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1 October 29, 2015
 2 (9:06 a.m.)
 3 CHAIRMAN:
 4 Q. So I understand there are no preliminary
 5 matters. So I think, Mr. O'Brien, the puck is
 6 in your corner, I guess.
 7 MR. DARREN MOORE, MR. ROBERT HENDERSON, MR. TERANCE
 8 LEDREW, MR. PAUL HUMPHRIES (RESUME STAND)
 9 CROSS-EXAMINATION BY MR. LIAM O'BRIEN (CONT'D)
 10 MR. O'BRIEN:
 11 Q. Thank you, Mr. Chair. I'm not that much of a
 12 skater, Mr. Chair, but I'll go from here. I'd
 13 like to take you back, Panel, just to 2008 on
 14 this generation planning issue. I think when
 15 we left yesterday we were talking about forced
 16 outage rates, but I want to switch scope a
 17 little bit here to talk about some of the
 18 generation planning issues from a report that
 19 was put out in 2008. At that time, Mr.
 20 Henderson, you were Manager of Systems
 21 Operations and Integration Support? Is that
 22 right? What was your position at that time?
 23 MR. HENDERSON:
 24 A. At that time, I was Manager of System
 25 Operations and Customer Services.

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1 MR. O'BRIEN:
 2 Q. Customer Service, okay. And Mr. Humphries,
 3 what was your position?
 4 MR. HUMPHRIES:
 5 A. I was Manager of System Planning.
 6 MR. O'BRIEN:
 7 Q. Okay. And who would you have reported into,
 8 Mr. Humphries, at that time?
 9 MR. HUMPHRIES:
 10 A. 2008, I reported to the Vice-President of
 11 Engineering Services at that time and that was
 12 Mr. John Mallam.
 13 MR. O'BRIEN:
 14 Q. And that was within Hydro, was it?
 15 MR. HUMPHRIES:
 16 A. I have to think.
 17 MR. HENDERSON:
 18 A. It was only Hydro then.
 19 MR. HUMPHRIES:
 20 A. It was only Hydro, yes.
 21 MR. O'BRIEN:
 22 Q. It was only Hydro in 2008, okay, good. I want
 23 to ask you about a report, and if we can bring
 24 up -- It's on the screen there. It's a
 25 generation planning issue 2008 midyear update.

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1 This is a systems planning report? Is that
 2 correct?
 3 MR. HUMPHRIES:
 4 A. Yes, that's correct.
 5 MR. O'BRIEN:
 6 Q. And the author of the report is Bradley Coady?
 7 Is that right?
 8 MR. HUMPHRIES:
 9 A. That's correct.
 10 MR. O'BRIEN:
 11 Q. Okay. And can we put that on the record, I
 12 wonder?
 13 MS. GLYNN:
 14 Q. Information 28.
 15 MR. O'BRIEN:
 16 Q. Sorry, what was that?
 17 MS. GLYNN:
 18 Q. Information No. 28.
 19 MR. O'BRIEN:
 20 Q. 28, thank you. Mr. Humphries, would you have
 21 received a copy of this report in your
 22 position at that time?
 23 MR. HUMPHRIES:
 24 A. Yes, I would have.
 25 MR. O'BRIEN:

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1 Q. Would you have any involvement in its
 2 preparation?
 3 MR. HUMPHRIES:
 4 A. I would have reviewed it during its
 5 preparation and reviewed results, yes.
 6 MR. O'BRIEN:
 7 Q. Okay. And how about you, Mr. Henderson, would
 8 you have been involved at all with this
 9 report?
 10 MR. HENDERSON:
 11 A. Very limited involvement. I would have seen
 12 it after it was completed, but not involved
 13 with the preparation or anything like that.
 14 MR. O'BRIEN:
 15 Q. Okay. These types of reports, these
 16 generation planning issues reports, who do
 17 they get circulated to within Hydro? Who
 18 would this have been circulated to?
 19 MR. HUMPHRIES:
 20 A. It would have been circulated through the
 21 leadership team and as well, then tend to form
 22 a support document for capital budget
 23 applications and those types of things. So,
 24 if there were pending upgrades required coming
 25 from this report, obviously it would have

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1 probably gone further down the line. Then if
 2 there had not been, if people were -- if there
 3 were capital budget proposals coming from it
 4 and, you know, detailed estimates would have
 5 to be prepared and that. But normally, it
 6 would be at the leadership level.
 7 MR. O'BRIEN:
 8 Q. At the leadership level, okay. And I wonder
 9 if we could turn to the executive summary,
 10 page one. We haven't looked at this report
 11 before, but we've looked at some similar to
 12 it. And this particular report again looks at
 13 the two scenarios of an isolated island system
 14 and then an integrated system. Is that right?
 15 MR. HUMPHRIES:
 16 A. Yes, that's correct.
 17 MR. O'BRIEN:
 18 Q. Okay. And in the first -- sorry, in the
 19 second paragraph, if we start about halfway
 20 through, "based on an examination of the
 21 systems existing plus committed capability in
 22 light of the 2008 planning load forecast and
 23 the generation planning criteria, the system
 24 can expect capacity deficits starting in 2013
 25 under both scenarios and firm energy

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1 capability deficits starting in 2013 for the
 2 HVDC scenario and 2014 for the isolated island
 3 scenario." Do you recall seeing that at that
 4 time?
 5 MR. HUMPHRIES:
 6 A. Yes, I do.
 7 MR. O'BRIEN:
 8 Q. Okay. So at that time, there's a concern in
 9 the short-term horizon? Is that right?
 10 MR. HUMPHRIES:
 11 A. That's correct.
 12 MR. O'BRIEN:
 13 Q. Okay. I wonder if we could turn to Table 5- 1
 14 on page ten, and the load forecast compared to
 15 planning criteria, and we looked at one of
 16 these tables in -- I think it might have been
 17 a 2012 report before. But if we look at the
 18 loss of load hours column there, if you go
 19 down to 2013, you've got a forecast of 5. 28
 20 under the HVDC link and a 4.57 under the
 21 isolated island. Are those significant
 22 concerns, those LOLH figures?
 23 MR. HUMPHRIES:
 24 A. Well, it is -- obviously it's a violation of
 25 our 2.8 criteria and it is reflecting a

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1 significant change year over from 2013 to --
 2 2012 to 2013.
 3 MR. O'BRIEN:
 4 Q. Right, okay. I guess that's my question, all
 5 right. So there is a significant change at
 6 that point that's being forecast?
 7 MR. HUMPHRIES:
 8 A. That's right.
 9 MR. O'BRIEN:
 10 Q. All right. And it's a violation of your --
 11 it's a forecast violation of LOLH and that
 12 would result in potential capacity defects or
 13 sorry, deficits in 2013?
 14 MR. HUMPHRIES:
 15 A. It indicates that there would be a higher risk
 16 of that deficit, yes.
 17 MR. O'BRIEN:
 18 Q. Okay. And does that indicate possible outages
 19 to you?
 20 MR. HUMPHRIES:
 21 A. Possibly. Well, it's indicating that the risk
 22 of unserved energy is higher than normally
 23 planned for.
 24 MR. O'BRIEN:
 25 Q. Okay. And this is a -- and these, I guess the

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1 LOLH and this whole sort of planning issues
 2 analysis, this is used for generation
 3 planning?
 4 MR. HUMPHRIES:
 5 A. Yes, that's correct.
 6 MR. O'BRIEN:
 7 Q. For additions to the system?
 8 MR. HUMPHRIES:
 9 A. That's correct.
 10 MR. O'BRIEN:
 11 Q. Okay. And just take me through sort of what
 12 would have occurred when this report came out.
 13 Do you recall sort of having any meetings with
 14 anyone discussing the concerns that this
 15 report sort of has outlined?
 16 MR. HUMPHRIES:
 17 A. Well, I think at that point in time, looking
 18 from 2008 out to the 2012-2013 timeframe, it's
 19 showing a significant step change in something
 20 between 2012 and 2013. In this case, I think
 21 for the most part, it was driven by load and
 22 the expectation of the Vale load in particular
 23 at that time and it coming on. So, when you
 24 look back and I think if you go through the
 25 recommendations there that we were

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1 recommending additional capacity in advance of
 2 that 2013 change in load and that I think it
 3 reflected that if -- to meet that timeline,
 4 decisions would need to be made in the 2010
 5 timeframe to move things forward. So that
 6 became a focus back then and as time
 7 progressed, there were significant changes in
 8 the following year, in 2009, that basically
 9 changed the outlook. So, any activities that
 10 may have been -- or preparations to start
 11 activities in 2008 would have been somewhat
 12 relaxed after the next year's review which we
 13 ended up with the closure of the Abitibi
 14 facility in Grand Falls in 2009 and that, at
 15 that point, moved the deficit out to the 2015
 16 timeframe.
 17 MR. O'BRIEN:
 18 Q. Okay. I'll take you to that, I guess, but I
 19 want to get a flavour as to what was done in
 20 2008 when this report came out and maybe I can
 21 take you through some of the sections there.
 22 In Section 6, there's -- just like we saw in
 23 the 2012 report, talks about near term
 24 resource options. I wonder if we could go to
 25 page 19, the middle of that page? And where

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1 it says "under the HVDC scenario after the
 2 third wind project in 2010, the next preferred
 3 source would be a 50 megawatt CT in 2012." So
 4 at that point in time, the recommendation,
 5 would that have been a systems planning
 6 recommendation to have a CT in place by 2012?
 7 MR. HUMPHRIES:
 8 A. At that time, yes, it would have been.
 9 (9:15 a.m.)
 10 MR. O'BRIEN:
 11 Q. Okay. And that the HVDC link hoped to be in
 12 operation by late 2014?
 13 MR. HUMPHRIES:
 14 A. At that time, yes.
 15 MR. O'BRIEN:
 16 Q. And if we go back to page 17, under the
 17 heading combustion turbine units, we see that
 18 you're talking again about a 50 megawatt net
 19 CT at that time?
 20 MR. HUMPHRIES:
 21 A. That's right.
 22 MR. O'BRIEN:
 23 Q. Okay. And in terms of timing, in this report,
 24 there's a schedule of timing of -- or an
 25 indication that it would take 36 months to put

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1 this in place from project release date to the
 2 service date to get a CT in place. Do you
 3 recall any discussions about how that 36
 4 months came about?
 5 MR. HUMPHRIES:
 6 A. 36 months was based on an estimate provided by
 7 our engineering services group at that time on
 8 the time it would take to design, put our
 9 tender procurement all a unit of that size.
 10 MR. O'BRIEN:
 11 Q. Okay. Because I didn't see necessarily a
 12 project schedule in there, but I wonder, in
 13 terms of the 36 months, would the engineering
 14 group have spoken with suppliers? How would
 15 that have worked?
 16 MR. HUMPHRIES:
 17 A. At that time, we would have -- for all of
 18 these alternatives that were evaluated, we
 19 would have asked for budget grade estimates on
 20 a comparable basis to do a comparison, and I
 21 would expect at that time that our engineering
 22 people would have checked with the market to
 23 determine what the delivery times would be.
 24 MR. O'BRIEN:
 25 Q. And would they have checked to see whether or

