COMMISSION OF INQUIRY
RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 1 Volume 4

Commissioner: Honourable Justice Richard LeBlanc

Friday 21 September 2018

CLERK (Morry): This Commission of Inquiry is now open. The Honourable Justice Richard Leblanc presiding as Commissioner.

Please be seated.

THE COMMISSIONER: Good morning, Ms. O'Brien.

MS. O'BRIEN: (Inaudible) Madam Clerk, turn off your – thank you very much.

Good morning, Commissioner. Our first – our witnesses today are David Malamed and Scott Shaffer from Grant Thornton.

They are both – they're present and ready to go. So before we begin I'll ask Madam Clerk to affirm the witnesses.

CLERK: Do you solemnly affirm that the – excuse me – do you solemnly affirm that the evidence that you shall give to this Inquiry shall be the truth, the whole truth and nothing but the truth?

MR. SHAFFER: I do.

MR. MALAMED: I do.

CLERK: Please state your full names for the record.

MR. SHAFFER: Scott Shaffer.

MR. MALAMED: David Malamed.

CLERK: Thank you.

MS. O'BRIEN: Thank you.

I'm going to start by seeking to qualify these two gentlemen as experts before you. I'd ask to have for that purposes the following three exhibits entered: P-00011, P-00012 and P-00013. These are the curriculum vitae or CVs of both men, as well as the engagement letter with the Commission.

THE COMMISSIONER: All right, any objection to those being entered? No? So they'll be entered then as numbered: P-00011, P-00012 and P-00013.

MS. O'BRIEN: Thank you.

And, Madam Clerk, thank you. You've brought up there P-00011.

So I'm going to begin with Mr. Malamed.

Madam Clerk, if you could please scroll down a little in the – and just a little bit further there. That's great. Nope, back up a little bit. That's great. Thank you.

So, Mr. Malamed, your CV is there before you, and I know you have a paper copy, as well as what's present on the screen. I understand that you have a bachelor's degree in general studies from the University of Athabasca. Is that correct?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. And what year did you earn that degree?

MR. MALAMED: 2004.

MS. O'BRIEN: Thank you.

Now, the rest of your qualifications appear to be related to accounting and audit, so perhaps you could take us through your education and employment history since 2004 or, you know, run through your qualifications for the benefit of the Commissioner.

MR. MALAMED: Sure. I'm going to just go in the order that is – it's listed over here.

I am certified in financial forensics, which is a US designation in forensics. I am a certified forensic investigator, which is a Canadian designation. The Canadian Institute of Chartered Accountants gave me a specialty – a chartered accountant dot IFA – investigative forensic accounting. It's a two-year program, university program, that has now changed into a master's program.

I'm a Certified Public Accountant, so as well I'm a chartered accountant – or today's word for it – a Certified Public Accountant in both Canada as well as in the US. I am a certified fraud examiner, which is an internationally known designation. But, again, I got that in the

US, chartered accountant in Canada, certified construction auditor from the US, and as well as my bachelor of general studies.

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

Also the – before we begin, I'm gonna go through some of your professional experience, but before we do that could you please explain for us what investigative and forensic auditing is.

MR. MALAMED: So it's investigative and forensic accounting. Investigative and forensic accounting is – requires an investigative mindset, independence, skepticism – professional skepticism. It really is preparing – it is doing an investigation that would then be potentially used in a courtroom. Forensic means preparing for the courtroom.

MS. O'BRIEN: Okay, so would same apply in an administrative proceeding or a public hearing as we are here today?

MR. MALAMED: Correct.

MS. O'BRIEN: Thank you.

Now, your memberships there – if Madam Clerk could just scroll down a bit, the membership held in the following associations. I just give you the opportunity, Mr. Malamed, if there's any of those that you believe are particularly relevant for the work that you've done for the Commission, could you please highlight them for the Commissioner.

MR. MALAMED: Well, I believe that they're all relevant. Again though, I bring up the Alliance for Excellence in Investigative and Forensic Accounting.

MS. O'BRIEN: And can you just tell us a little bit about what that organization or association is?

MR. MALAMED: Sure, that organization was put together by the – by the university as well as by people employed in the profession. It really is an oversight of investigative and forensic accounting and the discipline which led to our standards in the development of our area.

MS. O'BRIEN: Okay. Thank you.

Now, Madam Clerk, if you could just scroll down to the next section, please, we have a section where you cover off in your CV your experience in industry. Is there any there – Mr. Malamed, obviously your CV has been entered into evidence and so it's all there for the Commissioner's consideration, but is there anything in your industry experience that in particular you would like to highlight as being of particular relevance?

MR. MALAMED: In terms of the investigation of construction disputes, I do have experience in terms of contract overruns and change orders, allegations regarding fraud and construction, allegations regarding project management team. I've also looked at cost transfers, as well as recycling of materials – construction materials.

MS. O'BRIEN: Now, we know some of your credentials that you reviewed, the word "fraud" is there. And sometimes when people, I think, generally hear the terms investigative and forensic investigation, people's mind turn to this concept of fraud. When you're doing your work, can you just give us a bit of an explanation? You know, is fraud always at play or –

MR. MALAMED: So –

MS. O'BRIEN: – how does that fit into what you do?

MR. MALAMED: Fraud is not always at play. In terms of the forensic investigation, again, it is going in and learning complex situation, complex stories, complex accounting. And, really, it is simplifying and consolidating the story to be able to tell it to either the court, to the public, et cetera.

MS. O'BRIEN: Okay.

Madam Clerk, a little bit further down, please, if you could bring up the section on Mr. Malamed's court experience.

We have here, listed here, Mr. Malamed, a number of cases in the Ontario Court of Justice, as well as the Ontario Superior Court of Justice. Were you qualified to give expert evidence in each of these cases?

MR. MALAMED: Yes.

MS. O'BRIEN: And the area of expertise in which you were qualified, was that consistently investigative and forensic accounting or something similar to that?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay.

Have your qualifications ever not been accepted by a court or tribunal?

MR. MALAMED: No, they've always been accepted.

MS. O'BRIEN: Okay.

Madam Clerk, if you could scroll down, please, again to the – thank you.

Here we note from your CV that you have both published and taught in your area of expertise. Is there any of your publications or any particular teaching engagements that you would consider particularly relevant for our purposes here today?

MR. MALAMED: In terms of authoring, there is a white paper called *Construction fraud in Canada – Understand it, prevent it, detect it*, which has some connection in terms of construction to this case.

MS. O'BRIEN: Okay.

Perhaps the work that you have done to date for the Commission of Inquiry – and it has culminated in a sanctioning phase report that we will be seeking to have entered into evidence today. But, could you – for the work that you've done for doing that report, could you please explain for us how your expertise in the area of investigative and forensic accounting is – you know, is relevant to the work that you've done.

MR. MALAMED: Sure.

In terms of the work that I've done, investigations in accounting and finance is really my experience and my training. It's not just to take everything at face value, it really is to use some form of investigation, interview, analysis, review, questions to gain an understanding of what occurred and to be able to report back the facts in terms of what happened in our findings.

MS. O'BRIEN: Thank you.

Commissioner, those are my questions for Mr. Malamed. Before I turn over him for questioning from you or for other counsel, it would be my preference to go through Mr. Shaffer's qualifications as well and then have both witnesses questioned by others.

THE COMMISSIONER: I'm assuming that's not a problem for everyone.
Okay, go ahead then.

MS. O'BRIEN: Thank you.

Then, Madam Clerk, if you could please bring up exhibit P-00012.

Mr. Shaffer, good morning.

Could you please – your CV is here and it's been entered in evidence, can you please provide us with an overview of your education and credentials?

MR. SHAFFER: Sure.

I have a Bachelor of Science and Accounting from University of Illinois. I also was awarded my MBA in 2006, from the Lake Forest Graduate School of Management. In addition, I'm a certified public accountant, which I achieved in 1980. I'm also a certified fraud examiner, which I attained that designation in 2010. I'm an also certified construction auditor, which I attained that designation in 2013.

MS. O'BRIEN: Thank you.

Madam Clerk, if you could just scroll down a bit, thank you. Sorry, up a little bit more. I apologize – okay, thank you.

It's not there on this screen but your CV notes that you have over 30 years of experience in the areas of litigation consultant, being an expert witness, forensic accounting, and as a fraud investigator. You have – there's a number of pages of your CV that cover your professional experience in some detail, it's there. Can you please explain for us how that previous work is relevant to the work that you have performed underlying the report on the sanctioning phase that you'll be presenting today?

MR. SHAFFER: Sure.

My CV that's attached here is not necessarily an investigative CV. I also have an investigative CV that's not part of this exhibit. I've performed over the years numerous fact-finding investigations for a variety of reasons, typically related to fraud or accounting issues. In those fact-finding investigations, the work that we do there is really – I've led interviews, I've reviewed documents and prepared various analyses in the course of those investigations, which is exactly what we did here.

MS. O'BRIEN: Thank you.

Madam Clerk, if you could please go to page 7 but please scroll down so people can get a sense of the number of previous engagements that are there.

Thank you.

So now in the next section – if you could please keep scrolling – I just want to look at – this is your trial and arbitration testimony. So, there are a number of cases listed in this section, Mr. Shaffer, from a number of courts; including, I believe, federal courts in Illinois and also perhaps Wisconsin, as well as a number of state courts in Indiana, Illinois and Wisconsin. For the list here, are these all cases in which you were qualified to give expert testimony?

MR. SHAFFER: Yes.

MS. O'BRIEN: And in the cases where you were a qualified – and I note they're cases ranging from a period of approximately the year 2000 to 2017 – in all those cases, were you qualified to give expert evidence in the area of investigative and forensic accounting or something similar to that?

MR. SHAFFER: Yes.

MS. O'BRIEN: Have your qualifications ever not been accepted by a court or tribunal?

MR. SHAFFER: No.

MS. O'BRIEN: Okay.

If we go to page 8, please, Madam Clerk?

Here in your CV, Mr. Shaffer, there is a section – it goes a page and a half or so – of cases under the topic of deposition testimony. Am I correct in understanding that these would be cases in which you were retained as an expert by one of the parties, and then you would've been questioned by the lawyers on the other side of the case, but that they didn't necessarily go all the way to trial? Is that a fair statement?

MR. SHAFFER: Yes, and to the extent that there is deposition testimony that did go to trial, it'd be under my trial testimony, too.

MS. O'BRIEN: Okay. Thank you. As well, in the – a little further down on page 9 of your CV, there is a section that covers your publications.

Thank you, Madam Clerk.

Generally, is this list of publications – is this generally in the – all in the area of investigative and forensic accounting? And perhaps, also, I think expert witness testimony is in –

MR. SHAFFER: And damages, yes. Calculating damages.

MS. O'BRIEN: Okay. Thank you. Could you please explain for the Commissioner, similar as Mr. Malamed did, how the work that you have done – in preparation for the report that we'll be seeking to present today – how that work is related to your area of expertise of investigative and forensic accounting?

MR. SHAFFER: Well, again, I've done numerous investigations, fact-finding investigations through the years, which is really what we did here. And, again, in the course of that work, you typically do interviews, lead interviews, ask questions, review documents, in addition to preparing analysis on your own, which is, again, exactly what we did here.

MS. O'BRIEN: Thank you.

Commissioner, those are my questions for these men with respect to their credentials. Just to be clear, I am seeking to have them both declared as experts in the area of investigative and forensic accounting. You or other counsel may have further questions for them, so I'll move to the other table.

THE COMMISSIONER: All right.

UNIDENTIFIED MALE SPEAKER: No questions.

THE COMMISSIONER: Nalcor?

MR. SIMMONS: Yes, I have a few questions.

THE COMMISSIONER: Go ahead.

MR. SIMMONS: Good morning Mr. Malamed and Mr. Shaffer –

UNIDENTIFIED MALE SPEAKER: Good Morning.

MR. SIMMONS: I think, as you know, I am Dan Simmons, and I am with counsel for Nalcor Energy; and I just had a few questions for you arising out of some of the things you were just asked by my learned friend. And this is of course where my computer decides to go to sleep.

Can we have a look please at P-00013, which is the engagement letter? And – page 4 please, Madam Clerk. Now scroll down please – oh, you can stop there – just up a little bit. Up a little bit more please, again. Thank you.

So gentleman, the engagement letter here refers to terms of the engagement of Grant Thornton in order to carry out the investigative and forensic audit. And there's a reference there to standards, on this page, I believe. Standards for the conduct of forensic and investigative audits. So I presume you're familiar with those?

MR. MALAMED: Standards for investigative forensic accounting?

MR. SIMMONS: Yes.

MR. MALAMED: Yes.

MR. SIMMONS: Okay. And those are Canadian standards I believe, are they?

MR. MALAMED: They are.

MR. SIMMONS: Okay. And so, Mr. Malamed, perhaps I'll ask you, can you give me an idea generally – because I don't think we have the standards in evidence, of what the – what type of guidance is given by those standards for people like yourselves, who are certified to carry out these sort of investigative and forensic audits.

MR. MALAMED: Sure. The IFA standards have a general introduction in terms of definitions. It then goes into the type of mindset, again the investigative mindset that I spoke about earlier. It talks about types of investigations; it talks about investigative techniques in terms of oversight, in terms of work delegation, in terms of knowing when to withdraw from an engagement if needed. It talks about ultimately reporting, and it talks about testifying as well.

MR. SIMMONS: Okay. And do those standards speak to the type of skills that the investigator would bring to the task, being accounting skills, investigative skills, and as you've said, an investigative mindset?

MR. MALAMED: Yes.

MR. SIMMONS: And the investigative mindset, if I understand correctly, is a skeptical attitude. And I believe you described it as being professionally skeptical, which I think is a good qualification.

You're nodding your head.

MR. MALAMED: Correct, yes.

MR. SIMMONS: Yes, okay.

And the types of investigations that these standards are normally applied to, or most often applied to, would it be fair to say that they're often applied to circumstances where there are concerns or suspicions of fraud or illegal conduct or behavior of that type of nature?

MR. MALAMED: There – they may relate to and they do often relate to allegations –

MR. SIMMONS: Yes.

MR. MALAMED: – pertaining to fraud, yes.

MR. SIMMONS: Yes, okay.

MR. MALAMED: Yes, but not just fraud, other investigations as well.

MR. SIMMONS: Right, and in those circumstances then, the types of skills that the forensic investigative auditor brings to it, are they often, or maybe usually, accounting skills and the type of investigation that would relate to accounting activities and financial activities?

MR. MALAMED: They would be accounting. They would be financial. They would be contracts.

MR. SIMMONS: Yes.

MR. MALAMED: There would be documents.

MR. SIMMONS: Uh-huh.

MR. MALAMED: There may be audio, there may be video.

MR. SIMMONS: Do the standards tell you anything about when or if you have to recognize when there are areas of expertise that are beyond that which the investigator is qualified to bring to the investigation?

MR. MALAMED: Yes, it does.

MR. SIMMONS: And how is that addressed?

MR. MALAMED: If an expert is needed, an expert should be retained.

MR. SIMMONS: Okay. So do the – would I be correct in saying that the standards require that the investigator confine their own analysis to the areas of expertise that the investigator possesses?

MR. MALAMED: Correct.

MR. SIMMONS: Yeah.

MR. MALAMED: Correct.

MR. SIMMONS: Okay, all right.

Okay – and I'll stick with you, Mr. Malamed, and I'll have a couple questions for you, Mr. Shaffer, afterwards.

So, Mr. Malamed, your experience, as we've seen in your CV, is extensive. Am I correct in assuming, from what I've seen there, that much of it relates to investigation of potential fraud or illegal activity in financial – in the financial sphere?

MR. MALAMED: Could you ask the question again for me?

MR. SIMMONS: The experience that we see described in your CV, has much of that involved investigation of alleged fraud or illegal activities such as banking fraud or those types of allegations?

MR. MALAMED: Some of it does.

MR. SIMMONS: Yes.

MR. MALAMED: And some of it also has experience in terms of – one of the examples I gave was cost overruns –

MR. SIMMONS: Mm-hmm.

MR. MALAMED: – change orders, construction where there's not necessarily a fraud allegation –

MR. SIMMONS: Mm-hmm.

MR. MALAMED: – but that doesn't necessarily mean that fraud may not come up.

MR. SIMMONS: And I've understood, I think, both you gentlemen to describe the process as being, essentially, a fact-finding process to which you bring skepticism, I presume, to ensure that you are thinking about what you – what investigation you need to carry out in order to get a full version of the facts. And because it's forensic, that means it's evidence gathering for the purpose of bringing evidence back to a court or, in this case, the tribunal.

Have I captured that correctly?

MR. MALAMED: Correct.

MR. SIMMONS: Mr. Shaffer, does that –

MR. SHAFFER: Yes.

MR. SIMMONS: – fit your description of it?

MR. SHAFFER: Yes.

MR. SIMMONS: Okay.

So then to what extent does analysis of those facts play into the work of the investigative and forensic audit – accountant, as described in the standard? You can either or both deal with that question at your discretion.

MR. MALAMED: Sure. I'll start.

MR. SIMMONS: Mmm.

MR. MALAMED: In terms of the investigative component –

MR. SIMMONS: Mmm.

MR. MALAMED: – the information cannot just be taken and compiled; there is some form of investigation that is required, whether that's analysis, interviews and so on.

MR. SIMMONS: Mm-hmm.

Okay, Mr. Shaffer, again.

MR. SHAFFER: Can you repeat the question?

MR. SIMMONS: The – to what extent does the investigative and forensic accountant bring their own analysis, apply their own analysis to the facts that they've gathered through their process of skeptical inquiry?

MR. SHAFFER: Well, again, I mean, as a – not only as a forensic accountant, but as a certified fraud examiner, we look at things, certain hypotheses are formed and you do a fact-finding investigation to see whether or not the facts support the hypothesis, and if it doesn't, it doesn't.

MR. SIMMONS: Mm-hmm.

MR. SHAFFER: And in – as far as the analyses – in this particular case, maybe the analyses, for example, of looking at the amount of contingencies, for example, that was added to the Isolated Option that was an analysis that we did, which we're, obviously, very capable of doing; it's all number driven. I know – that's an example I'm giving, Mr. Simmons, so hopefully that answers your question.

MR. SIMMONS: Okay. Well, it helps, thank you, yes.

MR. SHAFFER: Yeah.

MR. SIMMONS: Okay.

So from your personal experience and background – education, training, exposure and experience – can you tell me if either of you have had any previous experience dealing with matters involving electrical power generation and distribution?

Mr. Malamed?

MR. MALAMED: I have not had direct experience; however, what I can tell you is an investigation is not contained to a specific industry. Investigating – investigations can be applied to all industries.

MR. SIMMONS: Mm-hmm.

Mr. Shaffer?

MR. SHAFFER: I personally have not. I would like to add, though, that we have – that we did hire an external expert that we have consulted with throughout this matter who does have hydro power experience –

MR. SIMMONS: Mm-hmm.

MR. SHAFFER: – and has worked on megaprojects in the past. And through the course, to the extent that we deemed it necessary to consult with him, we consulted with him.

MR. SIMMONS: So then what you're bringing back as your evidence here to the Commission is, in part, the results of the expertise you relied on from someone else who is not here to present that evidence today.

MR. SHAFFER: I would say, to the extent, his work, as it relates to the sanctioning report that we did here, I believe it falls really under two areas: We had him review the process that was done for the escalation provision and we asked him about the P-factor of what he's seen with his clients of what they use there.

MR. SIMMONS: So let me ask you same question really for electrical power, load forecasting, system planning, methodology, the things that in this case fed into the CPW.

MR. Malamed, have you had any prior experience doing any investigation or dealing with that subject matter?

