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1 October 30, 2015  
 2 (9:08 a.m.)  
 3 CHAIRMAN:  
 4 Q. There are no preliminary matters, are there?  
 5 MS. GLYNN:  
 6 Q. No, Mr. Chair.  
 7 CHAIRMAN:  
 8 Q. I believe we have a witness from Hydro, is  
 9 that correct?  
 10 MR. MACDOUGALL:  
 11 Q. That's correct, Mr. Chair.  
 12 MS. GLYNN:  
 13 Q. Mr. Chair, I didn't check with the witness  
 14 whether he'd prefer to be sworn or affirmed.  
 15 CHAIRMAN:  
 16 Q. Are you going to take the Bible, sir, or are  
 17 you -  
 18 MR. KENNEDY:  
 19 Q. I have it right beside me in preparation for  
 20 taking the Bible.  
 21 MR. LARRY KENNEDY (SWORN) EXAMINATION-IN-CHIEF BY MR.  
 22 MACDOUGALL:  
 23 MR. MACDOUGALL:  
 24 Q. Thank you very much, Mr. Chair, Madam Vice  
 25 Chair, Commissioners. Hydro's expert today is

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1 Mr. Larry Kennedy. Hydro would like to start  
 2 by thanking Board counsel and other counsel  
 3 and the Board for allowing Mr. Kennedy to go  
 4 somewhat out of the order we had planned due  
 5 to a personal matter. That's appreciated both  
 6 by Hydro and by Mr. Kennedy.  
 7 MR. KENNEDY:  
 8 A. Thank you very much.  
 9 MR. MACDOUGALL:  
 10 Q. Mr. Kennedy was going to go on the management  
 11 and accounting panel with two Hydro witnesses,  
 12 however, at the time he was not being put  
 13 forward as a company witness, he was being put  
 14 forward as an independent expert from Gannett  
 15 Fleming just sitting at the same time on the  
 16 panel. Because of that, he is now going to  
 17 sit alone as an independent expert and,  
 18 therefore, has to be qualified as such, so for  
 19 the first minute or two, I will just take Mr.  
 20 Kennedy very briefly through his  
 21 qualifications and after we have him  
 22 qualified, we can get him to adopt his  
 23 evidence unless there's any questions raised  
 24 on the qualifications of Mr. Kennedy. If we  
 25 could turn first to - if Ms. Gray could pull

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1 up Hydro surrebuttal of October 14, and we  
 2 could go to Appendix "A", which is the  
 3 surrebuttal of Mr. Kennedy, and attached to  
 4 that at page 8, Mr. Kennedy provided his  
 5 Curriculum Vitae. I do not propose, Mr.  
 6 Chair, to go through Mr. Kennedy's full CV, it  
 7 has been pre-filed. I would note, however,  
 8 his technical specialities are public utility  
 9 plant depreciation and public utility plant  
 10 accounting, and that is how we would like to  
 11 have him qualified as an expert in relation to  
 12 both public utility plant depreciation and  
 13 public utility plant accounting. I note that  
 14 Mr. Kennedy's academic information indicates  
 15 that he received a Diploma in Applied Arts for  
 16 Business Administration from the Northern  
 17 Alberta Institute of Technology in 1978. He  
 18 is a member of the Society of Depreciation  
 19 Professionals and a certified depreciation  
 20 professional, and I also note his experience  
 21 in his CV, he indicates that he joined Gannett  
 22 Fleming in January, 1999, and is the Vice  
 23 President of Gannett Fleming Canada ULC. I  
 24 will ask Mr. Kennedy just to briefly fill in  
 25 his experience between 1978 and 1999, which

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1 was not set out in his CV?  
 2 MR. KENNEDY:  
 3 A. Thank you. Good morning, commissioners, and I  
 4 share my thanks and appreciation of  
 5 accommodation of my schedule today. I  
 6 graduated from the Northern Alberta Institute  
 7 of Technology in 1978, as was noted. From  
 8 1978 through 1980, I worked with the Hudson's  
 9 Bay Corporation in the Internal Audit  
 10 Department. From 1980 through 1995, I worked  
 11 with what's now known as Enbridge Pipelines,  
 12 in those days it was Interprovincial  
 13 Pipelines. My career there spanned various  
 14 positions within the plant accounting and  
 15 regulatory sections, generally all within plan  
 16 accounting. Plan accounting is often one of  
 17 those functions that bounces back and forth  
 18 between the financial sector of the companies  
 19 and regulatory with the regulated companies.  
 20 Through my career, I moved up through to the  
 21 position of Team Leader, in essence,  
 22 Supervisor of the Plant Accounting Section at  
 23 Enbridge Pipelines. In 1995, I moved to Nova  
 24 Gas Transmission Limited in the capacity of  
 25 Depreciation Specialist, and then in 1999, I

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1 joined Gannett Fleming, and really my CV  
 2 outlines my experience and testimonies since  
 3 1999 with Gannett Fleming.  
 4 MR. MACDOUGALL:  
 5 Q. Thank you very much, Mr. Kennedy. Mr. Chair,  
 6 Mr. Kennedy's CV then also lists his general  
 7 experience with Gannett Fleming from 1999,  
 8 plus his numerous filings in front of various  
 9 public utility commissions in Canada and his  
 10 appearance in front of most public utility  
 11 commissions in Canada as well, so we do not  
 12 propose to take the Board through that in any  
 13 detail. With that, subject to any questions  
 14 other counsel may have, we would ask that Mr.  
 15 Kennedy be qualified as an expert to speak to  
 16 matters related to public utility plant  
 17 depreciation and plant accounting.  
 18 CHAIRMAN:  
 19 Q. Absolutely.  
 20 JOHNSON, Q.C.:  
 21 Q. No objection here.  
 22 CHAIRMAN:  
 23 Q. Who would be so foolish.  
 24 MR. MACDOUGALL:  
 25 Q. Thank you very much, Mr. Chair. Now that Mr.

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1 Kennedy is qualified, because he filed both  
 2 reply evidence and surrebuttal evidence, we  
 3 will just get him to briefly speak to that  
 4 being prepared under his direction and  
 5 control, and then he'll be available for  
 6 cross-examination. So for purposes of the  
 7 record, Mr. Kennedy, Hydro filed reply  
 8 evidence on August 7th and attached to that  
 9 was Appendix "A", which was your reply  
 10 evidence which you then had a brief revision  
 11 to, which was filed on September 23rd,  
 12 revisions to page 7 of that document, and then  
 13 you subsequently refiled surrebuttal evidence  
 14 as Appendix "A" to Hydro's surrebuttal of  
 15 October 14th. With respect to those two  
 16 documents, were those prepared under your  
 17 direction and control?  
 18 MR. KENNEDY:  
 19 A. They were.  
 20 MR. MACDOUGALL:  
 21 Q. And are they true to the best of your  
 22 knowledge and belief?  
 23 MR. KENNEDY:  
 24 A. They are.  
 25 MR. MACDOUGALL:

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1 Q. And do you adopt them as your evidence in this  
 2 proceeding?  
 3 MR. KENNEDY:  
 4 A. I do.  
 5 MR. MACDOUGALL:  
 6 Q. Mr. Chair, with that, because Mr. Kennedy's  
 7 evidence is quite brief, we do not propose to  
 8 do any direct-examination or any opening  
 9 statement. It has been pre-filed, he is now  
 10 available for cross-examination.  
 11 CHAIRMAN:  
 12 Q. I believe I go to -  
 13 (9:15 a.m.)  
 14 MR. LARRY KENNEDY - CROSS-EXAMINATION BY GREENE, Q.C.:  
 15 GREENE, Q.C.:  
 16 Q. Good morning, Mr. Chair, Commissioners, good  
 17 morning, Mr. Kennedy.  
 18 MR. KENNEDY:  
 19 A. Good morning.  
 20 GREENE, Q.C.:  
 21 Q. Mr. Kennedy, in your resume that Mr.  
 22 MacDougall just took us through, which was  
 23 attached with your report, Appendix "A", to  
 24 Hydro's surrebuttal, there are a number of  
 25 engagements or studies related to what I would

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1 call the appropriate depreciation policies for  
 2 utilities to follow, is that the primary  
 3 purpose of the engagements that were listed in  
 4 your resume?  
 5 MR. KENNEDY:  
 6 A. I would say by far the majority of them, yes.  
 7 GREENE, Q.C.:  
 8 Q. Okay, and the opinions that you provided in  
 9 your report dated August 7th, which was  
 10 Appendix "A" to Hydro's Reply, and Appendix  
 11 "A" of Hydro's surrebuttal in - your report  
 12 was dated October 13th. Your opinions are  
 13 based on what you would normally provide  
 14 expert evidence with respect to the  
 15 appropriate depreciation policies in this  
 16 environment of regulated utility?  
 17 MR. KENNEDY:  
 18 A. That's correct, Ms. Greene. There's always a  
 19 bit of an overlap between the plant accounting  
 20 policies and the depreciation practices of  
 21 utilities, but, yes.  
 22 GREENE, Q.C.:  
 23 Q. In the engagements that are listed in your  
 24 resume, have any of them involved what would  
 25 be a disallowance for an asset that had

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1 prematurely failed as a result of an  
 2 imprudence finding by a regulator with respect  
 3 to the actions of a utility?  
 4 MR. KENNEDY:  
 5 A. I'm going to have to test my memory now. I  
 6 would say specifically to the extent that  
 7 we're dealing in this proceeding with the  
 8 disallowance, not that specifically.  
 9 Occasionally, we do get into disallowance of  
 10 cost of assets in the depreciation study  
 11 gamut, often referred to as extraordinary  
 12 retirements. There's a bit of debate in the  
 13 regulatory circle around that, so I do get  
 14 into those questions in a number of  
 15 assignments, but as specific as this  
 16 proceeding is, no, not quite.  
 17 GREENE, Q.C.:  
 18 Q. So you normally would be dealing with  
 19 situations coming up with appropriate policies  
 20 for how to record depreciation for assets,  
 21 whether you use the group policy, and how you  
 22 take into account the fact that assets could  
 23 retire at various points in time for premature  
 24 failure or for even living longer than the  
 25 depreciated life, is that correct?

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1 MR. KENNEDY:  
 2 A. That would be correct. The vernacular that we  
 3 would use is "the forces of retirement". As  
 4 part of depreciation studies in reviews and  
 5 proceedings, we get into the force of  
 6 retirement and whether or not that should  
 7 provide an allowance or disallowance of some  
 8 process.  
 9 GREENE, Q.C.:  
 10 Q. And the opinions that you have provided in  
 11 this particular matter relate to three  
 12 projects that are now before the Board for  
 13 review; the Sunnyside replacement equipment,  
 14 the Western Avalon tap changer, and the  
 15 Holyrood breaker, is that correct?  
 16 MR. KENNEDY:  
 17 A. More specifically, I reviewed the assets of  
 18 the Sunnyside and Western Avalon.  
 19 GREENE, Q.C.:  
 20 Q. So to your knowledge, have any of the  
 21 equipment that you just mentioned; Sunnyside  
 22 replacement or Western Avalon, had that  
 23 equipment been scheduled for replacement prior  
 24 to 2014?  
 25 MR. KENNEDY:

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1 A. Now we're going to get into a bit of a  
 2 question about what we mean by scheduled for  
 3 replacement.  
 4 GREENE, Q.C.:  
 5 Q. In the operating world, had Hydro planned to  
 6 replace that at that point in time, and if  
 7 that's not for you, if that's for the other  
 8 panel, that's fine, but you can take it  
 9 subject to check?  
 10 MR. KENNEDY:  
 11 A. I think I'll answer that I cannot comment as  
 12 to whether or not the operations groups had  
 13 specifically scheduled any of those assets for  
 14 replacement. I will suggest, though, ma'am,  
 15 that those assets were at an age, and in  
 16 accordance with the Iowa curves, or the  
 17 retirement dispersion that we would expect of  
 18 assets of that type of that age, we would  
 19 expect those assets to start entering into the  
 20 realm of retiring due to a number of forces of  
 21 retirements.  
 22 GREENE, Q.C.:  
 23 Q. So can I ask you to take, subject to check,  
 24 that at the time Hydro filed its 2013 GRA in  
 25 2013, in July of 2013, that GRA did not

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1 include any planned replacement of the  
 2 Sunnyside equipment we're talking about or the  
 3 Western Avalon tap changer?  
 4 MR. KENNEDY:  
 5 A. To my knowledge, I don't know of any specific  
 6 plans. I'm not sure that I can answer the  
 7 subject to check.  
 8 GREENE, Q.C.:  
 9 Q. But to your knowledge, that was -  
 10 MR. KENNEDY:  
 11 A. To my knowledge, that's correct.  
 12 GREENE, Q.C.:  
 13 Q. Hydro did not have a plan to replace that  
 14 equipment at that time?  
 15 MR. KENNEDY:  
 16 A. To my knowledge.  
 17 GREENE, Q.C.:  
 18 Q. Prior to the failure in January, 2014?  
 19 MR. KENNEDY:  
 20 A. That would be correct. I do understand - no,  
 21 I'll just state that to my knowledge, that's  
 22 correct.  
 23 GREENE, Q.C.:  
 24 Q. So first I'd like to go to Liberty's Report,  
 25 July 6th, 2015, on prudence, at page 31, and

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1 here - I want to get into a discussion as to  
 2 what betterment is at a very high level. In  
 3 this, if you look at page 31, which is the  
 4 concluding paragraph with respect to  
 5 Sunnyside, we begin, "The age of the  
 6 transformer and equipment replaced", so here  
 7 we're talking about the transformer that  
 8 failed at Sunnyside T1 and the air blast  
 9 circuit breaker that failed in January of  
 10 2014. So "The age of the transformer and the  
 11 equipment replaced gave it at the time of its  
 12 failure an expected operating life shorter  
 13 than what can be presumed for the new  
 14 replacement equipment". They go on then to  
 15 say, "Operating rather than accounting life is  
 16 material in assessing the length of that  
 17 remaining life", and you may disagree with  
 18 that sentence.  
 19 MR. KENNEDY:  
 20 A. You're correct.  
 21 GREENE, Q.C.:  
 22 Q. Then they go on to say, "Customers would have  
 23 been spared the cost of new equipment for some  
 24 time absent the January 2014 events, but not  
 25 indefinitely". I take it, you would agree

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1 with that sentence?  
 2 MR. KENNEDY:  
 3 A. I would, yes.  
 4 GREENE, Q.C.:  
 5 Q. Also Hydro has indicated that, "Maintenance  
 6 costs for the older equipment exceed that for  
 7 what replaced it. If so, then customers may  
 8 also be spared some costs that would have been  
 9 included in the calculation of the revenue  
 10 requirements in the current rate filing".  
 11 Then go on to say, "It was not possible, based  
 12 on the available information, to calculate any  
 13 appropriate credit to reflect those factors".  
 14 SO here we have Liberty saying the new  
 15 transformer may have provided some additional  
 16 benefit, but they couldn't quantify it.  
 17 That's what Liberty in that paragraph -  
 18 MR. KENNEDY:  
 19 A. That would be what's in their report, yes.  
 20 GREENE, Q.C.:  
 21 Q. Now I wanted to go to your report of August  
 22 7th at page 3. This was attached as Appendix  
 23 "A" to Hydro's reply, and in the first two  
 24 paragraphs we see what betterment - there you  
 25 have described it, that, "There could be a

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1 betterment with a new asset because there's an  
 2 increase", in the first paragraph when you  
 3 list the factors, "an increase in the output  
 4 for service, a reduction in operating costs,  
 5 an extension of the estimated useful life, or  
 6 an improvement in the quality of the output".  
 7 So if any of that had to happen, you could say  
 8 the new transformer was a betterment, is that  
 9 correct?  
 10 MR. KENNEDY:  
 11 A. That's correct. That's the criterion that are  
 12 generally ascribed in the literature when  
 13 we're talking about betterment.  
 14 GREENE, Q.C.:  
 15 Q. Now if I went on to the next paragraph, and  
 16 actually it's the second sentence, you say,  
 17 "While there is no indication that the  
 18 replacement components would result in any  
 19 increase to the physical output service  
 20 capacity or any improvement in the quality of  
 21 the transformers", and I wanted to stop there.  
 22 I took from when I read that, that - and you  
 23 go on to talk about the life extension. In  
 24 your opinion, the only betterment provided by  
 25 the new equipment that replaced the failed

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1 equipment is that it extended the life, is  
 2 that correct?  
 3 MR. KENNEDY:  
 4 A. That's the only, if you will, quantifiable  
 5 criteria that I could use. Obviously, a  
 6 transformer built with the current technology  
 7 will have some enhancements to it as compared  
 8 to a transformer that's thereabouts 40 years  
 9 old, but it's often difficult to quantify  
 10 that, which is why I suggested the  
 11 quantifiable piece would be the life  
 12 extension.  
 13 GREENE, Q.C.:  
 14 Q. Okay, so for the purposes of your betterment,  
 15 we're talking about life extension of the  
 16 asset, is that correct?  
 17 MR. KENNEDY:  
 18 A. That's correct.  
 19 GREENE, Q.C.:  
 20 Q. Now if we could talk about Sunnyside, if we go  
 21 to page 8 of your reply, we see here how you -  
 22 it's page 8 of 14 of Appendix "A". So what  
 23 we're talking about for both Sunnyside  
 24 equipment and the Western Avalon equipment is  
 25 that the new equipment will last longer than

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1 the equipment that failed and was replaced,  
 2 and you determined that for Sunnyside, looking  
 3 at the normal depreciation policies, that at  
 4 the time of its failure it had used up, I'll  
 5 call it - it was 55 percent old.  
 6 MR. KENNEDY:  
 7 A. Yes.  
 8 GREENE, Q.C.:  
 9 Q. I'm trying to keep this simple for people to  
 10 understand. So at the time it failed, it was  
 11 almost half way through its normal expected  
 12 life, 55 percent was used?  
 13 MR. KENNEDY:  
 14 A. Yes.  
 15 GREENE, Q.C.:  
 16 Q. Okay, and that's what you describe in those  
 17 pages. So normally you would have expected it  
 18 to last roughly almost as long again as it had  
 19 at the time of its failure, 45.09, but I'm  
 20 going to just round it, 45 percent remaining  
 21 value, is that correct?  
 22 MR. KENNEDY:  
 23 A. That's correct. There's a probability that  
 24 that asset could live for another 45 percent  
 25 of its life, yes.

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1 GREENE, Q.C.:  
 2 Q. And when we looked at Western Avalon, that was  
 3 older. When you did your calculations based  
 4 on the normal depreciation policies and plant  
 5 accounting that you would have used, at the  
 6 time of its failure, it only had 28.71 percent  
 7 of its life left?  
 8 MR. KENNEDY:  
 9 A. That's correct.  
 10 GREENE, Q.C.:  
 11 Q. It was three-quarters dead?  
 12 MR. KENNEDY:  
 13 A. That's correct. I just want to make sure we  
 14 understand, it's not just the transformer,  
 15 that's all the assets at those locations on  
 16 average.  
 17 GREENE, Q.C.:  
 18 Q. Yes, and I am trying to simplify it.  
 19 MR. KENNEDY:  
 20 A. Yes.  
 21 GREENE, Q.C.:  
 22 Q. I must say, Mr. Kennedy, when I first read  
 23 your betterment report, I had to read it more  
 24 than once to quite get the concepts, so I'm to  
 25 make them as simple as possible for people to

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1 understand.  
 2 MR. KENNEDY:  
 3 A. Well, Ms. Greene, that would be fair. I had  
 4 to write it more than once to make sure.  
 5 GREENE, Q.C.:  
 6 Q. So you'll have to forgive me if I talk about  
 7 things like it was three-quarters dead.  
 8 CHAIRMAN:  
 9 Q. I'm starting to feel three-quarters dead  
 10 listening to it.  
 11 GREENE, Q.C.:  
 12 Q. That's why I'm trying to have some levity  
 13 here, so we'll all understand it to the extent  
 14 that we can understand, okay. All right, if  
 15 we use that there, that was what you were  
 16 saying in your reply. So here's the situation  
 17 we had. We had an equipment failure that was  
 18 unexpected and in both cases Hydro had to  
 19 replace the assets with equipment that was  
 20 newer and was going to last longer.  
 21 MR. KENNEDY:  
 22 A. Last longer - I just want to make sure we  
 23 clarify that. It's got a longer remaining  
 24 life because it's new than did the asset that  
 25 was replaced because it was half consumed

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1 already. It's like buying a new car to  
 2 replace a half used car.  
 3 GREENE, Q.C.:  
 4 Q. Okay. Now the question becomes how we take  
 5 that into account, and what you have done in  
 6 your surrebuttal, Appendix "A" to Hydro's  
 7 surrebuttal at page 4, you talk about how we  
 8 do that. If we look at the top of page 4 of  
 9 18, in a normal case if you had an asset, what  
 10 I will call a premature death, it failed  
 11 before its expected life that had been built  
 12 into Hydro's depreciation, the net book value  
 13 in its rate base, and the depreciation  
 14 expenses in its revenue requirement, you  
 15 explain in the first paragraph there - when  
 16 you begin with, "However, as has been the long  
 17 term practice when a replaced asset is  
 18 retired, Hydro takes a loss in that year for  
 19 the remaining loss, the net book value, and  
 20 disposal. As a result, the replaced asset  
 21 would no longer be included in average rate  
 22 base and Hydro would stop earning a return on  
 23 that disposed asset. Additionally, as the  
 24 assets are removed from the gross plant and  
 25 service balances, all further capital recovery

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1 through depreciation expenses ceased, is that  
 2 correct?  
 3 MR. KENNEDY:  
 4 A. That's correct, ma'am.  
 5 GREENE, Q.C.:  
 6 Q. So in this particular case, absent our  
 7 question of imprudence that the failure - if  
 8 the Board finds that the failure was actually  
 9 caused by imprudence in the normal world,  
 10 leaving aside that question which we'll come  
 11 back to, for Sunnyside, the net book value for  
 12 the remaining assets would have been taken out  
 13 of rate base, so that Hydro wouldn't have been  
 14 able to earn on it any more, and they would  
 15 have taken a loss on it. That's the first  
 16 step in that first paragraph?  
 17 (9:30 a.m.)  
 18 MR. KENNEDY:  
 19 A. That's correct, and that's my understanding  
 20 of, if you will, the typical Hydro procedure.  
 21 That's not necessarily the typical procedure  
 22 within the utility world, but that is unique  
 23 to some utilities particularly in Canada that  
 24 look at that loss on a unit basis as compared  
 25 to a group basis.

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1 GREENE, Q.C.:  
 2 Q. And that is the practice here for Newfoundland  
 3 Hydro, which has been accepted by this Board.  
 4 MR. KENNEDY:  
 5 A. That's correct.  
 6 GREENE, Q.C.:  
 7 Q. So then we go on to the next paragraph which  
 8 talks about what do you do with the - now you  
 9 have a new asset you have to worry about from  
 10 an accounting perspective, so what are you  
 11 going to start doing with the new asset. So  
 12 you talk in the next sentence, "Given that the  
 13 capital recovery of the replaced assets  
 14 through depreciation expenses ceased", so the  
 15 old asset is gone, we're not worrying about  
 16 that any more, "it is appropriate that the  
 17 installed value of the replaced assets are  
 18 included in the investment base that forms the  
 19 basis of the company's depreciation expense".  
 20 So in this particular case, the new equipment  
 21 that went in at Sunnyside and Western Avalon  
 22 in the normal world, it would have gone in at  
 23 - if there was no imprudence or no other  
 24 questions, in the normal world Hydro would  
 25 have entered that at its full new cost, is

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1 that correct?  
 2 MR. KENNEDY:  
 3 A. That's correct.  
 4 GREENE, Q.C.:  
 5 Q. And it would then start depreciating and each  
 6 year the net book value in rate base would  
 7 decline, is that how it would work?  
 8 MR. KENNEDY:  
 9 A. That's correct.  
 10 GREENE, Q.C.:  
 11 Q. So that would be the normal situation you  
 12 would have expected if we weren't dealing with  
 13 the question of imprudence, and we'll come  
 14 back to -  
 15 MR. KENNEDY:  
 16 A. Yes.  
 17 GREENE, Q.C.:  
 18 Q. In your opinion, that may not matter, and  
 19 that's what we'll get to.  
 20 MR. KENNEDY:  
 21 A. I can hardly wait.  
 22 GREENE, Q.C.:  
 23 Q. So now we talk about that is not what Hydro is  
 24 proposing, as I understand it, in their reply.  
 25 MR. KENNEDY:

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1 A. That's correct.  
 2 GREENE, Q.C.:  
 3 Q. Okay, now we have to see what Hydro is  
 4 proposing instead of the norm. In this  
 5 particular case, at the bottom of page 4 of 18  
 6 where we were, so in your opinion, which is  
 7 there in answer to question 6, you believe  
 8 that the complete inclusion of the original  
 9 cost of the replaced equipment at Sunnyside  
 10 and Western Avalon could have gone into rate  
 11 base and customers would have started paying  
 12 immediately for it? That's what I took from  
 13 that position.  
 14 MR. KENNEDY:  
 15 A. That would be - you've read that correctly,  
 16 and perhaps I can explain why. In my view,  
 17 those assets were of an age that we would  
 18 start to expect failure of those assets. Not  
 19 all assets fail at the same age and fail for  
 20 the same causes, and so in my view, based on  
 21 the age of those assets, we are now part of  
 22 getting into the area of the timing of when we  
 23 would start to expect retirement of assets of  
 24 that type. These assets have a typical life  
 25 of an average life of 55 years. They're

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1 entering into the range of 40 years, and my  
 2 experience is that once assets of this type  
 3 start getting into that 40 year range, it's  
 4 not unexpected that we would start to see some  
 5 failures, that we start to see failures in  
 6 some transformers and circuit breakers prior  
 7 to that. We can get into the question of  
 8 imprudence, which is not my area, and that's,  
 9 I think, for others to debate here, but my  
 10 view is these assets were of an age that it  
 11 would be expected, and the depreciation rates  
 12 and the life estimates that we had estimated  
 13 and used for this utility would have expected  
 14 some failure of assets of that age.  
 15 Therefore, I would view that based on that  
 16 criteria, based on the age of where they were  
 17 and the expectation of assets of this type  
 18 failing within industry of that age, then it  
 19 would be reasonable to include 100 percent of  
 20 the original cost of the new assets. I say  
 21 reasonable, not necessarily what the company  
 22 is proposing, but that's my view.  
 23 GREENE, Q.C.:  
 24 Q. Right, and I understood from your answer then  
 25 that the cause of failure, in your opinion, is

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1 irrelevant?  
 2 MR. KENNEDY:  
 3 A. I wouldn't say irrelevant, ma'am. I think  
 4 there's many causes of forces of retirement.  
 5 These are mechanical devices and they're  
 6 operated in somewhat harsh conditions, and so  
 7 it's not unexpected that we would see  
 8 failures. I think it is a good exercise for a  
 9 review as to reasons of cause, and that's what  
 10 we're entering into this proceeding with, as I  
 11 understand it.  
 12 GREENE, Q.C.:  
 13 Q. But in terms, from your perspective, how it  
 14 would be done from a depreciation perspective  
 15 and a plant accounting perspective, you don't  
 16 care how the equipment failed for your  
 17 opinion? You mustn't, because you said they  
 18 would be allowed the full - so you don't look  
 19 at it to see whether it was caused as a result  
 20 of the utility acting properly or improperly?  
 21 MR. KENNEDY:  
 22 A. I would look at it more of a cause of the  
 23 equipment failure, not necessarily in terms of  
 24 how it was operated specifically. We do see  
 25 transformers failing, and we see particularly

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1 air blast circuit breakers failing at those  
 2 ages, and often in circumstances of non-  
 3 imprudence or where imprudence has not been  
 4 defined. They're mechanical devices that are  
 5 subject to failure, so I look at the cause of  
 6 retirement being failure, not necessarily in  
 7 terms of the operation.  
 8 GREENE, Q.C.:  
 9 Q. And you don't look at the impact on customers,  
 10 do you, as a result of any change in revenue  
 11 requirement, that's not part of your  
 12 expertise?  
 13 MR. KENNEDY:  
 14 A. No, I'm not a rate design or a cost of service  
 15 expert by any stretch.  
 16 GREENE, Q.C.:  
 17 Q. Okay, and you also said earlier in your answer  
 18 that the issue of prudence is beyond your area  
 19 of expertise as well?  
 20 MR. KENNEDY:  
 21 A. Yes, and I am a depreciation guy, and I'm an  
 22 accounting guy, but what I'm not is an  
 23 operating guy, and a very smart person told me  
 24 never venture into the areas that you're not,  
 25 so I try not to.