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1 not a 50 megawatt CT was available, how many
 2 were available, where, that kind of thing?
 3 MR. HUMPHRIES:
 4 A. No. Well, I mean, the 36 months obviously was
 5 based on a new design.
 6 MR. O'BRIEN:
 7 Q. Okay.
 8 MR. HUMPHRIES:
 9 A. There's no doubt about that.
 10 MR. O'BRIEN:
 11 Q. And I guess in terms of the 100 megawatt CT
 12 that you have now, that's not a new design.
 13 That's -- I guess we were talking more of a
 14 grey market type.
 15 MR. HUMPHRIES:
 16 A. It was an existing -
 17 MR. O'BRIEN:
 18 Q. Existing one.
 19 MR. HUMPHRIES:
 20 A. It had already been built.
 21 MR. O'BRIEN:
 22 Q. Do you know if anyone had looked into what the
 23 timeline at that point would have been for an
 24 existing CT?
 25 MR. HUMPHRIES:

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1 A. I don't know. I can't say for sure if that
 2 had been looked at at that time or not.
 3 MR. O'BRIEN:
 4 Q. And the reason I ask is that, as you've
 5 indicated before, there was -- in terms of
 6 forecast, there's a significant jump from a
 7 year over year into 2013 to show that there's
 8 a forecast loss of load hours almost into the
 9 five range. So would anyone have looked at
 10 how soon we can get a CT, is there an existing
 11 one out there?
 12 MR. HUMPHRIES:
 13 A. I don't know if that -- I think when we were
 14 looking from 2008 to 2013, there was adequate
 15 time to follow the conventional methodology
 16 and procure a new unit. So I'm not sure if it
 17 was a big focus at that time or not.
 18 MR. O'BRIEN:
 19 Q. Well, why don't we look at page 23 of that
 20 document, under 8.2 decision timing, the third
 21 paragraph under that. "Hydro would have to
 22 initiate the generation expansion project in
 23 2009 in order to meet the required in-service
 24 date for either a 50 megawatt combustion
 25 turbine under the HVDC scenario or the 23

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1 megawatt Portland Creek hydroelectric plant
 2 under the Isolated Island scenario."
 3 And if we drop down again to the next
 4 paragraph, "in the past, it's been assumed
 5 that Hydro would initiate an RFP process to
 6 identify potentially non-utility alternatives
 7 to be included in the final portfolio of
 8 projects that would be evaluated to determine
 9 the optimum expansion plan. However, given
 10 the tight timelines associated with the HVDC
 11 link decision and the requirement for
 12 additional generation capacity by 2012, there
 13 may not be sufficient time to conduct an RFP
 14 process. The practicality of conducting an
 15 RFP process will be revisited in the year end
 16 review."
 17 It seems to me there's some urgency
 18 that's expressed there. So why wouldn't Hydro
 19 have looked at existing CTs at that time?
 20 MR. HUMPHRIES:
 21 A. And I don't think the -- from the perspective
 22 of the urgency, the urgency, if there were any
 23 urgency, it's around the upfront process that
 24 might have been required to get through the
 25 regulatory process and an RFP process, not

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1 necessarily the ability to be able to deliver
 2 the product and the availability of the
 3 product. And as I said, you know, this talks
 4 about there was still uncertainty regarding
 5 the ultimate expansion plan, whether we were
 6 going to be isolated or interconnected, and
 7 the report talks about the hopes of a
 8 resolution of some sort on that by year end,
 9 which did not happen.
 10 As we moved into the -- I'm not exactly
 11 sure the dates that we became aware of the
 12 Abitibi closure in Grand Falls, but that
 13 happened in the first half of 2009. So all of
 14 these things were in play at that time that
 15 were affecting the schedules and timing that
 16 were identified here, many of them in a
 17 positive way, as opposed to a negative.
 18 MR. O'BRIEN:
 19 Q. And did anyone at that time -- do you recall
 20 having discussions with say Mr. Haynes or
 21 anyone else at Hydro about prior to that
 22 knowledge of the Abitibi shutdown about having
 23 to move forward with this plan to at least be
 24 ready to have a CT available? What are your
 25 recollections of that?

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1 MR. HUMPHRIES:
 2 A. You know, sitting in mid-2008 when this report
 3 was generated, you know, the discussions would
 4 be yes, we would have to start to move in
 5 early 2009 to meet the schedule. There was no
 6 -- you know, we had discussions of that and
 7 people were aware.
 8 MR. O'BRIEN:
 9 Q. And so Mr. Haynes would have been aware at
 10 that time?
 11 MR. HUMPHRIES:
 12 A. Yes, Mr. Haynes would have been aware.
 13 MR. O'BRIEN:
 14 Q. And who made the ultimate decision after this
 15 2008 midyear report not to proceed with the
 16 purchase of a CT?
 17 MR. HUMPHRIES:
 18 A. Well, by the time we got to the point where we
 19 would have had to initiate actions to meet
 20 this schedule, the picture had changed.
 21 MR. O'BRIEN:
 22 Q. Okay. And just explain that to me.
 23 MR. HUMPHRIES:
 24 A. Well, the fact that Abitibi, we became aware
 25 of the fact that Abitibi was going off the

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1 system. The requirement for capacity had now
 2 moved from 2013 to 2015. So, there was no
 3 requirement to move the plan forward at that
 4 time.
 5 MR. O'BRIEN:
 6 Q. So when you say the requirement had moved from
 7 2013 to 2015, there's still a concern of
 8 capacity in 2015?
 9 MR. HUMPHRIES:
 10 A. Yes, there was.
 11 MR. O'BRIEN:
 12 Q. Okay. So there's still a requirement to move?
 13 MR. HUMPHRIES:
 14 A. There was still a requirement to move, but the
 15 issues, we were still at a stage where we did
 16 not have clarity on the ultimate expansion
 17 plan for the island, whether it was going to
 18 be isolated or interconnected. The two
 19 alternatives had different expansion plans and
 20 there was an uncertainty on which path to
 21 take. So, because there was still time at --
 22 the deficit had moved at least two years --
 23 the decisions were made to hold the course and
 24 see how the ultimate future would pan out,
 25 from the perspective of -

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1 MR. O'BRIEN:
 2 Q. So when you say hold the course, a decision
 3 was made not to proceed on either course?
 4 MR. HUMPHRIES:
 5 A. At that time, other than to continually
 6 monitor it obviously and identify what the new
 7 targets and timelines would need to be to meet
 8 the then 2015 deficit.
 9 MR. O'BRIEN:
 10 Q. And I'm struggling with that a bit, Mr.
 11 Humphries, just in terms of I understand what
 12 you're saying with respect to there being a
 13 load change, but the load change only moved
 14 you from 2013 out to 2015, in terms of
 15 concerns for capacity and you weren't sure
 16 what -- whether or not this was going to
 17 proceed with a fixed link or by way of an
 18 isolated island system. But under both
 19 systems, there were capacity concerns at that
 20 time. Why not proceed, be ready to go? It
 21 doesn't appear that there was an application
 22 for a CT ready. It doesn't appear that other
 23 steps were taken for alternatives at that time
 24 to deal with that.
 25 MR. HUMPHRIES:

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1 A. No, there was not an application ready. We
 2 weren't -- we were preparing to start to
 3 prepare an application going into 2009, but it
 4 hadn't been and these changes came and when we
 5 looked at -- with the two expansion
 6 alternatives, they were different. They did
 7 involve different constructions and
 8 significant capital cost in both cases, and
 9 there was a concern of making the right least
 10 cost decision moving forward, in the right --
 11 landing on the right expansion plan and making
 12 the right decisions.
 13 MR. O'BRIEN:
 14 Q. And in terms of making the right least cost
 15 decision, where did reliability fit into that
 16 analysis?
 17 MR. HUMPHRIES:
 18 A. Well, we were still tracking within our
 19 reliability criteria of 2.8 hours through that
 20 period and the studies were indicating and the
 21 reports were indicating that the decision
 22 timing, we had a larger window on the decision
 23 timing, post the end of 2008 than we thought
 24 we did mid-2008.
 25 MR. O'BRIEN:

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1 Q. And Mr. Humphries, you said you were sort of
 2 planning to prepare for an application for a
 3 CT. Just explain that to me. What were you
 4 doing in terms of planning to prepare? What
 5 steps were you taking?
 6 MR. HUMPHRIES:
 7 A. Well, I think if you go back to -- from a work
 8 planning perspective, coming in to 2008,
 9 looking into 2009 from the system planning
 10 perspective, we would have identified that
 11 through 2008 we would initiate the process to
 12 start to prepare an application for filing
 13 with the Public Utilities Board and that would
 14 be -- this report would form the basis of the
 15 justification and we would move through and
 16 prepare that estimate or that application.
 17 Our engineering services people would be asked
 18 to develop capital budget grade estimates and
 19 schedules and we would move through with the
 20 intent, I would think, of getting that filed
 21 in the next capital budget application.
 22 MR. O'BRIEN:
 23 Q. So was that being done in terms of estimates
 24 and talking to vendors, seeing what was out
 25 there in 2008?

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1 MR. HUMPHRIES:
 2 A. Other than what would have been done in
 3 preparation for this report, I'm not sure
 4 there would have been anything further. There
 5 would have been plans to do that in 2009, if
 6 the plan had held, but I don't know. I can't
 7 say to what level our engineering people were
 8 actually doing increased work on this file
 9 between June 2008 and early 2009 when the
 10 change in load forecast materialized.
 11 (9:30 a.m.)
 12 MR. O'BRIEN:
 13 Q. Okay. In 2009, when there was a change in
 14 load forecast and you still saw capacity
 15 issues out to 2015, that's right?
 16 MR. HUMPHRIES:
 17 A. Yeah, that's correct.
 18 MR. O'BRIEN:
 19 Q. Okay. So what steps were being taken in 2009?
 20 MR. HUMPHRIES:
 21 A. Well, in 2009 then, we would have -- there was
 22 a further update of this generation planning
 23 outlook report.
 24 MR. O'BRIEN:
 25 Q. Okay. There's a 2009 report?

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1 MR. HUMPHRIES:
 2 A. Yes, there is.
 3 MR. O'BRIEN:
 4 Q. Okay.
 5 MR. HUMPHRIES:
 6 A. Yeah, and that would have identified the
 7 change in the -- a change in timing and a
 8 requirement for the 2015 peak and again, if we
 9 look for a combustion turbine, the 36-month
 10 window on that, we would be back in 2011
 11 before you would -- you would have to have a
 12 budget proposal in for 2011 and approved to
 13 move forward through -- to gain that.
 14 MR. O'BRIEN:
 15 Q. And you were prepared to wait then at that
 16 point until the following year, I guess, to
 17 revisit?
 18 MR. HUMPHRIES:
 19 A. Yes.
 20 MR. O'BRIEN:
 21 Q. All right. In 2009, perhaps -- we've had
 22 discussion on the turbine, I guess, the 13
 23 megawatt turbine at Holyrood which was used
 24 for Black Start and for some capacity peaking,
 25 I think, issues. Were there any concerns in

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1 2009 about the lifespan of that turbine? Mr.
 2 LeDrew, maybe you can help us out with that
 3 one.
 4 MR. LEDREW:
 5 A. No, not that I can recall. We were continuing
 6 to invest in it and maintain it.
 7 MR. O'BRIEN:
 8 Q. Okay. So there was no concern at that point
 9 that you wouldn't draw a connection to, well,
 10 we've got a capacity issue we've got to deal
 11 with and maybe Black Start issue, a more
 12 permanent resolution or a better resolution or
 13 solution, sorry, for the future? There was no
 14 drawing conclusion at that point?
 15 MR. LEDREW:
 16 A. No, the Black Start reality didn't happen
 17 until early in 2012 when we got the notice of
 18 a potential catastrophic failure in that unit.
 19 MR. O'BRIEN:
 20 Q. All right. And what about in 2010? Any
 21 issues with the Black -- with that unit in
 22 2010?
 23 MR. LEDREW:
 24 A. We did have -- yes, we did have operational
 25 issues and we had folks involved trying to