MR. MALAMED: Again, while I've not had direct experience dealing with that subject matter, one of the procedures or steps within the standards is to gain an understanding of the business and the processes. And each new engagement is really learning about the processes, procedures, et cetera and some of them that you just mentioned as well.

MR. SIMMONS: Mr. Shaffer?

MR. SHAFFER: As part of our team, on our project team within Grant Thornton, we've had individuals who have utility experience who have written reports that have been used in the PUB hearings in the past. And they were part of our project team that we used to look at the CPW and the load forecast.

MR. SIMMONS: The same question for North American electricity markets. Have either of you had any experience conducting any investigations or any background knowledge of how North American electricity markets work? Mr. Malamed?

MR. MALAMED: I – again, I do not have experience with that.

MR. SIMMONS: Okay.

MR. MALAMED: But to tell you –

MR. SIMMONS: Sorry, go ahead.

MR. MALAMED: But, again, when we've needed experts we've called on them.

MR. SIMMONS: Okay and Mr. Shaffer?

MR. SHAFFER: I personally have not. Same answer as before, Mr. Simmons.

MR. SIMMONS: Okay.

And my only other question, Mr. Shaffer, from reviewing your CV, it's lengthy and you've had a long career in working this industry. Much of it seems to be – some of it's related to construction.

Would it be fair to say from the CV you've presented, that many of the tasks you've been involved in over the years have involved assessment of damages in litigation?

MR. SHAFFER: No. As I said, this was one of my CVs. I also have other CVs that are more related for – to investigations and to construction. Through the years – and frankly, currently –my work is spilt between construction, investigations and damages.

MR. SIMMONS: Any particular reason why we don't have that CV here today?

MR. SHAFFER: I sent CVs to Ms. O'Brien and this is what wound up in here. However, in sending my CVs – what I did not send was the investigative CV.

MR. SIMMONS: Mm-hmm.

MR. SHAFFER: We were – I was talking to Ms. O'Brien yesterday and I asked: Should I send it to you? And she said: Well, it's too late because everybody has seen the binders and we'll – I'll just have to testify to it accordingly.

MR. SIMMONS: All right.

Thank you both very much. Thank you, Commissioner.

THE COMMISSIONER: Thank you.

The Concerned Citizens Coalition.

MR. BUDDEN: No questions at this stage.

THE COMMISSIONER: Edmund Martin.

MR. SMITH: No questions.

THE COMMISSIONER: Kathy Dunderdale.

MS. E. BEST: Good morning, Mr. Malamed, Mr. Shaffer.

MR. MALAMED: Good morning.

MS. E. BEST: I'm Erin Best, counsel for Kathy Dunderdale.

Mr. Malamed, I just wanted to start with you. Actually, I just really have one question.

And Mr. Simmons had asked you about your experience; I'd like to build on that. You describe experience investigating and analyzing in the context of construction projects and when asked about that you described, I think, cost overruns and change orders.

So I'm wondering if you could describe your experience investigating and analyzing a public construction project, prior to sanctioning.

MR. MALAMED: I do not have experience doing that. But what I can tell you is, again, investigating – investigation is not specific to an industry. Investigation can be applied to all industries.

MS. E. BEST: Thank you.

Mr. Shaffer, I have the same question for you: Wondering about your experience with analyzing and investigating a public construction project, prior to sanctioning.

MR. SHAFFER: I have not – however, it is probably same answer as Mr. Malamed's. The investigation is not necessarily industry driven as it is fact-finding driven.

MS. E. BEST: Okay. Thank you.

THE COMMISSIONER: Former Government Officials '03 to '15.

MR. T. WILLIAMS: No questions, Mr. Commissioner.

THE COMMISSIONER: Thank you.

Julia Mullaley and Charles Bown.

MR. FITZGERALD: No questions, Mr. Commissioner.

THE COMMISSIONER: Robert Thompson.

MR. COFFEY: No questions.

THE COMMISSIONER: Consumer Advocate.

MR. PEDDIGREW: No questions, Commissioner.

THE COMMISSIONER: Former Nalcor Board Members.

MR. GRIFFIN: No questions, Commissioner.

THE COMMISSIONER: Okay.

Manitoba Hydro.

MS. VAN IDERSTINE: I just have a couple of questions, thanks.

Good afternoon – or good morning. My name is Helga Van Iderstine; I'm counsel for Manitoba Hydro International.

In providing your expertise I did not see or hear anything in your background about megaprojects. Can you identify any megaprojects in which you've been involved?

MR. MALAMED: Well, I have not been directly involved in megaprojects. People who – on – who we've – who became part of our team have been involved in some megaprojects.

MS. VAN IDERSTINE: And is there a list of that – those team members and who you consulted somewhere?

MR. MALAMED: I do not have a list prepared but I could prepare one.

MS. VAN IDERSTINE: And can you identify, like, what portions of your reports relied on those?

MR. SHAFFER: I can.

What Mr. Malamed is referring to, as far as the outside consultants that we hired, was identified in the section pertaining to the escalation bins. In addition to what – as I testified to Mr. Simmons, to his question, is when we identified we asked him what did he see his clients picking in terms of a P-factor on his projects.

And the individual that we consulted with is R. W. Block is the name of the company, in particular, Derek Hennessey out of Boston's – out of their Boston office. R. W. Block is based in Orlando, Florida. And Mr. Hennessey has deep experience in megaprojects; in addition to, he has hydro experience.

Additionally, in the course of our work, we also consulted with Nalcor's experts, in particular John Hollmann of Validation Estimating and Dick Westney – I'm sorry, Richard Westney – of Westney Consulting, who have experience in megaprojects, by taking an understanding again of the – what the work they did and the issues of megaprojects, especially surrounding the contingency.

MS. VAN IDERSTINE: And is it possible, from your report, for us to distill what information is reliant on those experts as opposed to your own personal expertise?

MR. SHAFFER: Yes.

MS. VAN IDERSTINE: And how we would do that?

MR. SHAFFER: By footnotes that's in the report. We quoted them.

MS. VAN IDERSTINE: And have you – either of you, ever performed a cumulative present worth analysis?

MR. MALAMED: So I have not performed that; however, I have worked on the theoretical of it. Meaning the – in school it is something that you learn in terms of bringing money to today's value.

MS. VAN IDERSTINE: Mr. Shaffer?

MR. SHAFFER: Never done a CPW analysis; however, I've done many of this kind of cash flow analysis which is similar to the CPW analysis in some ways.

MS. VAN IDERSTINE: And some – different in other ways, I gather.

MR. SHAFFER: I'm sorry?

MS. VAN IDERSTINE: And different in other ways, I gather.

MR. SHAFFER: Sure, yeah.

MS. VAN IDERSTINE: Thank you, those are my questions.

THE COMMISSIONER: All right, Ms. O'Brien.

MS. O'BRIEN: Thank you, Commissioner.

Mr. Simmons brought up the IFAE standards, I do – I will be – my intention is as we move through the morning, I will be referencing them. I don't know that they have their – I don't know that for sure that they are among the list of documents that we are intending to enter as exhibits today but, if not, I will arrange to have those entered.

As well, I am certainly willing to get Mr. Shaffer's investigative CV from him, and so that could ultimately be entered on the record and that would be there for the benefit for people to see. However, I'm – unless that is necessary to do at this time, I am going to move forward with the material you have before you now and ask to have Mr. Malamed and Mr. Shaffer qualified in the area of investigative and forensic accounting.

THE COMMISSIONER: All right.

Having considered the CVs of the two witnesses and also considered the evidence that's been led here this morning, I'm quite satisfied that these two individuals should be accepted as individuals who can provide opinion evidence related to the issues of investigative and forensic accounting and analysis.

It's not always the case that, whether it's in a court of law or whether it's in another sphere, that individuals necessarily have to have a specific expertise in particular areas. That goes more to the issue of weight, than it does to the question of admissibility of opinion evidence.

I am quite satisfied, based upon the experience and the evidence that's been presented, that these two individuals can proceed to provide evidence in this particular inquiry.

Go ahead, Ms. O'Brien.

MS. O'BRIEN: Thank you, Commissioner.

And I should probably have said earlier, we did canvass with counsel prior to calling these experts to ascertain if anyone had any particular objections to their qualifications. No one came forward with any objections, though it was raised with us that some people would like to further explore their credentials.

On that basis, I'm going to seek to enter some further exhibits, Commissioner. The most important three in terms of today's presentation of the evidence that I'm going to be looking to enter are Exhibit P-00014, which is Grant Thornton's sanctioning phase report, P-00015 is a memorandum on sensitivity analysis on the CPW model and P-00135, which is a PowerPoint presentation that was developed to present today's evidence.

THE COMMISSIONER: The last number was …?

MS. O'BRIEN: P-00135.

THE COMMISSIONER: Thank you.

MS. O'BRIEN: In addition, Commissioner, in the course of – in Grant Thornton's primary report, there are a number of documents referenced in their bibliography, in their footnotes and such, and we are seeking to enter those documents into evidence, so that they'll be there for the benefit of those wishing to ask questions.

I'm not gonna go through that full list in detail, but I'm further seeking to enter Exhibits P-00074 through to P-00133.

THE COMMISSIONER: And those latter exhibits are reports that were referred to in the Grant Thornton report?

MS. O'BRIEN: That's correct.

THE COMMISSIONER: Okay.

MS. O'BRIEN: So these would be documents that were collected from various sources but that were relied on in Grant Thornton in writing their report.

THE COMMISSIONER: Okay.

Any objection to the entering of any of those exhibits? No. So they will be entered as numbered.

Thank you.

MS. O'BRIEN: Thank you very much, Commissioner.

Madam Clerk, could you please bring up Exhibit P-00135.

Commissioner, just to give you an indication of how we are intending to proceed this morning. Grant Thornton's sanction phase report is organized into three major sections. Two of those sections will be presented by Mr. Malamed and the third section will be presented by Mr. Shaffer.

We will primarily be guided through the evidence by the PowerPoint presentation that has been prepared by Grant Thornton. On some slides, I will have some additional questions for the witnesses; some slides they will just go through and give their presentation.

Mr. Malamed will be beginning this morning. Once he gets through his two primary sections, I will then take a break from the PowerPoint presentation, go to their report, ask some further questions there before proceeding with Mr. Shaffer.

THE COMMISSIONER: That's fine.

MS. O'BRIEN: So just to give people an idea.

Okay, I think we'll begin on slide 2.

THE COMMISSIONER: So we're actually going to –

MS. O'BRIEN: Great.

THE COMMISSIONER: – which number, P …?

MS. O'BRIEN: It's – yeah, we're at P-00135.

THE COMMISSIONER: Okay, thank you.

MS. O'BRIEN: And that's what's up on the screen, and the second slide is there. And, Mr. Malamed, I will turn it over to you.

MR. MALAMED: Sure, thank you.

Our engagement had two distinct phases. The first phase, sanctioning, between November 2010 to December 2012; and the second is construction. Today, we're really going to be focusing on our findings from the sanctioning part of the engagement.

Sanctioning, just to get an idea, is everything that leads up to the ability to then begin construction.

MS. O'BRIEN: Thank you.

Before we leave that slide, if we could just go back to slide 2, please. Thank you.

Here on this slide, Mr. Malamed, you have indicated the sanctioning phase that you are looking at is November 2010 through to December 2012. Did you look at any documents or materials prior to November 2010 in carrying out this work?

MR. MALAMED: Yes, we did.

MS. O'BRIEN: Okay.

And how were those documents selected?

MR. MALAMED: Those documents were identified during the – during our work process, and then they were included in terms of supporting material.

MS. O'BRIEN: Okay, thank you.

And Mr. Simmons did touch on this in his questioning on your qualifications, but when – your engagement letter does make clear that your – and your report does make clear that you conducted your engagement in accordance with the standard practices for investigative and forensic accounting engagements.

I know you touched on that a bit with Mr. Simmons, but I'd like to give you another opportunity just to explain for the Commissioner what those standards are and how they influenced how you did your work.

MR. MALAMED: Sure.

The investigative and forensic accounting standards are not prescriptive but they're more a guide in terms of the role, the responsibilities, the processes, the format of reporting and the format of testifying.

Investigative and forensic accounting begins to require the need of not just accepting information as it's provided to you but some form of analysis, some form of investigation, whether it is a comparison of information, whether it is an interview and so on.

In terms of reporting, reports need to include certain qualities, certain aspects. One of those is the documents that were relied upon. Where an expert is needed in an industry, it is recommended to go and seek that expert. At the end of the day, investigative forensic accounting really starts to talk about not being an advocate for either side – for either party – as well as that professional skepticism and investigative mindset.

MS. O'BRIEN: Thank you.

And I know we're gonna jump in very soon to what your findings were, and the work you did, but can you just perhaps give the Commissioner an explanation of, you know, how you went about doing your work in this case?

MR. MALAMED: Sure.

The first step, really, was to gain an understanding of what has occurred, an understanding of processes and procedures that were followed up to sanctioning. That occurred through a review of documentation that was available publicly as well as documentation that was provided from multiple sources. Interviews were conducted. There was a significant amount of documents provided to our team. So documents were reviewed. As well, there were formal questions that were asked of different groups and we received formal answers.

MS. O'BRIEN: And in that – the formal questioning and answering, I know you said you did interviews, but in the – I understand the formal questioning and answering was a separate procedure than interviews. Is that right?

MR. MALAMED: Correct.

MS. O'BRIEN: And were those questions and answers all done in writing?

MR. MALAMED: They were.

MS. O'BRIEN: Okay.

And, I take it – were those questions primarily asked of Nalcor?

MR. MALAMED: They were.

MS. O'BRIEN: Okay.

And just to give the Commissioner a sense of, you know, like how many, you know, how many interviews you conducted, how documents you reviewed, how many questions that you sent to Nalcor and received answers on, so he can have a sense of the scope of work that's underlying your report here today.

MR. MALAMED: Sure.

I think there were in total over 2.5 million documents. Our team collectively would have reviewed thousands of documents. In terms of formal questions, there were approximately 100 formal questions. In terms of interviews, I believe it is 40-plus individuals that we sat down and would have interviewed.

MS. O'BRIEN: Okay.

When you were conducting, was there anyone who you wanted to interview who refused to be interviewed?

MR. MALAMED: Nobody refused to be interviewed.

MS. O'BRIEN: Okay.

And in terms of the written questions that you submitted, did you receive answers to all the questions that you posed?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. Thank you.

Those are my questions on the background. Please, go – move forward with your presentation.

MR. MALAMED: I seem to be having a technical issue.

Perfect.

So what is the sanctioning process? Through the sanctioning process there's a few things that occurred. The first was to identify options – options for power generation. The second would be an evaluation of the identified options. The third is a development of financial analysis, seeing what the numbers look like; and finally to get to sanction, or to be sanctioned, the ultimate approval needs to come from the Gatekeeper.

I'm going to go into each of those a bit more as we go through this presentation.

MS. O'BRIEN: Okay, before we do I'm just going to – so here, just to clarify, this is the sanctioning process that you're talking about here that was followed by Nalcor?

MR. MALAMED: That's right.

MS. O'BRIEN: And, I know we're going to hear a lot about gates and gatekeepers as we move through this Inquiry but can you please explain to us right now, at this introduction, of the word gatekeeper, who is the Gatekeeper?

MR. MALAMED: The Gatekeeper would have been the former CEO, Ed Martin.

MS. O'BRIEN: Okay.

MR. MALAMED: And the gateway process, that was – the gateway process or the stage – the gateway process or the stage-gate approach is a – it's an accepted, generally accepted process in terms of going through, of going through this type of engagement and what it is, is there is a phase. There are key deliverables that are due during that phase. You then – as you get to the end of the phase, you would get to the gate, and to be able to leave the gate and enter into the next phase, you would need to have those key deliverables as well as the final approval of the gatekeeper to allow you through that gate.

MS. O'BRIEN: Okay.

So yes, we are going to hear – and I see in your report we're going to hear lots of DG2 and DG3. So, can you just put those terms in context with respect to this gateway process that you're describing?

MR. MALAMED: Sure, DG2 would be referring to the Decision Gate 2. That is the development of the financial analysis and then DG3 is the Decision Gate 3 where the approval or the sanctioning occurred.

MS. O'BRIEN: Okay so when people talk about the sanction of the project that's the same thing as DG3? Is that correct?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay and that – from the beginning of your report I understand that took place in December of 2012.

MR. MALAMED: Correct.

MS. O'BRIEN: Is that right? And Decision Gate 2, I understand looking at that phase in particular, that would have been November 2010?

MR. MALAMED: Correct.

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

And just to make clear, the stage-gated process or gateway process, I, did Grant Thornton make any findings in its report with respect to the appropriateness of Nalcor using a gateway process for making the decision?

MR. MALAMED: Yes, we found it appropriate, and it was generally accepted.

MS. O'BRIEN: Thank you very much.

Please continue.

MR. MALAMED: In terms of what we were asked to do, or engaged to do, by the Commission, we were asked to review the options considered by Nalcor. We were asked to review Nalcor's assumptions or forecasts; as well as, we were asked to review Nalcor's financial analysis.

I'm first going to provide a summary of the findings and observations from our report, and then I will go into each one of them in more detail.

Number 1: Nalcor may have inappropriately eliminated two options.

Number 2: Nalcor may have overstated CPW for the Isolated Island Option. And CPW, again, is the cumulative present worth.

Number 3: Nalcor may have understated CPW for the Interconnected Island Option.
We're going to start with a focus on number 1: Nalcor may have inappropriately eliminated two options.

The two options that may have been inappropriately eliminated – the first is deferred Churchill Falls, or 2041. 2041 – the option – was really to wait until 2041 when power would then become available from Upper Churchill. It was eliminated based on the uncertainty pertaining to the availability of power. This assumption contradicted the NSUARB findings. And we'll go more into detail on that one. Power imports from or via Hydro-Québec were eliminated without engaging in formal discussions with Hydro-Québec.

We'll go back to those, but before I do, I think that it's important to understand what Nalcor used in terms of screening these options that were identified.

The screening principles used by Nalcor in assessing the options that were identified begin with security, or of supply and reliability: cost to ratepayers, environmental concerns, risk and uncertainty and the financial viability of non-regulated elements. These screening principles are what were used to decide – or to assess – which option was the right option to go with.

MS. O'BRIEN: I do have some questions on the screening principles before you move on.

Did Nalcor indicate if any of these screening principles was, you know, primary or paramount over the others?

MR. MALAMED: Security of supply and reliability was mentioned as importance and priority.

MS. O'BRIEN: Okay. And when we look to cost to ratepayers – we've heard, and we will hear testimony about least-cost or lowest-cost option – is that – when you say cost to ratepayers, is that the same concept that's being expressed?

MR. MALAMED: That's right.

MS. O'BRIEN: Okay. Thank you.

This screening process that you're going through here, did you determine from Nalcor when they undertook this screening?

MR. MALAMED: Yes, I'd have to go back to the report to give you the exact date.

MS. O'BRIEN: Okay. Do you want to do that now or would you rather wait? Is this something that will come up in your presentation as you go through?

MR. MALAMED: It may come up in the presentation, so if we could that'd be great.

MS. O'BRIEN: Okay, that's fine. Thank you.

Referenced in your report, as a document that describes this – the process, is Nalcor's submission to the PUB or the Newfoundland and Labrador Public Utilities Board, essentially. They made a submission when the reference question went to that board and their submission was dated November 10, 2011. And in your report, that's the document that you're referencing with respect to the option screening process.

I just want to – and just for the – your benefit, Commissioner, that has been entered evidence as exhibit P-00077.

Were you – did you find any other document in the course of your work that described this screening process?