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1 GREENE, Q.C.:  
 2 Q. Now I'd like to go on - we've talked about  
 3 what you said the normal practice would be, in  
 4 your opinion in this case, and we go on there  
 5 at the bottom of - it says page 3 of 6 at the  
 6 bottom, it was page 4 of 18 where we were  
 7 before. You're saying that that's not what  
 8 Hydro is proposing in this particular case.  
 9 So you say, "I note that the requested  
 10 treatment by Newfoundland and Labrador Hydro  
 11 in the event of an adverse finding is only to  
 12 include an amount equal to the original cost",  
 13 and here we're talking about the cost of the  
 14 new equipment that replaced the failed  
 15 equipment, so the cost of the new equipment  
 16 multiplied by the percentage of the replaced  
 17 asset already consumed, as determined in  
 18 Tables 1 and 2. If we go back to Sunnyside,  
 19 which was 55 percent consumed, you would  
 20 multiply the cost of the new equipment by the  
 21 55 percent and put that in rate base, is it,  
 22 and I'd like to actually go through a table.  
 23 MR. KENNEDY:  
 24 A. You may be planning to go through the table  
 25 that I was flipping through here myself.

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1 GREENE, Q.C.:

2 Q. Yes, I was going to go to the table - but that

3 is the principle that you're expressing on

4 that page, and now we want to look at the

5 numbers to see how that works.

6 MR. KENNEDY:

7 A. That's correct, ma'am.

8 GREENE, Q.C.:

9 Q. Okay. I was going to use Appendix "A" to

10 Hydro's original reply in August, where we see

11 Table 1 and Table 2. It's page 11 of 14 of

12 Appendix "A".

13 MR. KENNEDY:

14 A. Yes, that was the table I was planning to take

15 you to as well.

16 GREENE, Q.C.:

17 Q. So we're still on the same page.

18 MR. KENNEDY:

19 A. Yes, we are.

20 MR. MACDOUGALL:

21 Q. Mr. Chair, just for the record, this is the

22 revised version of that table that was filed

23 on September 23rd.

24 GREENE, Q.C.:

25 Q. So let's just use one as an example here.

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1 Let's go with Western Avalon. So at Western

2 Avalon the cost of the - we see in 2014

3 actuals, because that's easier, I just wanted

4 to use an easy example because the other one

5 is spread over two years, and it gets a little

6 bit more complicated, but just at the theory

7 level, 2014, Western Avalon, the new equipment

8 cost just over a million dollars, right?

9 MR. KENNEDY:

10 A. Correct.

11 GREENE, Q.C.:

12 Q. And we saw that was the one that was almost

13 three-quarters dead?

14 MR. KENNEDY:

15 A. I would say three-quarters consumed, I guess.

16 GREENE, Q.C.:

17 Q. So that's where the 71 percent comes from, and

18 what Hydro is proposing rather than the full

19 capital disallowance, they are suggesting a

20 modification of Liberty's proposed

21 disallowance, and what they are doing is

22 they're taking the original cost and

23 multiplying it by the used life of that asset,

24 the 71 percent, and we come up with

25 \$722,000.00, and then you say, "Net Western

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1 Avalon equipment is \$291,000.00". So in this

2 particular case, Hydro is proposing to put in

3 rate base, the \$290,000.00?

4 MR. KENNEDY:

5 A. This is where we're going to start

6 disagreeing. Actually, Hydro is planning to

7 put into a rate base the betterment

8 expenditure of the \$722,000.00.

9 GREENE, Q.C.:

10 Q. Okay.

11 MR. KENNEDY:

12 A. And this - maybe if I can kind of explain that

13 a little bit. That would reflect the fact

14 that there's an old asset that had lived 71.29

15 percent of its life that is now being replaced

16 by a new asset that's going to start its life

17 again at step zero, if you will. So consumers

18 have been party to the benefit of that old

19 asset for the 71 percent of its life that has

20 occurred, but now they are now going to get

21 the benefit of an asset starting at age zero

22 again, and will relive that 71 percent of its

23 life again. So if you have an asset that was

24 going to live ten years and it gets to 70

25 percent of its life, it lives to seven, and

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1 the new asset comes in that's going to live

2 seven, in total you're going to have an asset

3 that lives 17 years, or you're going to have

4 two assets combined that will live 17 years.

5 This calculation is meant to provide for the

6 fact that, yes, there was a three year

7 reduction over the 20 that the two 10 year

8 life assets would normally live, but there's

9 going to be a new asset to the benefit of

10 payers that will live another full life cycle.

11 So what we do is we - the suggestion is that

12 we would put into rate base the portion of the

13 new asset that's going to relive starting from

14 scratch from age zero through to 71 percent

15 again. In other words, what we're trying to

16 recognize is the fact that in the ruling of an

17 imprudence that the asset came out of service

18 only slightly early, but there's a benefit of

19 a brand spanking new asset that's going to

20 live one whole new life cycle, in essence, a

21 new car, it's going to live for the whole

22 benefit of that new car going through, and the

23 estimate, in my mind, the fair way of doing

24 that is to say it's going to relive a portion

25 of the asset that went away. Coming back to



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1 the original principle, if an asset was fully  
 2 consumed and was retired for no reason of  
 3 imprudence, you would recover 100 percent of  
 4 that new asset again. Here we're looking at -  
 5 and the reason you've recovered again is  
 6 because you have an asset that's going to live  
 7 another one whole life cycle. So what we're  
 8 looking at here is the overlap, if you will,  
 9 is the consumed portion of the old asset that  
 10 complete relives as part of that new  
 11 investment. That may be a long answer to a  
 12 short question, Ms. Greene, but I think it's  
 13 kind of important to understand that concept.  
 14 It really wasn't easy to write, and I'm quite  
 15 certain that it's a little bit confusing as  
 16 well.

17 GREENE, Q.C.:  
 18 Q. So in this particular -  
 19 MR. KENNEDY:  
 20 A. I'm not sure if I made it any clearer, quite  
 21 frankly.

22 GREENE, Q.C.:  
 23 Q. So in this particular case, Hydro's proposal  
 24 is to include in rate base this \$700,000.00.  
 25 Do you know what the net book value of the

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1 Western Avalon equipment was that failed at  
 2 the time of its failure?  
 3 MR. KENNEDY:  
 4 A. Not off the top of my head, but I can give you  
 5 a pretty reasonable estimate of it. The  
 6 original cost of the equipment that failed at  
 7 Western Avalon - well, the amount retired was  
 8 2.1 million dollars. We estimated that it was  
 9 71 percent consumed, so the net book value  
 10 should have been something similar to the 2. 1  
 11 million multiplied by the 71.29 percent. Now  
 12 that varies a bit because the 71 percent is an  
 13 average number. There would be some to's and  
 14 fro's from that, but generally that would be a  
 15 pretty close approximation of the net book  
 16 value.

17 (9:45 a.m.)  
 18 GREENE, Q.C.:  
 19 Q. So less than \$700,000.00?  
 20 MR. KENNEDY:  
 21 A. Yes.

22 GREENE, Q.C.:  
 23 Q. Then what was left over after the \$700,000. 00  
 24 goes in rate base is \$300,000.00, and what  
 25 happens to that?

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1 MR. KENNEDY:  
 2 A. That in essence is the loss on retirement that  
 3 would be written off by the utility.  
 4 GREENE, Q.C.:  
 5 Q. Or in other - in the language that we're using  
 6 it, it would be the amount of the disallowance  
 7 that Hydro - Hydro wouldn't be able to recover  
 8 that particular amount because of its  
 9 imprudence?

10 MR. KENNEDY:  
 11 A. That \$291,000.00 approximately, yes. In the  
 12 ruling - that would be dependent on the ruling  
 13 that this Commission is making.

14 GREENE, Q.C.:  
 15 Q. Right, and if we go back, and I'm not going to  
 16 do it, but the same principles apply to what  
 17 you've done for Sunnyside, is that correct?

18 MR. KENNEDY:  
 19 A. That is correct.

20 GREENE, Q.C.:  
 21 Q. Okay. Do you know what the net book value was  
 22 for the Sunnyside equipment that failed?

23 MR. KENNEDY:  
 24 A. It would be a similar kind of calculation. It  
 25 would be - the original cost of assets retired

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1 at Sunnyside were approximately 1.1 million,  
 2 and they were, in essence, consumed by 55  
 3 percent, so it would be 55 percent of the 1. 1  
 4 million.

5 GREENE, Q.C.:  
 6 Q. So again it would be less than what Hydro is  
 7 proposing to include in rate base for the new  
 8 equipment?  
 9 MR. KENNEDY:  
 10 A. The net book value of the old equipment, yes,  
 11 and there's two factors to that, ma'am. One  
 12 is the fact that the old equipment is 40 years  
 13 old, so there's 40 years of inflation on the  
 14 replacement cost of the asset to begin with,  
 15 you know, so that alone will cause a  
 16 discrepancy between the net book value of the  
 17 old and the new, and it also, in my mind,  
 18 recognizes the fact that there's a brand new  
 19 asset that's going to live one more whole life  
 20 cycle.

21 GREENE, Q.C.:  
 22 Q. Okay, and that makes perfect sense from an  
 23 accounting perspective. From a customer  
 24 perspective, Hydro is taking out equipment  
 25 that the customer was paying for in this test

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1 year at a lower cost associated with the  
 2 equipment, is that correct?  
 3 MR. KENNEDY:  
 4 A. The cost of that equipment was lower, yes.  
 5 GREENE, Q.C.:  
 6 Q. Right, and now what this proposal would result  
 7 in is customers paying more than they would  
 8 have otherwise paid in this particular rate  
 9 proceeding?  
 10 MR. KENNEDY:  
 11 A. They would. That would have been the same  
 12 circumstance had that equipment retired for  
 13 any reason.  
 14 GREENE, Q.C.:  
 15 Q. And again we come back, as we said earlier in  
 16 your cross-examination, you don't look at the  
 17 cause of failure, it's totally irrelevant from  
 18 the accounting perspective?  
 19 MR. KENNEDY:  
 20 A. From the - I wouldn't say it's totally  
 21 irrelevant, as I described before. We do look  
 22 to see what caused - the force of retirement  
 23 is a failure, but what caused that failure is  
 24 not something I review.  
 25 GREENE, Q.C.:

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1 Q. Now I'd like to go to Liberty's December  
 2 interim report in the investigation which was  
 3 filed in this proceeding, Information #25, and  
 4 it's page 89, Chart 5.16. I must say, Mr.  
 5 Kennedy, when I read your report, I said, gee,  
 6 how does this work; if it's always better to  
 7 replace an asset with a younger asset, and I  
 8 hope it doesn't apply to people, replacing  
 9 older lawyers with younger ones because it's  
 10 better -  
 11 MR. KENNEDY:  
 12 A. Or depreciation consultants.  
 13 GREENE, Q.C.:  
 14 Q. I looked at it and I said, Hydro has all of  
 15 these assets and it looks like - on the  
 16 previous page, it stated that 67 percent of  
 17 transformers are in service over 30 years, and  
 18 38 percent are in service over 45 years. If  
 19 it's better to retire them early, why don't we  
 20 just go start replacing all of these pieces of  
 21 equipment at 20 years or 21 years. How does  
 22 that better the rate payer, the customer,  
 23 because from your perspective it means it's  
 24 better off replacing the equipment before they  
 25 fail?

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1 MR. KENNEDY:  
 2 A. Well, I think - I want to be careful how I  
 3 answer that only because I think it's  
 4 important to understand that - I don't know of  
 5 a utility in this country that would just  
 6 replace stuff for the sake of replacing.  
 7 GREENE, Q.C.:  
 8 Q. Oh, that I know.  
 9 MR. KENNEDY:  
 10 A. And so the idea of betterment is suggesting  
 11 that if you can do certain things, make it  
 12 more operationally efficient, provide a longer  
 13 total service life, etc, then, yes, that is  
 14 the time to replace stuff. I would never  
 15 suggest a utility that has a 20 year old  
 16 perfectly fine operating transformer replace  
 17 it just because they want to put a nice new  
 18 shiny box in. In the case where we are here,  
 19 and I think it's something important for maybe  
 20 this Commission to understand, and this is  
 21 something we see with utilities across the  
 22 country, our infrastructure of utilities is  
 23 aging, and we are getting into what's often  
 24 referred to as a wave of retirements coming  
 25 up, and that wave of retirements is going to

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1 hit because mechanical equipment like this is  
 2 going to start failing, whether it's  
 3 imprudently operated or not because it is  
 4 starting to get old, and it will become  
 5 impractical to continue to increase operating  
 6 costs to keep equipment running. So we will  
 7 start seeing increased amounts of retirement,  
 8 in my view, right across this country with the  
 9 electric systems to deal with aging  
 10 infrastructure, and that's what we're seeing  
 11 in this chart. Now to your question, and I  
 12 think this is where Hydro is suggesting that  
 13 we - in the question, was it replaced earlier  
 14 than it ought to have been; we make that  
 15 adjustment as we've described in the pages we  
 16 just went through in my study to reflect that  
 17 there is a reduction equal to the unconsumed  
 18 portion - of the unconsumed portion that that  
 19 asset could have lived, the remaining life,  
 20 that becomes the area of, if you will,  
 21 disallowance, but you're going to relive the  
 22 area that that old asset could have lived  
 23 again, and so we make this adjustment.  
 24 There's a life cycle that goes from point "A"  
 25 to point "B", but in the middle of that point

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1 there's a spot and you replace the asset. We  
 2 need to reflect the fact that the consumed  
 3 portion of that asset is going to relive on  
 4 the basis of the new expenditure. It then  
 5 becomes a question of how do we calculate that  
 6 adjustment, and I think what we've come up  
 7 here is, quite frankly, quite reasonable in  
 8 that we are making the adjustment to the cost  
 9 of the new asset, which is the higher cost  
 10 based asset. We're not making the adjustment  
 11 to the lower cost based asset being the  
 12 replaced asset. So if anything, the utility  
 13 is in essence eating the impacts of inflation  
 14 inside that adjustment.  
 15 GREENE, Q.C.:  
 16 Q. And from a customer perspective, Hydro's  
 17 proposal results in customers in this rate  
 18 case actually paying more through the increase  
 19 in the rate base for the new asset than it  
 20 would have absent the failures?  
 21 MR. KENNEDY:  
 22 A. Largely because of the increased cost of the  
 23 new asset. The circumstances beneficial to  
 24 the customers now if in the circumstance that  
 25 same transformer would fail for another cause

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1 a year from now, the customers would probably  
 2 be absorbing 100 percent of the cost of that  
 3 new asset.  
 4 GREENE, Q.C.:  
 5 Q. And that makes sense in a normal world, and, I  
 6 guess, the issue here before the Commissioners  
 7 is if there is a finding of imprudence, how  
 8 does that affect recovery of cost, and as we  
 9 went through that, it's not your area of  
 10 expertise.  
 11 MR. KENNEDY:  
 12 A. I can help with the calculations, but not  
 13 necessarily the finding of imprudence is not  
 14 my area of expertise.  
 15 GREENE, Q.C.:  
 16 Q. Or how to treat the consequence of that  
 17 imprudence?  
 18 MR. KENNEDY:  
 19 A. In terms of rate design, I would not say, I'm  
 20 not a rate design person.  
 21 GREENE, Q.C.:  
 22 Q. Okay, thank you. That's all my questions.  
 23 MR. KENNEDY:  
 24 A. Okay.  
 25 CHAIRMAN:

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1 Q. So we're over to Mr. O'Brien, I think.  
 2 MR. O'BRIEN:  
 3 Q. As much as I love to ask questions, I don't  
 4 have any.  
 5 CHAIRMAN:  
 6 Q. Mr. Johnson, are you brave or -  
 7 JOHNSON, Q.C.:  
 8 Q. A little bit.  
 9 CHAIRMAN:  
 10 Q. Well, we commend you for your bravery. I  
 11 don't know about your wisdom.  
 12 JOHNSON, Q.C.:  
 13 Q. I didn't certify to that, I'll tell you.  
 14 MR. LARRY KENNEDY - CROSS-EXAMINATION BY JOHNSON, Q.C.:  
 15 JOHNSON, Q.C.:  
 16 Q. Just on the level of principle, and thank you  
 17 very much, Ms. Greene, for going first, on the  
 18 level of principle, would you accept the  
 19 premise that when a utility, by imprudent  
 20 action, causes the need to replace existing  
 21 equipment with new equipment, that customers  
 22 should, in fact, pay no more than they would  
 23 have paid in the absence of that imprudence?  
 24 I mean, that to me is the core principle, call  
 25 it betterment, call it what you will, but

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1 that's the key question I got for you as a  
 2 matter of principle?  
 3 MR. KENNEDY:  
 4 A. I think we need to define that time period of  
 5 when the customer would pay no more.  
 6 JOHNSON, Q.C.:  
 7 Q. And let me define that for you. This rate  
 8 case, that's what we're here talking about  
 9 now, the revenue requirement for Hydro.  
 10 MR. KENNEDY:  
 11 A. In terms of the very short term, I don't know  
 12 that - I don't think you can look at it in  
 13 that short term of a picture because  
 14 eventually that new transformer was going to  
 15 be required and included in a rate base. So  
 16 to the extent that that new transformer is  
 17 going to be required, and probably required in  
 18 the not too distant future, we're talking  
 19 within may be the next couple of rate cases,  
 20 it's highly probable that a 40 year old  
 21 transformer could fail and require  
 22 replacement. Air blast circuit breakers are  
 23 being retired right across this country, not  
 24 because of any imprudence, so that equipment  
 25 will need to be replaced in the relatively

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1 near future, not necessarily in this rate case  
 2 to your point, Mr. Johnson, but that equipment  
 3 will need to be replaced, and I think if one  
 4 looks at the period a little bit longer over  
 5 the life cycle, then I think the need to  
 6 include those costs of that new transformer is  
 7 reasonable. It's like buying insurance; is it  
 8 reasonable for me to pay my insurance company  
 9 for my insurance on my vehicle today, it costs  
 10 me money, it's money out of my wallet, I'm not  
 11 getting a penny of benefit of that insurance,  
 12 I don't get the benefit until my car goes  
 13 away. It's five years from now when my idiot  
 14 son decides to hit a pole that I may get the  
 15 benefit of my insurance that I'm paying today.  
 16 That's money out of my pocket today for the  
 17 benefit of the long term, and this is somewhat  
 18 the same kind of situation where the customers  
 19 of this province are going to get the benefit  
 20 of brand new equipment that's going to last  
 21 another 40 or 50 years. Somewhere there has  
 22 to be the inclusion of those costs; otherwise,  
 23 to not put those costs into rate base,  
 24 somebody has to bear that brunt of that new  
 25 transformer that was going to be required

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1 probably in the next ten years.  
 2 JOHNSON, Q.C.:  
 3 Q. Would you accept the principle that what we're  
 4 aiming to get at is putting the customer in  
 5 the place where they would have been but for  
 6 utility improvements?  
 7 MR. KENNEDY:  
 8 A. I would think you're aiming to get there, but  
 9 I don't think you can do it in one - in this  
 10 year. I think you have to look at the life  
 11 cycle of the fact the customers are gaining  
 12 the benefit of an asset that's going to live  
 13 an additional 40 years or 50 years.  
 14 JOHNSON, Q.C.:  
 15 Q. But put yourself in the customers standpoint,  
 16 and just go back to your car example. Say the  
 17 customer is being charged for this car and the  
 18 car is working properly, it's old, but it's  
 19 not considerably old by the way cars are in  
 20 age, etc, and the nice thing about this car is  
 21 that it goes from "A" to "B" and it's really  
 22 been depreciated over a long period of time so  
 23 it's not eating much grass any more, they've  
 24 gone through that heavier depreciation period,  
 25 it's working fine, and but for utility

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1 improvements, the customer would have said,  
 2 boy, whenever this dies by way of natural  
 3 causes or whatever, you know, we can rest  
 4 assured that our rates will be based on the  
 5 cost of this asset. Now you're coming along  
 6 and saying, sorry - and this is just  
 7 hypothetical, the Board will deal with  
 8 imprudence, but, sorry, I know you like that  
 9 car, but here's another one, it's brand new,  
 10 it doesn't do anything more for you, it's just  
 11 going to last longer, okay, it's still an "A"  
 12 to "B" proposition, but you got to pay for  
 13 that. Do you see an element of where a  
 14 customer would say, hold on now, I'm not being  
 15 treated economically the same as I would have  
 16 been but for your damaging my perfectly good  
 17 car.  
 18 MR. KENNEDY:  
 19 A. And I can understand that point sir. The  
 20 rebuttal I'd make to your example is that  
 21 person driving that car from "A" to "B" is  
 22 going to have a car that drives from "A" to  
 23 "B" for another ten or fifteen years rather  
 24 than maybe another year or two, and so I agree  
 25 in the next year or two perhaps there's a

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1 cost, but that's part of the cost of having  
 2 that car for the next ten or fifteen years  
 3 beyond.  
 4 JOHNSON, Q.C.:  
 5 Q. But you put it in terms of having the car for  
 6 another year or two, but maybe the car is good  
 7 for another five or six, properly maintained,  
 8 looked after, you know, undercoated, all that  
 9 type of stuff, you get five or six more years  
 10 out of it.  
 11 MR. KENNEDY:  
 12 A. And, sir, that's the reflection we tried to  
 13 make in the calculations that Ms. Greene took  
 14 me through, where we said how much of that car  
 15 would have been remaining, and the portion of  
 16 that car that would have been remaining formed  
 17 the genesis of the adjustment that we're  
 18 making in terms of the disallowed cost. So  
 19 we're saying if that car really only had a  
 20 year or two, that's a different calculation  
 21 than we would make and a different result than  
 22 we would have gotten in the calculation that  
 23 we made in the circumstances where that car  
 24 had maybe a ten year remaining life, and  
 25 that's part of the difference that we saw

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1 between the calculations we made for Sunnyside  
 2 and Western Avalon where the remaining  
 3 expectation of the old assets was quite  
 4 different. So attempted to make that  
 5 distinction of how long that car of these  
 6 assets would have lived absent the retirement  
 7 for - the unexpected retirement of those  
 8 assets.  
 9 JOHNSON, Q.C.:  
 10 Q. And what did you say was the average period  
 11 that we could have expected out of these type  
 12 of assets?  
 13 (10:00 a.m.)  
 14 MR. KENNEDY:  
 15 A. We would expect that the assets would live 55  
 16 years. That's the average life estimate.  
 17 JOHNSON, Q.C.:  
 18 Q. Yeah.  
 19 MR. KENNEDY:  
 20 A. The retirement curve that would go with those  
 21 assets would start to see significant  
 22 probability of retirement starting as early as  
 23 age 35.  
 24 JOHNSON, Q.C.:  
 25 Q. Yes, okay, but, of course, these assets have

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1 already lived past some of the early years in  
 2 the distribution.  
 3 MR. KENNEDY:  
 4 A. Yes.  
 5 JOHNSON, Q.C.:  
 6 Q. It's gotten past some of the premature failure  
 7 things. Now it's 40 seasoned -  
 8 MR. KENNEDY:  
 9 A. Right.  
 10 JOHNSON, Q.C.:  
 11 Q. So it might, in fact, last longer than the  
 12 average?  
 13 MR. KENNEDY:  
 14 A. We reflected those calculations, sir, in the  
 15 original report in the detail pages. We  
 16 looked at the remaining expected life of an  
 17 asset that reached the age of retirement of  
 18 those assets. In other words, the example of  
 19 human beings, for example, the people that  
 20 lived to an age of 58 because 1958 was a great  
 21 year for the development of humans, my average  
 22 age at birth was maybe 80 years, and because  
 23 I'm up to the age that I am, my average life  
 24 expectancy is probably something more like 82  
 25 or 82 years because I've gone past those

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1 forces of mortality that formed part of that  
 2 80 year estimate at birth. We made that same  
 3 calculation, sir, for the Western Avalon and  
 4 Sunnyside calculations to reflect that their  
 5 average remaining life was longer now at the  
 6 age they were than they would have been at day  
 7 one of their existence, so I think we did take  
 8 that into account sir.  
 9 JOHNSON, Q.C.:  
 10 Q. You indicated that there would be a bit of a  
 11 dispute when you were being examined by Ms.  
 12 Greene about treating it from an accounting  
 13 perspective and an operational perspective.  
 14 Could you just indicate what you were getting  
 15 at there?  
 16 MR. KENNEDY:  
 17 A. Certainly. This is one of the issues we get  
 18 into in a lot of proceedings. Every  
 19 mechanical device or every asset has a  
 20 physical life characteristic based purely on  
 21 wear and tear of an asset. However, there's  
 22 other forces of retirement that can impact an  
 23 asset other than physical wear and tear. A  
 24 transformer will wear out, it's going to be  
 25 maintained, it's going to have a certain life

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1 estimate from a purely operational point of  
 2 view. A transformer can retire due to  
 3 capacity issues, a transformer can be hit by  
 4 lightning, a transformer can be hit by  
 5 changes in environmental standards concerning  
 6 PCB oils within the transformer. There's many  
 7 forces that can cause a retirement of a  
 8 transformer that aren't purely the wear and  
 9 tear of the life expectancy, the operational,  
 10 so when you see the points based on an  
 11 engineering operational life, that's usually,  
 12 in essence, the longest possible number.  
 13 Those seldom reflect the other economic, the  
 14 other forces of retirement that, in essence,  
 15 may be out of the control of the operator, or  
 16 it may be in the control, but assets would  
 17 retire due to technology changes. I know air  
 18 blast circuit breakers are at issue a bit  
 19 here, and we're seeing that across the country  
 20 that the move to the SF6 technology from  
 21 breakers started 20 years ago, and it's really  
 22 accelerating because air blast breakers not  
 23 operating necessarily as reliably as once  
 24 thought were. So it's not all - that life  
 25 estimate needs to consider more than just the

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1 how long can an engineer make - or an  
 2 operating engineer make an asset last. My  
 3 grandfather for many, many years would have  
 4 had a Model T Ford. It cost him probably ten  
 5 times the original cost of that car per year  
 6 in the last years of that car. You can make  
 7 the car run, you can make that car run  
 8 forever, but it was costing him a massive  
 9 amount of money. Now had that car been hit by  
 10 lightning, it wouldn't have lasted so long.  
 11 So we can do operational practices and  
 12 maintenance practices and make assets last a  
 13 long time, but there's other forces of  
 14 retirement other than those pure operational  
 15 factors. That was the genesis of what I  
 16 thought may be a debate with Ms. Greene and  
 17 myself.  
 18 JOHNSON, Q.C.:  
 19 Q. Thank you very Much.  
 20 MR. COXWORTHY:  
 21 Q. No questions, Mr. Chair.  
 22 MR. FLEMING:  
 23 Q. No questions.  
 24 CHAIRMAN:  
 25 Q. I think I'm over to you, am I?