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1 resolve the issues. We were having, I guess,
 2 mediocre success trying to address it and
 3 resolve it.
 4 MR. O'BRIEN:
 5 Q. And was there any concern at that point, in
 6 2010, with respect to that unit, as to whether
 7 or not we should look for a better solution
 8 going forward into the future?
 9 MR. LEDREW:
 10 A. Not that I recall.
 11 MR. O'BRIEN:
 12 Q. No, okay. Now 2008, the move forward in 2008
 13 to -- in terms of the decision not to proceed,
 14 was this a -- in 2008 -- with an application
 15 for a CT, whose decision was that? Was it Mr.
 16 Haynes' decision?
 17 MR. HUMPHRIES:
 18 A. Well, ultimately the recommendation would have
 19 come from system planning and Mr. Haynes would
 20 have -
 21 MR. O'BRIEN:
 22 Q. Accepted that?
 23 MR. HUMPHRIES:
 24 A. - accepted that, yes.
 25 MR. O'BRIEN:

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1 Q. And do you recall having discussions about
 2 that?
 3 MR. HUMPHRIES:
 4 A. I can't recall having -- it would have came up
 5 through the normal budget process for the
 6 following year.
 7 MR. O'BRIEN:
 8 Q. And that would have been when in the year?
 9 MR. HUMPHRIES:
 10 A. Well, we would -
 11 MR. O'BRIEN:
 12 Q. Capital budget is later on in the year?
 13 MR. HUMPHRIES:
 14 A. Yeah. So in preparation, if we're into 2009,
 15 in preparation for the 2010 capital budget.
 16 MR. O'BRIEN:
 17 Q. And in 2010 then -- you mentioned there was a
 18 2009 generation planning issue report, which
 19 we don't have, but we do have the 2010 one. I
 20 wonder if we could pull that up? It's IC-NLH-
 21 074. And I know we talked about this before.
 22 I'm not sure we actually reviewed it at the
 23 time.
 24 MS. GRAY:
 25 Q. Revision 1?

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1 MR. O'BRIEN:
 2 Q. Revision 1, yes, please. So again, in this
 3 report, both scenarios are discussed, the
 4 isolated island and the fixed link scenario,
 5 and this would have been a systems planning
 6 report as well? Is that right, Mr. Humphries?
 7 MR. HUMPHRIES:
 8 A. Yes, that's right.
 9 MR. O'BRIEN:
 10 Q. Okay. And do you recall seeing this report
 11 when it came out?
 12 MR. HUMPHRIES:
 13 A. Yes, I do.
 14 MR. O'BRIEN:
 15 Q. Okay. And who would that have gone to? Who
 16 would have seen it?
 17 MR. HUMPHRIES:
 18 A. It would have gone to the same group. It
 19 would have gone to our leadership team.
 20 MR. O'BRIEN:
 21 Q. And under -- if we can go to page ten, Table
 22 5-1? Okay. So that's the load forecast
 23 compared to planning criteria, and we see the
 24 shaded area under LOLH. So this is the
 25 capacity issues for 2015 that's forecast,

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1 right?
 2 MR. HUMPHRIES:
 3 A. That's correct.
 4 MR. O'BRIEN:
 5 Q. Under both scenarios?
 6 MR. HUMPHRIES:
 7 A. That's correct.
 8 MR. O'BRIEN:
 9 Q. Okay. And there's still -- those ones are in
 10 violation of your planning criteria?
 11 MR. HUMPHRIES:
 12 A. It is. It's not as a significant step change
 13 as we would have experienced back in 2008, but
 14 yes, it is in violation.
 15 MR. O'BRIEN:
 16 Q. It is, and you've already seen that change in
 17 load now that you said in 2009. So that's
 18 built into -
 19 MR. HUMPHRIES:
 20 A. The decrease in 2009 is built in.
 21 MR. O'BRIEN:
 22 Q. Yeah, is built into that.
 23 MR. HUMPHRIES:
 24 A. And the assumptions on the ramp up of Vale at
 25 that time would have been included in this as

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1 well.
 2 MR. O'BRIEN:
 3 Q. Okay. And we talked yesterday just about
 4 forced outage rates. You would have been
 5 using forced outage rate assumptions from 2000
 6 to 2004 in that calculation?
 7 MR. HUMPHRIES:
 8 A. We would have been using the averages, yes,
 9 that were referred to of the roughly .9
 10 percent for the hydro and 9.64 for the
 11 terminals.
 12 MR. O'BRIEN:
 13 Q. Right. And I believe you indicated that -- or
 14 agree with me that the Holyrood forced outage
 15 rates were increasing over time?
 16 MR. HUMPHRIES:
 17 A. If we look at the period that Ventyx analyzed,
 18 yes, the forced outage rates at Holyrood for
 19 the second period they evaluated were higher
 20 than our assumptions and the forced outage
 21 rates for the hydro were lower. So when we
 22 look at the numbers that we went through there
 23 yesterday of the impact on LOLH, that there
 24 would have been the effect of the Bay d'Espoir
 25 forced outage rates would have an improving

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1 effect and the Holyrood would be a increase in
 2 LOLH. The net difference was, I think, .22
 3 hours.
 4 MR. O'BRIEN:
 5 Q. .22 hours?
 6 MR. HUMPHRIES:
 7 A. .22 hours or about 5.5 percent.
 8 MR. O'BRIEN:
 9 Q. Okay. So that -- but that would be an
 10 increase?
 11 MR. HUMPHRIES:
 12 A. A net increase of .22 hours, yes.
 13 MR. O'BRIEN:
 14 Q. In the LOLH, so -
 15 MR. HUMPHRIES:
 16 A. And yeah, well that's -- they were basing that
 17 on our 2012 analysis, so it probably would
 18 have been comparable.
 19 MR. O'BRIEN:
 20 Q. Okay. So you're looking at say a 3.41 of an
 21 increase in that LOLH to 3.6.
 22 MR. HUMPHRIES:
 23 A. 3.6, yes.
 24 MR. O'BRIEN:
 25 Q. Right, okay. Did you consider that as part of

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1 your analysis at that time?
 2 MR. HUMPHRIES:
 3 A. No, we did not. We considered at that time
 4 that when a review that again, the forced
 5 outage rates that we had been using were
 6 within a level of error consistent with what
 7 was happening in reality and we hadn't -- we
 8 did not change.
 9 MR. O'BRIEN:
 10 Q. And still fair to say though that these are in
 11 violation of your -
 12 MR. HUMPHRIES:
 13 A. Yes, they're in violation.
 14 MR. O'BRIEN:
 15 Q. In violation?
 16 MR. HUMPHRIES:
 17 A. Yes.
 18 MR. O'BRIEN:
 19 Q. And there's an increased possibility of
 20 outages as a result?
 21 MR. HUMPHRIES:
 22 A. Yes.
 23 MR. O'BRIEN:
 24 Q. More than what you would expect?
 25 MR. HUMPHRIES:

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1 A. Yeah.
 2 MR. O'BRIEN:
 3 Q. And as a result of that, that fit within your
 4 planning criteria to consider further
 5 generation additions?
 6 MR. HUMPHRIES:
 7 A. Yes, it did.
 8 MR. O'BRIEN:
 9 Q. Okay. And in 2010, again the CT, 50 megawatt
 10 CT comes up again?
 11 MR. HUMPHRIES:
 12 A. That's correct.
 13 MR. O'BRIEN:
 14 Q. As one of those options, is that right?
 15 MR. HUMPHRIES:
 16 A. In the interconnected scenario, it does come
 17 up, yes.
 18 MR. O'BRIEN:
 19 Q. Right, in the interconnected scenario, sorry.
 20 MR. HUMPHRIES:
 21 A. Yes.
 22 MR. O'BRIEN:
 23 Q. And this particular report, who would that
 24 have gone to? The same people?
 25 MR. HUMPHRIES:

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1 A. Same people, yes.
 2 MR. O'BRIEN:
 3 Q. And who was your -- who did you report into at
 4 that point in time, 2010?
 5 MR. HUMPHRIES:
 6 A. In July 2010, I would have still been
 7 reporting to Mr. Mallam.
 8 MR. O'BRIEN:
 9 Q. Okay. And when did you start reporting into
 10 Mr. MacIsaac?
 11 MR. HUMPHRIES:
 12 A. In October 2010.
 13 MR. O'BRIEN:
 14 Q. Okay. And would that have been around the
 15 same time that you would be looking at capital
 16 budgets and whether or not to proceed with any
 17 requests for additional generation units at
 18 that time?
 19 MR. HUMPHRIES:
 20 A. Yes, we would.
 21 MR. O'BRIEN:
 22 Q. Do you have any recollection of talking to Mr.
 23 MacIsaac about that in 2010?
 24 MR. HUMPHRIES:
 25 A. I would have -- when Mr. MacIsaac came on, I

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1 would have sat with him and briefed him on
 2 issues related to system planning and these
 3 reports.
 4 MR. O'BRIEN:
 5 Q. Okay. And what was the -- what's your
 6 recollection in terms of timing? Are you
 7 still dealing with a 36-month assessment?
 8 This report suggests you're still dealing with
 9 a 36-month time scenario.
 10 MR. HUMPHRIES:
 11 A. That's correct, yes.
 12 MR. O'BRIEN:
 13 Q. And do you know if somebody confirmed or
 14 updated that time scenario or was it just
 15 carried over from the 2008 report?
 16 MR. HUMPHRIES:
 17 A. No, we would have gone to our engineering
 18 people and asked for updates.
 19 MR. O'BRIEN:
 20 Q. And again, that's for a new unit?
 21 MR. HUMPHRIES:
 22 A. That would -- yes, that would look at a new
 23 unit.
 24 MR. O'BRIEN:
 25 Q. A new unit.

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1 MR. LEDREW:
 2 A. And I guess the other thing is it was a
 3 greenfield option as well, so -
 4 MR. O'BRIEN:
 5 Q. Okay. Explain that to me.
 6 MR. LEDREW:
 7 A. - what played out in Holyrood, of course, was
 8 a site that had a lot of infrastructure
 9 available that aided the construction. This
 10 was -- the potential here was a brand new site
 11 meaning all new ground work, all new
 12 environmental permits, everything.
 13 MR. O'BRIEN:
 14 Q. That would have taken 36 months?
 15 MR. LEDREW:
 16 A. That would have taken the full calendar.
 17 MR. O'BRIEN:
 18 Q. Okay. So if we're looking at an assessment of
 19 what ultimately occurred, it's certainly not a
 20 36-month window that you were looking at?
 21 MR. HUMPHRIES:
 22 A. That's true.
 23 MR. O'BRIEN:
 24 Q. Okay. And 2010, July of 2010, where were you
 25 with the turbine for Black Start at Holyrood?