MR. MALAMED: We requested supporting documentation for more details into the screening principles; however, Nalcor did indicate that a more detailed discussion of the principles, objectives or topics considered was not available

MS. O'BRIEN: Okay, thank you. And I do believe, just for anyone who's interested in the reference, that you cover that on page 14, I believe.

And, Commissioner, I should just say here, when we are referring to page numbers today, we will be referring to the exhibit page number, which is the red number on the top right-hand corner of the page, okay.

Thank you, Mr. Malamed, please continue.

MR. MALAMED: In terms of the options considered, in front of you, you have a listing of all the power generation options, from: combined-cycle combustion turbine; Island hydroelectric; Labrador hydroelectric; oil fired generation, Holyrood; simple-cycle combustion turbine; wind; liquefied natural gas; imports from Hydro-Québec; deferred Churchill Falls over to 2041; nuclear power; coal power; biomass; wood; solar; wave and tidal; and natural gas.

Going through the process, Nalcor through the process – and it's a two-phased process. The first phase was eliminating certain of these options – with the elimination of certain of these options. I'm going to go through some of those eliminations with you.

In terms of nuclear, nuclear was eliminated because of provincial legislation, capital costs and risk factors associated with it. Coal was eliminated due to significant environmental risks. Biomass or wood was limited, there's limited access due to undeveloped forestry infrastructure. Solar, there is low insolation rates and the cost of power. Wave and tidal, wave and tidal still is unproven regarding the commercial viability of it. In terms of importing from NEISO or HQ, the concern was price volatility, security of a long-term supply and transmission impediments. In terms of natural gas and liquefied gas – which I will go into, both, a bit more in detail – but for the slide, natural gas was eliminated because the market was too small to absorb the development costs, and liquefied natural gas had no clear economic advantage due to capital costs and its linkage to oil prices volatility.

MS. O'BRIEN: Thank you.

Before you move forward, if I could interrupt again, I know you're gonna go into some of these options in more detail. But with respect to nuclear energy, you just said the basis on which Nalcor eliminated – and one of them was – the main one, I understand, was because it was prohibited, it's prohibited by provincial legislation to have nuclear energy in this province. Is that –?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay. Thank you.

So what was Grant Thornton's conclusion with respect to Nalcor's decision to eliminate nuclear energy and if it's of assistance to you, Mr. Malamed, I do believe that's covered at page 22 of your written report.

MR. MALAMED: Nothing came to our attention that would suggest this decision was unreasonable at the time the decision was made.

MS. O'BRIEN: Thank you.

Similarly, with respect to coal, what was Grant Thornton's conclusion with respect to that decision taken by Nalcor?

MR. MALAMED: Again, nothing has come to our attention which would suggest this decision was unreasonable at the time the decision was made.

MS. O'BRIEN: For biomass or wood?

MR. MALAMED: Again, nothing has come to our attention which would suggest this decision was unreasonable at the time the decision was made.

MS. O'BRIEN: Okay.

With respect to solar, the basis for elimination that you've said is low insolation, that's not a word that everybody necessarily knows. Does that just mean we're not very sunny here in this province?

MR. MALAMED: That means – that is correct.

MS. O'BRIEN: Okay. Thank you.

And what was your conclusion – Grant Thornton's conclusion with respect to Nalcor's elimination of the solar option?

MR. MALAMED: Nothing has come to our attention which would suggest that this decision was unreasonable at the time the decision was made.

MS. O'BRIEN: Thank you.

And finally, what was your conclusion with respect to Nalcor's decision on wave and tidal?

MR. MALAMED: Again, nothing has come to our attention which would suggest this decision was unreasonable at the time the decision was made.

MS. O'BRIEN: Thank you.

I know you're gonna go on and look at some of the eliminated options in more detail. But before we do, if I could just take – ask you to go back one slide. I just want to – we've got some of the options that they did not eliminate at phase 1. I understand those are the ones that are listed there on the right-hand column, is that right?

MR. MALAMED: Sorry, can you repeat the question?

MS. O'BRIEN: Yes, sorry.

I understand the list here on the – sorry, the left-hand side of our screen, that are not crossed out, I understand that these would be the options that Nalcor did not eliminate at phase 1.

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay.

And just briefly, the combustion cycle – combined-cycle combustion turbine, can you just very briefly explain for us what that is?

MR. MALAMED: Sure. It's a fuel-operated turbine, and when they use the word combined it means that it's more than one unit that can benefit from some of the heat transfer to the next unit.

MS. O'BRIEN: Okay.

And with respect to Nalcor's decision to keep that on the list, shall we say, and not eliminate it, what was Grant Thornton's conclusion with respect to that decision? And again if it helps you I believe that is at page 23 of your report.

MR. MALAMED: Nothing has come to our attention that would suggest that Nalcor's decision to include CCCTs as an alternative in their system generation planning was unreasonable at the time the decision was made.

MS. O'BRIEN: Thank you.

I think everybody, we're gonna be hearing a lot of evidence going forward on hydroelectric, both on the Island and in Labrador, so I'll leave that one. I also believe we're going to be hearing a lot on the Holyrood oil-fired generation.

So I'm gonna skip down then to the simple-cycle combustion turbine, which is sometimes, I know, referred to as a CT. Could you just explain for us very briefly what that is and what your conclusion was with respect to Nalcor's decision?

MR. MALAMED: Again, it is fuel-powered turbine, where unlike the combined-cycle, as a single stage.

MS. O'BRIEN: Thank you.

And finally, with respect to wind, I know at pages 20 to 21 of your report, you have a fair bit of detail there with respect to wind. Could you just summarize, for the Commissioner, what your – what Grant Thornton's findings were with respect to Nalcor's decision to keep wind as one of the options?

MR. MALAMED: I can. I feel I did not the answer the previous question completely.

MS. O'BRIEN: Oh, please go ahead.

MR. MALAMED: In terms of the simple-cycle turbines, during our review nothing has come to our attention that would suggest that Nalcor's decision to include simple-cycle turbines, as an alternative in their system generation planning, was unreasonable at the time the decision was made.

MS. O'BRIEN: Thank you.

MR. MALAMED: Could I ask you again to –

MS. O'BRIEN: Yes.

MR. MALAMED: Thank you.

MS. O'BRIEN: I wanted you to briefly address wind. I know it's covered on pages 20 and 21 of your report, and I believe your conclusion, with respect to wind, is on 23 – page 23. But if you could just summarize, for the Commissioner, what your findings were with respect to the wind option.

MR. MALAMED: With respect to the wind, nothing has come to our attention which would suggest Nalcor's treatment of wind as an alternative energy source was unreasonable at the time of sanction.

MS. O'BRIEN: Okay. Thank you.

I just – having reviewed your report, and I just – I'm not – I'm certainly not trying to put words in your mouth, I just want to make sure I have a clear understanding. But I understand that one of the issues with wind is that it's not dispatchable – is a word that's used. So I understand that generally means the wind isn't always blowing?

MR. MALAMED: That's correct.

MS. O'BRIEN: And you can't make it blow on demand, essentially. Is that fair to say?

MR. MALAMED: That is fair to say.

MS. O'BRIEN: Okay.

And it's also – just to highlight there – it's in your report that there is a limit to how much wind that can be introduced in the system, is that right?

MR. MALAMED: That's right.

MS. O'BRIEN: Okay.

And did you look at any other consultants' reports that analyzed the wind option in conducting your work?

MR. MALAMED: Wind energy was discussed throughout the Nalcor PUB submission. "Specifically, Nalcor defines wind energy as 'the process by which wind turbines convert the movement of wind into electricity.'" And that's coming from Nalcor's submission to the Board of Commissioners of Public Utilities with respect to the reference from Lieutenant-Governor in Council on Muskrat Falls Project, November 10, 2011.

MS. O'BRIEN: Okay, thank you.

I'm just gonna read – and if you need me to bring up the page of your report, please just say. But I'm at page 21 of your report, and there is reference there – a review – a report that was done by Newfoundland and Labrador Hydro in October of 2014: "An Assessment of Limitations for Non-dispatchable Generation on the Newfoundland Island System."

MR. MALAMED: The – 2004?

MS. O'BRIEN: It was – I'm at the first paragraph on page 21 of your report.

MR. MALAMED: It's October 2004. Is that correct?

MS. O'BRIEN: Yes.

MR. MALAMED: Yes?

MS. O'BRIEN: So is that – would you have reviewed that report in conducting your work and used it as part of the information on which you made your ultimate conclusion?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay.

Commissioner, that report has been entered into evidence as Exhibit P-00092.

Also, on this page, Mr. Malamed, if – going down to line 22, there's discussion of a report that was done by Hatch in 2012 – August 2012.

MR. MALAMED: Yes.

MS. O'BRIEN: Is that an – did you also review that report in your analysis of this option –

MR. MALAMED: Yes.

MS. O'BRIEN: – and consider it in your conclusion?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay.

Commissioner, just for your benefit, that's been entered as P-00057.

And finally, on this page, Mr. Malamed, you reference a report that was done by MHI specific to wind, a "Review of the Wind Study for the Isolated Island of Newfoundland." And that was a report that was done in October 2012 that is discussed in your main report. Did you review that work as well?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay.

And you relied on that, in part, in forming your conclusions?

MR. MALAMED: Yes.

MS. O'BRIEN: And, Commissioner, that has been entered as Exhibit P-00059.

And I – you might have already said it earlier, but I'll just ask you to reiterate it – if – what was your ultimate conclusion with respect to Nalcor's decision to keep wind as an option for the Isolated Island?

MR. MALAMED: That nothing has come to our attention which would suggest Nalcor's treatment of wind as an alternative energy source was unreasonable at the time of sanction.

MS. O'BRIEN: Thank you very much.

All right, please go forward with your presentation. I just – I think we were – you were about to start slide 12. I apologize for that, but I wanted to make sure that we talked about those other options today, and that seemed like the best place to do it.

MR. MALAMED: Okay.

One of the questions that came up was in terms of natural and liquid natural gas. Why were they eliminated? The difference between liquid natural gas and natural gas is that natural gas is condensed and turned into a liquid state where it can then be transported.

In terms of what we found was that the domestic market was too small to absorb natural-gas-development costs. There was no – at the time sanctioning, there was no confirmed plan to bring natural gas to the Island. There was no economic advantage to using liquefied natural gas, given the cost of development. And in making the decision, Nalcor relied on the information that was published in a 2001 report from Pan Maritime Kenny – IHS Energy Alliance.

Subsequent to that – and I'm gonna go into each of these a bit more detailed. There was a further study conducted by Dr. Bruneau and a report provided, dated February 2012. There was then another study and a report provided by Ziff Energy Group on October 2012 – or dated October 2012, and subsequently, another report was prepared by Wood Mackenzie on November 2012.

To summarize the various positions of each of these reports: the Dr. Bruneau concludes – report concluded, that Grand Banks gas is likely the cheapest source of long-term energy for Island electricity generation. The Ziff Energy Group concluded that neither natural gas nor liquefied natural gas are viable replacements for oil-fired Holyrood electric generation facility. And Wood Mackenzie's report concluded that Ziff's analysis and conclusions are reasonable. In terms of Grant Thornton's findings, nothing came to our attention that the elimination of natural gas or liquefied natural gas was unreasonable.

MS. O'BRIEN: Thank you.

Commissioner, just for your benefit, I don't have an exhibit number for Dr. Bruneau's work, though I do know it's entered, but I can give you for – the Ziff report is – has been entered as Exhibit P-00060, and the Wood Mackenzie report has been entered as Exhibit P-00064.

Thank you, Mr. Malamed.

MR. MALAMED: Going back now to the deferred Churchill Falls for 2041, the question was: why was it eliminated? We understand that there was difficulty in determining the environmental and policy frameworks 30-plus years out and there was a risk of maintaining reliable supply through Holyrood until 2041.

Rates are tied to highly volatile fossil-fuel prices for the first 30-plus years, and what would happen would be that Nalcor would remain dependent on fossil-fuel generation for 30-plus years. The prospect of additional investment in Holyrood increases the probability that this option would be more expensive than projected.

The deferred Churchill Falls – decision to eliminate that option – what we found was that Nalcor's findings contradict a Nova Scotia Utility and Review Board, the NSUARB, finding. The NSUARB states: "There should be no shortage of Market-priced Energy when the Churchill Falls arrangement with Hydro Quebec comes to a conclusion in 2041."

MS. O'BRIEN: Sorry, before you move on to the next option, if I could just ask a few questions with respect to the deferred Churchill option.

I know this is covered. I understand – this option, to be clear, this is one of the options that Nalcor eliminated at phase 1. Is that correct?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

Now, I know your – at page 25 and page 26 of your report, you address this in some more detail.

MR. SHAFFER: Yeah. (Inaudible) 25.

MR. MALAMED: Got it. Thank you.

Yes, could you ask me that question again? I'm sorry, I was just getting –

MS. O'BRIEN: Yes.

MR. MALAMED: – to the right page.

MS. O'BRIEN: I'm just getting up to where – my notes.

My apologies. I'm sorry, I had the wrong reference in my notes. It's at page 28 and 29 that I'm looking at.

This is where, in section 1.1.20 of your report – and perhaps if Madam Clerk could please bring up that Exhibit P-00014, page 28, the bottom.

Yeah, just scroll up a little bit so we – okay, so this is where you discuss this. So in your slide there, you – I think at slide 15, you were addressing the rationale on why the option was eliminated. And am I understanding you clearly that that was the rationale put forward by Nalcor for why it was eliminated?

MR. MALAMED: Correct.

MS. O'BRIEN: And can I just get you to explain what your – the source of that information was for you.

MR. MALAMED: The PUB report.

MS. O'BRIEN: Okay.

So this was Nalcor's submission to the PUB that we referenced earlier?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

And if we – Madam Clerk, if you could just scroll just a little bit further down that page. So here at line 37 you note that that – the submission in that report is contrary to the USARB's [sp UARB] findings and you did quote those on slide 16.

On the next page, on page 29 in your summary of the section, so at the very end of the section on the deferred Churchill option. Just, if you keep going down to the last – there we go.

At line 25 there, you wrote: "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" – Maritime Link or – "ML portion of the Muskrat Falls Project."

So if I could just get you to give, Mr. Malamed, a little more detail as to – between these, I take it you were comparing two documents or two sources of information here – just exactly what you found to be inconsistent or contradictory.

MR. MALAMED: Sure. In terms of the contradiction, it really – it goes regarding the availability of power.

So when I look at the Nalcor submission, I'll just begin reading the quote: "uncertainty around guaranteeing the availability of supply from Churchill Falls in 2041."

Whereas, the NSAURB [sp NSUARB] notes: "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."

MS. O'BRIEN: Okay, thank you.

So just to be clear, what was your ultimate conclusion with respect to the elimination of this option at phase 1?

MR. MALAMED: The conclusion is that: Nalcor's decision to eliminate the deferred 2041 option was supported in part by rationale which was inconsistent with a finding of the NSUARB in relation to the Link portion of the Muskrat Falls Project.

MS. O'BRIEN: Okay.

So here we note, or at least, you know, you're saying that there was support in part by a rationale that was inconsistent. Is that different – and I, just to clarify here, is that – is your conclusion or finding different than saying Nalcor was wrong or Nalcor – you know, if you could give us a little bit more as to, you know, ultimately what your finding is, what Grant Thornton's finding is?

MR. MALAMED: Sure.

Grant Thornton's finding is that it may have been prematurely eliminated. It's not saying that Nalcor is wrong. It's just saying that in terms of the availability – the availability as per NSUARB says that there would be a lot available, a lot of power available, and Nalcor submission says that there was uncertainty regarding the availability.

MS. O'BRIEN: Okay. Thank you for clarifying that.

Please continue on. Madam Clerk, if we could go back to the slide presentation which is P –

THE COMMISSIONER: Just before we do, Ms. O'Brien –

MS. O'BRIEN: Oh.

THE COMMISSIONER: – if we could.

MS. O'BRIEN: Yes.

THE COMMISSIONER: So we're talking about PUB report, we're talking about UARB report, Nova Scotia UARB report.

Can we clarify for the audience exactly what we're talking about there? Because I'm not sure people would be familiar with the UARB and what involvement they would have had in this project.

MS. O'BRIEN: Thank you, Commissioner.

I'll do that. I'll preface my remarks with – I'm obviously not giving evidence before you today but, obviously, as one of your co-counsel, I am aware of the evidence that we intend to be presenting to you in the days and weeks to come.

So what I'll be giving here is just a summary of what I expect will be given to you by other, and probably multiple other witnesses. But, as we know, one of your terms of reference have asked that you investigate into the decision to remove the Muskrat Falls Project from the oversight of the Public Utilities Board in this province.

We will be looking in some detail that in 2011 the government of the time did refer a question to the Public Utilities Board, and that question was, you know, generally speaking, was to ask them to confirm whether between the Isolated Island Option and the Interconnected Island Option, the latter, the Interconnected really being the Muskrat Falls, Labrador-Island Link scenario, which of those was the least-cost option for meeting the power needs of the province. So that we often will refer to here as the reference question before the PUB.

In the course of those proceedings, which were public proceedings, there was a number of exhibits filed and submissions made. Nalcor's primary submission in that proceeding was the – what is referred to here as Nalcor's PUB submission, and that was the document that was done in November 2011 that I referred to earlier and provided you with the exhibit number, and that's Exhibit P-00077. That went in as a public exhibit before the PUB at that time.

You will hear more evidence that when the PUB was considering its question it did not look at the Maritime Link portion of the Muskrat Falls Project. That was excluded from the two scenarios that the PUB was working at. As you will hear, the Maritime Link portion of the project is the portion that has, generally speaking, it is – the costs have been paid for by Emera, and Emera will retain ownership of that asset for approximately the next – for the next 35 years. And there will be lots more evidence on that.

Our regulator in this province is the PUB. There is a similar regulatory body in the Province of Nova Scotia, and that is referred to here as the Nova Scotia – or NSUARB. So when you hear UARB, that's the Nova Scotia regulator, and when you hear PUB, that will usually be the Newfoundland and Labrador regulator.

There will be further evidence put forward that a question – questions surrounding the Maritime Link were put to Nova Scotia's regulator, the UARB, and they were ultimately asked to give a decision as to whether that project should be sanctioned to go forward in that province. And they gave a decision on that.

We will hear more evidence that they gave an initial decision and they required more information. They gave a second decision, but I believe the document that's being referred to here in the Grant Thornton report was their – the first decision that was published by the UARB. And both the UARB decisions will ultimately be filed in evidence before you and referred to in the course of these proceedings.

THE COMMISSIONER: Thank you for the clarification.

MS. O'BRIEN: Thank you.

We can now go back, please, Madam Clerk, to Exhibit P-00014. And I believe I last interrupted Mr. Malamed when he was about to start at slide 17.

MR. MALAMED: Power imports: Why was this option eliminated? Additional costs were identified, such as tariffs and contract premiums. The Quebec import option estimated to be over – was estimated to be over 1 billion more expensive than Muskrat Falls. As well, there would be limited employment, income and business opportunities for the province.

Grant Thornton's finding is that: "Nalcor made assumptions regarding the purchase price of power without engaging in formal discussions with Hydro Quebec."

MS. O'BRIEN: Okay. Thank you.

I'd like to spend a little bit more time on this one because I know this is one of the ones where you said that your finding was that, you know, it may have been prematurely eliminated.

So, Madam Clerk, if you could please bring up the Grant Thornton's main report and go to page 28. The section starts on the previous page, page 27. And this is where the electricity imports is discussed in your report, Mr. Malamed.