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1 CROSS-EXAMINATION BY VICE CHAIR DARLENE WHALEN  
 2 VICE CHAIR WHALEN:  
 3 Q. It seems to me that we're in a but for  
 4 argument. It's sort of a question of the  
 5 finding that the Board is going to have to  
 6 make is but for the actions of the Utility,  
 7 where would we be today? Absent our finding  
 8 that we're going to have to make and it seems  
 9 to me, just following up on Mr. Johnson's--and  
 10 I appreciate your car analogy because that's  
 11 sort of what I was trying to think about.  
 12 That the rate payers of today are going to pay  
 13 more for an asset that they wouldn't otherwise  
 14 have needed, but for the actions of the  
 15 Utility, if a finding of imprudence is made.  
 16 MR. KENNEDY:  
 17 A. I would agree that they may not need that  
 18 asset today, but they're going to eventually  
 19 need that asset, at some point in time in the  
 20 future.  
 21 VICE CHAIR WHALEN:  
 22 Q. But does that raise a concern of an inter-  
 23 generational equity issue, that rate payers --  
 24 the rate payers ten years down the road or 20  
 25 years down the road should be paying for the

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1 asset, but for.  
 2 MR. KENNEDY:  
 3 A. And I think that generally that inter-  
 4 generational argument can cut both ways, quite  
 5 frankly. If you don't allow the cost of that  
 6 new asset to go in, the future rate payers are  
 7 going to be using an asset that they haven't  
 8 paid anything in terms of placing into  
 9 service.  
 10 VICE CHAIR WHALEN:  
 11 Q. I guess that's the dilemma that I'm trying to  
 12 deal with in my mind. If a finding of  
 13 imprudence is made and the asset is in place  
 14 and it's being used and it goes into rate base  
 15 and the utility is entitled to earn on what's  
 16 in its rate base, where's the penalty for the  
 17 imprudence then?  
 18 MR. KENNEDY:  
 19 A. I think that penalty comes in two forms. One  
 20 is the utility is going to eat the cost of the  
 21 loss on retirement on the old asset and that  
 22 would in essence mean go to the net book value  
 23 of that asset. So because that asset removed  
 24 from service earlier than would otherwise have  
 25 occurred, that loss on retirement is higher at

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1 this point in time than it would be had that  
 2 asset stayed in service and retired for other  
 3 causes later on. So it's a penalty in that  
 4 aspect.  
 5 Secondly, the utility is, as part of the  
 6 calculations that I made in my report, is in  
 7 essence applying the penalty against the cost  
 8 of the new asset rather than the cost of the  
 9 old asset. So not only is the utility, to  
 10 some extent, eating the loss on retirement of  
 11 the old asset, on that consumed portion of the  
 12 asset, they're also eating the impact of  
 13 inflation because that new asset is going to  
 14 be, you know, two to three times more  
 15 expensive than the old one would have been.  
 16 So because we apply that percentage against  
 17 the cost of the new, there's a hit there I  
 18 think as well.  
 19 So I think the overall goal of the  
 20 calculation -- it may not be apparent in the  
 21 calculations, but the overall goal of the  
 22 calculations is to ensure that really the  
 23 customers over the long term are paying for  
 24 the asset they have in service through that  
 25 adjustment that we make on the page that Ms.

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1 Greene and I went through.  
 2 VICE CHAIR WHALEN:  
 3 Q. Is there -- I'm an engineer. I'm not an -- I  
 4 don't appreciate the accounting side of this  
 5 in the best of times, but is there a place  
 6 where you can go where -- I mean,  
 7 understanding the asset becomes used and  
 8 useful the minute it goes into service and I  
 9 agree, I mean, once it's used and useful, the  
 10 utility accounting principles kick in then and  
 11 the utility should be entitled to earn on it.  
 12 But is there a place where the rate payer gets  
 13 protected from the actions of the utility by  
 14 virtue of the fact that it goes into rate  
 15 base, but there is no earnings on it before  
 16 the expected lifespan of the asset that  
 17 failed? Like is that a machination of  
 18 accounting that just doesn't happen?  
 19 MR. KENNEDY:  
 20 A. And I think that to some degree that is the  
 21 calculation we tried to make when we -  
 22 VICE CHAIR WHALEN:  
 23 Q. Oh, that doesn't come through to me at all.  
 24 MR. KENNEDY:  
 25 A. Does not come across. So perhaps the best --

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1 the page that Ms. Greene and I were looking at  
 2 where we have that calculation, in there the  
 3 bottom number there, the relation to -- yeah,  
 4 thank you. Perfect. The numbers on the page  
 5 just put up on the screen, in essence the  
 6 utility is eating, in this case, \$961,000 of  
 7 the cost of the new asset and in the case of  
 8 the western Avalon, the utility would be  
 9 absorbing \$291,000 of the cost of the new  
 10 asset. Quite honestly, that's kind of the  
 11 penalty, if you will, that the utility is  
 12 absorbing for the cause of the retirement to  
 13 occur early. So the customers are gaining the  
 14 benefit of approximately three million dollars  
 15 of assets at Sunnyside, or if we take out the  
 16 adjustment for breakers, 2.1 million dollars  
 17 of asset, but are only going to absorb into  
 18 rate base 1.1 million. So there is almost a  
 19 million dollars of adjustment made to  
 20 recognize that consideration. And I think in  
 21 making this adjustment against the cost of the  
 22 new, there is some impact that the company is  
 23 absorbing that rate of inflation that's gone  
 24 on from the old to the new asset.  
 25 So I think -- and I understand your

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1 dilemma and I understand the dilemma that Mr.  
 2 Johnson put forward. The intent was to deal  
 3 with that dilemma through this cost adjustment  
 4 if there was a finding of imprudence. Now,  
 5 the utility is not only taking the loss on the  
 6 old asset, they are also taking a loss on the  
 7 capitalization of the new asset for almost a  
 8 million dollars, which is in part the  
 9 reflection of that coming out. What that does  
 10 leave in the rate base hands is the  
 11 expectation that this asset is going to live  
 12 another whole life way beyond what that old  
 13 asset would have and the approximately 1.1  
 14 million dollars of what I term as betterment  
 15 is that reflection of that period of that  
 16 extra life that the customers will get over  
 17 the long term.  
 18 VICE CHAIR WHALEN:  
 19 Q. Yes, and I guess because the argument is going  
 20 to a life extension one and it's not gone to  
 21 quality of service or better service or  
 22 customers are not going to see -- today's  
 23 customers who will start paying are not going  
 24 to see a benefit of it. It'll be the  
 25 customers 40 years down the road who would see

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1 the benefit.  
 2 MR. KENNEDY:  
 3 A. Right.  
 4 VICE CHAIR WHALEN:  
 5 Q. I guess that's the dilemma in my mind is I  
 6 can't see the rate payer benefit of this  
 7 happening right now because it's an asset that  
 8 could have, probably would have, stayed in  
 9 service for another 20 years and would have  
 10 been fully depreciated and you know, would  
 11 have -  
 12 CHAIRMAN:  
 13 Q. Could have carried on.  
 14 VICE CHAIR WHALEN:  
 15 Q. That's the -  
 16 MR. KENNEDY:  
 17 A. And I do understand that dilemma and like I  
 18 say, I think that's the intent of making this  
 19 adjustment that we did of a million dollars is  
 20 to try to reflect that to today's customers.  
 21 Ultimately in 20 years from now, three million  
 22 dollars of that transformer would have been  
 23 probably four or five million. So definitely  
 24 future rate payers are gaining a large  
 25 benefit. I quite understand that. But I

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1 think today's rate payers are being adjusted  
 2 or the revenue requirement is being adjusted  
 3 in a manner that recognizes the fact that to  
 4 try to deal with that dilemma to take that on.  
 5 VICE CHAIR WHALEN:  
 6 Q. That's as far as I'm willing to go.  
 7 CHAIRMAN:  
 8 Q. Do you have any?  
 9 COMMISSIONER OXFORD:  
 10 Q. No.  
 11 COMMISSIONER NEWMAN:  
 12 Q. No.  
 13 (10:15 a.m.)  
 14 CROSS-EXAMINATION BY CHAIRMAN WELLS  
 15 CHAIRMAN:  
 16 Q. Well, I'm going to try. Or am I going to try?  
 17 The concept of opportunity costs or time  
 18 preference, how does that play into what  
 19 you're talking about here? Does it play a  
 20 role? I mean, I got a -- I have an asset and  
 21 it still has a lot of useful life, so why  
 22 should I replace it if it still has -- unless  
 23 the cost of maintaining, I mean, unless it's  
 24 like your father's Model T, the cost of  
 25 keeping it on the road is the same as the cost

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1 of buying a new one. I mean, in that --  
 2 obviously clearly there was a previous time  
 3 period when you should have bought a new  
 4 vehicle. So, if -- I guess I'm trying to take  
 5 up where -- and I'm not an engineer either. I  
 6 mean, I don't know what I am, but does the  
 7 interest rates, for instance, play a role? Or  
 8 you know, if the maintenance costs on the  
 9 product in question, if the maintenance costs  
 10 are quite reasonable, still within reasonable  
 11 range, what justification can there be for  
 12 trying to replace it?  
 13 MR. KENNEDY:  
 14 A. And again, to that point -  
 15 CHAIRMAN:  
 16 Q. Does that make any -- if it doesn't make any  
 17 sense, just tell me because I'm not sensitive.  
 18 MR. KENNEDY:  
 19 A. No, that's fine, sir. I understand the  
 20 dilemma and I think the question is how much  
 21 of an adjustment is made to the benefit of  
 22 today's toll payer to deal with that dilemma.  
 23 The fact is there will be some operating cost  
 24 savings, I think, on -- that didn't make  
 25 sense. There will likely be some operating

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1 cost savings on the fact you now have a new  
 2 asset in service, as compared to a 40-year-old  
 3 asset. But again, that's very difficult and I  
 4 did not attempt to even quantify that because  
 5 that's not my area of expertise. But I think  
 6 the calculation was made such to try to  
 7 recognize that. The rate base will go up in  
 8 the case of my example by about 1.1 million,  
 9 but there's also been a retirement or a loss  
 10 on retirement of those old assets that is  
 11 coming out of rate base and the fact is that  
 12 there is going to be an asset in service for a  
 13 longer period of time.  
 14 I agree and I understand the dilemma that  
 15 today's customer says "I had a transformer  
 16 providing service. I don't care that that new  
 17 one goes in and lasts 25 years versus two  
 18 years" but the fact is you do have an asset  
 19 that's going to last longer.  
 20 Your question on opportunity cost, I'm  
 21 not sure that that's a relevant consideration,  
 22 other than the fact that the longer you wait  
 23 to put that new asset in, it's going to cost  
 24 some rate payer at some point in time more  
 25 because of inflation. In other words, if we

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1 wait 15 years to put that new transformer in,  
 2 what's now 3.2 million is likely to be four or  
 3 five million dollars. But that's, again, to  
 4 the consideration of the future rate payers  
 5 and not necessary -  
 6 CHAIRMAN:  
 7 Q. But that depends on -- I mean, if interest  
 8 rates are low, do interest rates play a role?  
 9 MR. KENNEDY:  
 10 A. Oh, in terms of cost of capital for financing.  
 11 CHAIRMAN:  
 12 Q. Yeah.  
 13 MR. KENNEDY:  
 14 A. Now you're into an area that I think I  
 15 acknowledged to Ms. Greene that really isn't  
 16 my area. I'm a bit nervous to venture down  
 17 that path very much because it's truly not my  
 18 area. And I think the intent was -- in this  
 19 application and these betterment calculations,  
 20 is to try to, in the ruling of imprudence, to  
 21 demonstrate that we have attempted to make an  
 22 adjustment to the benefit of today's toll  
 23 payers to reflect the dilemmas that you're  
 24 struggling with and I think these are  
 25 adjustments that, in essence, you know,



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1 reflect almost a third of the cost of that new  
 2 equipment in the case of Sunnyside and it's a  
 3 large adjustment that the utility would say  
 4 well is a fair recognition of that.  
 5 Now is there a rate deferral mechanism or  
 6 something, that definitely is something that  
 7 I'm kind of out of my area when I start  
 8 talking to that though, those concepts. I'm  
 9 not -- there may be other mechanisms. I'm  
 10 just not comfortable getting into what those  
 11 may or may not be because I didn't qualify  
 12 myself on those areas and I wouldn't qualify  
 13 myself on those areas. I don't know if I  
 14 managed to muddle the question more or not,  
 15 but -  
 16 CHAIRMAN:  
 17 Q. I think you did, but I mean, anyway look, it's  
 18 -- the old saying goes it concentrates the  
 19 mind. I'm finished. Back to you, sir.  
 20 MR. MACDOUGALL:  
 21 Q. Yes, thank you very much, Mr. Chair. Again,  
 22 Hydro would just like to thank everybody for  
 23 having accommodated Mr. Kennedy. I have no  
 24 redirect. I would just comment for the record  
 25 though all this discussion about premature

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1 death on the day before All Hallow's Eve seems  
 2 to be quite appropriate. So it was probably  
 3 useful that we put Mr. Kennedy out of order to  
 4 do that. Thank you very much, Mr. Chair.  
 5 CHAIRMAN:  
 6 Q. Thank you, sir.  
 7 MR. KENNEDY:  
 8 A. Thank you for your accommodations on the  
 9 schedule. I appreciate it.  
 10 MS. GLYNN:  
 11 Q. We'll take a quick break now, just to -  
 12 CHAIRMAN:  
 13 Q. Okay.  
 14 (BREAK - 10:19 a.m.)  
 15 (RESUME - 10:38 a.m.)  
 16 CHAIRMAN:  
 17 Q. So I think we're back, Mr. Johnson, to you.  
 18 Is that correct, sir?  
 19 MR. DARREN MOORE, MR. ROBERT HENDERSON, MR. TERANCE  
 20 LEDREW, MR. PAUL HUMPHRIES (PREVIOUSLY SWORN), RESUME  
 21 STAND  
 22 CROSS-EXAMINATION BY THOMAS JOHNSON, Q.C. (CONT'D)  
 23 JOHNSON, Q.C.:  
 24 Q. Yes, it is, sir. Thank you very much.  
 25 Gentlemen, I guess we've just finished with

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1 depreciation, so it's very good to see you. I  
 2 want to -- now I want to talk about acetylene.  
 3 You never know, do you? Mr. Moore, when we  
 4 left off, we were speaking about the acetylene  
 5 readings for the Sunnyside transformer and I  
 6 was asking yesterday if it had gone to 11  
 7 parts per million before, and have you got any  
 8 further insight on that this morning?  
 9 MR. MOORE:  
 10 A. I did look at the June 2nd report of 2014  
 11 where we included all the levels back to the  
 12 early '90s for all our transformers.  
 13 JOHNSON, Q.C.:  
 14 Q. Right.  
 15 MR. MOORE:  
 16 A. And I don't think it ever reached 11. It may  
 17 have been 10 I think it reached at one point  
 18 in time, but through our consultation with the  
 19 transformer manufacturer and the levels that  
 20 we had been seeing, they were quite confident  
 21 that the levels that we're seeing were  
 22 resulting from migration from the tap changer  
 23 compartment and when they did see that last  
 24 reading of 11, I think it was, in September of  
 25 2013, they suggested that the recommended

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1 action at that time would go back at some  
 2 point in time in the near future and do a  
 3 retest, which we would have been in the  
 4 process of scheduling had the transformer not  
 5 failed in January.  
 6 JOHNSON, Q.C.:  
 7 Q. Okay. Mr. Moore, in all fairness, I had a  
 8 look at that document and if you would accept,  
 9 subject to check, that it didn't go to ten, it  
 10 went to nine.  
 11 MR. MOORE:  
 12 A. Oh, okay.  
 13 JOHNSON, Q.C.:  
 14 Q. That was back in 1997. So there's no need to  
 15 have a big dispute about it.  
 16 MR. MOORE:  
 17 A. Okay.  
 18 JOHNSON, Q.C.:  
 19 Q. But what I wonder if you would do is undertake  
 20 to file page B41 of the June 2nd report and  
 21 that'll give us the readings throughout the  
 22 whole period, okay?  
 23 MR. MOORE:  
 24 A. Yes, we can do that.  
 25 JOHNSON, Q.C.:

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1 Q. Okay, thanks.  
 2 MS. GLYNN:  
 3 Q. Noted on the record.  
 4 MR. MOORE:  
 5 A. That way we'll have the actual data.  
 6 JOHNSON, Q.C.:  
 7 Q. Okay. And you again stated this morning, as  
 8 you did yesterday, that Hydro went to the  
 9 original equipment manufacturer and you said  
 10 yesterday that you got a consultative opinion  
 11 on the transformer and that the opinion at the  
 12 time was that the low levels of acetylene gas  
 13 that Hydro had been seeing since the early  
 14 '90s was in all likelihood coming from the tap  
 15 change compartment. Mr. Moore, did Hydro get  
 16 an opinion from the OEM in writing or was it  
 17 just a discussion?  
 18 MR. MOORE:  
 19 A. No, we actually have an opinion from them in  
 20 writing when they came in and they documented  
 21 actually at the time when they came in and  
 22 assisted us with the failure investigation on  
 23 that transformer.  
 24 JOHNSON, Q.C.:  
 25 Q. Okay. So this was an opinion provided after

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1 the failure?  
 2 MR. MOORE:  
 3 A. It would have been documented in our root  
 4 cause failure analysis report when the OEM  
 5 came in and recommended at that time. I can  
 6 go back and check through our records to see  
 7 what we may have in writing prior to the  
 8 failure.  
 9 JOHNSON, Q.C.:  
 10 Q. Yes, okay. I think that would be a good  
 11 undertaking.  
 12 MS. GLYNN:  
 13 Q. Noted on the record.  
 14 JOHNSON, Q.C.:  
 15 Q. Okay. And in terms of their opinion at the  
 16 time of the root cause failure, is that on the  
 17 record as well here?  
 18 MR. MOORE:  
 19 A. Yes, that's right. That would be part of our  
 20 Hydro's root cause failure analysis report  
 21 that -- I think it was March 2014 that report  
 22 was submitted.  
 23 MS. GLYNN:  
 24 Q. So that would be part of the investigation  
 25 record.

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1 JOHNSON, Q.C.:  
 2 Q. Yes.  
 3 MR. MOORE:  
 4 A. Yes.  
 5 MS. GLYNN:  
 6 Q. Not part of the GRA record.  
 7 JOHNSON, Q.C.:  
 8 Q. Right, yes. So I think we should undertake  
 9 just for clarity to get that opinion on the  
 10 record in this proceeding as well, the one  
 11 that was provided during the root cause.  
 12 MR. MOORE:  
 13 A. Yes, we can do that.  
 14 JOHNSON, Q.C.:  
 15 Q. Thank you.  
 16 MS. GLYNN:  
 17 Q. And noted on the record.  
 18 JOHNSON, Q.C.:  
 19 Q. And I guess in any event, post these events,  
 20 Hydro's root cause analysis team, I  
 21 understand, during its review, recommended the  
 22 installation of continuous online gas monitors  
 23 on existing critical transformers in the fleet  
 24 of Hydro. Is that right?  
 25 MR. MOORE:

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1 A. That's right. That was a recommendation and  
 2 we were -- our capital plan looks at starting  
 3 with our generating station transformers first  
 4 as the highest priority for installation of  
 5 those devices.  
 6 JOHNSON, Q.C.:  
 7 Q. Okay. And would the sort of transformers that  
 8 we're speaking about here, in terms of  
 9 Sunnyside, would they also be subject to  
 10 getting these continuous monitors?  
 11 MR. MOORE:  
 12 A. They would be eventually, but we would start  
 13 off with the highest priority transformers in  
 14 our capital planning process first.  
 15 JOHNSON, Q.C.:  
 16 Q. Okay. If I could turn to the DC pump issue?  
 17 And I guess similarly, I want to start with  
 18 the corrective actions first, so post the  
 19 event. And in respect of that, if we could  
 20 bring up La Capra's report and I'm speaking  
 21 about page 15 of the La Capra report, which  
 22 for the record is page 17 of 39 of Appendix B  
 23 to Hydro's reply of August 7th. And if you  
 24 scroll up a little bit there? Yeah, there we  
 25 go.

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1 Under corrective actions, it indicates  
 2 that "following this event, Hydro designed and  
 3 installed a distributed control system DCS  
 4 display in the front standard of the turbine  
 5 generator assembly on the third floor to  
 6 indicate the status of existing oil pressure  
 7 transmitters." And then it goes on to say,  
 8 "after installing the display, Hydro modified  
 9 its AC and DC pumps weekly testing procedures  
 10 to require personnel to incorporate monitoring  
 11 of the lubrication oil pressure and logging  
 12 copy of the pressure trend with the test  
 13 sheet" and then it goes on to say "Hydro took  
 14 a further action of creating and implementing  
 15 new weekly and prior to return to service  
 16 testing procedures for the AC and DC pumps"  
 17 and then refers to those two procedures,  
 18 procedure number 1076, unit one and two AC  
 19 standby and DC turbine lubricating oil test  
 20 weekly, and procedure 1077 dealing with return  
 21 to service.  
 22 And in terms of the development of the  
 23 new testing procedures, what personnel were  
 24 responsible at Hydro for modifying the testing  
 25 procedure, such as was done after the event?