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1 What concerns did you have at that point in
 2 time when this report came out? Was there a
 3 stop work order in place at that point in
 4 time?
 5 MR. LEDREW:
 6 A. Yes, I believe. I'd have to check the dates,
 7 but the stop work order had started somewhere
 8 in around that time, yes.
 9 MR. O'BRIEN:
 10 Q. Okay. And I believe, and maybe we can just
 11 confirm, we had a timeline we looked at in the
 12 Liberty report yesterday. I believe it was
 13 page 51. March 2010, does that sound right?
 14 MR. LEDREW:
 15 A. Yeah, that's correct.
 16 MR. O'BRIEN:
 17 Q. Okay. So at that point in time, were you
 18 aware of that, Mr. Humphries, that there was a
 19 stop work order with respect to that unit?
 20 MR. HUMPHRIES:
 21 A. I was aware, yes.
 22 MR. O'BRIEN:
 23 Q. Okay. And was there a concern at that point
 24 in time that perhaps we should look at
 25 proceeding with something that is more of a --

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1 is a better solution for Black Start going
 2 forward because of the stop work order and
 3 because we have a capacity issue that we're
 4 going to see now out into the future and not
 5 too far into the future, five years in the
 6 future? Was there any concern leaking those
 7 two together then? Any discussions about that?
 8 MR. HUMPHRIES:
 9 A. I don't recall any discussions at that time.
 10 MR. O'BRIEN:
 11 Q. In terms of the discussions with respect to
 12 generation planning and addition, Mr.
 13 Humphries, did Black Start ever come up?
 14 MR. HUMPHRIES:
 15 A. In 2010 you're asking?
 16 MR. O'BRIEN:
 17 Q. In 2010.
 18 MR. HUMPHRIES:
 19 A. I don't -- I'm not -- I don't recall. I don't
 20 remember any discussions in 2010.
 21 MR. O'BRIEN:
 22 Q. And when this report came out, the 2010 one,
 23 who would you have reviewed it with?
 24 MR. HUMPHRIES:
 25 A. In 2010, I would have reviewed it with Mr.

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1 Mallam and Mr. Haynes, you know, even though I
 2 -- through the period, I would have been
 3 reporting up through the engineering side
 4 which at some point along the way moved out of
 5 Hydro into Nalcor. The main focus of
 6 discussion and the ramifications and
 7 implications, I guess, of this report would
 8 have been discussed with Mr. Haynes
 9 predominantly.

10 MR. O'BRIEN:
 11 Q. Okay. And would it -- was there a Hydro
 12 leadership team it would have been discussed
 13 with at that time?

14 MR. HUMPHRIES:
 15 A. I would assume Mr. Haynes would have discussed
 16 it with the Hydro leadership team.

17 MR. O'BRIEN:
 18 Q. Okay. And you wouldn't have been part of the
 19 leadership team at that time?

20 MR. HUMPHRIES:
 21 A. No, I was not.

22 MR. O'BRIEN:
 23 Q. Okay. Mr. LeDrew, did anyone discuss with
 24 you, in 2010, that Hydro was looking at
 25 potential capacity issues out into 2015 and a

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1 CT was one option to assist with that?

2 MR. LEDREW:
 3 A. I was generally aware, but I had no
 4 involvement in that process.

5 MR. O'BRIEN:
 6 Q. Okay. And Mr. Henderson, were you aware of
 7 any discussions to that effect?

8 MR. HENDERSON:
 9 A. I was aware, yes, same as Mr. LeDrew. I was
 10 aware that the CT was as part of that
 11 interconnected option and that it would be
 12 required in the future.

13 MR. O'BRIEN:
 14 Q. Okay.

15 MR. HENDERSON:
 16 A. In terms of anything happening in 2010
 17 specific, I can't recall anything that I was
 18 specifically involved in other than a general
 19 knowledge. And I will note though that I know
 20 that in 2010, the issues with the Black Start
 21 were there, but the full understanding was
 22 this was something that would be resolved and
 23 was being addressed at a somewhat of a urgent
 24 nature in terms of resolving the ability to
 25 Black Start.

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1 MR. O'BRIEN:
 2 Q. How old was that unit at that time?
 3 (9:45 a.m.)

4 MR. LEDREW:
 5 A. It was 1966 vintage.

6 MR. O'BRIEN:
 7 Q. Right. So was there a concern, even though it
 8 was going to be addressed at that time
 9 immediately, that perhaps a new unit might be
 10 necessary in the near future?

11 MR. LEDREW:
 12 A. Well, we -- somewhere in around there, I'm
 13 just trying to think of the date here, but we
 14 did do a full comprehensive condition
 15 assessment on that unit as well and looked at
 16 the lifespan of it.

17 MR. O'BRIEN:
 18 Q. Was it in 2010?

19 MR. LEDREW:
 20 A. I think it was '11, I believe. I think the
 21 condition assessment was done in '11, a
 22 comprehensive one.

23 MR. O'BRIEN:
 24 Q. Okay. And you spoke yesterday about January
 25 of 2012 and I got the -- and then into March

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1 when you did a site assessment for the CT, I
 2 got the impression from your testimony, Mr.
 3 LeDrew, that really the Black Start issues you
 4 had in January 2012 really kick started the
 5 site assessment early on in 2012. Is that
 6 right, for the CT?

7 MR. LEDREW:
 8 A. Black Start? I'm not sure I'm following you.

9 MR. O'BRIEN:
 10 Q. In January of 2012, you learn the unit at
 11 Holyrood that you're using for Black Start
 12 couldn't be operated.

13 MR. LEDREW:
 14 A. Correct.

15 MR. O'BRIEN:
 16 Q. All right. So at that point in time, it
 17 wasn't long before you had your discussions on
 18 the site assessment for the new CT. Is that
 19 right?

20 MR. LEDREW:
 21 A. Correct, yes.

22 MR. O'BRIEN:
 23 Q. And you came to a decision relatively soon
 24 after that that Holyrood was the proper
 25 option?

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1 MR. LEDREW:
 2 A. It was because of timeline advantages,
 3 environmental permitting advantages and
 4 infrastructure advantages that Holyrood had a
 5 lot of positives in its favour, versus other
 6 sites or a greenfield site.
 7 MR. O'BRIEN:
 8 Q. Right. So you had gone away from the
 9 greenfield 36-month period now into a more
 10 condensed timeframe in order to get this
 11 project working?
 12 MR. LEDREW;
 13 A. Correct, and I do recall 24 months being
 14 something that engineering were suggesting.
 15 22 to 24 months was the construction build
 16 then. That's sort of the timelines that were
 17 being talked about back then.
 18 MR. O'BRIEN:
 19 Q. And that was for a new unit?
 20 MR. LEDREW:
 21 A. New unit, yeah.
 22 MR. O'BRIEN:
 23 Q. New unit. Any discussions at that time --
 24 where were you at that time in terms of
 25 talking to vendors, finding out what units

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1 were out there? Anybody discuss possible grey
 2 market units or existing units?
 3 MR. LEDREW:
 4 A. I did sit in on some presentations. Our
 5 engineering group were actively looking at
 6 what's available on the marketplace and we did
 7 have some vendors come in and present their
 8 capabilities, the size of units that they
 9 offer, yeah.
 10 MR. O'BRIEN:
 11 Q. Okay. And when was that?
 12 MR. LEDREW:
 13 A. That was subsequent to this reality. That was
 14 in 2012.
 15 MR. O'BRIEN:
 16 Q. Okay. And was that after the site assessment?
 17 MR. LEDREW:
 18 A. I would say they would in around -- it was in
 19 the spring/summer of '12 I can think.
 20 MR. O'BRIEN:
 21 Q. Okay, around that time?
 22 MR. LEDREW:
 23 A. Yeah.
 24 MR. O'BRIEN:
 25 Q. And I got the understanding that the Hardwoods

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1 -- the decision to use Hardwoods was an
 2 interim decision. Is that right?
 3 MR. LEDREW:
 4 A. That's correct, yeah.
 5 MR. O'BRIEN:
 6 Q. Okay. So the plan was for another CT. Why
 7 not start with an application process at that
 8 point in time?
 9 MR. HUMPHRIES:
 10 A. Well, the decision -- you mean the decision to
 11 use Hardwoods -
 12 MR. O'BRIEN:
 13 Q. Was an interim decision as Black Start. Why
 14 didn't you start with your application at that
 15 point in time? You knew you had a capacity
 16 issue coming up in 2015. You knew that the
 17 option here at Holyrood, the unit that was
 18 being used couldn't be operated. Why not
 19 start with the application at that point in
 20 time?
 21 MR. HUMPHRIES:
 22 A. Well, and I think that would have been in
 23 early 2012.
 24 MR. O'BRIEN:
 25 Q. Yeah.

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1 MR. HUMPHRIES:
 2 A. Yeah, and were in the process of doing the
 3 preparatory work to go into an application at
 4 that time.
 5 MR. O'BRIEN:
 6 Q. And it took you from the early 2012 until when
 7 in 2013 to actually come in with an
 8 application?
 9 MR. HUMPHRIES:
 10 A. Well, actually, the application did not get in
 11 until April 2014.
 12 MR. O'BRIEN:
 13 Q. No, no, I mean for a Black Start. You didn't
 14 file anything for Black Start until -
 15 MR. HUMPHRIES:
 16 A. I think that was in -
 17 MR. O'BRIEN:
 18 Q. - the end of 2013?
 19 MR. HUMPHRIES:
 20 A. Late 2013.
 21 MR. O'BRIEN:
 22 Q. I mean, why wait this whole time to address
 23 the Black Start issue?
 24 MR. HUMPHRIES:
 25 A. Well, and I think it was all based on the fact

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1 that in the interim, Hardwoods had been
 2 accepted as a decision.
 3 MR. O'BRIEN:
 4 Q. Okay.
 5 MR. HUMPHRIES:
 6 A. As an alternative.
 7 MR. O'BRIEN:
 8 Q. Well, if that's the case, why not go forward
 9 with an application for a 50 megawatt CT in
 10 2012?
 11 MR. LEDREW:
 12 A. I think I mentioned that the -- after the risk
 13 assessment was done, we were looking at a 22
 14 to 24-month window from decision to build, so
 15 it wasn't a 36-month window that we had looked
 16 at previously, back in the '08-09 timeline.
 17 MR. O'BRIEN:
 18 Q. And there was no concern with a 24-month
 19 window at that point in time, that you were
 20 going to run into capacity issues in 2015?
 21 What if the load changed?
 22 MR. HUMPHRIES:
 23 A. If the load changed, we would have had
 24 capacity violations, yeah.
 25 MR. O'BRIEN:

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1 Q. Right. And you already knew at that point in
 2 time that there was a potential for capacity
 3 violations. You knew you had an issue with
 4 the Black Start, the unit being used for Black
 5 Start. So my question is, why didn't you
 6 proceed with a 50 megawatt CT application in
 7 2012?
 8 MR. HUMPHRIES:
 9 A. Well, if we had, I guess to Mr. LeDrew's
 10 point, and if we had 24 months period, we
 11 still would have been into 2014 before we had
 12 the combustion turbine in place. So from a
 13 Black Start perspective, it was really no
 14 great gain from the perspective of what we had
 15 originally been proposing, I guess. When we
 16 got -- we still had uncertainty through 2012
 17 on where we going from an overall expansion
 18 plan. It was late 2012 before we had
 19 certainty that Muskrat Falls was going and the
 20 interconnection was happening and you go
 21 through the 2012 generation planning issues
 22 report, at that time -- at that time that
 23 report was completed, there's still -- the
 24 Lower Churchill still had not been sanctioned.
 25 There was still two alternatives. Obviously

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1 at this point there was -- it hadn't been --
 2 the expansion plans in the near term were
 3 identical at that stage. The CT was now the
 4 preferred alternative in both plans.
 5 MR. O'BRIEN:
 6 Q. Right.
 7 MR. HUMPHRIES:
 8 A. And it was clear that the CT was the preferred
 9 alternative and following that period, in late
 10 2012, that is when we started to advance the
 11 application process and went through a series
 12 of explanations, I think, earlier this week
 13 and last week on what transpired through 2013,
 14 the changes with respect to the ultimate
 15 application to add 16 megawatts of Black Start
 16 diesel and whether that had any impact or
 17 influence on the overall decision or magnitude
 18 of the CT application, and as well then, at
 19 the end of 2013, we got into the early 2014
 20 outages and a reassessment of the criteria,
 21 reserve levels and all, and that resulted in
 22 an application for a larger CT that took time
 23 to prepare, analyze the alternatives, do the
 24 Strategist analysis that resulted in an
 25 application in April 2014.