Moving on, I'm not gonna read in your report, you've summarized it here but I just want to be clear. If we can go to page 28. At line 10 on page 28, you wrote, "During the P.U.B. Muskrat Falls Review Nalcor noted that it '*… did not enter into discussions with Hydro-Québec for long term electricity supply …*'"

Then you wrote, "During our interviews with Nalcor executives it was confirmed that there were no formal procedures initiated with Hydro Quebec."

Could you please clarify for us who were the Nalcor executives who confirmed that for you in their interviews?

MR. MALAMED: Gilbert Bennett and Ed Martin.

MS. O'BRIEN: Okay, thank you.

And I believe your conclusion there is succinctly summarized at page – at lines 13 to 15, if Madam Clerk just scrolls down a little. And that paragraph there Mr. Malamed, is that an accurate summary of what your conclusion was with respect to this option?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay, thank you.

We can go back – oh, before we do actually, there's a few other options that you explored in your report that I don't believe you have slides to. And I just wanted to clarify.

At page 26 of your report, you explored the Gull Island option.

MR. MALAMED: Right.

MS. O'BRIEN: When you explored it – this was one of the options that Nalcor explored and then you –

MR. MALAMED: Yes.

MS. O'BRIEN: – later investigated.

Can you just explain for the Commissioner: What was your finding with respect to Nalcor's elimination of the Gull Island option? And also, if you could just summarize perhaps what Nalcor's basis was for excluding that option.

MR. MALAMED: Sure.

In terms of our findings, nothing has come to our attention, which would suggest that Nalcor's decision to eliminate the development of Gull Island in Phase 1 of their analysis was inappropriate at the time sanction decision was made.

The decision was made due to the cost, the economies of scale, as well as – let me read it – Nalcor's quote: "*As a result of high unit cost of energy without external sales or other new usage compared to Muskrat Falls, the absence of firm transmission access to export markets at the time and the difficulty of arranging financing in such an environment, Gull Island did not advance past Phase 1 screening of alternatives."*

MS. O'BRIEN: Thank you.

The other option that was explored, I think, is covered at page 29 of your report, and that is the recall power. And, Commissioner, this is another area in which you will hear evidence on recall power as we move through this Inquiry, but for right now I think it's fair to summarize that this is a block of power from the Upper Churchill, a 300-megawatt block of power that is available for the use of Newfoundland and Labrador Hydro.

So can you please, Mr. Malamed, tell us what – on what basis Nalcor eliminated this option and what Grant Thornton's finding was in that regard.

MR. MALAMED: Our finding was that nothing has come to our attention, which would suggest that Nalcor's decision to eliminate the recall block of power from their options to address the forecasted energy shortfall has been appropriate at the time the sanction decision was made.

MS. O'BRIEN: Thank you.

Commissioner, I'm just noting the time. That may be – it's about approximately 5 to 11; that may be a good place for us to take our morning break, if that pleases you.

THE COMMISSIONER: Actually, I'm glad you reminded me because we have a group of students, I think, that are planning to come – or at least I was advised – at around 11. So rather than disrupt the proceedings, they asked if we could break from 11 until 11:15 to get them all in here, so I think it is a good time to break.

So we will break until 11:15.

MS. O'BRIEN: Thank you.

Recess

THE COMMISSIONER: Right, just before we begin, I see our students haven't yet arrived. I think something happened. I think they are coming, on their way, so there might be a short bit of disruption but hopefully not too much.

Ms. O'Brien.

MS. O'BRIEN: Thank you, Commissioner.

Mr. Malamed, I've brought up your presentation to the slide on which we last broke, slide number 18. So I'll turn it back over to you.

MR. MALAMED: And where we started to – with a section was Nalcor may have inappropriately eliminated two options. The two options that we've been discussing has been: deferred Churchill Falls 2041, where it was eliminated based on the uncertainty pertaining to availability of power – this assumption contradicted the NSUARB findings. And power imports from or via Hydro-Québec eliminated without formal discussions with Hydro-Québec. Leading to the two options that were analyzed, the Interconnected Island Option at 8.4 billion, and the Isolated Island Option at 10.8 billion.

We're now gonna talk a bit more detail about number 2, and about CPW, the cumulative present worth. Grant Thornton's finding number 2 – I'll just read that again: "Nalcor may have overstated CPW for the Isolated Island Option."

The basis for our finding – and I will go into these in more detail through the next slides – but the basis of our finding is that Nalcor may have overstated CPW for the Isolated Island Option, broken into these three sections: domestic users, general users, and industrial. Under domestic, CDM initiatives were excluded, and also certain economic data relied upon by Nalcor was different from the CBOC data.

For general: price elasticity was excluded, CDM initiatives were excluded. And regarding industrial: prior period loads were overstated, price elasticity was excluded, CDM initiatives excluded, and the potential decrease in industrial load was excluded.

MS. O'BRIEN: Okay, and I understand you're gonna give us a little more on what some of these acronyms mean in a few minutes, are you?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: So first let's just go back for a second to cumulative present worth – an understanding of what CPW is.

CPW is bringing money that would be spent, along a timeline, to today's value. It's discounting it to how much it would be if it was today's dollars. It's the present value of all incremental utility capital and operating costs to reliably meet a load forecast.

CPW was used to determine the least-cost option. So when comparing the two options, both options – the dollar amount that we're talking about – is the cumulative present worth.

So how is it calculated? What's included in it?

The inputs into CPW include: existing generation capacity, load forecast, capital cost estimates, fuel cost, operating and maintenance expenses, discount rates and other. And all of those go into the calculation.

I'm going to talk about load forecast and its input into CPW calculation.

MS. O'BRIEN: Thank you, Mr. Malamed.

Before you go on to give us more detail on the load forecast, if I could just ask a few questions with respect to the CPW method of determining the least cost.

What was Grant Thornton's finding with respect to Nalcor's use of a CPW method in order to determine the least-cost question?

MR. MALAMED: I'd like to get the wording for you. I'm –

MS. O'BRIEN: Yes. I think – if it's of assistance, page 42 of your report.

MR. MALAMED: Thank you.

MS. O'BRIEN: And my note here is that it's at approximately line 10.

MR. MALAMED: So – thank you.

"CPW methodology in assessing the lowest cost option is both used and considered acceptable practice in the utilities industry."

MS. O'BRIEN: Okay. So this has been used in other utilities in Canada or elsewhere as a method of doing this?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

And we're going to be hearing a fair bit of evidence about the time period that Nalcor used to assess the options and that will be – I believe the evidence will be it was a 50-year time period that they used.

What was Grant Thornton's finding with respect to the appropriateness of the time period that Nalcor used to assess this question?

MR. MALAMED: Again, I'd like to read it to you from the report.

MS. O'BRIEN: Again, my note is that it's also on page 42 and my reference is to line 22.

MR. MALAMED: Thank you.

"The time Period of Study used by Nalcor in assessing the least-cost option is within acceptable utilities industry practice."

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

Please continue.

MR. MALAMED: So what is a load forecast?

A load forecast is an estimate of the energy requirements for Newfoundland and Labrador. It was prepared by Newfoundland Hydro, system planning department, annually. It takes a look at these – at the industrial load and the utility load. The utility load is divided into the domestic service, as well as the general service.

CDMs, or conservation and demand management programs, are incentive programs that are designed to help consumers reduce energy consumption, such as your smart thermostat. Third parties suggested that Nalcor include CDM initiatives. Other jurisdictions in Newfoundland – and Newfoundland Power considered CDM programs in their forecasts.

Nalcor did not appear to consider CDM programs in its load forecast for all customers.

MS. O'BRIEN: Thank you.

Before we go on there, Mr. Malamed, I would just – I wanted to talk to you, a general question about how Nalcor does its load forecasting, and I know you've covered this at page 31 of your report, but could you please just explain for the Commissioner, because this is the first evidence he's hearing on this topic.

What general method does Nalcor use to do its load forecasting?

MR. MALAMED: An econometric method, and end-use method.

MS. O'BRIEN: Okay. And –

THE COMMISSIONER: Sorry, could you repeat that, please?

MR. MALAMED: It's an econometric method.

MS. O'BRIEN: And I understand that's sometimes referred to as end-use modelling. Is that correct?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, thank you.

Now, I know this is covered fairly extensively at page 31 and 32 of your report, but if you could just summarize for the Commissioner what your – what Grant Thornton's findings were with respect to Nalcor's use of this econometric method, or end-use modelling method, to do its forecasting.

MR. MALAMED: So: "MHI noted that the domestic forecast methodology implemented by Nalcor is acceptable in practice, but not" necessarily "the best utility practice for this sector."

"According to MHI, the best utility practice would be to incorporation end-use methodology for the forecasting process for the sector, but increased accuracy is not guaranteed because any forecast is dependent on the accuracy of the assumptions in which it is based."

"MHI noted that other jurisdictions also applied a combination of regression and end-use modelling, including Ontario, Manitoba and BC."

MS. O'BRIEN: And as part of your review, did you review that work that MHI, Manitoba Hydro International did – the report that they wrote with respect to the forecasting methodology?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. And I know at page 32 of your report, there's a reference to two other reviews that were done of Nalcor's forecasting method at page 32, line 14, you refer to two post-sanction reviews that were done: one by a company, Ventyx, in 2014 and another by Power Advisory LLC in 2015. Did you review that work as well?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. Thank you.

And so I understand in your report that these different groups may not have come to the same conclusions. Having reviewed their work, can you just please let the Commission know what Grant Thornton's conclusion was, having reviewed all that work? And, again, I believe it's found at line 19 to 21 of your report on page 32.

MR. MALAMED: It is, but I'd like to just go back to a question that you asked me about econometric. Econometric and end-use modelling are different.

MS. O'BRIEN: Okay.

MR. MALAMED: End-use modelling really is a bottom-up approach in terms of identifying the need. To answer the question that you just asked – we understand that the commitment to adopt end-use modelling requires additional resources, time data and the co-operation of Newfoundland Power. Econometric modelling techniques Nalcor uses is an accepted load forecasting methodology; however, best practices suggest end-use modelling techniques.

MS. O'BRIEN: So am I understanding correct that the – your finding is best practices are end-use modelling, but what Nalcor uses is still an accepted load forecasting method?

MR. MALAMED: That's correct.

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

And then I believe you were just talking about a CDM or conservation and demand-side management. And, again, I – so these are these efficiency-type programs that can be introduced to encourage people to reduce their use of –

MR. MALAMED: That's right.

MS. O'BRIEN: – electricity?
Okay. Thank you.

Please continue.

MR. MALAMED: Price elasticity – first, I should explain what price elasticity is. Price elasticity is that the economics with the idea that as price increases, the use or the purchase of that item will decrease. Nalcor excluded price elasticity from general commercial and industrial customers in terms of their calculation of their forecasted load, their load forecast.

If we look at Nalcor's history, in terms of prior load forecasts, they were subject to volatility. The 10-year history of overstating load forecasts by an average of 8.9 per cent for all customers – 10-year history of load forecast variances from anywhere – by category of customer to – from minus 5 per cent to plus 60 per cent.

MS. O'BRIEN: So just to be clear there, make – ensure that we understand the last bullet point there. So in some – we are looking at a 10-year history for Nalcor, Newfoundland and Labrador Hydro, is – in some customer classes, they underestimated the load by –

MR. MALAMED: 5 per cent.

MS. O'BRIEN: – 5 per cent.

MR. MALAMED: That's right.

MS. O'BRIEN: And in the – on the other end, in some cases, they overestimated by 60 per cent, is that correct?

MR. MALAMED: Correct.

MS. O'BRIEN: And so the 8.9 per cent overestimation is the average of all –

MR. MALAMED: Yes.

MS. O'BRIEN: Is that how that's – okay. Thank you.

I know – just before you leave that – I mean, forecasting is, of course, an exercise in looking forward and trying to predict what the future – what will happen in the future.

Can you just explain, for the Commissioner, why, when analysing Nalcor's forecast, you would be looking backwards in the past at historical data?

MR. MALAMED: You would look in – why you would look back? Can you ask the question again, I'm sorry?

MS. O'BRIEN: Yes. So when you're doing an – when you were doing the analysis of Nalcor's forecasts, can you just explain, to the Commissioner, why you looked at time through the accuracy of their historical forecasts?

MR. MALAMED: Sure. I think that the reason that we looked at historical was to be able to understand, going forward, the risk of misstatement, to see how the forecast lined up against actuals in the past.

MS. O'BRIEN: Okay. Thank you.

You can, please, go forward.

MR. MALAMED: Economic forecasts: The Conference Board of Canada's economic forecasts were different from what Nalcor's forecast was. So the CBOC projected larger decreases in housing starts than Nalcor did. As well, the CBOC projected a decrease in population, where Nalcor held population constant. Certain economic data relied upon by Nalcor was different from CBOC economic data; hence, domestic load forecast may be overstated.

MS. O'BRIEN: Okay.

If you could just explain to us – I know we – you were just a moment – we're talking generally about electricity-use forecasts, so what – the planning load forecasts – so how much load on the electrical system is anticipated in the future. On this slide, I understand, you're talking about economic forecasts.

MR. MALAMED: That's correct.

MS. O'BRIEN: Can you just explain for us the difference and the relationship between those two different types of forecast?

MR. MALAMED: Sure.

As the economy strengthens and grows, more electricity would be needed. And if there was a retraction in economy, less would be needed. So they are – they're related.

MS. O'BRIEN: Are economic forecasts one of the inputs that are used to develop the electricity load forecast?

MR. MALAMED: They are.

MS. O'BRIEN: Okay. Thank you.

So just to be clear here – I – and I believe at – this is covered at page 34 of your report. And Madam Clerk if you could please bring that up – page 34. Thank you.

So – if you could just explain where – what economic forecast data did Nalcor use?

MR. MALAMED: Nalcor used numerous macroeconomic variables within their economic – with their econometric model, such as gross domestic product, personal disposable income, population and average housing starts.

MS. O'BRIEN: Okay.

And the source of that – the source of the information that they used – was that the Government of Newfoundland and Labrador?

MR. MALAMED: The – Nalcor's submission to – where – we identified it was Nalcor's submission to the Board of Commissioners of Public Utilities – the November 10, 2011.

MS. O'BRIEN: Okay.

So if you could just explain, then – maybe take – I understand that there was – when you were talking here about the Conference Board of Canada in your conclusion there – so if you could just maybe clarify for us, was this an alternate source of economic forecasting?

MR. MALAMED: This was a different source and there are other sources as well.

MS. O'BRIEN: Okay.

And I know here you've referenced Statistics Canada.

So, just to make sure I understand, is this a case where Nalcor just used one macroeconomic forecast when there were others available? Is that what you're –?

MR. MALAMED: That's correct.

So the idea would be to use more sources of data – not to take a risk of relying on one source, but on reducing the risk by –

MS. O'BRIEN: Okay.

So can you – if you just explain to us what the pros or cons would be of, you know, using one source as opposed to multiple sources?

MR. MALAMED: The pros would be that you have one source and that source would become prescriptive. The con is that you may miss somebody else's analysis or point of view that may actually affect your calculation.

MS. O'BRIEN: Okay. Thank you.

And just if you could review – if Madam Clerk could please go down here to line 29 – I believe this is your conclusion on this point. Mr. Malamed, if you could please highlight that for the Commissioner.

MR. MALAMED: Sure.

"It appears that Nalcor has followed good utility practice regarding the use of macro-economic data sources; however, we note that there were alternative sources of information at the time." CBOC – that we just spoke about – and Statistics Canada are examples.

"We understand that the macro-economic data was provided" by – "to Nalcor by the GNL - Department of Finance. Additional sources of information" – such as CBOC and Statistics Canada – "does not appear to have been utilized."

MS. O'BRIEN: Okay. Thank you.

Madam Clerk, please go back to the slide presentation. I believe Mr. Malamed was at – about to begin then on slide 30.

MR. MALAMED: When we're looking at customer information there's no potential increase or decrease in the industrial load that was included in the forecast. Voisey's Bay mine was closing and 2023 was not factored into Nalcor's load forecast, and potentially, this overstates the industrial load forecast.

MS. O'BRIEN: Okay.

Can you just – so this is – there was no increase or decrease in the industrial load, so this is just one aspect of the load forecast. Is that correct?

MR. MALAMED: That's right.

So that would be – if you look at the circles on this page, you'll see the industrial load plus utility load, which includes domestic service and general service.

MS. O'BRIEN: Okay. Thank you.

Now, as people in this province will be very aware, the Voisey's Bay mine is in Labrador, and it is obviously not on the Island grid. I understand what is on the Island grid is a – the – a refinery –

MR. MALAMED: Mm-hmm.

MS. O'BRIEN: – owned by Vale in Long Harbour.

Can you just explain to us why the Voisey's Bay mine closing in 2023 was a consideration for you in assessing Nalcor's industrial load forecast?

MR. MALAMED: We have assumed that the refinery would not continue as a going concern. However, I guess, it would be possible to have other material come in to be refined there.

MS. O'BRIEN: Okay. All right.

So now, the idea of the Voisey's Bay mine closing, or being exhausted, in 2023, this – I understand this was information that was current in 2012. Is that –

MR. MALAMED: Correct.

MS. O'BRIEN: – correct? And there's been new information since. There's been a change in the plans for the Voisey's Bay since. Is that right?

MR. MALAMED: I understand it, yes.

MS. O'BRIEN: Okay.

But you were just looking at 2012, were you?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. All right. Thank you.

Please continue.

MR. MALAMED: This leads back to the summary that we started with in terms of why there may be an overstated CPW for the Isolated Island Option. So if I just review one more time: domestic side, we spoke about that the CDM initiatives excluded and that certain economic data relied upon by Nalcor was different from other sources.

The general: We spoke about price elasticity. As the price goes up, the use, or the demand for the electricity, would go down. And again, CDM initiatives were excluded.

And industrial: We look at prior-period loans, and we looked at they were overstated. Price elasticity was also excluded; CDM initiatives were excluded, which leads to potential decrease in industrial load being excluded.

MS. O'BRIEN: Okay, thank you.

MR. MALAMED: That takes us to our third finding. Nalcor may have understated CPW for the Interconnected Island Option.

MS. O'BRIEN: Okay. So I understand – starting at slide – the next slide is where we would break off and Mr. Shaffer would pick up the presentation. However, before we do that, Mr. Malamed, I'd like to ask you a few more questions on the details of the CPW analysis.

Madam Clerk, could you please bring up Exhibit P-00014 please and go to page 41? And it's this table that I'd like to have the witness review.

Mr. Malamed, we've talked about the cumulative present worth calculation and how it was done. In this table that's in your report, we have a more detailed breakdown. Could you please give the Commissioner a – you know, using this table, give the Commissioner a more detailed explanation of how the financial analysis broke down between the two options?

MR. MALAMED: Sure. I think that the first thing to take a look at is that it is four categories that we're looking at.

Fixed charges, and some examples of that would include depreciation expense on capital expenditures, excluding the capital cost estimate of the Muskrat Falls generating asset, Labrador Transmission Assets and Labrador-Island Transmission Link.

"Operating costs – included fixed and variable operating and maintenance costs."

Fuel – there are two types of fuel that are included. And fuel is – I guess it's self-explanatory what fuel is.

And power purchase cost – "for the Isolated Island, power purchase costs represented the power purchased from non-utility generators. For the Interconnected Island, power purchase costs included recovery of costs related to Muskrat Falls generating facility, Labrador transmission assets, and the Labrador-Island HVdc transmission link."

If you take a look at the chart that's up on the screen, you'll see that the Interconnected Island Option, the power purchased at 6.4, it's to do with the capital expenditure, and the Isolated Island, which is heavy – heaviest weighted on fuel, would be the 6.7 billion.