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1 Who did this work?  
 2 (10:45 a.m.)  
 3 MR. LEDREW:  
 4 A. Well, as part of the root cause team, we had  
 5 some engineering help out of our corporate  
 6 engineering group and procedures would have  
 7 been rewritten. There's two procedures there.  
 8 Return to service is mostly a maintenance  
 9 intervention, so the short term planning and  
 10 scheduling manager would have been involved in  
 11 rewriting that and the operations procedure  
 12 would have been rewritten by the operations  
 13 manager, both of whom report into me.  
 14 JOHNSON, Q.C.:  
 15 Q. Okay. And perhaps if we could -- in terms of  
 16 coming up with the new testing procedure, some  
 17 input there was provided, I take it, under you  
 18 as under thermal plant operations?  
 19 MR. LEDREW:  
 20 A. That's correct. Those individuals reported to  
 21 me, yeah.  
 22 JOHNSON, Q.C.:  
 23 Q. Okay. Could we bring up PUB-NLH, Attachment 1  
 24 for a moment?  
 25 MS. GRAY:

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1 Q. I'm sorry, Mr. Johnson? Could you read that  
 2 number off again, please?  
 3 JOHNSON, Q.C.:  
 4 Q. I'm sorry. PUB-NLH-138, Attachment 1.  
 5 MS. GRAY:  
 6 Q. Is that PR-PUB?  
 7 JOHNSON, Q.C.:  
 8 Q. No, in the main hearing. Yes, and if you  
 9 could go to page 18 of 26? Yeah, okay. So,  
 10 Mr. LeDrew, just show us where you are on  
 11 this? I think you're on it somewhere, aren't  
 12 you?  
 13 MR. LEDREW:  
 14 A. Well, I was.  
 15 JOHNSON, Q.C.:  
 16 Q. You were, I'm sorry.  
 17 MR. LEDREW:  
 18 A. On that top box there, yes.  
 19 JOHNSON, Q.C.:  
 20 Q. That's right, okay. So the people who were  
 21 involved in coming up with the new testing  
 22 procedures to incorporate monitoring of the  
 23 lubrication oil system, who would they have  
 24 been?  
 25 MR. LEDREW:

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1 A. Well, the procedure for operations would be  
 2 finally written by the manager of operations,  
 3 the first box to your left-hand side, second  
 4 level down.  
 5 JOHNSON, Q.C.:  
 6 Q. Okay. He's the 211-20?  
 7 MR. LEDREW:  
 8 A. Correct, yes.  
 9 JOHNSON, Q.C.:  
 10 Q. And who is that individual who did this work?  
 11 MR. LEDREW:  
 12 A. Right now, it's Evan Cabot is the individual's  
 13 name.  
 14 JOHNSON, Q.C.:  
 15 Q. And who was the person who did the work that  
 16 we're speaking of for the new testing? Was  
 17 that Mr. Cabot?  
 18 MR. LEDREW:  
 19 A. Well, that would be authorized by him, but he  
 20 would have assigned an individual out of his  
 21 group to participate in that exercise to  
 22 rewrite that procedure and I would attest to  
 23 you it was probably Glen Kennedy was the  
 24 individual and he is out of the shift  
 25 supervisor group there, which is the third

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1 level box down. There's five positions in  
 2 that title.  
 3 JOHNSON, Q.C.:  
 4 Q. Okay. And so they would have wrote up the new  
 5 procedure and where would they have gotten  
 6 guidance for coming up with the new  
 7 methodology or the new way of testing?  
 8 MR. LEDREW:  
 9 A. Yes. Well, as I said to you, we had an  
 10 investigation team that were assigned out of  
 11 our PETS group in St. John's, so they would  
 12 have participated, as well as an individual  
 13 out of our long term planning group, and it  
 14 would have been the plant mechanical engineer  
 15 which is the third box down in the second  
 16 column over.  
 17 JOHNSON, Q.C.:  
 18 Q. Right, okay. And if we could just turn up  
 19 page 14 of 26 for a moment? Yes. This is the  
 20 project execution and technical services  
 21 protection control and communications  
 22 engineering.  
 23 MR. LEDREW:  
 24 A. Right.  
 25 JOHNSON, Q.C.:

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1 Q. And would -- did you say some of these people  
 2 would have had input as well?  
 3 MR. LEDREW:  
 4 A. Not in that group, but in the project  
 5 execution and technical service group, there  
 6 would have been individuals that were involved  
 7 in the investigation that would have  
 8 participated.  
 9 JOHNSON, Q.C.:  
 10 Q. Okay. But in terms of the people who actually  
 11 designed the new way of testing for lube oil,  
 12 these would have been people under your box?  
 13 MR. LEDREW:  
 14 A. The majority, but we did have an individual  
 15 that would have come out of project  
 16 engineering, which was John MacIsaac's group  
 17 in St. John's that was integrally plugged into  
 18 the process as we worked through the analysis.  
 19 JOHNSON, Q.C.:  
 20 Q. And would Mr. MacIsaac's group have an ongoing  
 21 working relationship with the Holyrood thermal  
 22 facility prior to these events, in terms of  
 23 advise and consultation, et cetera?  
 24 MR. LEDREW:  
 25 A. Yeah. A portion of the engineering group in

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1 St. John's are assigned to the technical  
 2 service side, so there's a project execution  
 3 which are primarily executing capital  
 4 projects, and there's a technical service  
 5 component in all disciplines that supports  
 6 operations when issues of this nature arise.  
 7 JOHNSON, Q.C.:  
 8 Q. Okay. And as regards this new weekly  
 9 procedure, 1076 I guess it's called, that's  
 10 done weekly, can you explain to us what that  
 11 involves, like what that testing now involves  
 12 and how does it ensure that adequate lube oil  
 13 is being delivered to the bearings on the  
 14 turbine generator shaft?  
 15 MR. LEDREW:  
 16 A. I guess the primary difference in the design,  
 17 the original test setup was triggered on  
 18 falling pressure. So falling pressure on that  
 19 system could be caused as a result of an oil  
 20 leak, as a loss of power, inadequate pumping  
 21 capability. All of those failure modes would  
 22 cause a loss in pressure and that would be  
 23 picked up internally by a pressure switch in  
 24 the tank down at the pumping station and that  
 25 would trigger the start of a backup pump or

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1 your emergency pump to recover that pressure.  
 2 The new approach looks at pressure up at the  
 3 turban pedestal, which is 35 feet above where  
 4 the pumping set is and it's actually looking  
 5 to see a step change in pressure now because  
 6 this testing that we do on a weekly basis, you  
 7 have -- you still have a primary pump running  
 8 and you're starting a second pump in on top of  
 9 the primary pump. So it's trying to replicate  
 10 that if the primary pump had dropped out, the  
 11 second pump would pick up and recover that  
 12 pressure. So the test is actually showing a  
 13 pressure change with two pumps running.  
 14 JOHNSON, Q.C.:  
 15 Q. I see.  
 16 MR. LEDREW:  
 17 A. Because you never want to take your primary  
 18 pump out for the purpose of validating you  
 19 have a backup pump. So the online weekly test  
 20 is to always have a running pump going and  
 21 you're starting the second pump to make sure  
 22 that you see a step change in pressure.  
 23 JOHNSON, Q.C.:  
 24 Q. And so did this new testing procedure, did  
 25 this necessitate like new equipment being

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1 added to the machinery to allow these  
 2 observations to take place?  
 3 MR. LEDREW:  
 4 A. It involved adding a pressure device up at the  
 5 journal elevation where the turbine is  
 6 rotating, which is 35 feet above the pumping  
 7 set, and it involved developing a new DCS  
 8 screen so the computer controls that the  
 9 operators use, there's a dedicated screen  
 10 developed to actually validate this test, and  
 11 we take trended results now from the test to  
 12 actually ascertain that we've definitely seen  
 13 a pressure change, a step change in pressure  
 14 with a second pump now running in service.  
 15 JOHNSON, Q.C.:  
 16 Q. And so going back then to -- then there's been  
 17 evidence on this that the testing procedure  
 18 that had been in place for such a long time,  
 19 40 years, 45, whatever, I take it that Hydro  
 20 would have understood that that test was not  
 21 checking to ensure adequate lube oil delivery,  
 22 right?  
 23 MR. LEDREW:  
 24 A. That test was validating that on falling  
 25 pressure, for whatever reason, that your

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1 primary and your backup and your emergency  
 2 pump would start to respond to it.  
 3 JOHNSON, Q.C.:  
 4 Q. That's right, would start, okay. And this  
 5 previous testing practice, I don't believe  
 6 that that had been made the subject to a  
 7 review. Would that be right?  
 8 MR. LEDREW:  
 9 A. I'm not sure I understand.  
 10 JOHNSON, Q.C.:  
 11 Q. Let's put it this way. The previous testing  
 12 practice that was in place, had that been, to  
 13 your knowledge, made the subject of a review  
 14 at any time?  
 15 MR. LEDREW:  
 16 A. Well, a review, FM Global, our insurers for  
 17 our machinery, do come in on a biannual basis  
 18 and review our procedures that we have in  
 19 place and they would have reviewed that we  
 20 have a weekly online testing of our lube oil  
 21 systems and our backup systems.  
 22 JOHNSON, Q.C.:  
 23 Q. So FM Global specifically commented on the  
 24 testing?  
 25 MR. LEDREW:

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1 A. They would come in and typically go through  
 2 what we have in place on an annual basis  
 3 reviewing the interventions, the asset health  
 4 and what's happened over the calendar year and  
 5 what processes you got in place. So they  
 6 bring in expertise, external from us, to  
 7 participate and interview our staff.  
 8 JOHNSON, Q.C.:  
 9 Q. Have you seen any specific comments in FM  
 10 Global about the testing procedures on that DC  
 11 system?  
 12 MR. LEDREW:  
 13 A. The detail of the testing procedure, no, but  
 14 the fact that we're actually doing a weekly  
 15 online test to validate that this system  
 16 functions as performed, certainly, they would  
 17 go through those weekly operator tests.  
 18 JOHNSON, Q.C.:  
 19 Q. Okay. And so how many such reports have you  
 20 seen?  
 21 MR. LEDREW:  
 22 A. Well, every year there is an inspection  
 23 process that happens. Now reports typically  
 24 pick up where they find anomalies or  
 25 shortfalls, so you may not find evidentiary

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1 evidence in there that says "we're satisfied  
 2 with the testing process". I can't speak to  
 3 that right now. But there is a report done  
 4 and new findings and concerns tabled and  
 5 certainly has formed part of the capital  
 6 submission that we've had over the years here  
 7 in terms of recommendations coming out of  
 8 those folks.  
 9 JOHNSON, Q.C.:  
 10 Q. I've certainly see them myself. I wonder if  
 11 you could undertake to provide all such FM  
 12 Global documents that address -- or the  
 13 excerpts of those documents that address this  
 14 DC pump and its testing?  
 15 MR. LEDREW:  
 16 A. I'm quite sure we can.  
 17 JOHNSON, Q.C.:  
 18 Q. Okay, thank you very much.  
 19 GREENE, Q.C.:  
 20 Q. The undertaking is noted on the record.  
 21 JOHNSON, Q.C.:  
 22 Q. Okay. And I take it, and this is just a  
 23 simple observation, that obviously Hydro would  
 24 have well known that without a continuous  
 25 supply of lubricating oil that you'd be

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1 looking at a catastrophic failure within about  
 2 30 seconds or so?  
 3 MR. LEDREW:  
 4 A. I don't think it was well understood how  
 5 quickly that could evolve, but yes, a loss of  
 6 oil is a traumatic event and would generally  
 7 cause bearing damage to the machines.  
 8 JOHNSON, Q.C.:  
 9 Q. So certainly within minutes?  
 10 MR. LEDREW:  
 11 A. Yes, confidently, yes.  
 12 JOHNSON, Q.C.:  
 13 Q. And so I take it that the situation is that  
 14 for over 40 years, maybe 45 years, Hydro was  
 15 using a testing procedure that was not  
 16 guarding against inadequate lubrication? In  
 17 other words, it was not guarding against a  
 18 condition that if present for a minute or two  
 19 would cause catastrophe? Is that right?  
 20 MR. LEDREW:  
 21 A. I would say the procedure after the complete  
 22 investigation, as provided by the OEM, was  
 23 lacking in a respect that if you had a  
 24 shortfall in capacity for whatever reason that  
 25 that test procedure likely would not pick it

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1 up.  
 2 JOHNSON, Q.C.:  
 3 Q. So it was not being guarded against. And I  
 4 take it then the question would be why was it  
 5 not being guarded against, such a high  
 6 consequence event that gave very little time?  
 7 Why wasn't -- and knowing how important lube  
 8 oil, you know, lubrication is, why wasn't it  
 9 being guarded against?  
 10 MR. LEDREW:  
 11 A. I'm not sure I can answer that question. The  
 12 procedures were based on OEM recommendations.  
 13 We've executed a weekly test to guarantee that  
 14 the standby and the backup pumps were  
 15 available to us in the event the primary  
 16 failed, for whatever reason, and there was a  
 17 return to service. Every time an  
 18 intervention, that pump came out, motor came  
 19 out, or anything that changed that system, we  
 20 would go back and do a return to service  
 21 validation on it as well, based on the  
 22 practices that the OEM had given us. So, in  
 23 all honesty, I thought we were well guarded.  
 24 JOHNSON, Q.C.:  
 25 Q. There was some discussion between Ms. Greene

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1 and yourself in her cross-examination where  
 2 she asked you whether testing of a lube oil  
 3 system to see if it is adequately lubricating  
 4 -- she put to you that that's not a complex  
 5 sort of matter. Would you agree that that's  
 6 not a complex matter, testing for lube oil  
 7 lubrication?  
 8 (11:00 a.m.)  
 9 MR. LEDREW:  
 10 A. To actually execute a test is -- no, it's not  
 11 a complex. There's written steps and a  
 12 process to follow. You have to appreciate  
 13 though, there are many components that  
 14 accommodate the execution, successful  
 15 execution of that test, and analysing and  
 16 diagnosing all their responses when a test  
 17 fails becomes very complex.  
 18 JOHNSON, Q.C.:  
 19 Q. Right, and I notice you referred to that when  
 20 you were being examined by Ms. Greene as well  
 21 on Tuesday, because in reply to Ms. Greene who  
 22 put to you that the testing of lube oil system  
 23 was not complex, you indicated that you had  
 24 spent some four months, I think, diagnosing  
 25 piping, orifices, trip protection devices to

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1 narrow the matter down to a CD motor that had  
 2 been serviced and running at a lower speed  
 3 than planned. And when I read that, I think I  
 4 thought that that might be mixing the two  
 5 concepts, because that's -- in terms of the  
 6 complexity of arriving at what was the cause  
 7 or how it actually came about, that's a  
 8 different issue of the more simple question of  
 9 how difficult it would be to arrive at a test  
 10 to check to see whether there's enough oil for  
 11 lubrication, right?  
 12 MR. LEDREW:  
 13 A. I hate to ask this, but I just have to get you  
 14 to ask me the question. I know -  
 15 JOHNSON, Q.C.:  
 16 Q. Fair play. Fair play. But the issue of the  
 17 number of factors that caused the lube oil not  
 18 to be satisfactory, in terms of the  
 19 lubrication, okay, that's -- that might be a  
 20 little bit more complex, but the issue of  
 21 going about testing to see whether the proper  
 22 amount of lube oil was being delivered to this  
 23 critical piece of equipment is not near so  
 24 complex, I'd suggest.  
 25 MR. LEDREW:

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1 A. Well, there's the nub of the issue is that the  
 2 test was not validating we had adequate amount  
 3 of lube oil going to the unit. The test was  
 4 validating that the backup -- the standby and  
 5 the backup devices would operate on falling  
 6 pressure. That's what the test validated. So  
 7 all the components involved in that,  
 8 accommodating that change of function, all  
 9 would function as intended. It did not  
 10 validate that we had adequate lube oil going  
 11 to the turbine.

12 JOHNSON, Q.C.:

13 Q. Right, and the point is that a test that would  
 14 have validated the amount of lube oil going to  
 15 the piece of machinery was not a complicated  
 16 matter to establish that type of testing?

17 MR. LEDREW:

18 A. Well, we have -- well, I think I take  
 19 difference with you on that comment. We have  
 20 spent a number of months analysing this and  
 21 designing new test protocol to give us  
 22 confidence that we're seeing a step change in  
 23 pressure. So our procedure today now is  
 24 looking at a step change in pressure, as  
 25 opposed to validating that the pump will start

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1 on a falling pressure. Because as I've  
 2 suggested to you that on a weekly test basis,  
 3 you leave your primary pump running and you're  
 4 injecting a false signal to tell the secondary  
 5 pump to start. So you actually have a dual  
 6 pump arrangement to validate that test. So  
 7 the pressure being delivered to the bearings  
 8 now is actually higher than what it was in the  
 9 normal operating scenario and our test now is  
 10 validating that we're actually seeing a step  
 11 change in pressure via a transmitter that's up  
 12 at the turban pedestal, the same elevation,  
 13 and we're seeing a stepped change and a  
 14 continuous change in pressure over a period of  
 15 time and when we shut down that test pump that  
 16 we see it drop back to its normal pressure  
 17 level again. So, we have a much more accurate  
 18 picture of the quality of oil that is being  
 19 delivered to the turbine bearings in today's  
 20 test, weekly test procedure.

21 JOHNSON, Q.C.:

22 Q. So is it a case that really Hydro really  
 23 didn't turn its mind to, asking itself whether  
 24 its previous tests were testing for that  
 25 really critical question of is this machine

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1 getting the oil it needs?

2 MR. LEDREW:

3 A. This becomes the challenge, is as in a  
 4 continuous improvement environment that we  
 5 operate, as we learn things about our  
 6 equipment, and we're always learning, we  
 7 endeavour to understand it fully and put  
 8 measures and controls in place to avoid that  
 9 from happening in the future. So, I'm not  
 10 sure I can answer that question beyond that  
 11 fact.

12 JOHNSON, Q.C.:

13 Q. Liberty's report, if we could bring it up at  
 14 page 58? They say under background -- if you  
 15 could go down to background, right there, that  
 16 first paragraph, the third sentence, "the  
 17 consequences of failure in terms of damage to  
 18 the machine, high cost of repairs and a  
 19 lengthy period of unavailability demand  
 20 particularly high reliability and risk  
 21 avoidance". And I think that with this unit,  
 22 I mean, it meets the criteria of, you know,  
 23 the very dramatic consequences of failure.  
 24 Would you agree, as the then manager and even  
 25 where you sit now, that in fact it does call -

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1 - the particulars of this piece of equipment  
 2 and that pump and its criticality did in fact  
 3 call for a particularly high reliability and  
 4 risk avoidance approach.

5 MR. LEDREW:

6 A. Yes, the failure of any one of the three units  
 7 at Holyrood in our critical delivery periods  
 8 has an immediate consequence to our customers  
 9 and we well understand that.

10 JOHNSON, Q.C.:

11 Q. And because, you know, this is a system that  
 12 has these redundancy levels. I mean, it's  
 13 almost like -- not every piece of equipment, I  
 14 would expect, has these levels of protection.  
 15 It's almost like we got to wear a belt and  
 16 then we're going to put on a pair of  
 17 suspenders and then we're going to put on a  
 18 drawstring too, just to make sure our trousers  
 19 don't fall. And you know, that really, in my  
 20 mind says holy smokes, it's really important  
 21 that we get this right. This is so critical.

22 MR. LEDREW:

23 A. On a unitized basis, it is one of the more  
 24 critical systems there, no doubt, but I could  
 25 equally draw you to a balance, the plant

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1 system and this DCS system we spoke to, a  
 2 failure of a DCS system will take three units  
 3 down, so when you look at exposure to the  
 4 customer, I look at the balance of plant as  
 5 having the most critical attributes and then  
 6 you get into the unitized systems and they  
 7 would be one of the high ones on the unitized  
 8 basis, I would agree.  
 9 JOHNSON, Q.C.:  
 10 Q. Yes, okay. Like and, like very, very little  
 11 margin for error here.  
 12 MR. LEDREW:  
 13 A. Very little margin for error -  
 14 JOHNSON, Q.C.:  
 15 Q. Well, it gives you 30 seconds.  
 16 MR. LEDREW:  
 17 A. Well, we now know 30 seconds. If -  
 18 JOHNSON, Q.C.:  
 19 Q. Well, let's say a minute, two minutes.  
 20 MR. LEDREW:  
 21 A. Yes. In my experience, if you had said inside  
 22 of a couple of minutes, I would have agreed  
 23 for sure, but I didn't expect inside 30  
 24 seconds. It doesn't give much opportunity for  
 25 human intervention.

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1 JOHNSON, Q.C.:  
 2 Q. Right. Which is why you'd have to be so  
 3 careful upfront.  
 4 MR. LEDREW:  
 5 A. Correct.  
 6 JOHNSON, Q.C.:  
 7 Q. If I could turn to the moisture into the  
 8 Holyrood B1L17 breaker? These watertight  
 9 covers, Mr. Moore, I take it these are not all  
 10 standard size? Is that right?  
 11 MR. MOORE:  
 12 A. No, that's right. There isn't, I'll call it,  
 13 a standard size cover that we use. We rely on  
 14 our experienced journeypersons and supervisors  
 15 working in these stations that have been there  
 16 for many years and know this equipment very  
 17 well to appropriately seal any exposed  
 18 components from the weather any time there is  
 19 dismantling of that nature.  
 20 JOHNSON, Q.C.:  
 21 Q. And they're qualified and they're journeymen,  
 22 but I guess you'd agree that from time to  
 23 time, a watertight cover may not get put on  
 24 such as to ensure watertightness, if you will,  
 25 right? That happens.

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1 MR. MOORE:  
 2 A. Well, I'd have no reason to believe that our  
 3 crews would not install a watertight cover  
 4 properly to prevent the elements from getting  
 5 into those components.  
 6 JOHNSON, Q.C.:  
 7 Q. But it's certainly possible it can happen in  
 8 the context of a yard in Whitbourne or Port  
 9 Saunders that it might not get applied  
 10 properly, right?  
 11 MR. MOORE:  
 12 A. I'd have no reason to believe that it  
 13 wouldn't. These people know these stations  
 14 very well. They know our environment very  
 15 well. They know what's required to properly  
 16 seal the equipment. But I really have no  
 17 reason to believe why they wouldn't do it  
 18 properly.  
 19 JOHNSON, Q.C.:  
 20 Q. Nor would you have a reason to discount the  
 21 possibility that maybe it didn't get put on  
 22 right.  
 23 MR. MOORE:  
 24 A. I have no way right here now to prove it, but  
 25 I'd have no reason to believe that it wouldn't

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1 be done properly.  
 2 JOHNSON, Q.C.:  
 3 Q. Okay. How are these things secured?  
 4 MR. MOORE:  
 5 A. They would be secured in different ways. I  
 6 don't have the exact details right now to  
 7 speak to, but it could be secured with a very  
 8 tight rope and a combination maybe with tape  
 9 or like a ratchet type strap around, something  
 10 that secure -- it depends on the amount of  
 11 dismantling of the breaker, because there  
 12 could be multiple configurations, depending on  
 13 what parts are actually removed at the time.  
 14 JOHNSON, Q.C.:  
 15 Q. And do you know how this one was secured?  
 16 MR. MOORE:  
 17 A. I don't know at the time. I wasn't there at  
 18 the time on site physically when this work was  
 19 actually being done.  
 20 JOHNSON, Q.C.:  
 21 Q. Did you -- okay, so you don't have any  
 22 knowledge about that. What is the -  
 23 MR. MOORE:  
 24 A. Well, the knowledge I do have is I spoke to  
 25 our crews who did the job and they assured me



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1 that they used a very secure weather-tight  
 2 cover when they actually did this work.  
 3 JOHNSON, Q.C.:  
 4 Q. Yes, okay.  
 5 MR. MOORE:  
 6 A. But they didn't get into the actual detail of  
 7 maybe the materials that were actually used,  
 8 and I wasn't there at that time, you know,  
 9 during that time to witness actually what was  
 10 in place myself to have a picture in my own  
 11 mind.  
 12 JOHNSON, Q.C.:  
 13 Q. These covers, what are they made out of?  
 14 MR. MOORE:  
 15 A. It would be a waterproof secure type cover  
 16 like maybe I'll call it perhaps a heavy duty  
 17 weather-tight tarpaulin may work, depending on  
 18 the type of dismantling that's done. There  
 19 wouldn't actually be a building built over it,  
 20 shall we say.  
 21 JOHNSON, Q.C.:  
 22 Q. No, no. But it's a material?  
 23 MR. MOORE:  
 24 A. It would be a material, yes.  
 25 JOHNSON, Q.C.:

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1 Q. And it might be in the nature of a tarp?  
 2 MR. MOORE:  
 3 A. Yeah, something that would be fairly heavy  
 4 duty and secure for the environment that we're  
 5 working in.  
 6 JOHNSON, Q.C.:  
 7 Q. Like do you know what sort of material it's  
 8 made out of? Is it nylon, rubber, canvas?  
 9 MR. MOORE:  
 10 A. I don't know right off the top of my head.  
 11 JOHNSON, Q.C.:  
 12 Q. Okay.  
 13 MR. MOORE:  
 14 A. Other than I know it would be -- you know,  
 15 they would pick -- use a material that would  
 16 be very secure, heavy duty, able to sustain  
 17 our weather elements that they're certainly  
 18 quite familiar with our equipment operating  
 19 in.  
 20 JOHNSON, Q.C.:  
 21 Q. This material, is this meant for covering  
 22 other items as well besides these breakers?  
 23 MR. MOORE:  
 24 A. I'm assuming if they used a weather-tight  
 25 cover then, you know, there's obviously

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1 multiple uses of a weather-tight cover for  
 2 other industries or whoever, right.  
 3 JOHNSON, Q.C.:  
 4 Q. Could they put it over an ATV, for instance,  
 5 out in the yard? Is that the type of cover  
 6 we're talking about?  
 7 MR. MOORE:  
 8 A. Could they?  
 9 JOHNSON, Q.C.:  
 10 Q. Yeah.  
 11 MR. MOORE:  
 12 A. We wouldn't use one that was used for another  
 13 purpose. It would have been a brand new cover  
 14 that would have been used. They wouldn't go  
 15 get a cover that was used elsewhere and put it  
 16 over a critical piece of equipment like an air  
 17 blast circuit breaker. It would be a brand  
 18 new suitable cover -  
 19 JOHNSON, Q.C.:  
 20 Q. No, no, fair enough.  
 21 MR. MOORE:  
 22 A. - of suitable weather tightness and durability  
 23 for our elements.  
 24 JOHNSON, Q.C.:  
 25 Q. Okay, fair enough. But in any event, I guess

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1 you will agree that it was used for longer --  
 2 because I think Mr. O'Brien brought you to the  
 3 schedule, the calendar of how long it was  
 4 under one of these covers outdoors, so -  
 5 MR. MOORE:  
 6 A. That's right. We reviewed the timeframe of  
 7 when that breaker was in that condition,  
 8 covered up with the weather-tight cover.  
 9 JOHNSON, Q.C.:  
 10 Q. Yes, and it was out there in that condition  
 11 for longer than certainly you would have  
 12 recommended?  
 13 MR. MOORE:  
 14 A. It was out there for longer, I guess, than we  
 15 would have had hoped. I mean, there was no  
 16 direct recommendation to say that it shall not  
 17 be covered for X amount of time because it was  
 18 suitably covered to protect against the  
 19 weather elements, and I mean we can go back  
 20 and check the weather forecast at the time as  
 21 well and look at how many days during that  
 22 timeframe, you know, were dry, how many were  
 23 wet, those type things if we really want to  
 24 dig into it further, right.  
 25 Then the other part is too, like when --

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1 there would be a natural amount of time anyway  
 2 because when the parts went back to get coated  
 3 into the shop, that may have taken two days,  
 4 like we talked about yesterday, but then in  
 5 order to go back again and remove the cover,  
 6 do the inspection and then put the parts back  
 7 on top of the breaker itself, you'd have to  
 8 wait for a suitably dry day to do that work.  
 9 JOHNSON, Q.C.:  
 10 Q. Right.  
 11 MR. MOORE:  
 12 A. Like you're not going to go out on a rainy day  
 13 and remove the cover. Do you understand?  
 14 JOHNSON, Q.C.:  
 15 Q. I do.  
 16 MR. MOORE:  
 17 A. Yeah, okay.  
 18 JOHNSON, Q.C.:  
 19 Q. And so it was out there longer than you'd  
 20 hope. How long would you have hoped for it to  
 21 be out -- in normal circumstances, how long  
 22 would you expect? Like Liberty, I think, says  
 23 like a few days, this type of thing.  
 24 MR. MOORE:  
 25 A. Like I wouldn't term it in days. The way I

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1 would term it would be the crew would be out,  
 2 you know, on a suitable day, a suitable dry  
 3 day, they'd be able to remove the parts that  
 4 had to go back to the shop. They'd secure the  
 5 cover. They'd go back to the shop, which took  
 6 I think we said one to two days or whatever  
 7 the case may be to get the coating done, and  
 8 then, the next available weather suitable day  
 9 to go back and reassemble would be when they  
 10 would go back. But we can't put a timeframe  
 11 on it because you have to operate in the  
 12 weather conditions that are before you.  
 13 JOHNSON, Q.C.:  
 14 Q. But I mean, sure what if they didn't get a --  
 15 what if the weather didn't improve for six  
 16 weeks? Would that be within your hope? You  
 17 know, that's fine, it takes six weeks. That  
 18 doesn't make much sense to me.  
 19 MR. MOORE:  
 20 A. But it would -- you wouldn't be able to go out  
 21 and remove the cover in the rain just because  
 22 it's one week, two weeks, three weeks, right.  
 23 JOHNSON, Q.C.:  
 24 Q. But Mr. Moore -  
 25 MR. MOORE:

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1 A. But you know what I mean, right?  
 2 JOHNSON, Q.C.:  
 3 Q. No, I understand.  
 4 MR. MOORE:  
 5 A. Yes, okay.  
 6 (11:15 a.m.)  
 7 JOHNSON, Q.C.:  
 8 Q. But Mr. Moore, now let's get down to brass  
 9 tacks.  
 10 MR. MOORE:  
 11 A. Yes.  
 12 JOHNSON, Q.C.:  
 13 Q. This was out there for a few weeks under this  
 14 cover. How long would you normally expect for  
 15 this to be out there? I mean, in the normal  
 16 case, a few days?  
 17 MR. MOORE:  
 18 A. Well, what we would hope for would be the  
 19 amount of time to remove the parts, bring them  
 20 back to the shop, get the work done. Next  
 21 good day, shall we say, for them to go back  
 22 and do the work, they could do it. So, we  
 23 could probably put that into a one two-week  
 24 timeframe perhaps is what we would probably  
 25 have been like to have been able to do.