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1 MR. O'BRIEN:
 2 Q. So were you waiting for the sanction on
 3 Muskrat Falls to decide to proceed with this?
 4 MR. HUMPHRIES:
 5 A. Well, I think that would have been -- if an
 6 application had gone forward at that time,
 7 that would have been the first question, which
 8 future are we going, which road are we going
 9 down. So there was no clarity and at the
 10 time, the generation issues report was
 11 generated in 2012, we still did not -- it was
 12 pretty definite, but there was no clarity. It
 13 was later in 2012 that the actual sanction of
 14 the project was announced.
 15 MR. O'BRIEN:
 16 Q. And later in 2012, why not proceed with an
 17 accelerated application at that point in time?
 18 If you're talking a 24-month period was your -
 19 MR. HUMPHRIES:
 20 A. Yeah. Well, you know, I think we were doing -
 21 - internally, we were doing things to
 22 accelerate the schedule in the absence of the
 23 application and we were trying to prepare the
 24 application and assess the changes along the
 25 way and at points through 2013, when the -- in

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1 particular in the fall of 2013 when the issue
 2 came to -- when the application was made at
 3 the Board's suggestion, I guess, that we get a
 4 Black Start solution for Holyrood as quickly
 5 as possible, we identified the 8 2 megawatt
 6 diesels at that time. The obvious first
 7 question would have been what's the
 8 implication of that on the new CT application
 9 and so, we took the time to assess that before
 10 putting in the application, rather than have
 11 to do it after the fact.

12 MR. O'BRIEN:
 13 Q. Could you have gotten an application in and
 14 had the CT in by the end of 2013 when you got
 15 the eight megawatt diesels in? You found out
 16 your -- end of 2012 that there was a -- or
 17 near the end of 2012, Muskrat Falls was
 18 sanctioned. We know you had a -- you got the
 19 100 megawatt CT in within a year, less than a
 20 year.

21 MR. HUMPHRIES:
 22 A. I don't think we had the information at hand
 23 back then to have a level of confidence that
 24 we could do that in the timeframe.

25 MR. O'BRIEN:

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1 Q. Well, explain that to me. What do you mean by
 2 that?

3 MR. HUMPHRIES:
 4 A. Well, through 2013 and early 2014, there was
 5 considerable effort focused on this grey
 6 market opportunity and the ability to be able
 7 to -- how you could actually accelerate that
 8 schedule to get it in in the timeframe we did.
 9 I'm just -- back, going back to earlier in
 10 2013, late 2012, we hadn't advanced our
 11 knowledge base to that. We didn't have enough
 12 data on what was out there and how it could
 13 actually be advanced to get it in at the same
 14 time we would have gotten these. I don't
 15 think that was -

16 MR. O'BRIEN:
 17 Q. You weren't looking into that?

18 MR. HUMPHRIES:
 19 A. We were looking into it, but we hadn't -- it
 20 hadn't progressed to the stage where we'd been
 21 able to focus in on a machine that would have
 22 been suitable and that we would have been able
 23 to deliver in that timeframe and we would have
 24 been -- through that whole period, we would
 25 have been looking at a smaller machine.

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1 There's no question about that. If we had
 2 done that, we'd been looking for a 50 to 60
 3 megawatt machine and we would have ended up in
 4 2013, 50 or 60 megawatts shy of where we
 5 determined, because of the events of 2014, we
 6 wanted to be. So we'd be out right now
 7 getting another machine if we had gone down
 8 that road.

9 MR. O'BRIEN:
 10 Q. If you had gone down that road.

11 MR. HUMPHRIES:
 12 A. If we had gone down that road.

13 MR. O'BRIEN:
 14 Q. Now, looking back, if you had gone down that
 15 road.

16 MR. HUMPHRIES:
 17 A. Yes.

18 MR. O'BRIEN:
 19 Q. I'm just wondering at this point in time what
 20 your -- and you could have got a second
 21 machine?

22 MR. HUMPHRIES:
 23 A. Whether we would have gotten a second grey
 24 market machine and get it in in an accelerated
 25 period, I don't know.

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1 MR. O'BRIEN:
 2 Q. I'm just trying to get the thought process
 3 straight. And then 2013, your application,
 4 you say were preparing an application, and I
 5 believe the last time you indicated you had
 6 one functionally ready by Christmas of 2013.
 7 Is that right?

8 MR. HUMPHRIES:
 9 A. Yeah. At a stage, we probably had it
 10 functionally ready.

11 MR. O'BRIEN:
 12 Q. I'm using your words. I believe that's what
 13 you had indicated.

14 MR. HUMPHRIES:
 15 A. Yeah, and you know, through the summer of
 16 2013, we were -- we had landed on -- going
 17 through assessing all the alternatives. Then
 18 when we got into the fall of 2013 and the
 19 issue with the Black Start came up and the
 20 addition of these 8 2 megawatt units which had
 21 the potential capability of supplying 16
 22 megawatts of capacity to the system, the
 23 assessment of that, we got into that in the
 24 late fall because we knew it would have
 25 implications on the application and it would

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1 be the first questions asked. So we took the
 2 time to assess that in advance.
 3 MR. O'BRIEN:
 4 Q. So you were doing two applications side by
 5 side at that point in time? One for Black
 6 Start, one for -
 7 MR. HUMPHRIES:
 8 A. No, it was always one application, but it was
 9 a changing application -- sorry, the Black
 10 Start application, yes.
 11 MR. O'BRIEN:
 12 Q. Yes, you were doing two of them side by side?
 13 MR. HUMPHRIES:
 14 A. Yes, that was being done side by side. And
 15 you know, and because we were doing the Black
 16 Start application, it caused us to pause and
 17 rethink are we -- is this application that
 18 we're doing for the CT now still correct.
 19 MR. O'BRIEN:
 20 Q. What do you mean by that?
 21 MR. HUMPHRIES:
 22 A. Well, we're out here, we have a solution
 23 that's adding 16 megawatts of generation to
 24 the system. It's being looked at as an
 25 interim solution, but in reality, should it be

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1 an interim solution, given the fact that we're
 2 going to spend the money to install these
 3 units. Does it make sense to look at, in the
 4 longer picture, keeping these units and making
 5 them a part of that next decision where it
 6 could be smaller or different. That was an
 7 analysis we were going through.
 8 MR. O'BRIEN:
 9 Q. Were you considering those at that time in
 10 your application as being an answer to your
 11 capacity issue?
 12 MR. HUMPHRIES:
 13 A. Possibly. We weren't considering them at all
 14 up until the fall of 2013. We had landed on
 15 Hardwoods as an alternative solution to --
 16 interim solution to get us to the new gas
 17 turbine.
 18 MR. O'BRIEN:
 19 Q. To get you to it?
 20 MR. HUMPHRIES:
 21 A. Yes.
 22 MR. O'BRIEN:
 23 Q. So by that point in time, so even though -
 24 MR. HUMPHRIES:
 25 A. But then all of a sudden -

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1 MR. O'BRIEN:
 2 Q. - the site assessment for the ST was kick-
 3 started there in 2012 for that CT.
 4 MR. HUMPHRIES:
 5 A. Yeah, and we landed in 2012 that -
 6 MR. O'BRIEN:
 7 Q. Hardwoods was the answer.
 8 MR. HUMPHRIES:
 9 A. No, Holyrood was the ultimate site for the new
 10 gas turbine and it could address the Black
 11 Start requirements. In the interim, from 2012
 12 to the period we got the new gas turbine in,
 13 the decision was made that the interim Black
 14 Start solution for Holyrood would have been
 15 Hardwoods via the transmissions.
 16 (10:00 a.m.)
 17 MR. O'BRIEN:
 18 Q. In your application, your 2013 application for
 19 the CT that you were preparing, were you
 20 looking at any existing CTs in that
 21 application?
 22 MR. HUMPHRIES:
 23 A. At a point through 2013, the possibility of
 24 existing and available was assessed through
 25 2013. Again, the opportunities out there in

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1 the ranges that we were looking at at that
 2 time, 50 to 60 megawatts, were different than
 3 what was there in the 100 megawatt range. The
 4 focus at that time, as I said, was on the 50
 5 to 60, so there is -- through the tendering
 6 process, I would expect that the tender would
 7 have been open to all opportunities of new and
 8 currently built unused. We were pretty rigid
 9 on this unused piece. You know, we didn't
 10 have a whole lot of -- the issue of going down
 11 and using -- getting a unit with prior use and
 12 no certainty on how it had been operated and
 13 maintained, we weren't big on that, I would
 14 say that.
 15 MR. O'BRIEN:
 16 Q. Was Mr. Haynes involved in - he was there
 17 until April, was it, of 2013?
 18 MR. HUMPHRIES:
 19 A. That's correct.
 20 MR. O'BRIEN:
 21 Q. And was he involved just prior to that in
 22 terms of the decision making on how to proceed
 23 with an application for CT?
 24 MR. HUMPHRIES:
 25 A. Mr. Haynes was fully aware of the process and

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1 all steps along the way up until the time he
 2 left, yes.
 3 MR. O'BRIEN:
 4 Q. And who was running the - who was looking for
 5 the CT, the CTs before, that was your -
 6 MR. HUMPHRIES:
 7 A. That was being done by a project execution
 8 group under Mr. MacIsaac at that time.
 9 MR. O'BRIEN:
 10 Q. Oh, Mr. MacIsaac, okay, and Mr. Henderson,
 11 what do you recall when you came on in April
 12 of 2013, the status of that?
 13 MR. HENDERSON:
 14 A. I was aware that the - I was certainly aware
 15 that we were looking at all these other
 16 options because of the problem that we had
 17 with the turbine at Holyrood with that
 18 capacity down. We were looking at what we may
 19 be able to get in of a short term nature, and
 20 I know in the course of that there was the
 21 gray market type of options became available,
 22 you know, apparent that there was options out
 23 there for those types of things, and I was
 24 aware that we were moving along and getting
 25 the application forward to the Public

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1 Utilities Board for the new CT, and Mr.
 2 Humphries and his group were going through
 3 that and we were looking at all of the options
 4 there to make sure that we had the least cost
 5 option for that capacity requirement, which
 6 would have included a number of things,
 7 including the interruptible arrangement that
 8 we ultimately had with Corner Brook Pulp and
 9 Paper, those types of things. All of those
 10 options were put on the table to say we need
 11 to make sure we understand all of the options
 12 that are available to us for capacity. So all
 13 of those things were part of the consideration
 14 that was being discussed in preparation of
 15 putting an application to the Board in the
 16 fall of 2013.
 17 MR. O'BRIEN:
 18 Q. And you were aware at that time that there was
 19 concerns for capacity in 2015?
 20 MR. HENDERSON:
 21 A. Yes.
 22 MR. O'BRIEN:
 23 Q. And was there any discussion about
 24 accelerating your application at that point?
 25 MR. HENDERSON:

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1 A. The focus was that we had a deficit in 2015
 2 and we had to have something in place for that
 3 time, and that was where the focus was is to
 4 make sure that we had something in prior to
 5 that deficit that was going to occur in 2015.
 6 MR. O'BRIEN:
 7 Q. And was there any discussion about
 8 accelerating your application when you came
 9 in?
 10 MR. HENDERSON:
 11 A. The discussion was that we got to get that
 12 application complete, we got to have a full
 13 analysis done. Knowing that the Board had not
 14 seen a capacity application from Hydro really
 15 at any time in the past, we had to make sure
 16 that we had all the options and that was part
 17 of the discussion is making sure that we had
 18 all of the options laid out, so that we were
 19 able to fully demonstrate the least cost. The
 20 CT was the base assumption, but we had to
 21 understand the other options, and there were
 22 discussions, I believe, that happened at that
 23 time to talk about what other options there
 24 were to provide the equivalent capacity on the
 25 system.