MS. O'BRIEN: Okay. So looking that (inaudible) – so I understand these are the numbers at Decision Gate 3, are they?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. And so we will be hearing, and probably people have heard already, a fair bit of discussion on that the Interconnected Island was the preferred option by 2.4 billion –

MR. MALAMED: Correct.

MS. O'BRIEN: – is the number that's been – and so, at this – and the bottom right-hand corner of this chart here. This 2,412,342. That's the 2.4 billion difference.

MR. MALAMED: Correct.

MS. O'BRIEN: Is that right?

MR. MALAMED: At DG3.

MS. O'BRIEN: At DG3. Okay.

MR. MALAMED: Yes.

MS. O'BRIEN: And so looking at this, I'm just – between the two options there is – great – there is – so looking at the fuel costs between the two options, if – there's a considerable difference here, just me looking at the numbers. We have about 1.3 billion on the Interconnected Island versus 6.7 billion on the Isolated Island. Can you just explain for us why it's such a big difference in the numbers?

MR. MALAMED: Yes. The Interconnected Island Option is generated by hydroelectric power, water power, as water flows through it. So it wouldn't use the amount of gas that combustion turbines would use, that are on the Isolated Island Option.

MS. O'BRIEN: Okay. So the – when we look at fixed charges, we have a very big difference in the fixed charges category between the two options. We have only, you know, 300 and plus million on the Interconnected and over 2.5 billion on the Isolated Island Option. Can you just explain for us why that – why is there that big difference?

MR. MALAMED: We spoke a bit about the depreciation expense, and it's – and Holyrood already has most of the assets that are there, some were becoming online, and the capital intensive Interconnected Island where Muskrat Falls is actually being built.

MS. O'BRIEN: Okay. So where would the costs of the Muskrat Falls – like, the capital cost to build the Muskrat Fall Project – where would that be captured in the Isolated Island Option?

MR. MALAMED: You'd see it in the fixed charges.

MS. O'BRIEN: Okay.

I'm just going to clarify that because that's only – I – in reading your report I would have understood it to be in the power purchases, the 6.4?

MR. MALAMED: It is. I apologize.

MS. O'BRIEN: Okay, so maybe just so that that evidence is clear for the Commissioner, can you just explain where the – you know, why we have between the fixed charges and the power purchases here for the two options, you know, why we have the differences of the numbers, where we're seeing the cost of constructing the Muskrat Falls Project being captured.

MR. MALAMED: I'm sorry, the cost of capturing the Muskrat Falls Project you'll see in the power purchases.

MS. O'BRIEN: Okay.

So – and I believe this is on page 8 of your report, but I understand that the – and I want to make sure I have this right. It's the Isolated Island that's much more susceptible to variations in fuel prices, is that right?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay. Thank you.

Can you explain to us how Nalcor forecasted fuel prices for the 50-year period that was under consideration? And I do know that that is covered in your report at pages 47 to 49 but if you could just summarize that material for the Commissioner, please.

MR. MALAMED: So Nalcor engaged PIRA Energy Group to develop fuel price forecasts. PIRA – or PYRA – is an international energy consulting firm based in New York which provides analysis and price forecasting services for world energy prices.

The fuel cost was estimated using the May 2012 PIRA forecast from 2012 to 2030 and, subsequently, increased fuel prices using an estimate of 2 per cent per year compounded until the 2067.

MS. O'BRIEN: Okay.

So they extended it beyond PIRA's forecast, is that – am I understanding you correctly?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay.

And what was your findings with respect to what Nalcor did to extend that PIRA forecast out to the 50 years that they needed?

I'm sorry, Mr. Malamed, I don't have the exact cite for your finding here, but I generally understand that the finding was that what they did was considered reasonable. Is that – am I stating that accurately?

MR. MALAMED: "Nalcor engaged Westney, a global provider of project risk management consulting services, to provide an expert opinion on which of … PIRA forecasts was most reasonable for use in the CPW calculations."

MS. O'BRIEN: Okay. Thank you.

Now at page 53 of your report – sorry, at page 52, there's a discussion there in section 2.1.34 regarding the Discount Rate.

MR. MALAMED: Yes.

MS. O'BRIEN: Can you explain for the Commissioner: What is a discount rate? What does it do?

MR. MALAMED: A discount rate brings the value of money to today's value, based on the risk premium of that money.

MS. O'BRIEN: Okay. What discount rate did Nalcor use?

MR. MALAMED: Nalcor discounted the total cost for each option using a discount rate of 7 per cent.

MS. O'BRIEN: Okay.

And what was Grant Thornton's finding with respect to Nalcor's selection and use of that discount rate?

MR. MALAMED: We took no exception with it.

MS. O'BRIEN: You took no exception?

Okay. Thank you.

On page 53 of your report – just a few other areas to review – here you have listed other inputs that Nalcor used in the CPW calculation and they're listed there at lines 1 to 8.

I understand that starting at line 9 there you discuss your review of those. Can you just summarize for the Commissioner, what were your findings with respect to these various other inputs that are listed there?

MR. MALAMED: That they have less significant impact on the CPW calculation.

MS. O'BRIEN: Okay. Thank you.

If we could go, please, to page 38, there's just a few more sections, Mr. Malamed, that I'd like to go through there. And, again, it's just your report is there, it's filed as evidence, but I just wanted to get you to give a brief explanation or summary for the Commissioner of what your findings were.

Here on this section 1.8.2 you cover System Reliability. And maybe if you could just explain for us: When you're referring to system reliability, what do you mean?

MR. MALAMED: That the power doesn't go off.

MS. O'BRIEN: I see.

MR. MALAMED: So NLH's plan was to have sufficient generating capacity for targeted loss-of-load hours of no more than 2.8 hours per year, and sufficient generating capability to supply all of its firm energy requirements with firm system capability.

MS. O'BRIEN: Okay.

And, ultimately, what were your – in this section here you review it. What were your findings with respect to the system reliability criteria that Nalcor or Newfoundland and Labrador Hydro used?

MR. MALAMED: Based on our review Hydro's generation planning criteria of loss-of-load hours of 2.8 hours per year appears consistent with good utility practice; however, we noted that subsequent to sanctioning, the PUB's expert, Liberty, in the outage inquiry found there was a lack of focus on reserve levels regarding its system planning processes. This may result in employing generation resources sooner to meet demand.

MS. O'BRIEN: Okay.

So loss-of-load hours of 2.8 hours per year, does that mean that the – that they – that would be the most that the power would go off? Is that –?

MR. MALAMED: That's right.

MS. O'BRIEN: Okay.

And I think people in this province will be very aware, but the outage inquiry that's referenced here, this was the work that was done by the PUB after the power outages in early 2014 that are generally here known as DarkNL. Is that consistent with your understanding?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. Thank you.

There is also you – just briefly, if you could go over the next section of your report, section 1.8.3 System Needs Identification. Can you explain the significance of this section and what your findings were?

MR. MALAMED: Yeah.

So we reviewed Nalcor's analysis of system need identification. Our procedures focused on reviewing the existing Island grid capacity and firm energy, and comparing to Decision Gate 3 load forecasts. Based on our review, there were no discrepancies between the system capabilities presented in both documents.

MS. O'BRIEN: Okay. Thank you.

So you were looking for consistency and you found it. Is that a fair summary?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay. Thank you.

Also, on the next section that you covered here was additional issues identified. And here we have some reference to NAERC, which is the North American Electric Reliability Corporation. Can you just explain what your findings were here, the significance, why you have – why you've covered this in your report?

MR. MALAMED: NAERC is a standard required for transmission reliability. And based on our review, the issues identified during Decision Gate 2 appear to have been addressed by Nalcor.

MS. O'BRIEN: So I know it's a little clearer when we read the full report, but this was a review that Manitoba Hydro International did at – of the Decision Gate 2 work that Nalcor did?

MR. MALAMED: Correct.

MS. O'BRIEN: I see. Okay.

And they – in that report, which is filed in evidence, I understand that they raised some concerns about how Nalcor had dealt with some of the NAERC standards.

MR. MALAMED: Getting to be NAERC qualified, yes.

MS. O'BRIEN: Okay.

And so, just to clear here, as I understand your finding here is that by Decision Gate 3 that Nalcor had addressed those issues. Is that what you're saying here?

MR. MALAMED: I believe so.

MS. O'BRIEN: Okay. Thank you.

There's some wording used in your report that I'm wondering whether it might not be a terms of art for your industry. I didn't understand it on my reading, so I'm going to bring you there. Page 45, line 19, please, Madam Clerk.

Mr. Malamed, if you could just take a moment to read that sentence. The phrase that I had a little difficulty understanding was: agreed to support. So if you could just read the sentence and then just explain to the Commissioner what you meant by that. He may understood it, but because I didn't I thought I'd at least ask the question.

MR. MALAMED: Sure.

"We reviewed the addition of assets under the Interconnected Island Option and agreed to support, where applicable." Where we say "agreed to support," we matched the assets listed by a third-party expert to what was included in the capital cost estimate, in the CPW.

MS. O'BRIEN: Okay.

And the phrase: where applicable, can you just give us a little bit more on that?

MR. MALAMED: Sure.

Where applicable: really, where it was available, where we're able to do it.

MS. O'BRIEN: Okay, all right. Thank you. That's helpful.

Page 39 of the report, just to briefly go over this. There's a section starting on page 39, towards the bottom at line 25, section 2.1.2, a section called: Benchmarking. This is – in this section you're comparing work done in Newfoundland by Nalcor against what was done, I believe, by Emera or the NSP Maritime Link Incorporated, which is a subsidiary of Emera, as evidenced by the work of the Nova Scotia UARB.

Can you just explain for us why you did this comparison and, you know, what your conclusions were as a result of it?

MR. MALAMED: The reason that the comparison was done is that we believe that it would provide useful information to see what one did and what the other did. I'll read some of the comparisons and explain them to you.

The methodology – so the methodology that NSPML used: They used a present-value analysis, which considers cash outflows over the duration of the analysis. And Nalcor used a cumulative present worth analysis which considers incremental cash outflows only. Both analyses were completed based on cash outflows only.

MS. O'BRIEN: Okay.

So you testified earlier that the – that you found that the cumulative present worth analysis that was done by Nalcor was considered – I don't know if it was best practice or reasonable or you took no exception to it in any event. So I take it this – in this case, the two different ways but both were acceptable ways. Is that –?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: The time period that NSPML analyzed was 35 years, which matched the period in which NSPML would own the Maritime Link transmission asset. And the total useful life of the asset was estimated to be 50 years, with the ownership transferring to Nalcor for the final 15 years.

MS. O'BRIEN: So they used a shorter time period than what was used in this province, is that –?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, but you earlier did testify that you did – that you didn't find the time period of 50 years to be unreasonable or words to that effect. Is that right?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: The capital structure for NSPML utilized the capital structure of –

MS. O'BRIEN: Madam Clerk, please?

Sorry. Thank you.

I just want to bring it up so people can see. Thank you.

MR. MALAMED: – 70 per cent debt to 30 per cent equity, to 65 per cent debt, 35 per cent equity, compared to 75 per cent debt, 25 per cent capital structure that was used in Nalcor's CPW analysis –

MS. O'BRIEN: Any – sorry, any significance to that, that you would want to draw to the Commissioner's attention?

MR. MALAMED: Nope.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: Strategist – so Strategist – the NSUARB incorporated the long-term generation planning tool Strategist. So in putting together a planning – when putting together the plan – the generation planning, a tool called Strategist was used and this tool was developed by Ventyx. The NSUARB also retained Ventyx to conduct their analysis. Nalcor also used Strategist, but they did the analysis themselves.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: The discount rate that NSPML used was 5.95 per cent in their study, based on cost of equity of 9 per cent and a cost of debt of 4 per cent. In Nalcor's CPW analysis, it used a discount rate of 7 per cent, which was based on its weighted average cost of capital, utilizing a cost of equity of 9.25 per cent and a cost of debt of 6.25 per cent.

MS. O'BRIEN: Okay. So here we have – you've noted a difference, but I understand, again, the earlier testimony was that you did not find Nalcor's choice of the 7 per cent to be unreasonable or you found it to be acceptable. Is that fair to say?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay. Thank you.

MR. MALAMED: Transmission losses; so as the electricity travels and is transmitted. NSUARB – they utilized transmission losses of about 9.2 per cent. And this was higher than the transmission losses of 5.15 per cent used in Nalcor's CPW analysis. Based on my analysis, 5.15 was considered acceptable; however, the impact of using higher transmission losses, up to 10 per cent, would have resulted in a possible increase to the CPW of the Interconnected Island Option.

MS. O'BRIEN: Okay. Thank you.

Now, I understand that you're not the person to ask questions about what the right level of transmission losses are to use. Is that right?

MR. MALAMED: That is correct.

MS. O'BRIEN: Okay, we can raise with other people later on.

Okay. Thank you.

MR. MALAMED: In terms of capital cost estimate, NSUARB provided capital cost estimates using P50, P90 and P97 factors in their contingency for inclusion of capital cost estimates. The P-factor is something that will be discussed in this presentation, but when Scott begins his part, he will get into more about the P-factors. I'm going to just put that on hold or leave that for the time being.

MS. O'BRIEN: Okay.

MR. MALAMED: But based – the capital of cost of the Maritime Link facility's under a P50 estimate. The P-factor used is consistent with Nalcor's determination of contingency in the capital cost section; however, Nalcor never presented capital cost estimates using various P-factors for information purposes.

MS. O'BRIEN: Okay. So, you're saying that at the UARB proceeding, Emera subsidiary gave different – gave information on different P-factor levels, but at our proceeding it was just the P50 that was provided. Is that right?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay, thank you.

MR. MALAMED: The P-factor – maybe I should just give a quick explanation. The P-factor is the probability factor or the chances, the likelihood. The higher the P-factor, the greater likelihood that the cost will be either the cost it is or lower.

MS. O'BRIEN: Okay, thank you.

I see Mr. Shaffer has turned on his mike. Mr. Shaffer, do you have anything to add on P-factors? I know it's an important part of your work.

MR. SHAFFER: Yeah, I guess just to give an example. If you have a P50, that means you have a 50 per cent chance that the cost would come in at or lower than what the estimate was. If you have a – there's also a 50 per cent chance that it will be higher – I'm sorry, higher than that in terms of overruns.

If you have a P75, that means there's a 25 per cent chance that there's going to be overruns. So the higher the P-factor, the higher the capital cost estimate because it increases the contingency amount.

MS. O'BRIEN: Okay, thank you.

MR. SHAFFER: Which we'll get into in my part of the presentation.

MS. O'BRIEN: Thank you very much.

MR. SHAFFER: Okay.

MS. O'BRIEN: And finally, Mr. Malamed, just the last bullet there, if you could explain that to the Commissioner.

MR. MALAMED: Sure.

The last one has to do with fuel. NSPML forecasts natural gas and oil prices to increase an average of 2 per cent to 4 per cent per year from 2015 to 2040. This is consistent with Nalcor's approximate average increase of 2 per cent yearly from 2012 to 2067.

MS. O'BRIEN: Okay.

So is there no significant difference between the two approaches there? Is that –?

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay, thank you.

Madam Clerk, if you could please go to page 54 of this exhibit.

This is a section, 2.1.36 Sensitively Analysis Performed by Nalcor. And, Mr. Malamed, I know you're going to give us some detail on this. But before we being, could you please explain for the Commissioner what a sensitivity analysis is?

MR. MALAMED: A sensitivity analysis is taking the base case and applying some kind of variable to it to see how the base case reacts to that variable. For example, if fuel prices were to increase by 50 per cent, how would that affect the CPW?

MS. O'BRIEN: Okay, so the base case would be the numbers they actually ran and compared and those were the ones we looked at, at that table earlier, that showed to 2.4 difference – the $2.4 billion difference.

MR. MALAMED: That's right. The difference, though, between this chart that we're looking at right now, where you'll see the difference of 2.158 billion, is that this is Decision Gate 2.

MS. O'BRIEN: Okay, so this table here that we're about to look at is the numbers at Decision Gate 2. And so the base case there, that's at the first row there. And, Mr. Malamed, it may be helpful for you – you have a mouse there that if you want to move so you can highlight numbers as we go through.

So this is – this was the base case CPW analysis at Decision Gate 2, and there the difference was approximately 2.1 billion.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, thank you.

So let's just look – we won't go through every line on this table, but it may be helpful to go through some. So one sensitivity that was run there, according to the table, is an annual load decreased by 880 gigawatt hours. So an adjustment in the load.

Do you know why the number of 880 gigawatt hours was chosen for this sensitivity?

MR. MALAMED: I do not know why.

MS. O'BRIEN: Okay, so that would be something better asked to someone at Nalcor – is that right?

MR. MALAMED: Yes.

MS. O'BRIEN: Okay, thank you.

All right, but when they did that adjustment then, we see the Isolated Island CPW number goes down. The Interconnected Island goes down, but not as much.

MR. MALAMED: Right.

MS. O'BRIEN: And the difference then goes to 408 million. Is that a right – a correct reading?

MR. MALAMED: That's correct.

MS. O'BRIEN: Could you explain for the Commissioner why the Isolated Island dropped more dramatically than did the Interconnected Island when that adjustment was made on the load?

MR. MALAMED: The main difference is that the Isolated Island is almost in on-demand need for power generation. Meaning that if less power is needed and there's a decreased annual load that not as much fuel would have to be burned. Whereas, the Interconnected Island, which is a hydro plant, you don't limit the amount of water that goes through. It's still gonna go through; it's still gonna cost the same to have that on, regardless – if the load decreased, the same cost still applies.

MS. O'BRIEN: Okay, thank you.

We'll look at a few more of these. So, here you've talked already for us about how Nalcor used the PIRA forecast. Can you just explain – we have some sensitivities run here for PIRA low-price forecast, PIRA high-price forecast. Can you just explain for the Commissioner what are these – why do we have different forecasts?

MR. MALAMED: PIRA provides low and a medium-high number; and, by doing that, you're able to run to see what happens if their low-priced forecast came in, and you would see that when that does occur, that the Isolated Island decreases and the difference becomes 120 million – compared to the Interconnected Island, which does decrease as well, but not as significantly as the Isolated Island.

MS. O'BRIEN: Okay.

MR. MALAMED: Again, because it's fuel dependent.

MS. O'BRIEN: Okay.

So then let's look at if the PIRA's high-price forecast was used, we've got some big differences there as well. Can you just explain those for us?

MR. MALAMED: Sure.

In terms of the Isolated Island, the Isolated Island reacts more dramatically with fuel prices going up or going down, as we've discussed. At the same time, there is fuel prices that are required to put together and to run the Interconnected Island. So we'd also see that it gets affected, but not as dramatically as the Isolated Island.

MS. O'BRIEN: Okay.

And here we see the difference between the two option goes up, you know, to 5.4 billion, approximately – is that –?

MR. MALAMED: That's right. But these are sensitivities – they just – they're – they highlight what could happen.

MS. O'BRIEN: Okay, thank you.

Let's just look at a few more. I see the fuel price reduced by 44 per cent, so is that the break-even point, where they balance out?

MR. MALAMED: That is the break-even point. So fuel would have reduced by 44 per cent. Then both the Isolated Island and the Interconnected Island would have the same CPW or least cost.

MS. O'BRIEN: Okay.

There's a couple there that address conservation – moderate conservation and aggressive conservation.

If you could – could you explain those for us please?

MR. MALAMED: Sure.

The moderate – could I explain (inaudible) – could I explain –?

MS. O'BRIEN: Well just – the – I mean, we know earlier you mentioned the word conservation and demand-side management – that was one of the findings that you brought forward in the – with respect to the forecasts used. Are these ideas linked at all? I mean, we're seeing the same word.