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1 JOHNSON, Q.C.:  
 2 Q. Okay.  
 3 MR. MOORE:  
 4 A. If the other higher priority items that we  
 5 tended to with that crew didn't pop up. So,  
 6 if nothing else happened, and the weather  
 7 cooperated, maybe a one to two week timeframe  
 8 would be where we would have liked to have  
 9 been.  
 10 JOHNSON, Q.C.:  
 11 Q. I see. And you said -- you declared that you  
 12 were, when Ms. Greene was examining you, 100  
 13 percent -- you said 100 percent certainty that  
 14 moisture at some point or other got into it,  
 15 but you're not prepared to say -- maybe this  
 16 was Mr. O'Brien. You're not prepared to say  
 17 that it was more likely than not that it got  
 18 in when the temporary cover was on. Can you  
 19 recall saying that?  
 20 MR. MOORE:  
 21 A. I recall having that conversation, and I guess  
 22 obviously it's in the transcript.  
 23 JOHNSON, Q.C.:  
 24 Q. Yes.  
 25 MR. MOORE:

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1 A. So, I mean, when we did our root cause failure  
 2 analysis, yes, we are 100 percent sure there  
 3 was moisture in that phase of the breaker, and  
 4 there is documentation in our root cause  
 5 analysis that -- I'm not sure of the exact  
 6 wording, but it might say something like most  
 7 probable. We knew that there was dismantling  
 8 on the breaker and that there was a  
 9 weatherproof cover installed. So -  
 10 JOHNSON, Q.C.:  
 11 Q. Most probable that what?  
 12 MR. MOORE:  
 13 A. Well, there was some commentary in the root  
 14 cause failure that we knew there was  
 15 dismantling, we knew there was a cover, so not  
 16 conclusively, but you know, there was a theory  
 17 that maybe that's how moisture got into the  
 18 breaker.  
 19 JOHNSON, Q.C.:  
 20 Q. Indeed -  
 21 MR. MOORE:  
 22 A. But nothing conclusive.  
 23 JOHNSON, Q.C.:  
 24 Q. Indeed, I understand that Hydro in fact  
 25 acknowledges that water did somehow enter the

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1 tank while the temporary cover was installed.  
 2 Isn't that a Hydro acknowledgement?  
 3 MR. MOORE:  
 4 A. From what I understand, in our root cause  
 5 failure report, we acknowledged that that may  
 6 be one of the most likely scenarios.  
 7 JOHNSON, Q.C.:  
 8 Q. Yes. Just for the record, just to be clear on  
 9 this, Liberty's page 36. Yes, the second full  
 10 paragraph. Liberty states "Hydro cannot  
 11 explain how water entered the receiver tank  
 12 for the phase that later seized, but  
 13 acknowledges that water did somehow enter the  
 14 tank while the temporary cover was installed."  
 15 Right? You don't depart from that?  
 16 MR. MOORE:  
 17 A. I see the way it's written there in the  
 18 report, but from what my understanding was is  
 19 that we acknowledge that there was a cover in  
 20 place and the most likely scenario, if you  
 21 want to put it that way, would be that just  
 22 under assumption only that that was probably  
 23 how moisture may have gotten in there. But  
 24 there's no way we can 100 percent be sure that  
 25 that was the cause of water entering that

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1 breaker at the time. When the cover was  
 2 removed, the crews did a very detailed  
 3 inspection of those components before  
 4 reassembly.  
 5 JOHNSON, Q.C.:  
 6 Q. That's right.  
 7 MR. MOORE:  
 8 A. And then we did a full test of the breaker,  
 9 which would have replaced -- or the tests  
 10 we've been doing for decades has always been  
 11 to do a full timing test on the breaker and  
 12 subsequently replace any air in the breaker  
 13 with new clean, dry air from the compressed  
 14 air system. But I see the words that are  
 15 written there and what it was is more of a  
 16 conversation that -- or a conclusion, if you  
 17 want to call it that, that we did have the  
 18 breaker dismantled. We had a waterproof cover  
 19 in place. One can only surmise or probably  
 20 assume that that might have been where the  
 21 moisture came from, but we have nothing  
 22 conclusive to indicate that that's the case.  
 23 JOHNSON, Q.C.:  
 24 Q. So if it walks like a duck and quacks and  
 25 stuff like that, you might say it might be a

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1 duck, right?  
 2 MR. MOORE:  
 3 A. Well, if you look back in -- you know, in  
 4 hindsight, if we want to look at it that way  
 5 and look back over what had happened before,  
 6 so here you're in the midst of a failure now  
 7 on a breaker. You got the equipment -- the  
 8 original equipment manufacturer on site with  
 9 you doing a failure analysis. You discover  
 10 some water in one of the phases of the  
 11 breaker. So you start thinking back in time  
 12 and you think back and say, well, we know at  
 13 some point in time we did have that breaker  
 14 dismantled and adequately secured from the  
 15 weather elements. So your mind goes to saying  
 16 that well, in all likelihood, maybe that's  
 17 where the water came from. But I mean, it's  
 18 an assumption more so than a conclusive piece  
 19 of evidence, shall we say.  
 20 JOHNSON, Q.C.:  
 21 Q. And now apparently was this tank -- was  
 22 compressed air in the tank checked at the  
 23 point when it went back into service?  
 24 MR. MOORE:  
 25 A. When it went back into service, our procedure

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1 that we've been using for many years, as  
 2 recommended by the original equipment  
 3 manufacturer, would have been to do a visual  
 4 inspection of the top of the tank where the  
 5 parts were removed and the second part would  
 6 be the full timing test on the breaker, which  
 7 purges the system with new, clean, dry air,  
 8 and with the -- you know, the goal of removing  
 9 any moisture that may have been accumulated,  
 10 whether it be through condensation or any  
 11 other reason during the time of dismantling.  
 12 What we've done since is we've updated our  
 13 work method to add an additional step because  
 14 through our root cause analysis, we've learned  
 15 that obviously moisture can be in a breaker,  
 16 despite all the procedures and testing that  
 17 we've done up to that point in time. So as an  
 18 opportunity for improvement and to be better  
 19 going into the future, we've added a step now  
 20 that we physically open a drain valve on the  
 21 bottom of the compressed air tank on the  
 22 breaker just to do an added check to ensure  
 23 there definitely is no moisture before the  
 24 breaker goes back in service.  
 25 JOHNSON, Q.C.:

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1 Q. So this is a drain valve that was already in  
 2 existence on this piece of equipment? You  
 3 didn't have to add it or anything? Is that  
 4 right?  
 5 MR. MOORE:  
 6 A. No, we actually installed a drain valve -  
 7 JOHNSON, Q.C.:  
 8 Q. Okay.  
 9 MR. MOORE:  
 10 A. - which is more user friendly, I'll call it,  
 11 for our terminal station employees to use.  
 12 Prior to that time, there was a mechanical  
 13 plug that would have to be unscrewed from the  
 14 bottom of the tank and there's a risk of  
 15 causing leakage by using that, but the drain  
 16 valve is a much more secure method now to do  
 17 that check before we put a breaker back in  
 18 service.  
 19 JOHNSON, Q.C.:  
 20 Q. So do you know if they took out the top or the  
 21 screw top or whatever you're referring to?  
 22 MR. MOORE:  
 23 A. They didn't do that at the time.  
 24 JOHNSON, Q.C.:  
 25 Q. No.

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1 MR. MOORE:  
 2 A. And nor have we ever done that, until we did  
 3 the root cause failure analysis and looking  
 4 backwards and learning from it, have  
 5 implemented this new procedure going forward.  
 6 JOHNSON, Q.C.:  
 7 Q. Okay. Just a -- there's a bit of a new line  
 8 that I don't think I can conclude within the  
 9 five minutes, so I'm just thinking if it's  
 10 okay, we could take the break now.  
 11 CHAIRMAN:  
 12 Q. Certainly.  
 13 (BREAK - 11:24 a.m.)  
 14 (RESUME - 11:56 a.m.)  
 15 CHAIRMAN:  
 16 Q. All right. I guess we're back to you, Mr.  
 17 Johnson.  
 18 JOHNSON, Q.C.:  
 19 Q. Okay. Thank you very much, Mr. Chair. Just  
 20 the last thing I would like to discuss with  
 21 this panel, and I guess particularly is in  
 22 relation to the discussion yesterday regarding  
 23 -- and there was reference to Liberty's most  
 24 recent report of October 22nd and there was  
 25 also discussion regarding decisions around

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1 coming forward with an application for a CT.  
 2 And you know, as I gathered the  
 3 discussion, even if we weren't looking a  
 4 greenfield type of approach and it was going  
 5 to be at Holyrood, it was still going to take  
 6 like about two years or so and then you'd say  
 7 well, if it's two years, there might be some  
 8 expectation of some delay around that, so it  
 9 mightn't be 24 months. You know, it could  
 10 creep into a little bit more than that. And  
 11 then there was discussion about the fact that  
 12 there was going to be a violation of loss of  
 13 load hour criteria, which long been at 2.8  
 14 loss of load hours in this jurisdiction, and  
 15 that was expected in 2015 and you could see  
 16 that coming for some years with capacity  
 17 deficits that would involve a risk to reliable  
 18 service.  
 19 And even if an application for the CT had  
 20 been filed in January of 2013 and it had been  
 21 screwed together, ready to go, I mean it's  
 22 cutting it very close because even if it's in  
 23 service and we make an assumption that we're  
 24 going -- it's all going to go to plan and this  
 25 is going to get all in service, we'd still be

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1 into early 2015, the winter of 2015, the year  
 2 that we're expected to see capacity deficits.  
 3 And why would we be or Hydro be taking, what I  
 4 view as a risk with reliability by running  
 5 things out so tight like that and not just  
 6 getting at it is the question I would have for  
 7 you, Mr. Henderson, and you, Mr. Humphries.  
 8 MR. HENDERSON:  
 9 A. Paul, you can take that.  
 10 (12:00 p.m.)  
 11 MR. HUMPHRIES:  
 12 A. Okay. From the perspective of getting at it,  
 13 I think while it may not seem like it, we were  
 14 at things through this whole period, through -  
 15 - and I'll go back through, start in 2011.  
 16 2011, coming through 2012. You have to recall  
 17 in 2011, we were involved in the Muskrat Falls  
 18 inquiry and at that time, we can say this was  
 19 not a Hydro issue, but it was a Hydro issue,  
 20 and it was our same Hydro people that were  
 21 going through and evaluating the expansion  
 22 analysis and evaluations for that process, and  
 23 at that time, we were going through a period  
 24 when our whole methodology was being  
 25 questioned. Our load forecast was being

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1 questioned, not from a perspective of whether  
 2 it was conservative, but that it was inflated  
 3 in the isolated case actually, to make the  
 4 Muskrat Falls Project look more attractive.  
 5 We went through a full period of that  
 6 through 2011 and it's all the same people that  
 7 were involved in doing the expansion plan,  
 8 doing the justifications, doing the  
 9 application that were involved in this  
 10 process. So, we were working these things as  
 11 we were going through, but we also had a  
 12 competing effort and part of it was here at  
 13 the Public Utilities Board through the inquiry  
 14 process and the RFI process.  
 15 So it's not like we weren't concentrating  
 16 on it. We were moving things ahead and there  
 17 were continually things changing and, as I  
 18 said, it was late 2012 before we ultimately  
 19 landed on a new exact direction where we were  
 20 going and what would be the right choice  
 21 moving forward, and it's hindsight, I guess,  
 22 but the reality was that if we had gone out in  
 23 2012 or even 2011 and procured 60 megawatt  
 24 combustion turbine, it probably would not have  
 25 changed anything from the events that we

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1 ultimately experienced in 2014.  
 2 We may have gotten to a stage where we  
 3 could have avoided the generation shortfall in  
 4 January 2nd and January 3rd of 2014, but not  
 5 without further intervention. You have to  
 6 realize at that time, we already had 60  
 7 megawatts of capacity from Corner Brook Pulp  
 8 and Paper. So, we would have needed that as  
 9 well. We would have had to have gone out to  
 10 get that.  
 11 So, I think it's -- there's been a lot of  
 12 learning coming from the 2014 event and that  
 13 caused us to have change in our thinking and  
 14 ultimately delayed an application further to  
 15 go forward and fully analyze all the  
 16 alternatives, which took time. You can look  
 17 at the application, all these tables with all  
 18 these LOLH calculations in them. There's  
 19 dozens of scenarios there. And it took people  
 20 hours upon hours and hours of regular time and  
 21 overtime running these scenarios to support  
 22 what we were doing. So we were continually  
 23 going through and evaluating, but things  
 24 changed and through 2013, things were  
 25 changing. The Black Start diesels came in and

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1 we had to do this analysis to justify it and  
 2 it was -  
 3 JOHNSON, Q.C.:  
 4 Q. But I mean, bringing on the new capacity  
 5 addition to make sure that you're in line with  
 6 your, you know, loss of load hour planning  
 7 criteria, I mean, that's at the core of what  
 8 the mission would be about, you know, making  
 9 sure that capacity is met and I grant you that  
 10 there were other things going on, but I mean,  
 11 that had to be the chief concern, wouldn't it?  
 12 MR. HUMPHRIES:  
 13 A. And we realized that and I think that was  
 14 reflected in the 2012 generation issues report  
 15 that coming through that report, the deficit  
 16 was identified for 2015 and a requirement to  
 17 have something in place for 2014, and at that  
 18 time, we felt, based on the conventional  
 19 knowledge that we had in our hands at that  
 20 time, that a solution was not available in  
 21 that timeframe, but through 2012, '13 and  
 22 early '14, we continued to work and evaluate  
 23 that and the reality was we did get the new  
 24 addition in in that timeframe anyway.  
 25 JOHNSON, Q.C.:

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1 Q. But I mean, by then you had, you know, a huge  
 2 event had happened in January. I mean, then  
 3 it was all hands on deck and let's go like  
 4 crazy. Isn't that the case?  
 5 MR. HUMPHRIES:  
 6 A. I agree, but even if that -- if we had done  
 7 all the other things and gotten a 60 megawatt  
 8 turbine in place, we -- I say we may have been  
 9 able to avoid January 2nd and 3rd. We  
 10 wouldn't have been able to avoid January 4th  
 11 'til 8th, which was the largest effect on  
 12 customers. That would have happened  
 13 regardless, with or without the new  
 14 generation.  
 15 JOHNSON, Q.C.:  
 16 Q. And there's, I guess, you know, there was  
 17 discussion as well regarding == Mr. Henderson,  
 18 you indicated in response to Mr. O'Brien's  
 19 questioning regarding the Liberty report of  
 20 October and you stated that, you know, there  
 21 was a level of risk inherent in Hydro's  
 22 planning criteria and you indicated, you know,  
 23 Hydro could move to a higher level with having  
 24 greater reserves, so using a lower loss of  
 25 load hour criterion and you queried, you know,

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1 whether customers would be on for that and it  
 2 there would be implications to that, but I  
 3 don't know if that's really the point though,  
 4 Mr. Henderson, because we're not talking about  
 5 establishing another criterion. What we were  
 6 talking about is meeting the criterion and not  
 7 violating the one that we've had for many,  
 8 many years in the jurisdiction. So, I find  
 9 that, the idea that that'll merge into a  
 10 discussion well, maybe we could have looked at  
 11 another criterion. I mean, we didn't meet the  
 12 criterion that we did have.  
 13 MR. HENDERSON:  
 14 A. I'm not sure where we've established that we  
 15 didn't meet it.  
 16 JOHNSON, Q.C.:  
 17 Q. Well, in terms of -- well, I put to you that,  
 18 you know, staring 2015 in the face, knowing  
 19 that it's coming in the lead up in the  
 20 successive planning reports, and here we don't  
 21 see any application in January of 2013. We  
 22 know even if it's done at Holyrood, it's going  
 23 to take two years, might take a little bit  
 24 more, who knows. There might be  
 25 contingencies. And you know, I just wonder in

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1 terms of Liberty talking about the culture, is  
 2 the culture -- does the culture there tolerate  
 3 that sort of -- if I can put it this way,  
 4 leaving it to the very last and then rushing  
 5 into something like we ended up seeing on the  
 6 100 megawatt CT. I mean, it doesn't sound  
 7 like a culture of saying guys, let's get at  
 8 this.  
 9 MR. HENDERSON:  
 10 A. Well, people were at it and they were working  
 11 on the application to get the application in.  
 12 We had not, in this jurisdiction, that I'm  
 13 aware of, faced a generation expansion of that  
 14 magnitude in the past and there was a  
 15 considered effort of making sure that we had  
 16 all of the right options that we could display  
 17 the least cost was being put forward. So that  
 18 type of work was going on in 2013 to ensure  
 19 all of those options had been demonstrated.  
 20 It's, I think, incumbent on us to make sure  
 21 that all of the options are presented to the  
 22 Board so that they can make a considered  
 23 decision of all the options that are put  
 24 forward and that was part of what was going on  
 25 in 2013 to make sure that they were all part

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1 of it.  
 2 My experience is that every cost that we  
 3 put forward and those types of options would  
 4 be challenged for least cost and whether there  
 5 are other options that would be lower cost and  
 6 we were doing that and we were keeping it in  
 7 view what was the schedule available to ensure  
 8 that the generation would be there in 2015 as  
 9 planned for coming into service in the middle  
 10 of 2015. That was the target to ensure that  
 11 we were meeting the criteria that was  
 12 established and so that continued and that was  
 13 -- we kept that in view and so that we could  
 14 do that.  
 15 JOHNSON, Q.C.:  
 16 Q. So if there was a capacity deficit expected in  
 17 2015, would you plan -- you had planned to  
 18 bring it in like in the summer of 2015, so  
 19 you'd miss the full winter period of 2015?  
 20 MR. HENDERSON:  
 21 A. That was the way that it was being done, was  
 22 that it would be brought in -- the target for  
 23 bringing the additional capacity in was during  
 24 the year of 2015. And so that was -- from the  
 25 point that this was, I'll say, presented, the

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1 requirement was identified to be midyear 2015  
 2 or in the fall of 2015, so it was there for  
 3 that late part of 2015 going into 2016.  
 4 JOHNSON, Q.C.:  
 5 Q. What if you had exceeded capacity earlier in  
 6 2015? What -- you know, because then you'd  
 7 have the January, February, March of 2015.  
 8 Why wouldn't you be ready for that? Because  
 9 presumably the capacity deficit could happen  
 10 any time in 2015, could it?  
 11 MR. HENDERSON:  
 12 A. Well, I guess what -- maybe Mr. Humphries can  
 13 add to it, but all I can say is that that was  
 14 the established target for in service that we  
 15 were keeping our eye on to ensure that we  
 16 could meet that in-service date. So that's  
 17 where the focus was, and so we were making  
 18 sure that we could get all of the analysis  
 19 done and complete so that we could put a  
 20 thorough presentation and application that  
 21 considered interruptible arrangements,  
 22 considered all the different elements, the  
 23 demand management, all of those things that we  
 24 all strive to make sure that we consider for  
 25 least cost for any generation expansion and

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1 those pieces had to be all laid out and  
 2 clearly put forward in an application. That  
 3 work was ongoing so that we had that there for  
 4 that evaluation, keeping in mind that the date  
 5 that this all had to be in place was for the  
 6 fall of 2015.  
 7 JOHNSON, Q.C.:  
 8 Q. Mr. Humphries, why -- if the capacity deficit  
 9 was expected in 2015, why would you have a  
 10 comfort of trying to bring it in say midyear,  
 11 like the summer of 2015?  
 12 MR. HUMPHRIES:  
 13 A. Well, and again, what the analysis was  
 14 indicating that in January, February, March of  
 15 2015, there was an increased risk. It wasn't  
 16 significant compared to what we had seen if we  
 17 go back to 2008, the case I talked about with  
 18 Mr. O'Brien yesterday where we saw a step  
 19 change from an LOLH of less than two up to  
 20 over five. We were talking about just  
 21 crossing the line between 2.8 and -- crossing  
 22 2.8 line and it was comparable to situations  
 23 that we had been through in the past, in 2002  
 24 and 2003, and that was the level of discussion  
 25 that was carried and the level of thinking

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1 that went into the decision making at that  
 2 time.  
 3 JOHNSON, Q.C.:  
 4 Q. The Liberty report talks about, you know, some  
 5 cultural concerns at Hydro. Has there been a  
 6 recognition at Hydro that there are in fact  
 7 concerns at a cultural level that need to be  
 8 tackled?  
 9 MR. HENDERSON:  
 10 A. As I stated to Mr. O'Brien, there is room for  
 11 improvement. There's no doubt that there is  
 12 additional work to be done on that reliability  
 13 side. There is -- my experience is having a  
 14 very dedicated, committed company to  
 15 reliability with a strong focus on  
 16 reliability. It has existed since the day I  
 17 started with the company and still exists  
 18 today. But that's not to say that there isn't  
 19 room for improvement, and as I said to Mr.  
 20 O'Brien, there is room for improvement and we  
 21 accept that there is room for improvement and  
 22 are committed to improve on the manner in  
 23 which we address and focus reliability issues,  
 24 so that there's better understanding and  
 25 better communications to our customers and

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1 more -- a higher view of exposures that we may  
 2 have in the company. I would agree that there  
 3 are gaps there that we have to improve on.  
 4 JOHNSON, Q.C.:  
 5 Q. Will those gaps necessitate, in your judgment,  
 6 a cultural shift or a cultural modification?  
 7 MR. HENDERSON:  
 8 A. Well, I think we're talking about a philosophy  
 9 on what culture is and that sort of thing, but  
 10 culture is the manner in which people in the  
 11 company behave and accept as their way of  
 12 going about their business and that type of  
 13 change, cultural change generally in an  
 14 organization does not happen on a dime. It  
 15 takes time and it's a concerted effort to  
 16 continue to focus and bringing that attention  
 17 to each and every employee that has a role in  
 18 the company of the importance of reliability  
 19 and as I said, there is a very strong culture  
 20 of reliability, but there's room to improve  
 21 that culture of reliability and it's on a  
 22 spectrum and where we were versus where we  
 23 need to be and what we're hearing and people  
 24 are asking, we're absolutely going to be  
 25 making improvements with respect to the way

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1 that we address reliability issues.  
 2 JOHNSON, Q.C.:  
 3 Q. Thank you, Mr. Henderson. Thank you, panel.  
 4 Those are my questions.  
 5 CHAIRMAN:  
 6 Q. Sir, you are on.  
 7 CROSS-EXAMINATION BY MR. PAUL COXWORTHY  
 8 MR. COXWORTHY:  
 9 Q. Thank you, Mr. Chair. Good afternoon,  
 10 gentlemen.  
 11 MR. HENDERSON:  
 12 A. Good afternoon.  
 13 MR. HUMPHRIES:  
 14 A. Good afternoon.  
 15 MR. LEDREW:  
 16 A. Good afternoon.  
 17 MR. MOORE:  
 18 A. Good afternoon.  
 19 MR. COXWORTHY:  
 20 Q. I'd like to start with the October 2015 report  
 21 that was filed by Liberty in relation to the  
 22 March 2015 voltage collapse, Information 29, I  
 23 believe. And Mr. Henderson, you've answered  
 24 some questions in relation to that report. I  
 25 guess my understanding of your evidence, if I

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1 can generalize, is -- and I think it follows  
 2 in what you've just said in terms of room for  
 3 improvement is that you frankly acknowledge  
 4 that there is room for improvement or for  
 5 learning lessons in relation to what occurred  
 6 on March 4th, 2015. Is that correct?  
 7 (12:15 p.m.)  
 8 MR. HENDERSON:  
 9 A. Oh yes, absolutely, yes.  
 10 MR. COXWORTHY:  
 11 Q. And in that vein, and I don't understand or I  
 12 have not seen any indication as to whether  
 13 Hydro intends to file a reply to the October  
 14 2015 Liberty report, and I realize it's quite  
 15 new, relatively speaking. It's just out, and  
 16 perhaps I've missed something. Perhaps there  
 17 is an intention to reply. But, can you advise  
 18 me, Mr. Henderson, if you're aware of any  
 19 intention to reply or comment on the report?  
 20 MR. HENDERSON:  
 21 A. As far as I know, there hasn't been any  
 22 process established with regard to that. I  
 23 will say that since that report -- or not  
 24 since the report, but since the incident,  
 25 there has been changes dealt with and

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1 addressed that came about from our own review  
 2 of that event and what's in the  
 3 recommendations here by Liberty, we will take  
 4 them into our plan and address them as well.  
 5 MR. COXWORTHY:  
 6 Q. Well, that's what I was going to go to. Of  
 7 course, there is a recommendation section in  
 8 the March 2015 report, and what I was  
 9 wondering is what comfort the Board and  
 10 Hydro's customers would have that Hydro will  
 11 be considering those recommendations, acting  
 12 on them, or if for some reason Hydro feels  
 13 it's not appropriate to act on them, explain  
 14 why.  
 15 MR. HENDERSON:  
 16 A. Well, as I said, they will be brought into our  
 17 work plan, if you like, and be part of our  
 18 ongoing considerations as we move forward.  
 19 Some of those are -- I'll say the way that I  
 20 understand them -- and again, there's perhaps,  
 21 you know, having clear understanding of what  
 22 the expectation is from them is probably not  
 23 there yet, until there's some -- perhaps some  
 24 additional discussion, but our intention is to  
 25 take those and move forward with them and

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1 advance them, and some of them will take time.  
 2 Some of them will have already -- we've made  
 3 the changes and they're already there. So,  
 4 you know, certainly we're committed to that.  
 5 MR. COXWORTHY:  
 6 Q. And you've had an opportunity to review the  
 7 report, the October 2015 report? Is that  
 8 correct, Mr. Henderson?  
 9 MR. HENDERSON:  
 10 A. Yes, you know, getting ready for this, there  
 11 was another piece of paper to read through and  
 12 in reviewing it, as I said, and I made my  
 13 statement, our commitment is to adopt these  
 14 things.  
 15 MR. COXWORTHY:  
 16 Q. And in terms of your knowledge of what I'll  
 17 say the factual findings in that report, I  
 18 understood from the evidence you gave  
 19 previously that you were actually involved in  
 20 interviews with Liberty around the issues that  
 21 are dealt with in that October 2015 report?  
 22 MR. HENDERSON:  
 23 A. I was involved with it, yes.  
 24 MR. COXWORTHY:  
 25 Q. And do you take exception or disagree with any



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1 of the factual findings? And I want to make a  
 2 distinction, there are opinions and views  
 3 expressed and I understand certainly that you  
 4 take exception to some and maybe all of those,  
 5 but simply in terms of the factual findings,  
 6 when things are said to have occurred or not  
 7 occurred, in terms of the timeline as  
 8 outlined, as set out in that report, do you  
 9 disagree with any of those findings?  
 10 MR. HENDERSON:  
 11 A. I can say that I have not gone through it in  
 12 sufficient detail to be able to comment that  
 13 way, one way or another.  
 14 MR. COXWORTHY:  
 15 Q. Thank you, Mr. Henderson. I'd like to move  
 16 on, I think briefly, to the common mode  
 17 failure issue with respect to the lube oil  
 18 pumps for the Holyrood turbine units. And if  
 19 I could refer to the evidence of Mr. LeDrew on  
 20 October 27th, page 119, and starting at line  
 21 six? And Ms. Greene, Mr. LeDrew, asked you --  
 22 and this is in relation to the testing regime  
 23 that had been in place prior to January 2013,  
 24 or I'm sorry, prior to January 2014, in  
 25 relation to the AC pumps and the DC pumps.