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1 MR. O'BRIEN:
 2 Q. And what was done with respect to that?
 3 MR. HENDERSON:
 4 A. Well, maybe Mr. Humphries can talk about
 5 those.
 6 MR. HUMPHRIES:
 7 A. Okay, well, when we went through and we did -
 8 Mr. Henderson mentioned interruptible
 9 arrangements, and, you know, they were
 10 considered coming through the 2013 period and
 11 on paper - on paper, the interruptible
 12 arrangements bring you - can correct your LOLH
 13 and your deficit, but when we looked at the
 14 overall picture of the CT, the benefits it
 15 brings operationally, the fact that now the
 16 black start was a piece of it -
 17 MR. O'BRIEN:
 18 Q. It was a better option?
 19 MR. HUMPHRIES:
 20 A. It was a better option.
 21 MR. O'BRIEN:
 22 Q. Okay, and you knew that all along, though, I
 23 presume?
 24 MR. HUMPHRIES:
 25 A. Oh, yes.

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1 MR. O'BRIEN:
 2 Q. So that wasn't something new to you?
 3 MR. HUMPHRIES:
 4 A. No.
 5 MR. O'BRIEN:
 6 Q. All right, in terms of that, was there ever -
 7 there was no discussion about accelerating the
 8 application. It was more of a discussion from
 9 what you just said, Mr. Henderson, of making
 10 sure you got everything together, is that
 11 right?
 12 MR. HENDERSON:
 13 A. It was to make sure that we had a proven least
 14 cost solution for the capacity that was
 15 required for 2015.
 16 MR. O'BRIEN:
 17 Q. Okay, so proven least cost solution. Where
 18 did reliability fit into that? You had a 2008
 19 report that had raised concerns with capacity,
 20 a 2010 report, a 2012 report, you had issues
 21 with black start, where did reliability fit
 22 into all of this?
 23 MR. HENDERSON:
 24 A. Reliability was a critical piece and exactly
 25 why we wanted to make sure that we had this in

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1 before we reached the criteria -
 2 MR. O'BRIEN:
 3 Q. Before you reached the date?
 4 MR. HENDERSON:
 5 A. Make sure that we had capacity in place at the
 6 time, again making sure that we had the
 7 capacity in place for reliable service for
 8 when it was required.
 9 MR. O'BRIEN:
 10 Q. I mean, it looks as though you've had a seven
 11 year window to look at the application and put
 12 together the information, but by 2013 you
 13 still haven't got - mid 2013, you still
 14 haven't got the information together to do it?
 15 MR. HENDERSON:
 16 A. In mid 2013, when we were putting this
 17 together, we're at the - getting that
 18 application, we had to make sure all the
 19 questions that we anticipated would be asked
 20 in an application were answered and presented
 21 in that application.
 22 MR. O'BRIEN:
 23 Q. So how were the risks to the customers valued,
 24 risks to your customers in terms of outages
 25 valued all the way through that time frame?

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1 MR. HENDERSON:
 2 A. The established criteria for capacity was the
 3 2.8 hours and it was to have the capacity in
 4 place for that time, so that's where the focus
 5 was to have that in accordance with the agreed
 6 to criteria that we have for capacity, and
 7 that is all about reliable service. That's
 8 what that - criteria has been put forward to
 9 the Board in the past and its been reviewed
 10 and it was the accepted criteria, and it was
 11 the criteria we were working to.
 12 MR. O'BRIEN:
 13 Q. And ultimately the application got put in in
 14 April of 2014, four months after the issues
 15 for the winter of 2013 - sorry, 2013/2014, is
 16 that right?
 17 MR. HENDERSON:
 18 A. It was brought in after those issues, and what
 19 we experienced in January, 2014, with regard
 20 to capacity was quite unusual, but we were
 21 still working towards that criteria of 2.8
 22 hours and we were not expecting something like
 23 January, 2014, to occur, but we were moving
 24 quickly to ensure that that application was
 25 being put in so that we would have something

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1 in place for when the criteria indicated it
 2 was required.
 3 MR. O'BRIEN:
 4 Q. But you were expecting outage issues possibly
 5 in 2015?
 6 MR. HUMPHRIES:
 7 A. Well, even at 2.8 hours, you could expect
 8 outage issues. 2.8 doesn't guarantee that
 9 there will not be outages.
 10 MR. O'BRIEN:
 11 Q. No, I understand that, and 3.4 doesn't
 12 guarantee that it won't be 5 hours.
 13 MR. HUMPHRIES:
 14 A. No, and, you know - and, I think, as Mr.
 15 Henderson said, that has been our criteria,
 16 it's been our criteria for a number of years,
 17 it's been approved, it's been reviewed, and as
 18 late as 2011/2012 it was reviewed and deemed
 19 to be acceptable. I think everyone will admit
 20 coming through the events of 2014, we've sat
 21 back and we've looked at the risks around
 22 operating at our criteria or close to our
 23 criteria and we've made changes moving forward
 24 to improve, but there was never prior to that,
 25 based on any of the reviews, any indication

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1 that what we were doing was not acceptable or
 2 prudent criteria.
 3 MR. O'BRIEN:
 4 Q. But this is not an issue where you were
 5 operating at 2.8 going outwards. This is an
 6 issue where you saw 5.28 and you saw 3.41 in
 7 the near future?
 8 MR. HUMPHRIES:
 9 A. You will always see that at a point in the
 10 future. You will always -
 11 MR. O'BRIEN:
 12 Q. But the near future, is that right?
 13 MR. HUMPHRIES:
 14 A. I guess, it's a matter of near and how much
 15 money you want to spend and how much you're
 16 going to expect the customer to pay in advance
 17 to not be close to that, so if we are going to
 18 establish a criteria of 2.8, and we're saying,
 19 well, really it's 1.5 because we're afraid to
 20 get up at 2.8, that's a different piece, or
 21 afraid of passing through 2.8. It's a level
 22 of how much money and how much the customer is
 23 willing to pay to avoid that criteria target,
 24 and the fact that through a normal progression
 25 you will always get close to that.

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1 MR. O'BRIEN:
 2 Q. Were you concerned when you had the shutdown
 3 of the Holyrood Unit 1 in January of 2013 that
 4 maybe we should accelerate application for
 5 more capacity?
 6 MR. HENDERSON:
 7 A. I can say that we were looking at all of our
 8 options at that point, and it looked like
 9 where we would have Holyrood repaired quicker
 10 than we would get any other kind of capacity
 11 in on the system, so for that year the focus
 12 was going an expeditious repair of Unit 1 to
 13 get it back for the following winter, and at
 14 the same time we were advancing the combustion
 15 turbine application to have it in to meet the
 16 plan and criteria to ensure that we had it in
 17 in 2015.
 18 MR. O'BRIEN:
 19 Q. Just before I go to my last line of
 20 questioning, I did want to touch briefly on
 21 something we discussed yesterday just for some
 22 clarification from Mr. Moore, I think, you had
 23 indicated - and this is with respect to the
 24 preventative maintenance piece, and I believe
 25 you had indicated - we talked about the

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1 Whitbourne crew and their availability in
 2 2013.
 3 MR. MOORE:
 4 A. That's correct.
 5 MR. O'BRIEN:
 6 Q. And I just wanted to get some clarification.
 7 I understood that there was obviously work
 8 being done on Unit 1 in January of 2013, and
 9 you would have been aware that the Whitbourne
 10 crew was tied up with that piece of work, is
 11 that right?
 12 MR. MOORE:
 13 A. That's right, they were dealing with the
 14 installation of the - I think it's listed on
 15 the time line there, where we installed the
 16 infrastructure for the Newfoundland Power
 17 mobiles.
 18 MR. O'BRIEN:
 19 Q. Right.
 20 MR. MOORE:
 21 A. So they were dealing with that through the
 22 winter of 2013.
 23 MR. O'BRIEN:
 24 Q. And into February, I believe, there was some
 25 other work. That's when the - I guess it was

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1 the coating for the -
 2 MR. MOORE:
 3 A. That's correct.
 4 MR. O'BRIEN:
 5 Q. That was in February and March, in that area?
 6 MR. MOORE:
 7 A. That's correct. We were dealing with that to
 8 ensure that the assets would be secure for
 9 future winters based on the failure we
 10 experienced in that January.
 11 MR. O'BRIEN:
 12 Q. And in terms of the work on Hardwoods, that
 13 was done in the fall. You would have been
 14 aware, though, in January, that work needed to
 15 be done, wouldn't you?
 16 MR. MOORE:
 17 A. The Hardwoods work?
 18 MR. O'BRIEN:
 19 Q. Yes.
 20 MR. MOORE:
 21 A. No, that wasn't decided in January. I can't
 22 remember the exact time frame.
 23 MR. O'BRIEN:
 24 Q. And just to be fair, I wanted to point you to
 25 an order, a supplemental order, it's Order PU-

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1 20,2013.
 2 (10:15 a.m.)
 3 MR. HENDERSON:
 4 Q. I might be able to help.
 5 MR. O'BRIEN:
 6 Q. Sure.
 7 MR. HENDERSON:
 8 A. Yes, we had - the problem with the Hardwoods
 9 gas turbine was known, I'm going to say,
 10 around February or January.
 11 MR. O'BRIEN:
 12 Q. It's January, I think. In this order, it
 13 mentions it. If we scroll down, that might
 14 help you.
 15 MR HENDERSON:
 16 A. So in January, we were aware of the problem
 17 that was identified by the OEM of the unit in
 18 Stephenville, that we had this risk of failure
 19 on the generator at Hardwoods.
 20 MR. O'BRIEN:
 21 Q. Right.
 22 MR. HENDERSON:
 23 A. So at that time, we were looking at how we
 24 would deal with Hardwoods, and there were a
 25 number of different options that we looked at

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1 and the option that we had landed on, which
 2 was the one that could be done in a reliable
 3 manner to get it back as quickly as possible
 4 was to do with the generator - a new generator
 5 for Hardwoods that would be installed in the
 6 fall and put in service prior to the winter of
 7 2013/2014. So that was the solution that was
 8 identified. It would not have been - at that
 9 point, the level of involvement of the
 10 Whitbourne crew, which ultimately got involved
 11 with this, was not known and it actually
 12 expanded quite a bit throughout that fall,
 13 that the amount of work that was required was
 14 much more than was anticipated, so the change
 15 occurred in the fall as to the amount of work
 16 that the Whitbourne crew was going to have to
 17 put into the project.
 18 MR. O'BRIEN:
 19 Q. I understood that's what you had said
 20 yesterday.
 21 MR. HENDERSON:
 22 A. Yes, and that's the way it was. As I said
 23 yesterday, when we went into the work on the
 24 Hardwoods unit, I wanted to make sure that we
 25 were on track to get our preventative

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1 maintenance done that fall, and I was assured
 2 that with the Whitbourne crew working on the
 3 Hardwoods unit, that we would be able to do
 4 that, so we went into that fall with that
 5 understanding. What did happen over that time
 6 period was that the Whitbourne crew were
 7 required a lot more to work on the unit and it
 8 ended up that in order to get that job done,
 9 they ended up deferring some of the
 10 maintenance that fall.
 11 MR. O'BRIEN:
 12 Q. I guess, my - I just wanted clarification, and
 13 I understood from Mr. Moore that some of this
 14 work sort of built up over time, but I got the
 15 impression from this order that in January you
 16 knew the Hardwoods work was going to be done.
 17 This application was filed in April, so in
 18 April - actually May 7th is the order date. So
 19 as of May, you know the Whitbourne crew is
 20 going to be tied up with some work in that
 21 fall, is that right?
 22 MR. MOORE:
 23 A. That's right, we knew they would have been -
 24 MR. O'BRIEN:
 25 Q. In the Hardwoods, right?