So if you could just –

MR. MALAMED: So –

MS. O'BRIEN: – tie that up for us please.

MR. MALAMED: So, yes they're linked. We don't know the effect on the Interconnected Island because the cost is going to be the cost regardless.

MS. O'BRIEN: Okay, so –

MR. MALAMED: Of the – of a conservation plan.

MS. O'BRIEN: Okay, so this would be a case if there was work done to encourage conservation of electricity use –

MR. MALAMED: Mm-hmm.

MS. O'BRIEN: – and you were able to reduce the load by, I guess, the amount that – or the energy needed by the amount that's listed here. It –

MR. MALAMED: That's right; there would be savings.

MS. O'BRIEN: Okay. So we don't see any difference in the Interconnected Island Option. So, but we do see a difference in the Isolated Island Option. So could you just give us a little bit more on that to explain why that's the case?

MR. MALAMED: The – again, fuel-based, or the effect of fuel, by putting in the CDM people would use less, meaning that the burn rate of the fuel would go down.

MS. O'BRIEN: Okay. And but then for the Interconnected Island with Muskrat Falls …

MR. MALAMED: It – the – Muskrat Falls still would need to be built, regardless of the savings.

MS. O'BRIEN: I see. All right. Thank you.

There is one down, a little further down, Madam Clerk. There's one on the federal loan guarantee. Now, Commissioner, you're gonna be hearing more evidence on the federal – no, sorry, if you go back to the same table. Thank you, there's one there. There you go, we've got it.

The federal loan guarantee, there was a sensitivity run on that. Can you just briefly explain for us, Mr. Malamed, what's your understanding of why that sensitivity was run?

MR. MALAMED: I understand that the federal loan guarantee would only be provided under the Interconnected Island Option, and not under the Isolated Island Option.

MS. O'BRIEN: Okay. All right.

The – okay, so there I see. So we're seeing for the Isolated Island Option we have the same number, federal loan guarantee or not.

MR. MALAMED: Yes.

MS. O'BRIEN: But we reduce the cost of the Interconnected Island – or the CPW, I should say, of the Interconnected Island.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. All right.

Now, I – you – we've talked about these sensitivities, so from this table is it possible to adjust more than one input?

MR. MALAMED: It is possible to adjust more than one.

If you would look down at the scenario with fuel cost decreased 20 per cent, and your load growth decrease of 20 per cent, and capital cost increased for Muskrat Falls and LIL by 20 per cent, you're able to put them together and that gives you the net effect; that difference of 159 million.

MS. O'BRIEN: Okay. And so likewise there's another scenario run there with two options there I see in the next line in the table.

MR. MALAMED: Right, and if also – it's not just – it has to be three. If you look at this line over here, you'll see that capital costs would be increased by 20 per cent and fuel costs would be reduced by 20 per cent, for different variations.

MS. O'BRIEN: Okay, and in that case we have a difference between the two options of 383 million, is that –?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay. Thank you.

If we go on please, Madam Clerk, to the next table which is at the top of the following page. These are the sensitivities, I understand. The table says Summary of Sensitivities at Decision Gate 3.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

So, here on the base case, here's where we see the 2.4 billion.

MR. MALAMED: Correct.

MS. O'BRIEN: There's fewer entries on this table. Do you have any knowledge as to why more sensitivities were run at Decision Gate 2 then were run at Decision Gate 3?

MR. MALAMED: (Inaudible.)

MS. O'BRIEN: Pardon?

MR. MALAMED: I do not know why.

MS. O'BRIEN: Okay, so that's a question for someone at Nalcor, I take it. Okay. Thank you.

I know you've made some findings here at the bottom of the page with respect to your review of the sensitivities. Could you perhaps review some of those for the Commissioner, and, as needed, we can go up and look at the Decision Gate 3 table.

MR. MALAMED: Sure.

So, the first, and we just spoke about that, there were more sensitivities analysis completed at DG2 than there were in DG3. "Included in the DG3 sensitivity analysis, there were specific sensitivity analysis completed related to increases to capex, for example, 25%; however, when increasing capex by 25%, both the Interconnected Island Option and … Island Option was impacted, which decreased the overall difference. The risk associated with the capex on the Interconnected Island Option would be higher than the risk associated with the capex on the isolated island option, due to projects size and length."

The next is: "From DG2 to DG3, there was an increase to the capital cost related to the Interconnected Island Option. The capital costs are the most significant input to the Interconnected Island Option and was a known risk in the overall analysis. However, at DG3, there was not a sensitivity analysis completed on capex related to the Interconnected island option only; and more specifically, there was not a sensitivity analysis that showed the impact of capex to the ranges outlined in the Association for Advancement to Cost Engineering … standards for a Class 3 estimate, as discussed in the capital … section;

"From DG2 to DG3, there was an increase to the load forecast used under both the Interconnected Island Option and the Isolated Island Option. The accuracy of the load forecast is a known risk in the overall analysis. However, at DG3, there was not a sensitivity analysis completed on the load forecast to show the potential impact of a change in load forecast on the overall analysis; and

"The DG3 sensitivity analysis did not show a scenario where fuel prices decreased and capital costs increased." As the example that we looked at on DG2.

MS. O'BRIEN: Okay, thank you.

I think we're gonna get a little more information from Mr. Shaffer later on the Association for Advancement to Cost Engineering, AACE, but are you able to give us, for that Class 3 estimate, if you were going to give consideration to what those ranges were, do you know what they would be in terms of capital cost expense?

MR. MALAMED: Could you ask that question again?

MS. O'BRIEN: Certainly. Just here where your finding was there was not a sensitivity analysis that showed the impact of CAPEX to the ranges outlined in the AACE standards. Maybe Mr. Shaffer's –

MR. MALAMED: I believe it's minus 20 to plus 30 is the range.

MS. O'BRIEN: Okay. Mr. Shaffer, are you able to …?

MR. SHAFFER: I am.

I believe it was AACE18R-97 where it indicates for a Class 3 estimate, the accuracy range of the estimate was minus 20, meaning that you could have underruns or plus 30, meaning you could have overruns. And that's the range that they indicate in the recommended practice standard.

MS. O'BRIEN: Thank you very much.

Mr. Malamed, you noted here that obviously there was no sensitivities done on the load forecast. Do you know why that is the case?

MR. MALAMED: I do not know why.

MS. O'BRIEN: Okay. And do you know why there were no combined-factor sensitivities run at DG3 like we saw in the DG2 table?

MR. MALAMED: I do not know why.

MS. O'BRIEN: Okay.

MR. SHAFFER: Ms. O'Brien, may I point out something for the Commissioner?

MS. O'BRIEN: Oh yes, please do.

MR. SHAFFER: I think what's important, when you look at this table – and when I say this table, I'm talking about the one that was on page 55, that if you take a situation, for example, where CAPEX, one of the scenarios they ran, it goes up 25 per cent under both the Isolated and the Interconnected. You can see the impact of what it does to the CPW.

In that particular case, when you increase CAPEX 25 per cent under both scenarios, the Isolated Option goes up approximately $640 million, the Interconnected Option goes up $1.2 billion. So approximately a two-for-one ratio there, almost twice as much. So this indicates that for any increase in CAPEX would have a much greater impact on the Interconnected than it would for the Isolated.

The second thing to note, that if fuel drops, and that's about – if you take the PIRA fuel price low, you can see that the Isolated Option, the CPW there goes from about 10.8 billion down to 8.5 billion, so a drop of approximately $2.2 billion. Whereas, if you use that same assumption under the Interconnected, it goes from 8.3 – I'm sorry, I'm looking at the low – it goes from 8.3 down to 8 billion, a drop of about $366 million. So that's almost a nine-for-one difference in that scenario.

So I just want to point that out just to show the sensitivity of how fuel has on the Isolated and how CAPEX increases, or decreases for that matter, would have on the Interconnected in terms of what it could do to the numbers.

MS. O'BRIEN: And the same would be true for – you went and reviewed fuel price decreases, but the same would be true for fuel price increases as well. Is that right?

MR. SHAFFER: Well, yeah, I did analysis there and for fuel price increases – well, I just took their numbers is all I really did here, compared them. When you take the PIRA fuel price high, there's about a $5-billion increase in the CPW under the Isolated and about a $500-million increase of the CPW under the Interconnected.

Again, almost about – that's almost about a 10-for-one or nine-to-one difference, so indicating that fuel would have a tremendous impact, one way or the other, under the Isolated and CAPEX would have a greater impact compared to the Isolated – CAPEX would have a greater impact under the Interconnected when compared to the Isolated. So I just wanted to point that out for the Commissioner.

THE COMMISSIONER: Can I just stop you there for a second? For those people who don't understand when – the word “CAPEX,” can you tell me –

MR. SHAFFER: Yeah.

THE COMMISSIONER: – what that means?

MR. SHAFFER: Yeah, the – I mean in the – I would say in the simplest terms – I mean, the CAPEXs are capital expenditures, which is really the cost, for example, of the Muskrat Falls Project, the $6.2 billion that was estimated at sanctioning.

For the Isolated Option, it’s really the add-on of additional equipment to – of additional generation assets during the course of the period of the projections that were prepared by Nalcor under the CPW calculation. Truly, it’s the cost of equipment, basically, and the cost to build Muskrat Falls.

MS. O’BRIEN: Thank you.

Commissioner, we are just a short – we’re about 10 minutes away from the lunch break. The last substantive piece of work that I wanted to go over with Mr. Malamed before we turn to Mr. Shaffer is certainly expected to take more than 10 minutes.

So I’m in your hands, if you’d like to break now. Or if you’d like me to get started and at least get 10 minutes done, I can do that as well.

THE COMMISSIONER: Whichever you feel is the most appropriate.

MS. O’BRIEN: Then I’d like to break now because it would be preferable to me to just do that full piece at one time.

THE COMMISSIONER: Okay, well, let’s break now and let’s actually come back 10 minutes early. So we’ll start at 10 to 2, because that way we’re gonna try to finish by 4 o’clock, I think yesterday I indicated – or Tuesday I – Wednesday I indicated. So let’s not lose that 10 minutes. We’ll start a little earlier this afternoon.

MS. O’BRIEN: Thank you very much, Commissioner.

Recess

CLERK: This Commission of Inquiry is now in session.

THE COMMISSIONER: All right.

Ms. O’Brien, when you’re ready.

MS. O’BRIEN: Thank you, Commissioner.

Before we begin, I’m going to (inaudible). Oh, sorry.

I’m going to enter one further exhibit. That would be – I’m asking to enter Exhibit P-00244. Commissioner, this is the Standard Practices for Investigative and Forensic Accounting Engagements, that was referred to earlier today both in Mr. Simmons cross-examination and my direct examination of Mr. Malamed – sorry.

THE COMMISSIONER: I think this was what was referred to earlier this morning. So that would be entered then as numbered.

MS. O’BRIEN: Thank you.

Before we begin, Mr. Malamed, I’ll ask Madam Clerk to please bring up Exhibit P-00015.

Thank you.

Before we took the break, you had gone over the sensitivity analysis in your report that Nalcor had done and given us your findings with respect to this. The exhibit that we’ve just brought up on the screen is a memorandum dated September 10 of 2018, so earlier this month. It’s regarding sensitivity analysis on the CPW model. This relates to an extra scope of work that we asked you to do.

So can you please explain what that work was, what we asked you to do and what you have done.

MR. MALAMED: Sure.

The Commissioner asked us to do additional sensitivities with regards to changes to the CPW model in terms of capital expenditure and or fuel costs, which we prepared. But before I go into it, I think it makes more sense to discuss the options – the assumptions that we made.

MS. O'BRIEN: Okay, thank you.

Madam Clerk, before we begin, can you just scroll down there so people can read the background and summary that's there. Okay.

So this sort of summarizes the scope of work. But you've asked us, Mr. Malamed, to go to the assumptions. And I believe they're found on page 5, Madam Clerk.

MR. MALAMED: Correct.

MS. O'BRIEN: So if you could just bring those up into view.

All right, please go ahead.

MR. MALAMED: The first assumption in preparing our analysis is that: "The effect that a Model Input has on the CPW Model is based on the Nalcor Sensitivity Models." So we have mirrored the sensitivity analysis and used that as our assumption.

"We have assumed that the Model Inputs that were used in the sensitivity analysis … were appropriate." That's assumption number 2.

Number 3 is: "We understand that Nalcor used more complicated models to determine the impact of capital expenditure changes to the Labrador Island Transmission Link … and Muskrat Falls … model input amounts in the Power Purchases component of the CPW Model. In performing our analysis for scenarios which the Nalcor Sensitivity Models did not account for" – for example, Capex plus 50 and plus 75, "we have made the simplifying assumption that it would be reasonable for the purposes of a sensitivity analysis to assume a linear relationship (using simple linear regression) between the LITL and MF amounts in the Power Purchases component of the CPW Model and the capital expenditure changes, based on the outputs of the Nalcor Sensitivity Models."

What that means is that we have assumed linear regression, and if we think about a straight line curving upwards and dots above and below that straight line, you would draw the straight line and close to it, to be able to do those estimations.

MS. O'BRIEN: Okay.

LITL, that's the Labrador-Island Transmission Link?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, thank you.

And MF is Muskrat Falls, I guess, as we all know.

Okay. So just to make sure that we understand what you're doing here; so you have been able to do some further sensitivities using Nalcor's data that they used for their CPW calculation.

MR. MALAMED: Correct.

MS. O'BRIEN: However, for certain of the capital cost sensitivities, you made a – like a simplifying assumption that it was a linear –

MR. MALAMED: Correct.

MS. O'BRIEN: – a linear relationship; whereas, Nalcor had used a, somewhat a bit of a more complicated model, as you say here.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay, thank you.

And we're gonna get into the sensitivities that you did run and get you to present those, but was there a limit to the sensitivities you could run? For example, were you able to run sensitivity on load forecast?

MR. MALAMED: We were not able to run sensitivity on load forecast because of the detail – the complexity of the detail.

MS. O'BRIEN: Okay. All right.

So we'll go through the ones that you were able to do. And we'll – probably the best presentation, would that be on page 2?

MR. MALAMED: Let's start with page 2.

MS. O'BRIEN: Page 2, please, Madam Clerk.

MR. MALAMED: I'd like to first look at – and I'm going to try highlight it. This one over here, can we just scroll down a bit and try to get it all on one page?

So – perfect. Thank you.

If we look at the base, this is really where we're starting off. And what this illustrates is you'll see the orange – the orange dot is the Isolated Island price, the CPW price. The blue represents infeed or the Interconnected, and you can see that the Isolated is higher than the Interconnected.

As we move along the line we start to increase capex. The first one by 25, by 10, then by 25, then by 50 and by 75. And what you'll see is the two dots are actually starting to go together which means that fuel has an impact that almost puts the cost together as – at that 75 per cent that we're looking at.

If we do it the other way now where we start to look at the baseline again, now if we start to decrease, that the fuel starts to drop, we'll start to see the dots starting to go almost together to the point of where we see minus 50 for fuel and still the base case, and we can see that it's almost overlapping.

To do multiples – and one of the things that we discussed was doing fuel plus or fuel and two different variables – we can again start off with the base case and now we can choose, for example, a drop down of fuel. So fuel to 20 per cent, minus 20 per cent, and we can go along the line again, increase in capex.

If we go forward – can we go forward one slide, or one page – this is an illustration of some of the circles from the prior graph. What this shows is the timeline of spending. And the orange line represents the Isolated and the blue line represents the Interconnected. And you'll see with the different variables, the distance between them and the growth.

If we go to the next page, what you've seen in graph form can also be looked at in dollar form. So, below, are the outputs of the CPW model, in the Infeed or the Interconnected and Isolated scenarios under various assumptions for fuel price and CAPEX. And what we just saw, as I said in the illustration on the chart with those circles, are these numbers that are behind it.

If you go down a bit more, you'll see – this is what we relied on in performing our analysis. And we do note that we have not verified the accuracy of Nalcor's models as part of the work performed for sensitivity analysis that's addressed under this memo. And this analysis is not intended to provide any commentary on the validity of the models themselves, but just for illustration.

MS. O'BRIEN: Okay. Thank you.

So if we could maybe go back to page 2, Madam Clerk, and make sure that I – you know, it's clear. So when you look at what you refer to as the base case scenario – so if perhaps you could just highlight that for our – thank you. So am I understanding this correctly? This was based on the DG3 models?

MR. MALAMED: Correct.

MS. O'BRIEN: So the difference in terms of dollar value between the centre of the orange circle and the centre of the purple circle would be 2.4 billion. Is that right?

MR. MALAMED: Correct. Correct.

MS. O'BRIEN: Okay.

So, then, as we move along that line there, that's where we're showing the fuel cost staying the same – the fuel estimates staying the same, but an increase of capital expenditure costs.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

And so we see – even when you increase the capital expenditure to plus 75 per cent – so an increase by 75 per cent – the Isolated – the – sorry, the Isolated Island is still a little bit more expensive than the Infeed, or a little bit higher CPW than the Infeed, but not by very much.

MR. MALAMED: That's right.

MS. O'BRIEN: Those circles are almost overlapping, but not quite.

MR. MALAMED: That's right.

MS. O'BRIEN: Okay.

And then, likewise, if we go back to the base case and we move along the column on the base case, when we go up that column, we see when we increase – so now we're gonna hold the CAPEX the same?

MR. MALAMED: Constant, yes.

MS. O'BRIEN: Okay. And then when we increase the fuel by 20 per cent, we see the gap between the centres of the circles gets bigger.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

And then as we go down we see, at fuel minus 40 per cent, they're almost on top of each other, but the Isolated Island is still a little bit higher CPW?

MR. MALAMED: That's correct.

MS. O'BRIEN: And then by fuel minus 50 per cent it looks like they're lying right on top of one another.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

And so then we see – when we get to the – where we're – they're approximately the same CPW for both options is also at – if you increase the CAPEX by 10 and – but – and the – and you decrease the fuel by 40 per cent. Is that right? So that would be – I don't – I'm not able – can you go to the circles –

MR. MALAMED: Yes.

MS. O'BRIEN: – where it's CAPEX increase 10 per cent, fuel decrease 40 per cent? So in that scenario we almost have the same CPW.

MR. MALAMED: Correct.

MS. O'BRIEN: Approximately and, likewise, at fuel less 30 per cent, CAPEX plus 25 per cent.

MR. MALAMED: Yes.

MS. O'BRIEN: Okay, so that's another one where we're kind of right at that point where we move from one – you know where the CPWs are approximately equal and, likewise, fuel minus 20 per cent and capital expenditure plus 50 per cent.

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

And then we can see in the majority of the scenarios that are here the Isolated Island is still the higher CPW?

MR. MALAMED: That's correct.

MS. O'BRIEN: And – but in some of the cases that we have here – do we have one – do we have – maybe not very many but we have at least at minus – fuel minus – we have a few cases, I think, here along the fuel minus 40 line where we have – that it's reversed –

MR. MALAMED: That –

MS. O'BRIEN: – the infeed is –

MR. MALAMED: That's correct.

MS. O'BRIEN: Okay.

Also, in the fuel minus 50 we have a couple of those scenarios. That's the column – the row I should have selected.

Okay. Thank you.

I think that's understandable. Can you explain why you've used circles instead of dots?

MR. MALAMED: Just to be able to see it clearer.

MS. O'BRIEN: Okay, all right.

Okay, is there anything else you wanted to add to your evidence on this exhibit?

MR. MALAMED: Not at this point.

MS. O'BRIEN: Okay. Thank you.

So, Mr. Shaffer, we'll now shift to you. I'll ask you to turn on your mic. Thank you very much.