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1 And you gave an answer "well, we send these  
 2 motors out" -- and this is at line 12 on that  
 3 page. "Well, we send these motors out and I  
 4 have to, I guess, mention that there's over  
 5 600 motors in the facility" and that's in the  
 6 Holyrood facility?  
 7 MR. LEDREW:  
 8 A. That's correct, yes.  
 9 MR. COXWORTHY:  
 10 Q. And I guess my question was -- and I'm  
 11 thinking about some of the evidence that was  
 12 given by Mr. Moore in terms of what has been  
 13 done to determine asset criticality in  
 14 relation to air blast breakers and  
 15 transformers. In relation to those 600  
 16 motors, would it be fair to say that some of  
 17 them are more critical to the operation of  
 18 Holyrood than others?  
 19 MR. LEDREW:  
 20 A. Oh certainly, yeah, that would be correct.  
 21 MR. COXWORTHY:  
 22 Q. And has there been or has there ever been any  
 23 effort by Hydro to identify what are the more  
 24 critical motors, the ones that there needs to  
 25 be a greater assurance that they'll operate

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1 when they're called upon?  
 2 MR. LEDREW:  
 3 A. Well, we have done a complete asset  
 4 criticality at the four kV level, the much  
 5 larger motors. This was a 20 horsepower  
 6 motor, this one in question. But our larger  
 7 motors that had some play in the 2014 outages,  
 8 all of those motors were analyzed and a  
 9 strategy adopted to enact some spares at the  
 10 four kV level.  
 11 MR. COXWORTHY:  
 12 Q. So we're not talking, and correct me if I'm  
 13 wrong, about the motors in relation to the AC  
 14 and DC pumps for the lube oil?  
 15 MR. LEDREW:  
 16 A. No, we're not, no.  
 17 MR. COXWORTHY:  
 18 Q. No. So obviously even motors at that level  
 19 can have a critical impact, if they don't  
 20 operate?  
 21 MR. LEDREW:  
 22 A. Correct.  
 23 MR. COXWORTHY:  
 24 Q. When they're called upon.  
 25 MR. LEDREW:

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1 A. If they fail to operate or operate  
 2 inadequately, they can have an impact. That's  
 3 correct.  
 4 MR. COXWORTHY:  
 5 Q. So I'm asking, at that level, there hasn't  
 6 been any asset criticality assessment made?  
 7 MR. LEDREW:  
 8 A. There's been a criticality assessment done on  
 9 all the complete plant and all the systems in  
 10 the plant. There's been a thorough review  
 11 done in 2014, I believe.  
 12 MR. COXWORTHY:  
 13 Q. And it may have been filed. Do you know if  
 14 it's been filed as part of the record?  
 15 MR. LEDREW:  
 16 A. I'm trying to -  
 17 MR. COXWORTHY:  
 18 Q. Could I ask for your undertaking to advise -  
 19 MR. LEDREW:  
 20 A. Yeah, I will.  
 21 MR. COXWORTHY:  
 22 Q. - if it has been, and if it hasn't, is there a  
 23 document that -  
 24 MR. LEDREW:  
 25 A. Yes, there was an asset criticality done on

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1 all that, yeah.

2 MR. COXWORTHY:

3 Q. And that would deal with the motors in

4 relation to the AC and DC pumps?

5 MR. LEDREW:

6 A. It would look at all the systems, yeah.

7 MR. COXWORTHY:

8 Q. So if I may have an undertaking either to

9 identify where it is on the record, if it is

10 on the record, or produce it and file it as

11 part of the record?

12 MR. LEDREW:

13 A. Yeah.

14 MS. GLYNN:

15 Q. And that's noted on the record. I, again,

16 think it would be on the investigation record.

17 MR. HENDERSON:

18 A. It is, yeah.

19 MS. GLYNN:

20 Q. I'm not sure if it's on this GRA.

21 MR. COXWORTHY:

22 Q. Okay, thank you. Thank you, Mr. LeDrew. Mr.

23 Henderson, I believe you answered these -- I'm

24 sorry, it was Mr. LeDrew again on the common

25 mode failure issue. No, I was right the first

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1 time. It was Mr. Henderson. The corrective

2 measures that have been taken to assess or the

3 measures that have been taken to assess

4 whether there's a continuing risk or a risk of

5 common mode failure and, you know, certainly

6 understand from the capital report that Hydro

7 feels that if that was an issue, it has been

8 addressed by the measures that have been taken

9 to this point and I think Hydro doesn't -- is

10 not concerned that there's an ongoing risk in

11 relation to the common load -- common mode

12 failure issue that's raised by Liberty.

13 MR. HENDERSON:

14 A. What we basically responded there is the work

15 that we have done at Holyrood to ensure the

16 operation of the lubricating oil system, which

17 I understand is a consistent design for many

18 thermal plants as having that type of design

19 and what we've done is made improvements to

20 the manner in which the tests are done on a

21 weekly basis and the return to service tests

22 for those motors after they've been

23 overhauled. So, and at the start of the

24 operating season, I think it's a start of

25 operating season test as well.

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1 So all of those improvements have been

2 made to ensure the better functioning and

3 coverage to reduce risk on the operation of

4 the lubricating system and which is, as I

5 understand it, I think La Capra mentioned

6 that, that that's a common design for large

7 thermal plants is to have the two AC driven

8 pumps and a DC driven pump. So we did not --

9 having taken that action, and the additional

10 action that we've taken in the switch yard and

11 things we've done with breakers and so on,

12 we've done a lot -- taken a lot of action to

13 improve the reliability that the -- what we're

14 saying is that we did not identify as

15 additional requirement to put in another

16 lubricating oil system to back up the DC

17 lubricating oil system.

18 MR. COXWORTHY:

19 Q. And that's on the basis that that's not a

20 practice as you understand it for other

21 thermal generation facilities across North

22 America?

23 MR. HENDERSON:

24 A. I don't -- I'm not an expert in what's

25 everywhere else, but from what La Capra has

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1 indicated to this, what we are using is a

2 typical design and so it was our assessment

3 that what we have is a normal design for the

4 facility, for that type of facility.

5 MR. COXWORTHY:

6 Q. With reference to page 137 of your evidence on

7 October 27th, Mr. Henderson, I just wanted to

8 explore further what further steps Hydro at

9 least considered to address the reliability of

10 the lube oil pumps for the turbine units to

11 ensure that they would operate when they were

12 called upon. And at page 137, starting at

13 line six, you speak to having -- Hydro having

14 investigated starting the diesels on an under

15 voltage and "our engineering review of that

16 indicated that the complexity and the time

17 that it would take to react to a brown-out

18 situation would not bring about -- by starting

19 up the diesels would not bring about adequate

20 lube oil pressure on the AC system quickly

21 enough to be of value." So is that something

22 further that was investigated by Hydro to

23 enhance the reliability of -

24 MR. HENDERSON:

25 A. Yes. Well, what happened on -- in January

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1 2013 was that there was -- I think Mr. LeDrew  
 2 described it. There was a depression in the  
 3 voltage, so we had a low voltage and that  
 4 voltage was low enough that the AC motor on  
 5 unit one, the back up -- I'll say the first  
 6 back up that operates on the station service  
 7 did not start. The one on unit two did, which  
 8 is a sister unit identical design. So, what  
 9 we did is we looked at that and investigated  
 10 why that didn't happen and we found that we  
 11 could make changes to that particular motor so  
 12 that it was more, I'll say, robust or able to  
 13 carry a start under a lower voltage condition,  
 14 similar to what was happening on unit two. So  
 15 that was one thing that we had identified.  
 16 Beyond that, we had also, in  
 17 our analysis, said we should explore  
 18 the possibility of having the diesel  
 19 system start on a low voltage  
 20 system, not just a -  
 21 MR. COXWORTHY:  
 22 Q. And that's what you're speaking about at 137?  
 23 MR. HENDERSON:  
 24 A. Right, and rather than just a no voltage  
 25 system. And when that investigation was found

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1 and they looked at the timing and the  
 2 complexity, because you have to actually  
 3 disconnect from the system. It's not like a  
 4 no voltage system, it all can happen very  
 5 quickly, but if it's a low voltage, you have  
 6 to have more control logic there to enable a  
 7 switch, and with all of the complexity of  
 8 that, the timing was such that you would not  
 9 get a diesel unit up and running and starting  
 10 that pump in sufficient time to have prevented  
 11 what happened in January 2013.  
 12 MR. COXWORTHY:  
 13 Q. The inability to do that, is that in any  
 14 respect a cost issue in terms of could there  
 15 be enhancements to that diesel unit, to its  
 16 configuration, that would allow for it to come  
 17 up within a timely fashion to perform the  
 18 function that are -  
 19 MR. HENDERSON:  
 20 A. I don't know enough of the detail. The way  
 21 that it was explained to me, this wasn't a  
 22 cost issue. It was the practicality of it  
 23 happening.  
 24 MR. COXWORTHY:  
 25 Q. Then at page 138 on October 27th, starting at

Page 139

1 line 8, you refer to the possibility or  
 2 consideration of introducing another DC lube  
 3 oil system, a pumping system, which would be a  
 4 pretty complex change. If such a system were  
 5 to be introduced, would that be a single pump  
 6 that would serve all three of the units at  
 7 Holyrood or would it be a separate?  
 8 MR. HENDERSON:  
 9 A. I'll jump and Terry will correct me if I'm  
 10 off, seeing I'm already leaning forward, the  
 11 tank that has the lube oil system, there's an  
 12 individual tank for each unit, so each unit  
 13 has a tank that has three pumps in it, the  
 14 three that we've been talking about; the AC  
 15 pump that's driven right off the terminals of  
 16 the generator, an AC pump that's run off the  
 17 station service, and a DC driven pump. So they  
 18 are all within a tank and that tank has piping  
 19 that goes up to the level of the turbine. So  
 20 that tank, as I've seen it, is of a certain  
 21 size and a certain physical location. It  
 22 would appear to me, just by my knowledge of  
 23 looking at it, to add another pump to that  
 24 tank would be pretty complex and you'd have to  
 25 do it on all three units.

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1 MR. COXWORTHY:  
 2 Q. It would have to be three separate pumps?  
 3 MR. HENDERSON:  
 4 A. It would be three separate pumps because  
 5 they're all separate lubrication systems, and  
 6 so they'd have to be designed - you know, it  
 7 appears to me a complex modification to that  
 8 plant.  
 9 MR. COXWORTHY:  
 10 Q. So in that case - Mr. LeDrew, is there -  
 11 MR. LEDREW:  
 12 A. I would add there's another whole piece to  
 13 this. This DC pump is driven by a battery  
 14 bank, and that's a large battery bank with  
 15 battery chargers, and starting circuits, so  
 16 all of that would have to be replaced as well,  
 17 so it's a pump and a tank that isn't designed  
 18 for it, so you got to modify a tank and piping  
 19 and bring a whole new starter system and a  
 20 whole new power supply system to drive that,  
 21 totally independent of the one that's there  
 22 now.  
 23 MR. COXWORTHY:  
 24 Q. And how far did Hydro go in exploring this as  
 25 an option, was a study commissioned or a

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1 report prepared internally by Hydro?  
 2 (12:30 p.m.)  
 3 MR. HENDERSON:  
 4 A. No, we have not done anything - it was through  
 5 the Liberty Report leading into this part of  
 6 the hearing that that was first raised to us,  
 7 you know, some suggestion that we needed a  
 8 further lubrication backup, if you like.  
 9 MR. COXWORTHY:  
 10 Q. And you give reasons here as to that would be  
 11 a pretty complex change, but there has been no  
 12 report or study done internally by Hydro to  
 13 determine exactly what would be involved and  
 14 the cost?  
 15 MR. LEDREW:  
 16 A. I think we filed on - I think we filed on  
 17 record the start time of a diesel and the  
 18 response time, I do recall, and that was  
 19 outside this 28 seconds that is now known to  
 20 be the period of time from inadequate oil to  
 21 excessive vibrations on the unit.  
 22 MR. COXWORTHY:  
 23 Q. You'll have to help me, Mr. LeDrew, how does  
 24 that relate to the introduction of another DC  
 25 lube oil system as a consideration?

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1 MR. LEDREW:  
 2 A. Well, in terms of talking about diesels and  
 3 having diesels in the brown-out condition that  
 4 we talked about, that was the analysis that  
 5 was done that in terms of going down that  
 6 trail, that we didn't believe we could tie  
 7 diesels into the system to be able to start  
 8 successfully and recover oil capacity to the  
 9 turbine inside the 28 seconds required.  
 10 MR. COXWORTHY:  
 11 Q. Sure, and that was the first issue that I  
 12 raised with Mr. Henderson, and I certainly  
 13 wasn't intending to pursue that, but in  
 14 relation to having another DC lube oil system  
 15 introduced, again I understand this originates  
 16 with a Liberty recommendation, but has Hydro  
 17 done anything internally to study or assess  
 18 that to assess its cost, to assess its  
 19 practicality?  
 20 MR. HENDERSON:  
 21 A. We haven't initiated anything at this point.  
 22 MR. COXWORTHY:  
 23 Q. Thank you. I'd like to move on to the black  
 24 start diesels that are currently in place at  
 25 Holyrood, and I haven't had an opportunity to

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1 go back to find the evidence reference, and  
 2 maybe I'm misrecollecting this, but I had  
 3 understood, Mr. Henderson, and I'm not sure if  
 4 it was part of this panel or an earlier panel,  
 5 that you indicated that those were going to  
 6 continue to be leased into 2016, did I  
 7 understand that correctly?  
 8 MR. HENDERSON:  
 9 A. We're preparing an application to go before  
 10 the Board. It should be very close - I think  
 11 this process has probably in a way held up us  
 12 getting that finalized, but our intention is  
 13 to put forward an application to the Board for  
 14 actually the purchase of those diesels.  
 15 MR. COXWORTHY:  
 16 Q. So as a permanent fixture at Holyrood having  
 17 these eight diesels?  
 18 MR. HENDERSON:  
 19 A. We're looking at different options as to  
 20 whether it'll be the full eight or it'll be a  
 21 lower number. That's part of what we're  
 22 looking at right now because what we've  
 23 determined - well, first of all, the  
 24 infrastructure out there only allows 10  
 25 megawatts to be brought out to the system and

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1 they're capable of 16, so to get the full 16  
 2 megawatts requires additional infrastructure  
 3 and cost. So that was part of the  
 4 consideration, so we're looking at all of that  
 5 to put forward. Until we've got everything  
 6 completed on that, I guess, I can't say much  
 7 more because I'm not sure how it's all going  
 8 to shake out, but right now it seems to be  
 9 more likely a fewer number than the full  
 10 eight.  
 11 MR. COXWORTHY:  
 12 Q. And to the extent that there's any number of  
 13 them kept there, is that to perform a black  
 14 start function?  
 15 MR. HENDERSON:  
 16 A. Right now the situation at Holyrood is the new  
 17 combustion turbine is in place, and we have  
 18 not done a start of the Holyrood plant from  
 19 it, and until we had done that and proven that  
 20 was functioning, we did not want to take away  
 21 the mobile diesel units.  
 22 MR. COXWORTHY:  
 23 Q. And maybe this is where I'm conflating the two  
 24 concepts. Are all eight of those diesels  
 25 going to be kept at Holyrood until that test

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1 is performed on the new 100 megawatt CT to  
 2 ensure that it can perform the black start  
 3 function?  
 4 MR. HENDERSON:  
 5 A. We will ensure - what I will say is that we  
 6 will ensure the black start functionality is  
 7 there until - there will be no gap in the  
 8 black start functionality at all, and if we  
 9 were to remove the diesels, it will only be  
 10 after we've proven the black start  
 11 functionality of - we have proven the  
 12 combustion turbine can black start. We  
 13 haven't proven using it to start the Holyrood  
 14 - until we've done that, we aren't going to be  
 15 removing the diesels such that we lose that  
 16 capability.  
 17 MR. COXWORTHY:  
 18 Q. And has there been any assessment made of when  
 19 the next window will be to do that black start  
 20 test to see if the 100 megawatt CT can black  
 21 start Holyrood?  
 22 MR. HENDERSON:  
 23 A. It will not be until next spring, until we're  
 24 beyond the peak demand period and we're able  
 25 to take a unit down at Holyrood to enable the

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1 start of it from this.  
 2 MR. COXWORTHY:  
 3 Q. So Hydro is going to be continuing to use -  
 4 and I'm not sure from your answer whether it's  
 5 all eight diesels or less than eight because I  
 6 think you're leaving open the possibility you  
 7 may assess that you don't need to keep all  
 8 eight to maintain black start, is that -  
 9 MR. HENDERSON:  
 10 A. Well, what I can say to you is many of our  
 11 black start tests - well, the black start test  
 12 that we have completed with the diesels, we've  
 13 done that with five units, so we've been able  
 14 to start the large boiler feed water pump and  
 15 motors with five. So there's a reliability  
 16 consideration as to how many beyond five we  
 17 will have on site, and there's also the  
 18 consideration of the infrastructure there -  
 19 there's benefit to having more if we can bring  
 20 it to system support, plus there's a  
 21 reliability element of having more than - if  
 22 five is the minimum, I would suggest to you we  
 23 won't just have five, we'll have six or maybe  
 24 we'll have seven, or maybe we'll have eight,  
 25 and that's part of what we're looking at.

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1 MR. COXWORTHY:  
 2 Q. I can certainly understand why you'd want to  
 3 continue to have whatever that number of  
 4 diesels should be stay there and perform that  
 5 function until the 100 megawatt CT is tested  
 6 for black start capability with Holyrood, but  
 7 what is the rationale then for purchasing them  
 8 and keeping them there beyond that test of the  
 9 100 megawatt CT?  
 10 MR. HENDERSON:  
 11 A. Well, that will be part of our application.  
 12 MR. COXWORTHY:  
 13 Q. Okay, we'll have to wait and see, will we?  
 14 MR. HENDERSON:  
 15 A. I guess, but I can indicate to you it's  
 16 because of an economic evaluation and the  
 17 benefit of having that additional 10 or 16  
 18 megawatts capacity to the system. So there's  
 19 the reliability benefit plus there's been  
 20 analysis done on the cost and the reason that  
 21 that comes into play is when we entered into  
 22 the lease for these diesels, we had entered  
 23 into a lease to purchase arrangement, so after  
 24 having so many months of lease, the purchase  
 25 price becomes quite attractive because the

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1 incremental cost of a purchase now is much  
 2 lower than what it would have been from the  
 3 start. So we are looking at the full  
 4 economics of that and the opportunity that  
 5 that brings for the units.  
 6 MR. COXWORTHY:  
 7 Q. If we could turn to Hydro's reply evidence in  
 8 reply to the Liberty report that was filed on  
 9 August 7th, 2015, and to the La Capra report  
 10 that was attached to that reply evidence, and  
 11 page 26 of the La Capra. I guess, Mr.  
 12 Henderson, I'm trying to understand, and I  
 13 certainly would acknowledge maybe things have  
 14 changed. Obviously, Mr. La Capra's report was  
 15 filed back in August, and maybe things have  
 16 changed, but I want to understand whether  
 17 anything he has said here perhaps has changed  
 18 or may change, based on the application that  
 19 you referred to in relation to the diesels.  
 20 At page -  
 21 MS. GRAY:  
 22 Q. Sorry, which - I'm not sure if I have the  
 23 right page reference.  
 24 MR. COXWORTHY:  
 25 Q. Page 26, black start in the La Capra Report.