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1 MR. MOORE:
 2 A. Somewhat involved with that project through
 3 the fall.
 4 MR. O'BRIEN:
 5 Q. And what I wanted to know is did you have a
 6 contingency plan at that point in time in
 7 terms of the preventative maintenance?
 8 MR. MOORE:
 9 A. At that time, we knew that the Whitbourne crew
 10 would have been involved with that project in
 11 the fall, but when we were doing our - looking
 12 at our annual work plan, and doing the
 13 analysis, and I know I was involved with these
 14 discussions as well with my managers, it still
 15 - you know, the numbers were - the planning
 16 was still showing us that we would still
 17 achieve the preventative maintenance that we
 18 wanted to get done that was on our schedule
 19 that year before December 1st, our winter
 20 critical date, but it wasn't until we actually
 21 got into the project in the fall and the
 22 demand on our resources far exceeded what we
 23 had planned, it was very late in the fall when
 24 we determined that we would need to re-
 25 prioritize some of our preventative

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1 maintenance into the next year.
 2 MR. O'BRIEN:
 3 Q. This work on the Hardwoods gas turbine, that's
 4 similar work to what was performed on the
 5 Stephenville turbine, is that right?
 6 MR. MOORE:
 7 A. Very similar. The Stephenville gas turbine
 8 was a rewind, the Hardwoods gas turbine was a
 9 complete generator replacement.
 10 MR. O'BRIEN:
 11 Q. And how long did the Stephenville one take?
 12 MR. MOORE:
 13 A. The Stephenville one took - I think it was
 14 around June, 2013 when that unit went back in
 15 service. It had failed the year before and
 16 through our engineering folks assigned a
 17 project manager to do the analysis of what was
 18 required to get that unit back in service, but
 19 that one was actually a rewind by the original
 20 equipment manufacturer on site as opposed to a
 21 complete alternator replacement.
 22 MR. O'BRIEN:
 23 Q. And how long did you figure the alternator
 24 replacement was going to take?
 25 MR. MOORE:

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1 A. We knew that when that project started, the
 2 goal was to have it in service by December -
 3 December 1st would have been our target date
 4 for winter readiness for that generating
 5 asset.
 6 MR. O'BRIEN:
 7 Q. And when did you start it?
 8 MR. MOORE:
 9 A. I'm trying to remember the exact date when we
 10 started that.
 11 MR. O'BRIEN:
 12 Q. I think the application said for October.
 13 MR. HENDERSON:
 14 A. It was pretty close to the end of September.
 15 MR. O'BRIEN:
 16 Q. Okay.
 17 MR. HENDERSON:
 18 A. That the - at least the discussions that I had
 19 was late September regarding the work and
 20 making sure that we could do both through that
 21 fall.
 22 MR. O'BRIEN:
 23 Q. Yeah.
 24 MR. HENDERSON:
 25 A. Was in September, very late September in -

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1 MR. O'BRIEN:
 2 Q. And your discussions, when did they occur, in
 3 the same time frame?
 4 MR. HENDERSON:
 5 A. My discussions?
 6 MR. O'BRIEN:
 7 Q. Yeah, in terms of whether or not you were
 8 going to get the preventative maintenance
 9 done?
 10 MR. HENDERSON:
 11 A. My discussion were then at the end of
 12 September or right - just as that job was
 13 about to start, there was discussions about
 14 what level of involvement the crew at
 15 Whitbourne was going to have in the project,
 16 and at that time we agreed to the level of
 17 involvement with the understanding that all of
 18 the PMS that were required to be done would be
 19 done.
 20 MR. O'BRIEN:
 21 Q. And was that Hardwoods gas turbine ready for
 22 December 1st?
 23 MR. HENDERSON:
 24 A. The Hardwoods unit ultimately was completed
 25 and put in service, I think, it was around the

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1 19th or 20th of December.
 2 MR. O'BRIEN:
 3 Q. Okay. Mr. Moore, you mentioned that in 2012,
 4 there were - and actually it got put in place,
 5 Mr. Henderson. You indicated the corporate -
 6 in terms of preventative maintenance targets,
 7 there was performance contract changes in 2013
 8 for the regional managers, is that right?
 9 MR. MOORE:
 10 A. That's correct, yes.
 11 MR. O'BRIEN:
 12 Q. And was there any for executive? Like, say,
 13 Mr. Henderson, do you have a preventative
 14 maintenance target?
 15 MR. HENDERSON:
 16 A. I didn't at that time.
 17 MR. O'BRIEN:
 18 Q. And you've got one now?
 19 MR. HENDERSON:
 20 A. I do, yes.
 21 MR. O'BRIEN:
 22 Q. And that's the 100 percent target?
 23 MR. HENDERSON:
 24 A. It is the same across the company.
 25 MR. O'BRIEN:

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1 Q. I wonder in terms of the regional managers
 2 then, is their target based on the
 3 preventative maintenance that's done in their
 4 area?
 5 MR. MOORE:
 6 A. That's correct. It would be based on the
 7 preventative maintenance steps required in
 8 their regional responsibility.
 9 MR. O'BRIEN:
 10 Q. In their particular area, okay, and do they
 11 have an overall corporate target for
 12 preventative maintenance as well, do they get
 13 a piece of that as part of their -
 14 MR. HENDERSON:
 15 A. They did not at that time.
 16 MR. O'BRIEN:
 17 Q. So at that time, would there be an incentive
 18 to them to assist with one of their crews
 19 doing work for the Whitbourne crew?
 20 MR. MOORE:
 21 A. It would not have been outlined, I would say,
 22 in their performance contract, but in the role
 23 of TRO, I mean, when we have the opportunity
 24 to move crews to different areas to assist
 25 with other crews for priority work, depending

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1 on the amount of work that's on their plate in
 2 their existing area and the priority of it, we
 3 do at times move crews from area to area to
 4 assist with jobs, and in particular, if we're
 5 doing a job and we want to try to shorten the
 6 outage to a customer, for example, we'll bring
 7 different crews in to blitz an outage type
 8 thing to help us reduce the outage time.
 9 Like, that might be an example when we would
 10 bring crews together, I guess, from different
 11 areas to work on projects.
 12 MR. O'BRIEN:
 13 Q. And is that your call to bring them in
 14 together or do the regional managers work that
 15 out?
 16 MR. MOORE:
 17 A. That's a decision I would be involved with.
 18 Certainly they're empowered to work with each
 19 other and work on the highest priority work
 20 for our customers, they're certainly empowered
 21 to do that, but I certainly would be involved
 22 with those discussions, depending on the
 23 project.
 24 MR. HENDERSON:
 25 A. I'll also mention in terms of the central

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1 region, that includes basically three offices.
 2 It would include the Whitbourne office, the
 3 Bishop Falls office, and the Stephenville
 4 office, so the manager responsible for that
 5 area had full flexibility -
 6 MR. O'BRIEN:
 7 Q. Had the ability to bring in those -
 8 MR. HENDERSON:
 9 A. He could move anybody around from any one of
 10 those areas. If you're focusing on the
 11 incentive, the incentive for him was his full
 12 region, which was the full of the central
 13 region which meant that to move crews around
 14 from Stephenville to whitbourne if necessary,
 15 which we have been doing. That would have
 16 been full - there would be incentives there
 17 for him to do that.
 18 MR. O'BRIEN:
 19 Q. For him to do that one way or another to get
 20 it done.
 21 MR. HENDERSON:
 22 A. Sure.
 23 MR. O'BRIEN:
 24 Q. It just wasn't done in this particular year,
 25 it wasn't priority to do it?

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1 MR. HENDERSON:
 2 A. I think Mr. Moore went through the explanation
 3 of where the work was done in 2013.
 4 MR. O'BRIEN:
 5 Q. Mr. Moore, I asked yesterday about
 6 contractors. Does Hydro have any standing
 7 agreements with contractors to do certain
 8 work, is there anything like that, a
 9 contractor that can do work on a transformer
 10 or a breaker, are there any standing
 11 arrangements in place?
 12 MR. MOORE:
 13 A. At that time, there were no standing
 14 arrangements, not for maintenance work in
 15 terminal stations. We do have some other
 16 contracts that extend, like, say, for
 17 installing distribution poles. We have a
 18 contact that we renew year over year, so there
 19 are some examples. We contract out, for
 20 example, diving services.
 21 MR. O'BRIEN:
 22 Q. Sure.
 23 MR. MOORE:
 24 A. To do inspections, but at that time we did not
 25 have a standing contract in place for terminal

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1 station maintenance.
 2 MR. O'BRIEN:
 3 Q. Do you have one now?
 4 MR. MOORE:
 5 A. We don't have a standing contract right now,
 6 but we have utilized contractors in 2014, in
 7 particular, to assist with maintenance on
 8 transformers and air blast circuit breakers.
 9 MR. O'BRIEN:
 10 Q. And were those contractors -
 11 MR. MOORE:
 12 A. But not any longstanding agreements.
 13 MR. O'BRIEN:
 14 Q. Okay, were those contractors available in
 15 2013?
 16 MR. MOORE:
 17 A. We were not aware if they were available in
 18 2013, because as Mr. Henderson explained, as
 19 we worked through the Hardwoods gas turbine
 20 job and ensuring that we were going to be
 21 ready to have that unit in service in the
 22 winter, it was very late in 2013 when we did
 23 the analysis that we came to the conclusion
 24 that some of our preventative maintenance
 25 would have had to have been re-prioritized to

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1 the next year to take in account this higher
 2 priority work on our generation asset. So at
 3 that time, I'll say the time wasn't there to
 4 try to go to the market to see who may be
 5 available and actually get them in in time.
 6 There's also another solution when you have a
 7 shortage of resources could be to bring on
 8 contractor term employees, but that would have
 9 to go through a full recruitment process.
 10 They're not - I'll say they're not readily
 11 available to hire off the street when
 12 required.
 13 MR. O'BRIEN:
 14 Q. Had you ever hired contractors before for
 15 transmission work?
 16 MR. MOORE:
 17 A. We have hired contractors, but not that I'm
 18 aware of to come in and actually do
 19 maintenance in terminal stations.
 20 MR. O'BRIEN:
 21 Q. Okay.
 22 MR. MOORE:
 23 A. We've hired contractors to come in and help,
 24 for example, oversee maintenance in terminal
 25 stations. Like, we may bring in an original