And, Madam Clerk, could you please bring up Exhibit P-00135, which is the slide show, again?

And I think Mr. Shaffer will pick that up at – yes, slide 32, Mr. Shaffer.

MR. SHAFFER: Okay.

Our third finding is that Nalcor may have understated the CPW for the Interconnected Island Option. And it was really based on three findings: The first is that Nalcor excluded $500 million of strategic risk from the capital cost estimate and, hence, it was also excluded from the CPW calculation; the second is that Nalcor selected a P50 – which we talked about previously and I'll go into it more further on – in calculating the tactical contingency which may have understated the CPW; and the third reason is that in 2017 operating and maintenance costs were increased from 34 million to $109 million annually for the Interconnected Option, about an increase of $75 million annually, ignoring inflation over the term of the projections. I realize it was 2017, but it raised a question in our minds whether or not that was something that could have been known back in 2012 at sanctioning or when the CPW was ran.

Mr. Malamed already testified of what are the inputs into the CPW calculation and I'm going to be talking about the capital cost estimate here. And because it's such a major input into the Interconnected Option, we thought it was obviously something we needed to look at pretty closely.

So the question is: What's made up of the capital cost estimate? And the capital cost estimate is made up of really three components; one is the base estimate which is – basically that was prepared by – 70 per cent of it was prepared by SNC-Lavalin and the balance, as I understand it, by Nalcor, with input from – the work that SNC did, I assume there was input from the folks at Nalcor.

The second item is the estimate contingency which is made up of two buckets, so to speak: One is the tactical risk as Nalcor defines it, and the other is the strategic risk, which was excluded from the CPW calculation because it was not part of the capital cost estimate.

And, then, the third item that makes up the capital cost estimate is the escalation allowance. And when we talk about escalation, what we're really talking about there is changes in price levels driven by economic conditions. So a way to think about that in the – the way to think about it is a dollar today is worth less than a dollar two years from now. It could be $1.20 two years from now. And that would be escalation, for example, inflation, there's other microeconomic factors, potentially macroeconomic factors as I understand it – was explained to me from a – from John Hollmann.

In addition to other things that we looked at that defined escalation – and what Nalcor defined as escalation as indicated on page 56 of my report. They defined it as "provisions for changes in price levels driven by economic conditions, including inflation." So basically, just a change in price levels as you go along the time line, further you get out, further down the road, things are going to be more expensive. That's escalation.

The capital costs estimate at sanctioning totaled $6.2 billion. And what the makeup of it was, was commitment packages, which was really the 150 or so work packages that were put together, about 4.6 billion. You had the EPCM service contract which is the engineering, procurement, construction, management. Originally, it was SNC-Lavalin. That was built into this estimate. Then it was general conditions and then owners' costs for other items that was included to get to a base – a subtotal of 5.473 billion.

Then, on top of that, escalation was added of 361 million, and finally, the contingency, which again was a tactical contingency, not the strategic, at 368 million, which represents approximately 7 per cent of the subtotal of the base estimate of $5.5 billion. Totalling that up, that's the $6.2 billion that was the capital cost estimate at sanctioning and what was used for the CPW calculations, as I understand it, for the Interconnected Option.

So lets – any questions so far?

MS. O'BRIEN: No, fine. Thank you.

MR. SHAFFER: Okay.

So let's talk a little bit about strategic risk. Nalcor defined it as – strategic risk as risks that are outside the control of the project team, consisting of really three basic items. One was competition for resources, which from a dollar amount that they – it was calculated to be another exposure, potentially of $50 to $270 million. A performance risk due to weather and the remote location impacting labour productivity, which was calculated to be anywhere from zero to $350 million, and then finally schedule risk as to when, in terms of first power, when that would occur, and that was anywhere from zero to $400 million.

Nalcor also indicated, in the sanctioning documents – was the way it was explained to us – that the exposure – the strategic risk exposure here, those three items – was to be held in management reserve and not to be part of the capital cost estimate and that those dollars were to be controlled by the shareholder along with the Gatekeeper.

In our discussions with John Hollmann of Validation Estimating, Mr. Hollmann felt that most of these risks had 100 per cent probability of occurring and that some of this money was expected to be spent and, as such, should have been included in the capital cost estimate.

MS. O'BRIEN: Sorry, you're saying it should've – his – what he advised you was that it should have been included?

MR. SHAFFER: Yes, because he – because of the fact they were going to occur, in his opinion, that they should have been included and funded.

MS. O'BRIEN: Okay.

Before you go on, you did mention the Gatekeeper, and I know that Mr. Malamed already said to us this morning that, at this time, that would have been Mr. Martin as CEO of Nalcor. You've just mentioned shareholder. Can you explain to us when you're referring to shareholder, who are you referring to there?

MR. SHAFFER: I'm assuming it's the Government of Newfoundland, because I understand that Nalcor is owned by the government.

MS. O'BRIEN: Okay, thank you.

MR. SHAFFER: One thing I wanted to point out on the schedule risk is that based on the analysis that was done by Westney and Nalcor, that there was a P1 factor included in the schedule risk, meaning that on first power, being July 1 of 2017, that was projected, that, based on the documents that I looked at, there was a 1 per cent chance of hitting that first power date.

We looked into that further, and we felt – and it was indicated on pages 64 and 65 of the report. We notice that there was – in the document production, there was an email from Paul Lemay to Jason Kean that – if we go to lines 19 through 24 –

MS. O'BRIEN: Perhaps just – Mr. Shaffer, I'll help – I'll bring that up so that people can see what you're referring to.

MR. SHAFFER: Okay.

MS. O'BRIEN: Can you please bring up Exhibit P-00014 –

MR. SHAFFER: Sure.

MS. O'BRIEN: – please, and go to page 65.

MR. SHAFFER: I'm sorry.

MS. O'BRIEN: Was it 65 or 64 that you wanted …?

MR. MALAMED: Sixty-four.

MR. SHAFFER: Well, 64 and 65 –

MS. O'BRIEN: Okay.

MR. SHAFFER: – is where we talk about Paul Lemay and what the project team told us about – that they suggested an allowance that would be funded because of low probability that the first power date would be met.

And based on what we were told, and based on documents that we've seen, that it was suggested to the Nalcor executives that that would take place, and it was decided not to. It was to, really – as was in the documents, and from what I recall, to hold the contractors' feet to the fire to that date, was why it wasn't funded, as I understand it.

MS. O'BRIEN: So just to be clear, you're saying that the July 1, 2017, first power date that was used – you're saying that was – based on the documents you reviewed – a P1 estimate. So that is – if I'm remembering what you advised us this morning, that was a 1 per cent chance of meeting that date and a 99 per cent chance of, essentially, not being ready by that time.

MR. SHAFFER: Correct. That was in the documents. That was part of the Westney package. That was part of the sanctioning documents.

MS. O'BRIEN: And Westney, being Westney Consulting Inc., who was the risk advisor to Nalcor?

MR. SHAFFER: Yes.

MS. O'BRIEN: Okay.

You mentioned two names there, Mr. Shaffer. Paul Lemay – so I just want to clarify for people, Paul Lemay was an estimator with SNC-Lavalin Inc. Is that correct?

MR. SHAFFER: He was the lead estimator for this project for SNC, yes.

MS. O'BRIEN: Okay.

And Jason Kean, who you also mentioned, he was – he's one of the consultants but is on Nalcor's project management team. Is that right – or he was at the time?

MR. SHAFFER: He was at the time. He was, I believe, I think he might have been the deputy project manager. I just don't recall.

MS. O'BRIEN: Thank you.

MR. SHAFFER: But he was very – he was involved in this.

MS. O'BRIEN: Okay.

MR. SHAFFER: Should I continue with what the email said?

MS. O'BRIEN: Yes. Please go ahead.

MR. SHAFFER: Okay.

So I'm on page 64 of the report and pages – lines 19 through 23 where Mr. Lemay indicated: "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."

That's one thing. The other thing I wanted to point out is on page – I believe it's page 65.

I've – what line is that, Dave, did you say –?

MR. MALAMED: (Inaudible.)

MR. SHAFFER: No, I'm sorry, it's lines 32 through 37 that – I take that back. That's not the right quote. I'm going to have to find it for you at this point. I apologize, but basically the project management team – and it's in the report – suggested an allowance because of the low probability that first power would be met, as I testified to previously.

MS. O'BRIEN: Okay.

Would you like to go back to your PowerPoint presentation at this point?

Mr. Shaffer, would you like me to take us back to the PowerPoint presentation?

MR. SHAFFER: Sure, sure.

MS. O'BRIEN: Okay, I think we're at slide 38.

MR. SHAFFER: We asked John Hollmann from Validation Estimating about the strategic risk as to whether or not he's seen it in other risk analysis, and he indicated – in a megaproject, he indicated yes. He also indicated it should be funded.

We also asked Mr. Hollmann, if strategic risk wasn't included in the estimate, would you get a skewed result of that estimate? And he indicated: No, you'd get the wrong result. That you don't not fund the risk until you have 100 per cent probability in occurring – of occurring and that he put that in his report in 2012 that went to Nalcor and, in particular, Jason Kean received that report and that the was concerned that they, meaning Nalcor, was not including a risk in the estimate – in the total capital cost estimate.

MS. O'BRIEN: Okay, so you have mentioned John Hollmann, so he works with or is a principle at Validation Estimates [sp Validation Estimating]?

MR. SHAFFER: Yeah, John Hollmann is at Validation Estimating and he was involved in working with Nalcor in looking over at the – looking at the base estimate, in addition to working with them on the escalation bins – escalation provisions.

MS. O'BRIEN: Okay, thank you.

MR. SHAFFER: Now, what's interesting to note is that Nalcor calculated strategic risk to be $500 million using a P-factor of P50 and Westney, in their presentation, also had a range of going from – I think it was from P10 to P90 and at a P75, the strategic risk exposure they calculated to be $633 million and at P90 they calculate it to be $806 million. Nalcor chose the P50 and, as a result, a $500 million strategic risk exposure.

And as I already testified to, we know it was excluded from the capital cost estimate and the CPW calculation for Muskrat Falls. And, as a result, because of excluding that, that may have resulted understating the CPW for Muskrat Falls – for the Interconnected Option.

MS. O'BRIEN: Mr. Shaffer, could you just give us a little bit more information as to how that 500 million potential exposure was calculated?

MR. SHAFFER: Sure.

Well, as I understand, both contingencies were – meaning tactical and strategic – were calculated using risk ranging. That Westney – that the project team and Westney would basically identify a risk in the project, and then do a risk range. So for example, take a particular risk, it could be anywhere from a $100 to $300 million exposure. And these numbers are being determined by Nalcor.

And so they go down and they have a risk – you know, identify a certain risk, what the potential exposure would be. That – those numbers then are fed into our Westney's Monte Carlo simulation model and they would run their numbers. And at that point they would then issue – the deliverable would be a curve, a graph – an s-curve, so to speak. And – I think it's an s-curve; I'd have to look at the document again. But it's a curve – a graph – that basically gives the ranges for the tactical and for the strategic risk based on those inputs, as I understand it.

MS. O'BRIEN: Okay, thank you.

It may be helpful – we do have one of those curves in the report, I believe. If we bring it up for – page 61 of Exhibit P-00014, Madam Clerk. This is – I think we'll see why you would just refer to it as an s-curve. Are you able to make that a little bit bigger, Madam Clerk? Just so that we – okay, so Mr. Shaffer, this is what you were referring to? This is, I believe, the one for strategic risk.

MR. SHAFFER: That's the strategic risk one, yes. And what went into that also were other worksheets where – that was prepared by Westney – that had a range of what the exposure was that I testified to earlier for each strategic risk that was identified

MS. O'BRIEN: Okay.

So when you talked about that risk range and the various dollars amounts – so I just wanna make sure that we're clear on the evidence – but that a risk would be identified and for the case of strategic risk we'd be talking about a dollar amount in the range. Is that what we'd be looking at?

MR. SHAFFER: Well, for tactical too for a particular risk –

MS. O'BRIEN: Okay.

MR. SHAFFER: – it would be the same thing.

MS. O'BRIEN: Okay. For –

MR. SHAFFER: There would be a low –

MS. O'BRIEN: – schedule it would be days –

MR. SHAFFER: There would be a low and a high. For the schedule there was a day risk (inaudible).

MS. O'BRIEN: Okay.

So for the risks amount it would be a dollar amount, so there would be a range. So just say it was zero dollars for – that would be the low end of the range, so that would be a best-case scenario for that risk. And then high end of the range, just say 300 million, or what it is, that would be for the worst-case scenario of that risk. Am I understanding that correctly?

MR. SHAFFER: Yes.

MS. O'BRIEN: Okay.

And then the Monte Carlo simulation does a probability – it's a probability, mathematical analysis.

MR. SHAFFER: Yes.

MS. O'BRIEN: Okay, so you see how it may turn out somewhere in that range based on random numbers being generated.

MR. SHAFFER: However the program works.

MS. O'BRIEN: Okay.

MR. SHAFFER: I don't pretend to be an expert in the program.

MS. O'BRIEN: That's fine. And we will hear from people later on who can explain that to us a little bit more.

Okay, so in terms of coming up with those dollar amount – you know, the worst-case, best-case ranges for the various risks. Who came up with those numbers or how were those – who decided what those numbers would be?

MR. SHAFFER: My understanding is that it was Nalcor. It was a collaborative effort though, as we were told by the Westney – by Richard Westney. But Nalcor was the one that was deciding the ranges, as I understand it.

MS. O'BRIEN: Okay.

So is it fair to say that the accuracy of the $500 million strategic risk that comes out – came out of this calculation would be dependent on the accuracy of the ranges that were inputs to the calculation? Is that a fair characterization?

MR. SHAFFER: Sure, because that's what's driving the outputs. Yes.

MS. O'BRIEN: Okay.

Thank you.

Madam Clerk, you can return to the slide presentation. Thank you. I think we're at slide 39.

MR. SHAFFER: Right, I already testified to this.

MS. O'BRIEN: Okay.

MR. SHAFFER: So let's go to slide 40.

We interviewed Gilbert Bennett back in April of 2018, and the question really was: Why was strategic risk left out? And what we were told, that in the view – and when he said view that's actually, he said, Ed's view – was that he did not want to include the additional funding in the project estimate, didn't want to telegraph to the contractors that there was lots of funding.

The other thing that he said with the message to us, meaning – I mentioned him and the project team, and who else was involved – and everyone, was that if the issue arises, we'd make the funds available in order to complete but would not simply put the funding within the control of the project team. And the rationale there, based on my understanding of the – well, I wasn't at Mr. Martin's interview, but based on what I was told – is that Mr. Martin did not want to, you know, make those dollars available to the project team, to really hold their feet to the fire.

MS. O'BRIEN: Okay. Thank you.

MR. SHAFFER: Yeah.

MS. O'BRIEN: So just to be clear, when we look at slide 40, the Nalcor employee interview, the person being interviewed here was Gilbert Bennett –

MR. SHAFFER: Yes.

MS. O'BRIEN: – who was the vice president of the Lower Churchill Project at the time, and when – and these quotes are from Mr. Bennett, and the he that Mr. Bennett's referring to in these quotes is Ed Martin. Is that –?

MR. SHAFFER: Yes.

MS. O'BRIEN: Okay. Thank you.

MR. SHAFFER: So let's move on to tactical risk that was included in the project estimate. As defined by Nalcor, tactical risks are associated with the base capital cost estimate as a result of uncertainty with the following: project definition scope and omission; construction methodology and schedule; performance factors and price excluding escalation.

In calculating the tactical risk exposure of the contingency that was included in the estimate, Nalcor chose a P50 and, as I testified to earlier and as Mr. Malamed testified to, that the P-factor's a probability of an event occurring. Meaning that at a P50, there's a 50 per cent chance the project costs would be at or under budget or a 50 per cent chance it would be over budget.

The higher the P-factor, the higher the capital cost estimate, hence, the higher the contingency which lowers the risk of overruns. So at P75, there's a 75 per cent chance that the costs will be at budget or less and a 25 per cent change that there will be an overrun. So again, the higher the P-factor, the bigger dollars are being budgeted.

Nalcor selected a P50 to calculate the tactical contingency. The P50 contingency was calculated to be $368 million. Had Nalcor calculated a P75 – and we were told – this is where I wanted to quote, on page 65 of the report, lines 32 to 37: we sat in a presentation on May 11 with the project team – by a former member of the project team who – and that was Jason Kean – who demonstrated that a DG3 estimate of 6.2 would have been $75 billion – $7.5 billion – or $1.3 billion higher after adjusting for identified strategic risk using a P75 rather than a P50 that was used to quantify the management reserve. And that was based – and that was – came from his presentation that he gave Mr. Malamed and myself.

He said that this was reiterated by the project team to provide a project support for the sanction decision. In this binder it was stated that if P75 recommendation from 2012 quantitative risk assessment had been selected as the sanction cost basis, the sanction basis would have been $7.5 billion.

MS. O'BRIEN: Okay. So just to make sure that we're clear on this, this is Jason Kean who is a member of the project management team. This is information that he provided to you, and he was saying that if we'd – if they'd used the same analysis that they used in 2012 but instead chose a P75 level and included strategic risk, the estimate would have been 7.5 billion?

MR. SHAFFER: Yes.

MS. O'BRIEN: Okay. And of course that would mean, you know, using the same risk ranges and all that that they did use, to get their P50 number for the tactical and as well the 500 million for the strategic. Is that right?

MR. SHAFFER: That's my understanding, yes.

MS. O'BRIEN: Okay. Thank you.

MR. SHAFFER: So the question was asked – oh, can we go back to the presentation please? The PowerPoint?

The question was asked, again, of Mr. Hollmann: is this consistent with best practice – P50 – meaning a P50. He felt that P50 was extremely aggressive and that it made sense for companies that had a portfolio of projects because some would be under – he felt that some would be under the P50, there'd be underruns on some, overruns on the other and it would all wash out at a P50 in the end.

But he said that for a megaproject like this, one project that is a megaproject that is the company, that he thought the P50 was extremely aggressive and that he didn't know any company that would fund a single major project like this at P50, and that he felt the best practice was somewhere between P70 and P90 for these types of megaprojects. He also indicated that when he worked for the Department of Energy they were funding it at P90 and that Suncor used to fund at a P70. So he felt that the P50 was pretty aggressive.

Additionally, we asked Normand Bechard – I'm getting the name right – and another gentleman, whose name escapes me right now, from SNC-Lavalin, what did they think about P50. They thought it was aggressive, that they typically see it at P85.

And then we spoke to Derek Hennessey, our consultant that we brought in on this, and asked him: What does he see his clients do at megaprojects like this? And he said P75 is what he's seeing.

So selection of the P50 potentially has understated the contingency and ultimately would understate the CPW for the Interconnected Option.

MS. O'BRIEN: What if – but if Nalcor had been consistent in their selection of a P50 for both the Interconnected and the Isolated Island – so if they'd done the same for both options – would that then have been essentially awash? Would it have made a difference when you're comparing the two options against each other?

MR. SHAFFER: Well, we did look at that, and what we found is that we looked at the capital cost that went into the Isolated Option. They eventually wound up into the CPW for the Isolated. We looked at about, approximately 80 per cent of those costs. And, on average, we saw that Nalcor calculated – on an average – a 16 per cent contingency included in the CPW for the Isolated Option. Which, of course, raised the question: Why would it be 16 per cent for the Isolated but yet only 7 per cent for the Interconnected in a project that is, no doubt, much larger and has more risk?

MS. O'BRIEN: So based on that, did you find any evidence that Nalcor did use a P50 estimate for the Isolated Island Option?