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1 No, I'm sorry, not in the - in the reply  
 2 evidence itself, I apologize, Ms. Gray. Thank  
 3 you. So again I'm interested in knowing  
 4 whether anything that's stated here has  
 5 changed or may change based on the application  
 6 that Hydro will be filing in relation to the  
 7 diesels. So the comment is made here that  
 8 Liberty - this is at line 14, page 26,  
 9 "Liberty's proposal to disallow the 2014-2015  
 10 black start cost because this capability was  
 11 only available for a limited period is  
 12 inconsistent with the general application of  
 13 used and useful regulatory principle. In this  
 14 case, Hydro incurred an investment to obtain  
 15 black start capability in accordance with the  
 16 direction of the Board that was used and  
 17 useful during the 2014/2015 period. Hydro is  
 18 seeking recovery only for the amount it  
 19 ultimately incurred for the service provided,  
 20 not for any costs with the provision of the  
 21 service over a longer time period". Are  
 22 Hydro's customers going to be now asked to pay  
 23 for costs associated with these diesels beyond  
 24 that 2014-2015 time period?  
 25 MR. HENDERSON:

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1 A. The application is - that's what it is about.  
 2 It's seeking Board approval for the purchase  
 3 for recovery from our customers.  
 4 MR. COXWORTHY:  
 5 Q. And you're not able to say - it sounds like  
 6 it's supposed to be soon; in fact, you were  
 7 hoping it would have been filed by now?  
 8 MR. HENDERSON:  
 9 A. That's right.  
 10 MR. COXWORTHY:  
 11 Q. Can you say when that application will be  
 12 filed?  
 13 MR. HENDERSON:  
 14 A. I'm hesitant to say because, you know, there's  
 15 been a few things happening, and one of the  
 16 things that did cause a delay, though, I  
 17 should mention, and I think Mr. Humphries may  
 18 have mentioned this when he was on the stand  
 19 last week or - I'm not sure, seems hard to  
 20 know when we were all on the stand, but what  
 21 has happened is we've had a revised load  
 22 forecast provided to us from Vale as to what  
 23 their long term outlook is for their demand,  
 24 and we've also had a change in the demand  
 25 forecast for Newfoundland Power, and that's

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1 caused us to step back and look at this a  
 2 little differently because the amount of load  
 3 change that they are suggesting is going to  
 4 happen would make it questionable whether it's  
 5 worth the extra investment to put in the extra  
 6 - to go beyond what we need for 10 megawatts,  
 7 whether we go to the 16, because we were  
 8 looking at putting in the - making a capital  
 9 investment at the Holyrood plant to enable the  
 10 extra six, which we currently can't get out  
 11 because of the infrastructure it's connected  
 12 to. So we could make those changes and that  
 13 has changed, so we're revising what we had  
 14 originally drafted to reflect that, and re-  
 15 evaluating the economics to ensure that  
 16 everything makes sense to move forward. The  
 17 other piece of this that I was thinking you  
 18 might be going to, there was an element of  
 19 what was put in for the black start diesels,  
 20 there's a distribution line that was built to  
 21 connect the diesels into the plant. That  
 22 distribution line will be reused for  
 23 connecting the new combustion turbine into the  
 24 plant, and so right now that cost of  
 25 connecting the combustion turbine to that

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1 distribution line and the little  
 2 reconfiguration, that piece of work has been  
 3 put on hold until we get through this. So  
 4 that's a savings that goes against keeping the  
 5 diesels, but if we decide not to have the  
 6 diesels, that's a cost that will have to  
 7 incur.  
 8 MR. COXWORTHY:  
 9 Q. Would it be fair to expect that application to  
 10 be filed some time in November month?  
 11 MR. HENDERSON:  
 12 A. I would certainly hope so, yes.  
 13 MR. COXWORTHY:  
 14 Q. Okay, well, I'll move on, I'll move on. In  
 15 terms of not having tested the 100 megawatt CT  
 16 in 2015 to determine whether it was capable of  
 17 black starting Holyrood, had a window been  
 18 identified at the outset of 2015 for doing  
 19 that test?  
 20 MR. HENDERSON:  
 21 A. The intention was to do that at the time of  
 22 the total plant outage at Holyrood.  
 23 MR. COXWORTHY:  
 24 Q. In August of -  
 25 MR. HENDERSON:

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1 A. Yeah.  
 2 MR. COXWORTHY:  
 3 Q. It seems to be that would be the logical time  
 4 to do it, at least from a layperson's  
 5 perspective.  
 6 MR. HENDERSON:  
 7 A. That's right.  
 8 MR. COXWORTHY:  
 9 Q. And why wasn't it done in August of 2015?  
 10 MR. HENDERSON:  
 11 A. In 2015, we've been doing a large amount of  
 12 work in our Holyrood switch yard. We're also  
 13 doing work at Oxen Pond. We have a number of  
 14 breakers that are being replaced. We're doing  
 15 an accelerated SF - air blast circuit breakers  
 16 replacement program to bring in SF6 breakers  
 17 in place of that, so there was a considerable  
 18 amount of coordination required to take all of  
 19 that equipment out of service and then in  
 20 order to do the test, required to take  
 21 additional equipment out of service in order  
 22 to connect the combustion turbine directly  
 23 into the Holyrood plant without having  
 24 anything else connected to the Holyrood plant  
 25 other than the combustion turbine. In order

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1 to do that in August, there was considerable  
 2 risk that we would be introducing to the  
 3 transmission system because of the lines that  
 4 we'd have to take out of service to connect it  
 5 into the Holyrood switch yard, and when we  
 6 looked at that, evaluated that, we said, no,  
 7 this is not something that we're going to go  
 8 forward with because of the risk and we put a  
 9 hold on that, and then looked at doing it in  
 10 September.  
 11 (12:45 p.m.)  
 12 MR. COXWORTHY:  
 13 Q. In September?  
 14 MR. HENDERSON:  
 15 A. In September.  
 16 MR. COXWORTHY:  
 17 Q. Of this year?  
 18 MR. HENDERSON:  
 19 A. Of this year, and at that time there was  
 20 another unit coming on. We had - I'm going to  
 21 say Unit 3 was operating, and we were looking  
 22 at when Unit 1 was going to come on the  
 23 system, we would do the test at that time, but  
 24 we had some delays in some other projects that  
 25 affected the transmission system at that time,

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1 which again we looked at it and said given the  
 2 balance of everything here, it was much better  
 3 from a reliability perspective not to go ahead  
 4 with the test at that time. Again the breaker  
 5 work is still ongoing and some other system  
 6 configurations had been happening. We have a  
 7 transmission line PL201 out of service right  
 8 now, so there was a number of factors that  
 9 came into play when looking at it, that we  
 10 said, no, we'll have to do this at another  
 11 time. Then, of course, on top of that, we had  
 12 this application which we knew that we're  
 13 going to -  
 14 MR. COXWORTHY:  
 15 Q. You knew the diesels were going to be sticking  
 16 around?  
 17 MR. HENDERSON:  
 18 A. We were moving down the road to expect that  
 19 we'd have something before the Board with  
 20 respect to getting approval of the diesels.  
 21 MR. COXWORTHY:  
 22 Q. Has that type of test been done with the eight  
 23 diesels, the equivalent test that you have not  
 24 been able to do up to this point with the 100  
 25 megawatt CT?

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1 MR. HENDERSON:  
 2 A. Yes, it's been done a number of times.  
 3 MR. COXWORTHY:  
 4 Q. The risk you talk about, about doing that  
 5 test, what's going to be different about the  
 6 spring of 2016 that those risks won't still be  
 7 there or will be lessened?  
 8 MR. HENDERSON:  
 9 A. Well, we would endeavour to do that test at a  
 10 time when we didn't have the same  
 11 vulnerability in terms of having breakers out  
 12 of service, so we would do it before the  
 13 breakers were out of service, or we'd do it  
 14 when the breakers that are out of service  
 15 would not affect the outage or the test, and  
 16 this year we've accomplished and are  
 17 accomplishing a lot of breaker changes and  
 18 we'll have those behind us. So again that  
 19 would put the system in a different  
 20 configuration next year.  
 21 MR. LEDREW:  
 22 A. In Holyrood, in particular, right.  
 23 MR. HENDERSON:  
 24 A. Yes.  
 25 MR. LEDREW:

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1 A. In the Holyrood yard.  
 2 MR. COXWORTHY:  
 3 Q. If the test were to proceed when it proceeds,  
 4 what's the time frame to conduct the test, how  
 5 long would it take to conduct this test if the  
 6 conditions were right?  
 7 MR. HENDERSON:  
 8 A. The test itself would be done in a day, but  
 9 there's a lot of planning required.  
 10 MR. COXWORTHY:  
 11 Q. Including the planning work?  
 12 MR. HENDERSON:  
 13 A. The planning work, I'm a little hesitant to  
 14 guess on how long the planning -  
 15 MR. COXWORTHY:  
 16 Q. Well, you were planning on getting it done in  
 17 August of 2015, so presumably it can be done  
 18 within a month?  
 19 MR. HENDERSON:  
 20 A. Oh, yes. I would think that within a week or  
 21 two weeks type of thing.  
 22 MR. COXWORTHY:  
 23 Q. I realize there might be some other advance  
 24 planning that needs to be done, but -  
 25 MR. HENDERSON:

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1 A. A lot of the planning has already been done  
 2 now, it's just a matter of we have to plan a  
 3 lot of people into the Holyrood switch yard in  
 4 order to do this test and lining all of that  
 5 up, and that takes some planning that we will  
 6 look at then for the spring.  
 7 MR. COXWORTHY:  
 8 Q. So a week to two weeks, and would there be  
 9 multiple tests during that week of the system  
 10 or would it just be one black start attempt?  
 11 MR. HENDERSON:  
 12 A. I think what we're trying to achieve is to  
 13 demonstrate that the combustion turbine can be  
 14 brought up, operating steadily, and to  
 15 continually supply the Holyrood plant with no  
 16 other supply coming to the Holyrood plant, so  
 17 the length of time of that would be probably a  
 18 couple of hours type of thing, but it's not  
 19 days or anything like that.  
 20 MR. COXWORTHY:  
 21 Q. And you mentioned the other reason that you  
 22 weren't able to proceed this year is because  
 23 you had other work that needed to be done and  
 24 I presume other resources, Hydro workforce  
 25 resources, I presume, that otherwise could

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1 have been assigned to testing the 100 megawatt  
 2 CT, but were doing other work?  
 3 MR. HENDERSON:  
 4 A. That's part of the consideration as well.  
 5 MR. COXWORTHY:  
 6 Q. And how many people are we talking - how many  
 7 Hydro employees are we talking about that  
 8 would be necessary in that one to two week  
 9 period to test the 100 megawatt?  
 10 MR. HENDERSON:  
 11 A. To carry out the test itself, there would be  
 12 the operators in the Holyrood plant that are  
 13 there, there would be the operators -  
 14 MR. COXWORTHY:  
 15 Q. Would they be there, anyway, notwithstanding  
 16 the other work you talked about?  
 17 MR. HENDERSON:  
 18 A. Right, but you have to take them from their  
 19 regular duties.  
 20 MR. COXWORTHY:  
 21 Q. Okay.  
 22 MR. HENDERSON:  
 23 A. You have to - the combustion turbine  
 24 operators, we'd have them there, plus we would  
 25 have people in the Holyrood switch yard to do

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1 switching. Not very many people required to do  
 2 that switching, and then we would bring in Pro  
 3 Energy as the provider of the systems and  
 4 everything to be there to be able to assure  
 5 everything is working okay in terms of the  
 6 systems and the combustion turbine. So, you  
 7 know, you're talking ten people or something  
 8 like that.  
 9 MR. COXWORTHY:  
 10 Q. If you were to, and no one wishes it, have to  
 11 do a black start over the coming winter, if  
 12 there was a situation where Holyrood had to be  
 13 black started, would the diesels be the first  
 14 call for that as opposed to using the 100  
 15 megawatt CT?  
 16 MR. HENDERSON:  
 17 A. The diesels would be the first call because  
 18 they've been proven and they are directly  
 19 connected into the plant. There's not much  
 20 switching to be done with them. The  
 21 combustion turbine at this point is also there  
 22 to be able to do that, although not proven,  
 23 would be another option, but right now the  
 24 combustion turbine has to be done through the  
 25 230 KV switch yard at Holyrood, it's not the



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1 direct link because the distribution line is  
 2 currently connected the diesel units.  
 3 MR. COXWORTHY:  
 4 Q. And is there any - given that the distribution  
 5 lines is still connected to the diesels, if  
 6 the diesels didn't perform for some reason the  
 7 black start function, let's say, four of them  
 8 weren't operating properly, and I realize  
 9 that's not the expectation, but let's say,  
 10 notwithstanding the expectation, that were to  
 11 happen, could the 100 megawatt CT be called  
 12 upon to perform a black start function this  
 13 winter?  
 14 MR. HENDERSON:  
 15 A. Yes.  
 16 MR. COXWORTHY:  
 17 Q. Even though it hasn't been tested?  
 18 MR. HENDERSON:  
 19 A. Yes.  
 20 MR. COXWORTHY:  
 21 Q. And not using this distribution line, but I  
 22 understand there is another mode?  
 23 MR. HENDERSON:  
 24 A. Yes, there's a number of ways to get down into  
 25 the plant through the 230 KV switch yard.

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1 MR. COXWORTHY:  
 2 Q. And if the 100 megawatt CT had to be used for  
 3 black start this winter, is there any  
 4 assessment of how long it would take from when  
 5 that decision was made to when it would  
 6 actually be able to start the black start -  
 7 actually performing the black start function?  
 8 Would that take an hour, would it take two  
 9 hours, would it take a day?  
 10 MR. HENDERSON:  
 11 A. It's like an hour or in that range. It's not  
 12 a day or anything like that. The unit would be  
 13 able to be started right away, and then  
 14 there's some switching that would have to  
 15 happen in the switch yard, and I'll ask Terry  
 16 to comment on how fast it takes us to normally  
 17 do the black start because I'm not sure of the  
 18 timing there, but there is probably in the  
 19 hour range or something like that to get  
 20 everything up and running and feeding into the  
 21 plant and getting the plant systems up and  
 22 running. I would think the CT would be around  
 23 the same or maybe a little more because of the  
 24 additional switching.  
 25 MR. LEDREW:

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1 A. There's a written black start testing  
 2 procedure. There's probably 25 or 26 steps in  
 3 it to switch internal transfers inside the  
 4 power house, so there's a sequential process  
 5 to go through there.  
 6 MR. COXWORTHY:  
 7 Q. You mentioned that the eight diesels out  
 8 there, they've already been tested for this  
 9 black start several times, I think you said?  
 10 MR. LEDREW:  
 11 A. Yeah.  
 12 MR. COXWORTHY:  
 13 Q. Was it successful the first time it was tried?  
 14 MR. HENDERSON:  
 15 A. Yes.  
 16 MR. COXWORTHY:  
 17 Q. Within an hour?  
 18 MR. HENDERSON:  
 19 A. I'm not sure of the timing of it. The  
 20 objective for me was to make sure that it  
 21 happened and each time you do it, you walk -  
 22 what we do is we do a test every month and  
 23 walk the operators through the process of  
 24 doing it, so, you know, as you do that more  
 25 often, you'll do it quicker. I'm not sure how

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1 quick it was done.  
 2 MR. LEDREW:  
 3 A. I can't recall either, but it would be inside  
 4 of an hour or so, I would think.  
 5 MR. COXWORTHY:  
 6 Q. And it occurs to me that I should ask, and I  
 7 don't believe you've given any evidence on  
 8 this, Mr. LeDrew, it may be in the record  
 9 somewhere, you are no longer the Manager for  
 10 Thermal Generation?  
 11 MR. LEDREW:  
 12 A. That's correct.  
 13 MR. COXWORTHY:  
 14 Q. When did you leave that role to take on your  
 15 new role?  
 16 MR. LEDREW:  
 17 A. I left at the beginning of the new year.  
 18 MR. COXWORTHY:  
 19 Q. So January, 2015?  
 20 MR. LEDREW:  
 21 A. Yes.  
 22 MR. COXWORTHY:  
 23 Q. So you wouldn't have been around for these  
 24 diesel tests?  
 25 MR. LEDREW:

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1 A. No, no, we did them in '14, and we've done  
 2 them again in '15, yeah.  
 3 MR. COXWORTHY:  
 4 Q. So do you have a recollection of whether the  
 5 first test or all the tests of the diesels  
 6 were successful?  
 7 MR. LEDREW:  
 8 A. I think it worked, it performed very well.  
 9 We've had a couple of fail starts on an  
 10 individual unit that we troubleshot, but by  
 11 and large with eight units you can survive one  
 12 unit not starting successfully to get your  
 13 black starts up. I think it has gone well.  
 14 MR. HENDERSON:  
 15 A. We did test with seven, six, and five, and  
 16 each one of those has been successful.  
 17 MR. COXWORTHY:  
 18 Q. I may be comparing apples and oranges, but  
 19 what I'm thinking about is what happened in  
 20 March of 2015 with the 100 megawatt CT when it  
 21 was called upon unexpectedly, or certainly not  
 22 with as much foresight as might have otherwise  
 23 been the case, and, of course, there were  
 24 problems with getting it started up, and it  
 25 turns out - and I can turn to the report, but

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1 I understand part of the problem was that a  
 2 fuel valve had a sensitivity that the  
 3 operators weren't fully aware of, and they  
 4 were able to figure that out, Liberty thought,  
 5 of the circumstances very quickly. So you  
 6 have that type of issue. Could there be that  
 7 type of issue that could arise, not that same  
 8 one, obviously, that issue has been identified  
 9 and presumably there's a procedure to deal  
 10 with that now, but in terms of using the 100  
 11 megawatt CT this winter, given that it hasn't  
 12 been tested, are there teething issues that can  
 13 be expected like that in ensuring that it'll  
 14 actually be successful in a black start mode?  
 15 MR. HENDERSON:  
 16 A. The start of it in the black start - as I  
 17 said, there is a black start of the -  
 18 MR. COXWORTHY:  
 19 Q. I'm sorry, not starting the 100 megawatt CT in  
 20 black start. I understand that that's been  
 21 confirmed, but using it to start Holyrood?  
 22 MR. HENDERSON:  
 23 A. Well, all the - I'll say that the additional  
 24 work is not - the unit will start and start  
 25 reliably, and is started routinely, and it is

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1 operating reliably, the start. So there's  
 2 nothing different in a black start scenario  
 3 than every day scenario.  
 4 MR. COXWORTHY:  
 5 Q. Getting the power from the 100 megawatt to the  
 6 Holyrood turbine, that's the piece that - so  
 7 it's not apples and oranges.  
 8 MR. HENDERSON:  
 9 A. No.  
 10 MR. COXWORTHY:  
 11 Q. There are different -  
 12 MR. HENDERSON:  
 13 A. It is a very different thing, and in order to  
 14 get it connected into the Holyrood plant  
 15 through the 230 KV switch yard requires, I'll  
 16 say very simply, the operators in the control  
 17 centre to just open and close the right  
 18 breakers, which they open and close all the  
 19 time, to bring it into the Holyrood plant and  
 20 then the power will go into the plant in its  
 21 normal way that it goes into the plant, so  
 22 there's nothing at all unusual. It's just  
 23 that if the system was totally down, the  
 24 operators will operate the 230 KV breakers in  
 25 Holyrood to just direct the power directly

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1 into the plant as opposed to the rest of the  
 2 grid.  
 3 MR. COXWORTHY:  
 4 Q. I guess, I'm having some difficulty, and maybe  
 5 it's just my difficulty in understanding why  
 6 it was so complex a process to test it, but  
 7 not anticipated to be so complex of a process  
 8 if you end up having to use it untested?  
 9 MR. HENDERSON:  
 10 A. Because the total - the system will be down  
 11 black, nothing has got power. So to do that  
 12 is very straightforward in an no power  
 13 situation. When you got the lines in service  
 14 serving customers and say, okay, let's pretend  
 15 like it's a black start, you obviously don't  
 16 want to take customers off and make it all  
 17 black. You have to do it in a manner that,  
 18 I'll say, makes it look like it to the system  
 19 and that's the complexity. So you have to  
 20 make it like the switch yard in Holyrood is  
 21 out of power when, in fact, it does have  
 22 power.  
 23 MR. COXWORTHY:  
 24 Q. If we could turn to page 52 of the Liberty  
 25 Report, the section on reliance on Hardwoods,

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1 so moving on to the issue of the reliance on  
 2 Hardwoods as an interim black start solution.  
 3 If we could move up a bit to the heading,  
 4 "Reliance on Hardwoods". So Liberty states  
 5 that, "Hydro has asserted that it never lacked  
 6 black start capability at Holyrood with the  
 7 exception of a period in 2010". Do you  
 8 accept, agree that that's the case, that  
 9 Liberty are accurately characterizing Hydro's  
 10 position?  
 11 MR. HENDERSON:  
 12 A. I think that the Hardwoods source was  
 13 available in 2010 as well.  
 14 MR. COXWORTHY:  
 15 Q. That's what I was going to get to, you know,  
 16 if it was available after that, why wouldn't  
 17 it have been available in 2010?  
 18 MR. HENDERSON:  
 19 A. It was. I think that there was - not that I'm  
 20 aware of that there was any concern with it  
 21 being used in 2010.  
 22 MR. COXWORTHY:  
 23 Q. When you say you're not aware of there being  
 24 any concern about using it -  
 25 MR. HENDERSON:

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1 A. And the reason -  
 2 MR. COXWORTHY:  
 3 Q. What concerns might there have been?  
 4 MR. HENDERSON:  
 5 A. Well, there may have been a period of time  
 6 that the Hardwoods unit was out for its  
 7 overhaul work that we were undertaking during  
 8 that time period, so there may have been a -  
 9 MR. COXWORTHY:  
 10 Q. Yes, there was a refurbishment program that  
 11 started in 2009 and I have filed, for purposes  
 12 of entering on the record, the 2010 capital  
 13 budget. This section that deals with the  
 14 Hardwoods refurbishment program. So perhaps I  
 15 could ask now that that be entered in as an  
 16 Information.  
 17 (1:00 p.m.)  
 18 MR. GLYNN:  
 19 Q. Number 30.  
 20 MR. COXWORTHY:  
 21 Q. Thank you.  
 22 MR. HENDERSON:  
 23 A. It's the Holyrood gas turbine, not the  
 24 Hardwoods gas turbine.  
 25 MR. COXWORTHY:

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1 Q. I believe it's the Hardwoods in the 2010  
 2 capital budget and the Holyrood in the 2011  
 3 capital budget.  
 4 MR. MACDOUGALL:  
 5 A. Okay, what's up here on the screen and I think  
 6 what I--I see Holyrood thermal -  
 7 MR. COXWORTHY:  
 8 Q. Yeah, I think--well, let me turn to my  
 9 material and see if we can address what might  
 10 be my confusion.  
 11 MR. MACDOUGALL:  
 12 Q. I think this was the document that was pre-  
 13 filed by Mr. Coxworthy. The one that's up  
 14 there now.  
 15 MR. GLYNN:  
 16 Q. No, there was 2.  
 17 MR. COXWORTHY:  
 18 Q. There's 2 and that's in relation to 2011. If  
 19 you see the top line there, that's the 2011  
 20 capital budget, onto of the 2011 capital.  
 21 MS. GLYNN:  
 22 Q. So, the one that's on the screen has not yet  
 23 been -  
 24 MR. COXWORTHY:  
 25 Q. That's not the one I'm referring to.

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1 MR. HENDERSON:  
 2 A. Okay.  
 3 MR. COXWORTHY:  
 4 Q. The one I'm referring to is the plant life  
 5 extensions upgrade for Hardwoods gas turbine,  
 6 June 2009.  
 7 MS. GLYNN:  
 8 Q. Okay, so it was filed on October 28th.  
 9 MR. COXWORTHY:  
 10 Q. We may get to the other one. But you were  
 11 referring to perhaps in 2010 there was some  
 12 overhaul work being done at Hardwoods or with  
 13 the Hardwoods turbine and certainly the  
 14 Hardwoods turbine was in the miss of a four  
 15 year upgrade or refurbishment program.  
 16 MR. HENDERSON:  
 17 A. It was in the middle of its program, yes.  
 18 MR. COXWORTHY:  
 19 Q. And I also understood that the other thing  
 20 that was done when it was decided to use  
 21 Hardwoods as an interim source for black  
 22 start--and correct me if I'm wrong, no  
 23 decision was made about that in 2010. You say  
 24 it was available, but was there any decision  
 25 made internally at Hydro that that was the

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1 black start solution for 2010 when the  
 2 Holyrood gas turbine wasn't available?  
 3 MR. HENDERSON:  
 4 A. The only thing that I did do a little digging  
 5 into this just last night, to be honest with  
 6 you, of the information that you put forward  
 7 and I did find that in the fall of 2010 there  
 8 was reference to using the Hardwoods gas  
 9 turbine as the backup. And also suggestion of  
 10 the Newfoundland Power southern shore hydro  
 11 electric units would also be all brought into  
 12 play to, as necessary, to get power into  
 13 Holyrood, and there was discussions with  
 14 Newfoundland Power around that. There was  
 15 also discussions with Newfoundland Power about  
 16 their moving their gas turbine from Port aux  
 17 Basques into Holyrood during that timeframe.  
 18 So all of those things were in play in 2010.  
 19 MR. COXWORTHY:  
 20 Q. 2010.  
 21 MR. HENDERSON:  
 22 A. Yes.  
 23 MR. COXWORTHY:  
 24 Q. And, you know, we'll--I believe there is some  
 25 material that's been filed or that I intend to

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1 have filed that perhaps speaks to that. Mr.  
 2 LeDrew, you were the manager of thermal  
 3 generation during this period.  
 4 MR. LEDREW:  
 5 A. Yes, I was.  
 6 MR. COXWORTHY:  
 7 Q. Were you aware that Hardwoods was the default  
 8 or the alternate black start solution if the  
 9 gas turbine, the Holyrood gas turbine was not  
 10 able to perform that function?  
 11 MR. LEDREW:  
 12 A. Well not officially, but generally aware that  
 13 Hardwoods is there, it's got multiple  
 14 transmission links and if we were unable to  
 15 successfully repair the Holyrood unit, that  
 16 may be the go-to unit going forward, so -  
 17 MR. COXWORTHY:  
 18 Q. Were you at any point made officially aware  
 19 that that was the black start solution?  
 20 MR. LEDREW:  
 21 A. No, not--up 'til the official decision on that  
 22 happened in 2012.  
 23 MR. COXWORTHY:  
 24 Q. But at no time before that decision in early  
 25 2012 were you advised that Hardwoods--that

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1 there was a specific procedure for Hardwoods  
 2 to serve the black station function?  
 3 MR. LEDREW:  
 4 A. No.  
 5 MS. GRAY:  
 6 Q. Mr. Coxworthy, I have that up on the screen  
 7 now.  
 8 MR. COXWORTHY:  
 9 Q. Yes, thank you. If we could look at page 6 of  
 10 the 2010 capital budget application. And the  
 11 outages, this is for the Hardwood gas turbine  
 12 and there's a table on the next page which  
 13 identifies the capability factor, the  
 14 utilization forced outage probability and the  
 15 failure rate for Hardwoods as compared to all  
 16 of Hydro's gas turbine units and what's  
 17 included, are you able to say what would have  
 18 been included in that grouping of all other  
 19 Hydro gas turbine units? Is it just  
 20 Stephenville and the Holyrood gas turbine or  
 21 also others?  
 22 MR. LEDREW:  
 23 A. It would be also the Happy Valley gas turbine.  
 24 MR. COXWORTHY:  
 25 Q. So those would be--that's the grouping that

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1 we're referring to?  
 2 MR. LEDREW:  
 3 A. Yes, Stephenville, Hardwoods, Holyrood and  
 4 Happy Valley.  
 5 MR. COXWORTHY:  
 6 Q. And so the conclusion, and this is at the  
 7 middle of page 7, or the summary is that  
 8 Hardwoods has an average failure rate over  
 9 four times the average rate for all of Hydro's  
 10 gas turbine units and almost 17 times the  
 11 average rate posted for the CEA. So this, was  
 12 this the most unreliable gas turbine in  
 13 Hydro's fleet at that time, as compared to the  
 14 other three that you just referred to?  
 15 MR. LEDREW:  
 16 A. I'm really, you know, let me say this, the  
 17 failure rate statistic is a highly variable  
 18 statistic or measure of performance that I  
 19 wouldn't make decisions relying on that, I  
 20 would use the UFOP and that's the one that we  
 21 rely on for utilization forced outage rate or  
 22 forced outage probability. Normally failure  
 23 rate is not one of those deciding factors  
 24 because it's highly dependant on how many  
 25 hours the unit operates during the year. I

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1 think it can influence that number greatly, so  
 2 what you find when looking at failure rates of  
 3 gas turbines, if my memory serves me  
 4 correctly, is it is a highly variable number  
 5 that can move all over the place, depending on  
 6 how often you call on the unit, while the UFOP  
 7 is a more stable indicator of the performance  
 8 of the unit. So it's more--that would be the  
 9 measure that I would use for reliability, it's  
 10 the one that we rely on in our generation  
 11 planning and, you know, that's the one that we  
 12 measure our performance on.  
 13 MR. COXWORTHY:  
 14 Q. And Mr. Henderson, I take your point, but this  
 15 was the support for an application for a four-  
 16 year multi-million dollar capital project that  
 17 Hydro was saying to the Board, to the  
 18 intervenors, here's why we have to spend this  
 19 money, and the final line under "S" (phonetic)  
 20 that it doesn't talk about, well the UFOP is  
 21 okay, so we're okay. It highlights that the  
 22 failure rate is over four times the rate for  
 23 all of Hydro's gas turbines. The implication  
 24 being that that's not a good thing. It is not  
 25 a good thing, I put to you, its reliability.

