements we worked with the shareholder and just confirmed that 8.4 per cent was a sufficient level of return required on its Muskrat Falls investment – the initial part, the regulated component – the Island strip component.

MS. O'BRIEN: Okay.

It is fair to say – and please tell me if it isn't – but typically an investor would expect a higher rate of return on a riskier project. So that risk is often commensurate with the – you know, there's a relationship with the amount of risk associated on a project and the money you'd expect to make back – the profit you expect to make on the project. Is that fair to say?

MR. WARREN: Yes, and again if you look in P-00077, Exhibit –

MS. O'BRIEN: Yes.

MR. WARREN: – it will explain to you the methodology that we followed at DG2. And we actually started – we determined the methodology that we followed basically used an IRR of 11 per cent. But it expressed the price – we found out what the supply price was at the 11 per cent for all of the output, if we were to sell all of the output from day one. So that was the type of return.

MS. O'BRIEN: In other words, if you exported it?

MR. WARREN: No, we – it was just a hypothetical scenario. If you had – if you were to sell all of the output from day one, what was the price that you would have to get in order to earn an IRR of 11 per cent?

MS. O'BRIEN: Okay.

MR. WARREN: When we looked at that price and just looked at the Island strip, it derived an 8.4 per cent. So at the time we felt that that would be fairly consistent with the level of regulated return that we were seeing, so similar to the nine and a quarter at DG3. I know it's different time periods, but it was relatively around that 9 to 10 per cent rate at the time.

When you factor in the excess energy that is available, in particular at DG3, the revenue that would be associated with monetizing the excess energy as additional return to the shareholder, your 8.4 was elevated to something close to 10 per cent. So when you look at the 8.4 for your largest component, which is very regulated, and it's what you are recovering all your costs from, when they factor that in plus the excess sales, it garnered an IRR of, as I said, around 10 per cent, which is kind of commensurate with that risk.

MS. O'BRIEN: Okay, so let me just make sure I have understood, and I apologize if I haven't. This is explained, you're saying, further in Nalcor's submission to the PUB that was done at their – for their DG2 reference, the question that was put to them in 2011.

MR. WARREN: Yes.

MS. O'BRIEN: So that was considering Nalcor's DG2 numbers. But is what you are telling us here today that if we look and read that analysis, the same thing would have applied to DG3?

MR. WARREN: No, so at DG2 –

MS. O'BRIEN: Mm-hmm.

MR. WARREN: – the end result was for the supply price at DG2.

MS. O'BRIEN: Mm-hmm.

MR. WARREN: We landed at an IRR of 8.4 per cent and it was decided that that 8.4 per cent was a sufficient level. So going forward, as the models evolved, as the commercial agreements evolved, we decided to fix the 8.4 per cent IRR, and so we used that as an input. So we decided, or we then targeted what is the level – what is the supply price that's required in order to make sure that when you look at the net cash flows from the model, that they equal 8.4 per cent.

MS. O'BRIEN: Okay, so it's calculated at DG2 and then carried forward and used again at DG3.

MR. WARREN: Yes.

MS. O'BRIEN: Okay.

And to get to the 8.4 what – if I'm understanding you correctly you say, okay, for a Muskrat Falls Project, a project of that risk, a – someone investing in that project would typically expect to earn approximately 10 per cent return for a project of that risk.

MR. WARREN: Yes.

MS. O'BRIEN: Right?

MR. WARREN: Yeah.

MS. O'BRIEN: And then you said, okay –

MR. WARREN: It's reasonable.

MS. O'BRIEN: – but we're going to – if all the energy was basically sold or used from the output of Muskrat Falls Project, the – we'll set the price so that the shareholder here would essentially earn that approximately 10 per cent return on their equity.

MR. WARREN: Yes.

MS. O'BRIEN: And then you said but right now we're not using all that – they're not – we're not selling all that energy, this is all going to be paid for by the – essentially the Island ratepayers on the Newfoundland strip, as you said, or the Island strip you referred to it as.

MR. WARREN: Yes.

MS. O'BRIEN: And you said, well, of that 10 per cent how much would be expected to be returned from that strip of users? And that – and you did that calculation. It came out to the 8.4 per cent, is that correct?

MR. WARREN: That's what we targeted. We targeted the 8.4.

MS. O'BRIEN: Okay.

Commissioner, that may be a good place to stop for today. I'm not – because we don't have Mr. Stratton here, we're going – I'm going to request us to end a little bit earlier today, but we'd be ready to come back tomorrow at 9:30.

THE COMMISSIONER: All right, I'm satisfied with that.

So we'll adjourn 'til tomorrow morning then at 9:30, and continue on. Hopefully, Mr. Stratton will be here then and continue on tomorrow.

All right, thank you.

CLERK: All rise.

This Commission of Inquiry is concluded for the day.