MR. SHAFFER: In the thousands of documents that were reviewed and in the interviews that we took, nothing that would cross our desk that indicated that Nalcor went through the same sort of risk analysis in terms of doing a low and a high and feeding into a Monte Carlo simulation and then determining what the contingency would be at various P factors for the Isolated Option, nothing came to our attention.

MS. O'BRIEN: Okay. Thank you.

MR. SHAFFER: Okay.

MS. O'BRIEN: Please continue.

MR. SHAFFER: One of the inputs into the CPW was operating and maintenance expenses. In 2017, Nalcor estimated operating and maintenance costs for Muskrat Falls would increase from 34 to $109 million annually, starting in 2020. And based on Nalcor's response to our question, there are really four categories of why they felt the need to be increased: one was industry benchmarks; one was new Nalcor organizational structure; new operating philosophy; and new knowledge of maintenance requirements.

Of course, all it does for us, it just raised the question in our minds was – could any of this have been known back when the CPW was calculated back in 2012? And that's why it's one of the findings that we have here. I did a back-of-an-envelope calculation, if you take $75-million difference at 7 – at over 50 years, give or take, ignoring inflation, at a 7 per cent discount rate, it's about a billion dollars in today's dollars.

So when we looked at it in our conclusions here, we're saying the project operating and maintenance costs for Muskrat Falls may have been understated at time of sanctioning, and that may have resulted in an understatement of the CPW for Muskrat Falls. And that a higher CPW for Muskrat Falls may have led to a different decision at sanctioning.

So to recap, our finding is that Nalcor may have understated the CPW for the Interconnected Island Option because of excluding strategic risk from the capital cost estimate using a P50 factor for the contingency that they did include in the capital cost estimate. And, finally, for the increase in operating and maintenance costs that potentially – I'm not saying should have – well, I'm not saying that these facts were known at the time of sanctioning, but it raises the question whether or not they were or not. And, as a result, that's the third basis for our finding.

So, finally, in conclusion for all the findings – at least the three major findings – that Nalcor may have inappropriately eliminated the two options that Mr. Malamed testified to; Nalcor may have overstated the CPW for the Isolated Island Option that Mr. Malamed testified to; and, finally, Nalcor may have understated the CPW for the Interconnected Island Option, which I just testified to.

MS. O'BRIEN: Okay. Thank you.

I have a few questions for you, Mr. Shaffer.

One is you talked about the first power schedule date that was used at being a P1 date. Had a P50 date been used for schedule, could that have had any impact on the CPW results? So I'm talking about for the Interconnected Island Option, instead of using the P1 date for the CPW calculation, if they used a P50 expected date, similar to what they did for the tactical contingency, could that have impacted the results of the CPW calculation?

MR. SHAFFER: I would think it would because what it's doing is that you're moving that date further down the timeline. And as a result, you're to have the very least escalation that would have to be taken into account for the additional costs you're going to incur as a result of moving that timeline down another – well, however number of months that was.

Westney indicated on their slide that there's potential exposure of a delay of from 11 to 21 months. So based on that, I mean if it's 11 months delayed up to 21 months delayed, then the answer: Of course, it would increase costs potentially and, as a result, the CPW would go up.

MS. O'BRIEN: Okay.

A few – I think that was the last of your slides. I do have a few questions on the presentation for you, Mr. Shaffer, so if – Madam Clerk, if you could please bring up P-00014.

First, a fairly straightforward question, I believe. If you could go, please, to page 63 and it's a line there at line 24, 25, 26, the last sentence on that page, Mr. Shaffer. If you – when I read it I wasn't sure I was understanding the meaning clearly. Could you just read that paragraph and then explain for the Commissioner exactly what it is that you were writing about there?

MR. SHAFFER: Sure. Should I read it out loud or …?

MS. O'BRIEN: Go right ahead.

MR. SHAFFER: Okay.

Performance, we're talking about performance risk: "Performance risk exposure relates to labour productivity, which can be impacted by a number of factors such as weather, location, etc. The DG3 Project Costs and Schedule Risk report notes that the rates used in the estimate and contingency were much better than what was currently being expected in Long Harbour; a project ongoing in Newfoundland at the time."

And, so when we talk about rates, that's productivity rates. And as a result of that – and the way I took this to mean – is that the estimate, the base estimate, had better productivity rates than was actually happening at Long Harbour at the time. And, as a result, there was a dollar provision that was pegged at – from zero to $350 million in the event that there was more work hours than estimated that was required to complete the work.

MS. O'BRIEN: Okay, so that would've been included as one of the considerations when they were looking at the strategic risk calculation?

MR. SHAFFER: That was one of the items, yes.

MS. O'BRIEN: Okay.

And so productivity rate, really, how efficiently people are doing their work, how much work they're getting done in the run of a day essentially.

MR. SHAFFER: How many hours for the task.

MS. O'BRIEN: Okay. Thank you.

On page 56 of the report, you've already – sorry, page 67 – sorry, Madam Clerk, page 67 – you've already explained to us what escalation is and I thank you for that. In this section of your report, you give your conclusions with respect to the amount that was included in the estimate for escalation.

So you mentioned earlier that the total estimate included a base-estimate amount, an escalation-cost amount and a contingency-cost amount. And you explained what escalation is, but just – I know you looked at what Nalcor had included for escalation, and I just wanted to – you to tell the Commissioner what your findings were with respect to that element.

MR. SHAFFER: Only that escalation on the contingency amount, we didn't see it being included as part of the capital cost estimate at DG3, the $6.2 billion. And our only finding here is really that we felt that the escalation was prepared in best practice, aside from the fact it was not applied to the contingency.

But, again, the last sentence, as we say here is: "While this is a finding, it is not expected to be material enough to change the decision," assuming all other things were being equal at the time.

MS. O'BRIEN: Okay, so there was no contingency applies to escalation, but all other things being equal, that wouldn't have been a significant dollar enough amount to change the scope.

MR. SHAFFER: No, there's no escalation being applied to contingency.

MS. O'BRIEN: Okay. Thank you.

MR. SHAFFER: Okay.

MS. O'BRIEN: Just quickly, with respect to the base estimate, if we could go to page 56, please, Madam Clerk. And it's line 13 I want to ask Mr. Shaffer about.

So here we see this – maybe we could just go to that graphic just for a second before I ask the question. So this is a graphic that shows – I think you showed it a little differently in your slide presentation. But on this page of your report, it breaks out the three elements that we've been speaking to.

At line 13, it says: "While SNC prepared approximately 70% of the base estimate, they were not asked to calculate the contingency and the escalation allowance." I just want to clarify there; SNC-Lavalin Inc., when you're talking about doing 70 per cent of the base estimate, was that just for the Interconnected Island Option, the Muskrats Falls Project, or was that also for the Isolated Island Option?

MR. SHAFFER: SNC, the 70 per cent is related to the Interconnected Option; however, SNC was also involved not – it doesn't seem to us to be a great extent, but they were one of the consultants that was used for the Isolated Island Option also.

MS. O'BRIEN: Okay. Thank you.

If we could please go to page 11 of the report, please, Madam Clerk.

There's a section here on Steering Committee. I don't know – I'd like – I don't know whether this is better for Mr. Malamed or Mr. Shaffer, but if one of you could just review, for the Commissioner, the work you did with respect to the steering committee and what is your findings that are set out here at page 11.

MR. MALAMED: Sure.

MS. O'BRIEN: Mr. Malamed, can you please sure on your mike? Thank you.

MR. MALAMED: Sure.

MS. O'BRIEN: Thank you.

MR. MALAMED: Maybe I should start with: "As part of the decision gate process an external assessment was performed (July 2008) by Independent Project Analysis Inc. … Among their recommendations it was noted that the project lacked a formal steering committee and that mega projects without a steering committee have worse team development and poor operability.”

As a result, “Nalcor drafted a Steering Committee Project Charter document … to establish guidelines and requirements of the steering committee in relation to the Lower Churchill Project. The Steering Committee Project Charter defined the agreed purpose” – the – “scope and member composition for the LCP Steering committee and noted that the committee will be developed to provide overall guidance and advice to the LCP as it progresses through Gate 2 up to full power ….”

We asked Nalcor, formally, in terms of the steering committee. And in response to the question, Nalcor advised us that a Decision Gate 2 steering committee endorsed the acceptance and readiness of the DG assessment process, but Nalcor also indicated that at DG3, the LCP executive committee endorsed the recommendation and endorsement and approval of readiness of the DG assessment process. However, during a presentation from the Muskrat Falls Project team, given to Mr. Shaffer and myself on May 31 2018, we were told that the draft Steering Committee Project Charter was never finalized, and that no overarching Steering Committee was ever formed.

So the LCP project team noted that while there was no overarching Steering Committee, Nalcor’s LCP executive committee reviewed and signed off on DG3 support package.

MS. O’BRIEN: Okay. Thank you.

When you’re referring to the Muskrat Falls Project team that you interviewed on May 31, 2018, are you able to advise the Commissioner the names of the individuals that you’d be speaking of?

MR. MALAMED: Yes.

MS. O’BRIEN: Okay. Please do.

MR. MALAMED: I’m gonna have to get the list of the people, so I’m gonna have to come back with a full –

MS. O’BRIEN: Okay. Thank you. We can probably do that on the break, which we’re coming up to.

Thank you very much.

Next, also on page – starting on page 11, and then going into page 12, you have some findings and observations with respect to the Independent Project Review. So just a few minutes ago, you spoke about Independent Project Analysis Inc.

MR. MALAMED: Right.

MS. O’BRIEN: And I understand that was an outside consultant that was retained by Nalcor. Is that correct?

MR. MALAMED: Correct.

MS. O’BRIEN: Okay. And that’s different than the Independent Project Review team, I understand?

MR. MALAMED: Correct.

MS. O’BRIEN: Okay. Can you just tell us what was the Independent Project Review or project review team?

MR. MALAMED: So, Nalcor’s Gateway process, it references reviews conducted by third party experts. One of the reviews – one of these reviews was done by the Independent Project Review, and the role of the IPR team – the Independent Project Review team – IPR for short – was to provide a cold eyes review of the work performed by the project to ensure the validity and assess the readiness of the package prepared to proceed to the next phase. The IPR team was to include external individuals and permitted Nalcor personnel that were not directly involved in the LCP to the part of the team.

MS. O’BRIEN: Okay. So not directly involved in the Lower Churchill Project?

MR. MALAMED: Correct.

MS. O'BRIEN: Okay.

MR. MALAMED: Our findings was that: "We note that one of the IPR team members was a founder of Westney Consulting …" and "Westney was also engaged by Nalcor to participate in the risk assessment of the Project. Potentially this could be viewed as a conflict of interest (whether actual or perceived)."

MS. O'BRIEN: In conducting – in the work that you do in investigative and forensic accounting, does conflict of interest – potential or actual conflict of interest – does that have a particular meaning to you in your area, in your field?

MR. MALAMED: It does.

MS. O'BRIEN: Can you please tell the Commissioner what that would be?

MR. MALAMED: Conflict of interest starts to talk about the perceived independence, whether actual or perceived, and the ability to offer an independent opinion.

MS. O'BRIEN: Okay. Thank you.

Could you continue on to page 12 and just review your findings with respect to the – one of the IPR presentations?

MR. MALAMED: Yes.

There was an IPR presentation that was dated August 31, 2012 for DG3. We actually identified two versions of the IPR presentation dated August 31, 2012 for DG3.

When we compared both versions, we identified differences and what is in front of you on the screen is an example of the differences. I'm going to first read the original.

It was the original - final: "the IPR team concurs with the expectations set by the LCP Project Execution and Risk Management Plans that adequate provisions for Management reserve and schedule reserve" – and we've bolded and underlined to highlight the difference – "**<u>be included in the Project Sanction costs and schedule</u>**."

So that the – so just to go over that, the management reserve and schedule reserve should be included in the project sanction costs and schedule.

In the second version that we found, it reads the same up until management reserve and schedule reserve – and now, again, we've bolded and highlighted – and now instead of it saying be included it says, "**<u>be recognized in the Project Sanction decision making process</u>**."

So one of them talks about recognition and one of them talks about inclusion.

MS. O'BRIEN: Okay. And inclusion, specifically, I guess, in costs and schedule.

Do you know why there is – why there was two final versions of this particular report?

MR. MALAMED: We don't know why there was. We – the revised version appears to only suggest an acknowledgement as we spoke about, but in response to our request, Nalcor has not identified any information concerning the differences between the two versions of this report, or why there were the differences.

MS. O'BRIEN: Okay.

And I believe – I just wanna clarify this because I believe we heard from Mr. Shaffer earlier that it – the management reserve was – indicated it was – to you that – by people at Nalcor that the management reserve was gonna be used to fund the strategic risk? Is that correct, Mr. Shaffer?

MR. SHAFFER: That's correct.

MS. O'BRIEN: Okay.

And this concept of schedule reserve, can you please explain that for the Commissioner? And, I believe, Mr. Shaffer, that may be more –

UNIDENTIFIED MALE SPEAKER: (Inaudible.)

MS. O'BRIEN: – a question more appropriate for you, but …

MR. SHAFFER: Well, the schedule – one of the risks in the project was the timeline to get the work done. Again, going back to that what I testified to earlier in terms of first power date being July 1, I believe, 2017, if my memory serves me correctly. And in that risk of not, potentially not hitting that number, there was a reserve that was calculated, which is described on page 64 (inaudible) lines 1 through 15 of not being able to hit that time schedule. And that reserve, or that exposure, which was part of the strategic risk exposure in total, which then became part of the management reserve, was entered from zero to $400 million.

MS. O'BRIEN: Okay. But, ultimately, that was not included in the project cost. Is that correct?

MR. SHAFFER: Correct.

MS. O'BRIEN: Okay. Thank you.

Commissioner, now would be a good time perhaps for a short afternoon break. I'm nearing the end of my questions. It would be a good time for me to collect my thoughts.

THE COMMISSIONER: Okay. So we'll take 10 minutes or so.

MS. O'BRIEN: Thank you.

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THE COMMISSIONER: Ms. O'Brien.

MS. O'BRIEN: Thank you, Commissioner.

Mr. Malamed, before the break you indicated that you'd – when we took a break – that you'd be able to check the names and give us the list of the members who identified as the project management team that you – who you interviewed and are cited in your report, do you have that list there now?

MR. MALAMED: I do.

MS. O'BRIEN: Could you tell us please.

MR. MALAMED: Yeah. It was a two-day meeting. Paul Harrington, Ron Power, Lance Clarke, Jason Kean, Pat Hussey and Scott O'Brien. What I –

THE COMMISSIONER: Maybe we just go through that list a little slower.

MS. O'BRIEN: Oh – again and slower is the –

MR. MALAMED: Sorry.

MS. O'BRIEN: – feedback.

MR. MALAMED: Let me do that again. Paul Harrington, Ron Power, Lance Clarke, Jason Kean, Pat Hussey and Scott O'Brien.

MS. O'BRIEN: Thank you.

MR. MALAMED: I also just wanted to comment and let you know that we did speak about the steering committee. We spoke about the steering committee that was brought up over those two days, and that Jason Kean only attended some of those two days, so if – without going back and checking with certainty, I don't know that Jason Kean was in the room when that steering committee was spoken about.

MS. O'BRIEN: Okay, thank you.

Mr. Shaffer, I know you were looking for a quote in your report earlier today, and I understand that you've now found that. And so can you – want to tell us what page we should go to so you can fill out that evidence?

MR. SHAFFER: The bottom of page 64 and the top of page 65. I don't know if that can be made any larger so people can see.

MS. O'BRIEN: Larger?

MR. SHAFFER: I know it's hard to see, but what this is saying – this is the Westney curve I testified to earlier and based on the analysis as terms – in terms of when first power would take place, they thought the July 1, '17, date you'll see at the bottom of the curve – that's actually hard to see, but it's actually, I believe that first number's – the first month is July. That's at the bottom of the curve, so basically, it's a P1. And so that's what I was – what I meant when Westney depicted a P1 to hit that first power date.

If you go to the top of page 65 now, lines 1 through – lines 3 through 9 – and in particular starting on line 4. The LCP project team issued briefing notes to McInnes Cooper, as requested by Nalcor's counsel, and in the briefing notes they "noted that 'there was a low probability that a mid-2017 First Power date would be met. As such, the PMT'" – the project management team – "'recommended to Nalcor Executive that a provisional schedule reserve allowance should be made to account for the difference between the target date and the probable date. Given the desire to achieve the best possible date, Nalcor Executive wanted to maintain the Target Milestone Schedule and thus no schedule reserve was made to accommodate the residual risk exposure identified in the QRA.'"

And that was the quote I was talking about before that I couldn't find. So thanks for letting me do that.

MS. O'BRIEN: Thank you. There was one other paragraph, if I just might ask you; it's actually on the same page.

If you look at – sorry, line 20 to 23, could you just explain for the Commissioner that paragraph – or what you're discussing in that paragraph?

MR. SHAFFER: Yeah, it said that "although strategic risks were not included in the capital cost estimate at DG3, they were included in the project estimate at DG2."

My understanding is it was then taken out because "it was noted that this change was made during the negotiations with Emera Inc. Nalcor stated 'that it was required to respond to Emera's concern regarding its ability to sell the strategic risk concept to the Nova Scotia regulator, the'" – basically, the NSUARB.

MS. O'BRIEN: Okay, and that there is a document cited there that the Commissioner will be reviewing in evidence again, and I believe the – but to be – clarify here, it was in and then it was out at DG2. I think the evidence is gonna show that the 5 billion at DG2 did not include anything for strategic risk, ultimately, when it was announced. I understand – I'm just anticipating the evidence to come on that point, Commissioner. I don't want there to be any confusion about it.

Okay. Thank you.

THE COMMISSIONER: Just – if I can, just on this point.

So not sure I understand exactly what this – what's being said here. So are you – just see if I got this right.

So what you're saying is, is that the strategic risks that you talked about were included in the DG2 number, but that they weren't included in DG3, and that had something to do with the fact that Emera had a concern about its ability to sell the risk – the inclusion of risk in the – in – when – for the purposes of getting their project sanctioned?

Is that what you're telling me?

MR. SHAFFER: That's my understanding of it, yes, Sir.

MS. O'BRIEN: Commissioner, there will be further evidence on that point in the days to come.

THE COMMISSIONER: Okay.

MS. O'BRIEN: Mr. Malamed and Mr. Shaffer, I'm – those were the questions that I had prepared for you. I just want to ensure that you have had an opportunity to explain to the Commissioner what you felt was important to bring out in the report that you did on the sanctioning phase.

Mr. Malamed, I'll start with you, is there anything additional that you would like to add to your testimony before others begin questioning you?

MR. MALAMED: Not at this point. Thank you.

MS. O'BRIEN: Thank you.

And, Mr. Shaffer, same to you.

MR. SHAFFER: Not at this time, no.

MS. O'BRIEN: Okay.

Commissioner, those are the questions that I have.

We are – it's been a long week, and we have had an awful lot of information today, so one possibility is that we take a break now and resume again on Monday morning. I did, over the break, canvas counsel and understand that's generally acceptable to everyone here, but obviously the final call is yours to make.

THE COMMISSIONER: It's probably getting too close to Christmas to say no, so, yes, okay, that's – I understand that it has been a busy week for everyone, and I think this is probably a good place to break. I think if cross-examination begins, there's a good likelihood we're not going to finish it. We have three days that are left with these witnesses, so I'm prepared to forgo proceeding with cross-examination. We'll end a bit early this afternoon.

So enjoy your weekend, and we'll see you back here on Monday morning at 9:30.

Thank you very much. We're adjourned.

CLERK: This Commission of Inquiry is now concluded for the day.