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1 MR. HENDERSON:  
 2 A. I don't think I can say anything more than  
 3 what I just said, so there's no question  
 4 that's what's here on the paper and that's  
 5 what was put forward. I think the reason for  
 6 this work was much more than that failure  
 7 rate. It was the condition assessment that  
 8 was done on the plant, there was a lot of  
 9 reasons for that work to be done. It wasn't  
 10 hinged on the failure rate.  
 11 MR. COXWORTHY:  
 12 Q. The four-year refurbishment program at  
 13 Hardwoods, do you know whether that improved,  
 14 the UFOP for Hardwoods?  
 15 MR. HENDERSON:  
 16 A. In hindsight and you know, we're looking back  
 17 now, we know that we've had issues with fuel  
 18 lines in particular on Hardwoods that have  
 19 caused problems in recent years, which we now  
 20 have addressed and there was fuel lines and  
 21 the fuel control valve in particular that  
 22 caused us problems there, and those we have  
 23 addressed and what we will see is an  
 24 improvement performance going forward.  
 25 MR. COXWORTHY:

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1 Q. Going forward from when, Mr. Henderson?  
 2 MR. HENDERSON:  
 3 A. Well after addressing those problems with the  
 4 fuel lines, going forward and those problems,  
 5 the fuel line problem became an issue in 2013  
 6 was the first time, it was late 2013 when the  
 7 fuel control valve had a problem and then as  
 8 we moved into '14, we had some additional  
 9 problems related to those that were around the  
 10 end of '14 coming into '15, which we've  
 11 addressed.  
 12 MR. COXWORTHY:  
 13 Q. When the decision was made, Mr. Henderson, was  
 14 it your decision, I guess I'll ask, perhaps  
 15 not, perhaps it was Mr. Haynes and you can  
 16 tell me. When the decision was made in  
 17 January 2012 formally, as Mr. LeDrew has  
 18 noted, that Hardwoods would be the black start  
 19 solution, do you know whether the UFOP rate  
 20 for Hardwoods was looked at when that decision  
 21 was made to decide whether that was a prudent  
 22 decision?  
 23 MR. HENDERSON:  
 24 A. I can't tell you that, whether it was or  
 25 wasn't because I'm not sure of all of the

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1 considerations, but I was aware that Hardwoods  
 2 was able to provide that. We knew that  
 3 Hardwoods was going through a refurbishment  
 4 program and -  
 5 MR. COXWORTHY:  
 6 Q. Actually it would have been finished by 2012  
 7 or at least being finished in 2012.  
 8 MR. HENDERSON:  
 9 A. Yeah, and it was actually finished in 2013.  
 10 MR. COXWORTHY:  
 11 Q. Took longer than expected, I suppose, in the  
 12 original.  
 13 MR. HENDERSON:  
 14 A. Well we did the generator work in 2013 and  
 15 part of that, the fuel control valve got  
 16 changed. There were some other things that  
 17 were done at that time.  
 18 MR. COXWORTHY:  
 19 Q. So would you have been the one that was tasked  
 20 with making this recommendation as to whether  
 21 or not to use the Hardwoods gas turbine as the  
 22 black--or someone else within Hydro?  
 23 MR. HENDERSON:  
 24 A. Well at that time it would have been Mr.  
 25 Haynes' decision.

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1 MR. COXWORTHY:  
 2 Q. And, Mr. LeDrew, did you have any input? Were  
 3 you asked by Mr. Haynes in 2012 or late 2011,  
 4 whenever the discussion may have been, about  
 5 using Hardwoods as the black start?  
 6 MR. LEDREW:  
 7 A. Well as we were working through the issues on  
 8 the Holyrood unit, it was known that if we  
 9 can't recover this, that Hardwoods would be  
 10 our logical next choice.  
 11 MR. COXWORTHY:  
 12 Q. Sure, but were you asked whether you felt that  
 13 that was a prudent substitute for having a  
 14 local black start, if I can put it, solution  
 15 at Holyrood. Were you asked that in 2011 or  
 16 early 2012?  
 17 MR. LEDREW:  
 18 A. I don't recall being specifically asked, but I  
 19 wasn't perplexed by it, I guess.  
 20 MR. COXWORTHY:  
 21 Q. You were aware that it was being considered?  
 22 MR. LEDREW:  
 23 A. Oh yes, and we had to, going forward, we had  
 24 to write instructions and co-ordinate between  
 25 ECC and our own operators.

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1 MR. HENDERSON:  
 2 A. And I'd also say I was aware of it being the  
 3 solution as well, but that was -  
 4 MR. COXWORTHY:  
 5 Q. Was your opinion asked, Mr. Henderson, as to  
 6 whether that was a reasonable solution?  
 7 MR. HENDERSON:  
 8 A. Well what I was, the way that I was involved  
 9 with it is that the Holyrood unit was not  
 10 available for the reasons that were stated and  
 11 therefore, the option then at that time  
 12 immediately was to turn to Hardwoods as we had  
 13 talked about it in the past, if there was ever  
 14 a case where the Holyrood unit was not  
 15 available for whatever reason, the Hardwoods'  
 16 unit would be the one that we would fall back  
 17 to. And in 2012, because of the situation,  
 18 there was a fair bit of work done by the  
 19 system operations' group to simulate the use  
 20 of it and coordinate that with Holyrood to  
 21 assure that it was a well rehearsed and known  
 22 procedure for the operators.  
 23 MR. COXWORTHY:  
 24 Q. And that work was done in 2012 after the  
 25 decision had been made to rely on Hardwoods as

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1 the interim black start solution?  
 2 MR. HENDERSON:  
 3 A. That's correct.  
 4 MR. COXWORTHY:  
 5 Q. It wasn't done before to assess whether it was  
 6 a good idea to do that or not?  
 7 MR. HENDERSON:  
 8 A. In terms of, I think in terms of assessing it,  
 9 I'll say if you didn't have anything at  
 10 Holyrood, that's the next, I'll say generator  
 11 that could provide that ability on the Avalon,  
 12 so it as a natural, it was like that's your  
 13 only place you can turn to unless you have put  
 14 something, replacement equipment at Holyrood,  
 15 so there was no replacement equipment when we  
 16 were working through the stop order. We were  
 17 working to get that issue corrected and  
 18 Hardwoods would be the option to do while that  
 19 was happening, and of course, there's a period  
 20 of time that would be required and I think the  
 21 AMEC review indicated that to get a diesel  
 22 solution in there, as I call the schedule was  
 23 put it before the Public Utilities Board in  
 24 September 2011--get my years right, but I'm  
 25 going to say September 2011 and it would be in

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1 service in March 2013.  
 2 (1:15 p.m.)  
 3 MR. COXWORTHY:  
 4 Q. That's certainly my understanding as well,  
 5 broadly speaking. I do want to go back to a  
 6 topic that we were talking about just before  
 7 we got into this and that's the UFOP, the  
 8 reliability of the Hardwoods turbine as it  
 9 stood in January of 2012. If we could turn to  
 10 the Liberty Report, the July 6th, 2015 Liberty  
 11 Report, page 54? And I think towards the  
 12 bottom of the page, yes, the third bullet  
 13 there. And this is the conclusion of Liberty,  
 14 "Hardwoods is particularly unreliable and  
 15 hence inappropriate for a source of black  
 16 start capability. It did not exhibit the high  
 17 probability of starting that a black start  
 18 resource requires. UFOP measures the  
 19 probability that a generator will not be  
 20 available when required. Hardwoods' UFOP  
 21 averaged over 26 percent from 2008 to 2012."  
 22 So actually it got worse, compared to what was  
 23 filed in the 2010 capital budget, isn't that  
 24 correct?  
 25 MR. HENDERSON:

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1 A. The UFOP was worse, yes.  
 2 MR. COXWORTHY:  
 3 Q. Significantly worse.  
 4 MR. HENDERSON:  
 5 A. Well it was 26 versus 10.  
 6 MR. COXWORTHY:  
 7 Q. And that would have been known in 2012?  
 8 MR. HENDERSON:  
 9 A. Well I'm not sure, I'd have to look at the  
 10 numbers that were present in 2012, but I would  
 11 suggest what was available to anybody in 2012  
 12 would have been the numbers, no more certainly  
 13 that it would have been the period ending in  
 14 2011, but it may have been the performance up  
 15 to the end of 2010 because of the time lag it  
 16 takes to get all the statistics compiled, like  
 17 this report here that was filed in August,  
 18 2009, had the CEA numbers up to 2006 and the  
 19 Hardwoods' numbers up to the end of 2008. So  
 20 by that time of the year you have it, but I  
 21 don't know in January 2012 you would have had  
 22 the 2011 year end numbers, but you certainly  
 23 would have had the 2010 year end numbers.  
 24 MR. COXWORTHY:  
 25 Q. How difficult would it be to get individual

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1 numbers for 2008, 2009, 2010, 2011, 2012 for  
 2 the UFOP, for the capability factor and for  
 3 the failure rate, the three items that were  
 4 dealt with in the table that I previously  
 5 showed you in the 2010 capital budget?  
 6 MR. HENDERSON:  
 7 A. That's not a problem at all to provide them.  
 8 What I would like to--we'll probably put this  
 9 in the undertaking, but capability factor is  
 10 the percent of time that the unit is  
 11 available, so it's really reflective of the  
 12 amount of time that the unit is not available  
 13 to the system, but includes planned outage  
 14 time, maintenance outage time and forced  
 15 outage time. So it's not necessarily a direct  
 16 measure because if you're going through an  
 17 overhaul program, your capability factor will  
 18 be lower because you've got a lot of planned  
 19 outages on the unit to undertake the  
 20 refurbishment program.  
 21 MR. COXWORTHY:  
 22 Q. Sure.  
 23 MR. HENDERSON:  
 24 A. And the UFOP is the one that measures the  
 25 probability of it being there when you need it

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1 and failure rate is another number which I  
 2 expect you'll see it move all over the place  
 3 because of the influence of certain parameters  
 4 in the calculation.  
 5 MR. COXWORTHY:  
 6 Q. Could I have an undertaking to have those  
 7 criteria broken down by year, 2008, 2009, 2010,  
 8 2011, 2012 with whatever explanatory footnotes  
 9 or text, I understand.  
 10 MR. HENDERSON:  
 11 A. Sure. And the other thing as well I will add  
 12 that we were in the refurbishment program, so  
 13 there certainly would have been an expectation  
 14 of--the past performance wouldn't be expected  
 15 to be indicative with the future performance  
 16 when you're putting in investments to, you  
 17 know, deal with aging assets and -  
 18 MR. COXWORTHY:  
 19 Q. You're prompting me, Mr. Henderson, and I'll  
 20 thank you to ask for the same information for  
 21 2013 and 2014, is that -  
 22 MR. HENDERSON:  
 23 A. Uh-hm, and again in hindsight, that's what you  
 24 would see, but my point being is that when the  
 25 decisions were being made in 2012 to the

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1 extent that they were referenced, there would  
 2 have been an expectation of improved  
 3 performance because of the investment being  
 4 put into it. The fact that the actual  
 5 performance was different, is, you know, I'll  
 6 say an undisputed fact; whatever the numbers  
 7 are, they are. But there would have been at  
 8 that time a decision being made reflective of  
 9 that, also reflecting the timelines that it  
 10 would take to bring in additional, put in  
 11 additional generation at the site, it would be  
 12 all part of the decisionmaking that Mr. Haynes  
 13 would have had before him.  
 14 MS. GLYNN:  
 15 Q. And we'll note the undertaking on the record.  
 16 MR. COXWORTHY:  
 17 Q. Thank you, Ms. Glynn. Mr. Henderson, I  
 18 understood from your evidence on October 27th,  
 19 and we can turn to it if necessary, that you  
 20 had a preference, originally a preference for  
 21 another site, other than Holyrood, for the new  
 22 CT, at the time it would have been the 50 or  
 23 60 megawatt CT and that's when there is  
 24 discussions in 2011 leading into 2012 about  
 25 siting a new CT, whether that would be at

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1 Hardwoods or whether it would be at a site, I  
 2 think it's 74L it's referred to, but a site  
 3 that Newfoundland Power had available or might  
 4 have available and I think the other option  
 5 that was under consideration was Holyrood,  
 6 perhaps there were other--were there other  
 7 sites under consideration other than -  
 8 MR. HENDERSON:  
 9 A. They're the only ones that I'm aware of.  
 10 MR. COXWORTHY:  
 11 Q. Am I correct in understanding that at least at  
 12 a certain point you're a proponent for  
 13 considering a site other than Holyrood?  
 14 MR. HENDERSON:  
 15 A. I was for what I would have thought would be  
 16 the reliability benefits of having the  
 17 generation distributed in around the St.  
 18 John's area to cover off transmission related  
 19 issues that Newfoundland Power may experience  
 20 in parts of the city, it would enable  
 21 maintenance at the Oxen Pond station, which is  
 22 always a challenge. There's a number of  
 23 things that I thought warranted looking at  
 24 that type of an option.  
 25 MR. COXWORTHY:

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1 Q. If that had been ultimately the decision to  
 2 site the new 50, 60 megawatt CT other than at  
 3 Holyrood, what would have then been the long-  
 4 term black start solution at Holyrood?  
 5 Because Hardwoods, as I understand it, was  
 6 only ever intended to be an interim solution,  
 7 is that correct?  
 8 MR. HENDERSON:  
 9 A. That's correct.  
 10 MR. COXWORTHY:  
 11 Q. So what would have been, in a scenario where  
 12 the new 50, 60 megawatt CT was sited?  
 13 MR. HENDERSON:  
 14 A. There would have to be a replacement of the  
 15 existing 13 megawatt combustion turbine that  
 16 was at Holyrood with something else at site.  
 17 MR. COXWORTHY:  
 18 Q. So not refurbishment of it, was that off the  
 19 table at that stage?  
 20 MR. HENDERSON:  
 21 A. I don't know that it was off the table at that  
 22 point in time, we had the AMEC work there  
 23 available for our consideration at that time  
 24 if that option was advanced further.  
 25 MR. COXWORTHY:

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1 Q. If we could turn to the condition of the  
 2 Holyrood gas turbine and this was a document  
 3 that we got to too soon, and that's the 2011  
 4 capital budget application. I'd ask if that  
 5 could be the material that was filed in  
 6 relation to that, which is in relation to the  
 7 overhaul gas turbine Holyrood project, if that  
 8 could be entered in as an Information.  
 9 MS. GLYNN:  
 10 Q. Which would be Information No. 31 and not the  
 11 RFI yet?  
 12 MR. COXWORTHY:  
 13 Q. No, I think we'll probably keep that separate,  
 14 although it's part of the same application,  
 15 thank you. Mr. LeDrew, were you involved in  
 16 putting together the project justification,  
 17 the report to justify why the Holyrood gas  
 18 turbine plant required refurbishment and this  
 19 application that was made in 2010 for the 2011  
 20 capital budget?  
 21 MR. LEDREW:  
 22 A. I would have reviewed it, yes, but it's  
 23 primarily driven from our L tap group at the  
 24 plant.  
 25 MR. COXWORTHY:

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1 Q. And who would that have been?  
 2 MR. LEDREW:  
 3 A. That was a Mr. Jeff Vincent at the time.  
 4 MR. COXWORTHY:  
 5 Q. Who decides, as you understand it, whether  
 6 these projects are included in a capital  
 7 budget application or not?  
 8 MR. LEDREW:  
 9 A. Well there's prioritization process that  
 10 unfolds.  
 11 MR. COXWORTHY:  
 12 Q. At that time, back in 2010.  
 13 MR. LEDREW:  
 14 A. Well I would have supported filing it, yes.  
 15 MR. COXWORTHY:  
 16 Q. Okay. So certainly someone would come to you  
 17 and ask, is this something, Mr. LeDrew, do you  
 18 think that we need at Holyrood, this  
 19 refurbishment?  
 20 MR. LEDREW:  
 21 A. That's correct, yes.  
 22 MR. COXWORTHY:  
 23 Q. And you were in agreement that it was, based  
 24 on the information that you had at the time?  
 25 MR. LEDREW:



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1 A. Correct.  
 2 MR. COXWORTHY:  
 3 Q. And turning to the project justification, so  
 4 this is page B-16 of the description of the  
 5 project and the first statement, "The Holyrood  
 6 gas turbine plant is critical to the  
 7 successful operation of the Island  
 8 Interconnected system." You agreed with that  
 9 statement at that time?  
 10 MR. LEDREW:  
 11 A. Yes.  
 12 MR. COXWORTHY:  
 13 Q. And did your view on that ever change after  
 14 that time?  
 15 MR. LEDREW:  
 16 A. No, I mean black start was for the Holyrood  
 17 plant was provided by a gas turbine that was  
 18 resident at the site to provide that purpose.  
 19 MR. COXWORTHY:  
 20 Q. So taking you forward then to 2012, early 2012  
 21 when the decision was to use, as an interim  
 22 measure, the Hardwoods gas turbine as the  
 23 black start solution, did you change your mind  
 24 at that time that the Holyrood gas turbine  
 25 plant is critical to the successful operation

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1 of the Island Interconnected system?  
 2 MR. LEDREW:  
 3 A. I was satisfied that the Hardwoods units would  
 4 provide that black start capability to the  
 5 plant.  
 6 MR. COXWORTHY:  
 7 Q. So I'm asking you, are you saying then that in  
 8 your view the Holyrood gas turbine was no  
 9 longer critical to the operation, the  
 10 successful operation of the Island  
 11 Interconnected system in 2012?  
 12 MR. LEDREW:  
 13 A. No, I wouldn't say that, but we were faced  
 14 with a reality that I couldn't make this unit  
 15 available for that purpose, so I then had to  
 16 have a fall back position and that was what  
 17 was available to me.  
 18 MR. COXWORTHY:  
 19 Q. Sure, if as a matter of an emergency, but for  
 20 how long did you think that was a tolerable  
 21 situation? Was it a tolerable situation for  
 22 three or four years?  
 23 MR. LEDREW:  
 24 A. Well, you know, all the issues with the  
 25 Holyrood plant are tied to the in-feed options

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1 and the Interconnected option, so it was a  
 2 scenario here that Hardwoods would have to  
 3 provide that until an interim gas turbine for  
 4 capacity was added and I had expected, it made  
 5 a lot of sense to put the new 123 megawatt gas  
 6 turbine at Holyrood.  
 7 MR. COXWORTHY:  
 8 Q. Did you think that in January 2012?  
 9 MR. LEDREW:  
 10 A. In January 2012 or January 2013?  
 11 MR. COXWORTHY:  
 12 Q. I'm asking January 2012, did you think that  
 13 that was the best place for the new CT?  
 14 MR. LEDREW:  
 15 A. Yes, I would have, with all the other  
 16 peripheral services required for a new CT, I  
 17 thought there was lots of synergies to put it  
 18 at the Holyrood plant.  
 19 MR. COXWORTHY:  
 20 Q. So again, the Holyrood gas turbine, this  
 21 statement is critical of the successful  
 22 operation of the Island Interconnected system,  
 23 you said that, look, that had to be considered  
 24 in the context of the Labrador in-feed, but  
 25 did the Labrador in-feed render the Holyrood

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1 gas turbine any less critical to the  
 2 successful operation of the Island  
 3 Interconnected system?  
 4 MR. LEDREW:  
 5 A. Only in so far as the timeline, the life span  
 6 of the asset. You're looking at a very short  
 7 useful period, so -  
 8 MR. COXWORTHY:  
 9 Q. Three or four years.  
 10 MR. LEDREW:  
 11 A. Correct.  
 12 MR. COXWORTHY:  
 13 Q. And then in the Project Justification, the  
 14 second last sentence, "If the gas turbine  
 15 failed to supply power to Holyrood during a  
 16 black start, Holyrood would not be able to  
 17 start until power was restored to the grid by  
 18 alternate generation." That would include  
 19 Hardwoods, I presume, is that correct?  
 20 MR. LEDREW:  
 21 A. Correct, it became a grid solution and we had  
 22 to get power off the grid in some manner,  
 23 shape or form.  
 24 MR. COXWORTHY:  
 25 Q. But this project justification is saying

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1 that's not good enough, it's saying "this  
 2 would cause an unnecessary delay in restoring  
 3 full power to the grid." So did that change?  
 4 Was there anything done in relation to the  
 5 Holyrood solution that would make not no  
 6 longer accurate after January 2012?  
 7 MR. HENDERSON:  
 8 A. I'm just going to, I think we have established  
 9 that we, the preferred option is to have it at  
 10 Holyrood. What we were faced with was a unit  
 11 that had failed and having to find a solution  
 12 to replace the failed unit and the evaluation  
 13 was done and at that time the assessment  
 14 concluded that as an interim measure,  
 15 Hardwoods would be used until the new  
 16 combustion turbine came into play. So our  
 17 intention was to have it back for this very  
 18 reason, it was because we were faced with a  
 19 decision of a unit that could no longer play  
 20 the role and provide that role, and looking at  
 21 the options--and I'm doing this in hindsight  
 22 because I wasn't deciding, but just looking at  
 23 the timelines for the options that were put  
 24 forward for other solutions, which, you know,  
 25 indicated a September 2011 to March 2013

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1 timeframe to bring in another solution. I can  
 2 see the rationale and support for putting in  
 3 Hardwoods as an interim until a new solution  
 4 was put forward and a new CT was on the  
 5 horizon, so it was an interim solution to get  
 6 to that, but this rationale for having it at  
 7 the site remains.  
 8 MR. COXWORTHY:  
 9 Q. Mr. Chair, I see the time, I'm not going to  
 10 finish in five minutes. I could finish  
 11 potentially in 15 or 20 minutes. I have  
 12 advised Board counsel that I have another  
 13 commitment at 2:00, so although the Chair can  
 14 tell me to stay in my seat and continue, and I  
 15 would want to ask at least one more question  
 16 of this panel before we finish up to ensure  
 17 that something is put on the record, but I'm  
 18 at the Chair's disposal. I can continue to  
 19 1:45 and I may or may not finish or I can ask  
 20 my one more question and then ask that we  
 21 reconvene this panel for the conclusion of  
 22 another cross.  
 23 CHAIRMAN:  
 24 Q. Well we still got Mr. Fleming, how long do you  
 25 expect, sir?

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1 MR. FLEMING:  
 2 Q. Longer than 15 minutes.  
 3 CHAIRMAN:  
 4 Q. Looks like we're going to adjourn.  
 5 MR. COXWORTHY:  
 6 Q. There is one more question, Mr. Chair, with  
 7 your indulgence.  
 8 CHAIRMAN:  
 9 Q. One more question, okay.  
 10 MR. COXWORTHY:  
 11 Q. I just want to get something on the record and  
 12 that's a document which I filed as a potential  
 13 Information and that's the response to ICNLH-  
 14 26, attachment one, in the 2011 Capital Budget  
 15 Application and I just want to ask if that  
 16 could be entered in as an Information?  
 17 (1:30 p.m.)  
 18 MS. GLYNN:  
 19 Q. Information No. 32.  
 20 MR. COXWORTHY:  
 21 Q. And if that could be brought up for Mr.  
 22 LeDrew, and Mr. LeDrew, you'll see that the  
 23 response is the overhaul for the gas turbine  
 24 at Holyrood, that that proposal was deferred  
 25 and then there's an explanation attached,

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1 attachment one, as an explanation for that.  
 2 Were you consulted or involved in preparing  
 3 that explanation for the deferral?  
 4 MR. LEDREW:  
 5 A. In some parts, yes.  
 6 MR. COXWORTHY:  
 7 Q. And there's a reference there to, in the last  
 8 paragraph, to a level one condition assessment  
 9 study being prepared by the end of October  
 10 2010 or that Hydro as expecting to receive it  
 11 by the end of October 2010. Do you know  
 12 whether a level one condition assessment study  
 13 was received?  
 14 MR. LEDREW:  
 15 A. Yes, it was completed.  
 16 MR. COXWORTHY:  
 17 Q. Was that AMEC?  
 18 MR. LEDREW:  
 19 A. Yes, it was.  
 20 MR. COXWORTHY:  
 21 Q. Because there is filed, as you know, on the  
 22 record a condition assessment dated December  
 23 2011 that was done by AMEC, which I would  
 24 understand to be a level two.  
 25 MR. LEDREW:

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1 A. That's correct, a level two was done, that was  
2 part of this process in that we would do a  
3 detailed condition assessment and my former  
4 boss, Jim, did want to go back and take a full  
5 look at this unit at the time, yes.  
6 MR. COXWORTHY:  
7 Q. And, Mr. Chair, this is my last question, the  
8 level one condition assessment, would it be  
9 possible to have an undertaking to have that  
10 filed?  
11 MR. LEDREW:  
12 A. Yes, we can get that.  
13 MS. GLYNN:  
14 Q. Noted on the record.  
15 MR. COXWORTHY:  
16 Q. Thank you. Thank you, Mr. Chair.  
17 CHAIRMAN:  
18 Q. Okay, we are adjourned until Monday morning at  
19 9:00 a.m.  
20 MS. GLYNN:  
21 Q. Yes, Mr. Chair, if I could just ask the  
22 counsel to stick around for a couple of  
23 minutes to talk about scheduling when you guys  
24 leave the room.  
25 Upon conclusion at 1:35 p.m.

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1 CERTIFICATE  
2 I, Judy Moss, hereby certify that the foregoing is a true  
3 and correct transcript of a hearing in the matter of  
4 Newfoundland and Labrador Hydro's General Rate  
5 Application heard on the 30th day of October, A.D., 2015  
6 before the Commissioners of the Public Utilities Board,  
7 St. John's, Newfoundland and Labrador and was transcribed  
8 by me to the best of my ability by means of a sound  
9 apparatus.  
10 Dated at St. John's, Newfoundland and Labrador  
11 this 30th day of October, A.D., 2015  
12 Judy Moss

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