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1 equipment manufacturer of an air blast circuit
 2 breaker to come in and work with our own
 3 internal crews to do an overhaul, for example,
 4 but we've never until 2014 that I'm aware of
 5 brought in contractors to do maintenance work
 6 in terminal stations.
 7 MR. O'BRIEN:
 8 Q. There's a document Mr. Johnson was going to
 9 put to you that I think I'm going to ask you a
 10 few questions on, and this is the Liberty
 11 Consulting Group Report of October 22nd, 2015.
 12 MS. GLYNN:
 13 Q. We'll enter that as Information 29.
 14 MR. O'BRIEN:
 15 Q. This is the October 22nd, 2015 report of
 16 Liberty Consulting regarding the March 4th,
 17 2015, voltage collapse. I wonder, Mr.
 18 Henderson, if you could just give us a quick
 19 overview as to what had occurred on that day?
 20 (10:30 a.m.)
 21 MR. HENDERSON:
 22 A. What occurred on March 4th really goes back to
 23 a problem that had been identified on Holyrood
 24 Unit 1 the previous week, in which there was a
 25 leak identified on the bearing that was - a

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1 bearing oil leak that appeared to be spraying
 2 oil onto the - it was on the number 5 bearing
 3 which is where the brush gear and everything
 4 for that unit is, so in monitoring that, it
 5 was identified that we needed to do an urgent
 6 repair on that. So at that time, the unit was
 7 taken offline to do that repair. It was
 8 planned to come off on the - it was a Friday,
 9 I'm not recalling the date, but basically with
 10 the unit to back on on March 3rd in the
 11 evening, so that was planned work to be done
 12 on that, have it back for that evening, and
 13 then what happened is it got delayed. Over
 14 the course of the evening of March 3rd going
 15 into the early morning hours of March 4th, the
 16 unit restoration was delayed and it did not
 17 get on in time for the morning peak of March
 18 4th, and at the same time as part of our plan
 19 and looking at the capacity requirements on
 20 the Avalon Peninsula, the Holyrood combustion
 21 turbine, the 123 megawatt unit, was scheduled
 22 to be put on at 6 o'clock in the morning in
 23 anticipation of that morning peak to have it
 24 on so that we had that capacity, and that had
 25 been preplanned to be on for that time along

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1 with the Holyrood unit to meet full capacity
 2 requirements with reserve, but what happened
 3 is the Holyrood unit got unexpectedly delayed
 4 and then we had a starting failure on the
 5 combustion turbine which was the first failure
 6 that we had had on that unit. It had operated
 7 previously - on a number of occasions it had
 8 been brought on without an issue, but we
 9 experienced that and the crews there worked
 10 quickly to get the unit restored, but prior to
 11 it getting restored without the Holyrood unit
 12 1 on and that combustion turbine, the voltages
 13 on the Avalon Peninsula declined rapidly and
 14 then, as I think Liberty has characterized it,
 15 it was a voltage collapse that occurred
 16 shortly after 7 o'clock on March 4th, which
 17 when the voltage collapsed, it dropped
 18 rapidly. We ended up having protection
 19 systems operate on the power system for low
 20 voltages, we had capacitor banks tripped at
 21 Come By Chance, and we had Unit 3 at Holyrood
 22 tripped off because of the low voltage. So
 23 with all of that coming off, we ended up with
 24 significant customer interruption that
 25 morning.

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1 MR. O'BRIEN:
 2 Q. And I see at the bottom of page 3 of this
 3 report, there's a reliability analysis there,
 4 and Liberty has a number of points here.
 5 Liberty's discussions with systems planning
 6 and systems operations produced an
 7 understanding of the key conclusions that
 8 Hydro reached from these analysis, and it
 9 indicates - I'm wondering are these your
 10 conclusions, Hydro's conclusions, that it was
 11 well known the voltage was the issue of
 12 primary concern, that there was little concern
 13 for Monday or Tuesday even with Unit 1 off
 14 because the anticipated loads were not high
 15 enough to create the risk, is that fair to
 16 say?
 17 MR. HENDERSON:
 18 A. It is true that we understood there was a -
 19 voltage was a significant constraint on the
 20 Avalon Peninsula.
 21 MR. O'BRIEN:
 22 Q. And Hydro anticipated higher Wednesday loads,
 23 but had the assumption that Unit 1 would be
 24 back for the day's peak alleviated your
 25 concern?

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1 MR. HENDERSON:
 2 A. Having that unit on as well as the combustion
 3 turbine, which would provide additional
 4 reserve on that day, would indicate that there
 5 was - we would be okay, and have significant
 6 reserve for that morning.
 7 MR. O'BRIEN:
 8 Q. And that the modelling - so this is systems
 9 planning and operations modelling indicated
 10 that a single contingency could have serious
 11 consequences should Unit 1 not return in time
 12 for the peak on Wednesday, is that fair that
 13 Hydro had come to that conclusion upfront?
 14 MR. HENDERSON:
 15 A. I'm a little hesitant because, I'll say, the
 16 serious consequences - I'll say it was
 17 understood that we would run into a low
 18 voltage scenario if we did not have the
 19 Holyrood unit on and also the combustion
 20 turbine start. That would have been known
 21 that we'd have low voltage. I would say that
 22 it was not widely understood the magnitude of
 23 significance that would have.
 24 MR. O'BRIEN:
 25 Q. When you say it was not widely understood, who

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1 would have understood it?
 2 MR. HENDERSON:
 3 A. Well, the system planning engineers who had
 4 done the load flow analysis would have
 5 understood where those limits were. In terms
 6 of identifying the level of customer impact
 7 and everything that happened that morning, I
 8 don't think was widely understood.
 9 MR. O'BRIEN:
 10 Q. Just the level -
 11 MR. HENDERSON:
 12 A. We certainly could have and should have made
 13 that more broadly known so that it was
 14 understood the criticalness of that morning.
 15 MR. O'BRIEN:
 16 Q. Okay, so the next comment underneath here,
 17 "The analytical techniques used by system
 18 planning and system operations appear to be
 19 adequate and to forecast correctly what
 20 figurations would and would not survive the
 21 forecast loads, therefore, system
 22 vulnerability in the event of Unit 1's non-
 23 return was known". That's fair to say?
 24 MR. HENDERSON:
 25 A. The vulnerability that if Unit 1 was not on,

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1 you were going to be - the CT was then the
 2 critical piece for sustaining reliable
 3 operation.
 4 MR. O'BRIEN:
 5 Q. And Liberty did not find any indication this
 6 vulnerability was effectively communicated.
 7 Who would have been responsible for
 8 communicating that?
 9 MR. HENDERSON:
 10 A. Well, that would have been communicated
 11 certainly from the system - well, I'll say it
 12 should have been communicated by the system
 13 planning engineers who had done that analysis
 14 to system operations and clearly identify the
 15 vulnerability of the system, so that it was
 16 understood the full vulnerability and then
 17 that would have then enabled a full response
 18 that we would put in place, such as that we do
 19 and have done with respect to system capacity
 20 issues.
 21 MR. O'BRIEN:
 22 Q. And Mr. Humphries, would you have been aware
 23 of that vulnerability?
 24 MR. HUMPHRIES:
 25 A. I was aware the analysis was carried out with

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1 both system planning and system operations,
 2 and I was aware that if we had - if these
 3 events had happened, we would have had a
 4 customer outage. Again to the extent of
 5 taking it down to a level of customers, those
 6 discussions were not had.
 7 MR. O'BRIEN:
 8 Q. With your group?
 9 MR. HUMPHRIES:
 10 A. Of the magnitude or significance, I think the
 11 limits were identified, people were made
 12 aware, and I think individuals both within
 13 system planning and system operations
 14 understood that, but the level of
 15 communications beyond that could have been
 16 more effective.
 17 MR. O'BRIEN:
 18 Q. And in terms of your involvement, were you
 19 aware that there was a vulnerability there
 20 yourself?
 21 MR. HUMPHRIES:
 22 A. I would have known if those events had have
 23 happened, there was a vulnerability, yes.
 24 MR. O'BRIEN:
 25 Q. So you knew that?

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1 MR. HUMPHRIES:
 2 A. Yes.
 3 MR. O'BRIEN:
 4 Q. And you would have been aware that it was
 5 appropriate for systems operations to have
 6 been aware of that too?
 7 MR. HUMPHRIES:
 8 A. Yes.
 9 MR. O'BRIEN:
 10 Q. And the full extent of it?
 11 MR. HUMPHRIES:
 12 A. Yes.
 13 MR. O'BRIEN:
 14 Q. And are you satisfied that that was not the
 15 case?
 16 MR. HUMPHRIES:
 17 A. Well, I think from the perspective, it was not
 18 that - once these events started to
 19 materialize, obviously the level of
 20 communication should have been higher and the
 21 awareness should have been higher when we
 22 found ourselves in this situation that
 23 morning.
 24 MR. O'BRIEN:
 25 Q. And when you became initially aware of, I

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1 guess, the configuration which would have
 2 shown the vulnerability, what steps did you
 3 take to make Mr. Henderson aware of that?
 4 MR. HUMPHRIES:
 5 A. I think Mr. Henderson and myself and the
 6 planning people were aware of the importance
 7 of having these units back, both the Holyrood
 8 Unit and having the CT available, and I think
 9 from the perspective of when the events
 10 started to unfold through that night and
 11 morning, we were not aware of what was
 12 happening at the time.
 13 MR. O'BRIEN:
 14 Q. At the time.
 15 MR. HUMPHRIES:
 16 A. It wasn't communicated to us.
 17 MR. O'BRIEN:
 18 Q. It wasn't communicated to you?
 19 MR. HUMPHRIES:
 20 A. It wasn't communicated to me, no.
 21 MR. O'BRIEN:
 22 Q. How about you, Mr. Henderson?
 23 MR. HENDERSON:
 24 A. No, what happened, just to - I thought that
 25 evening is that I was concerned that we have

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1 Holyrood Unit 1 back and it was going to
 2 happen, so that evening I made a check to make
 3 sure that we were all on schedule to have
 4 Holyrood Unit 1 back on that evening before
 5 midnight, and that evening when I went to bed,
 6 I was told we're on track, we'll be on for
 7 midnight or thereabouts and that was good, so
 8 I - that was the last I heard until I got a
 9 call in the morning saying that we're having
 10 trouble getting the CT going.
 11 MR. O'BRIEN:
 12 Q. Okay.
 13 MR. HENDERSON:
 14 A. And at that time, what I did is I made sure
 15 that Mr. MacIsaac, because we had just come
 16 through the commissioning, to make sure that
 17 he had the right people out there to get that
 18 CT going, to find out what was going on, and
 19 then I proceeded to make additional calls, and
 20 actually from that point on, I wasn't off the
 21 phone until I got into work, you know,
 22 speaking to Newfoundland Power, speaking to
 23 others as that morning unfolded. That's sort
 24 of my time line from when I knew of the
 25 situation -

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1 MR. O'BRIEN:
 2 Q. And in terms of your understanding of, I
 3 guess, your last discussion the night before,
 4 would you have been under the understanding
 5 that if this didn't get online, there was a
 6 risk of an outage and voltage drop?
 7 MR. HENDERSON:
 8 A. I was aware that in order to get ourselves
 9 into full capacity that we needed for the
 10 morning peak, and I'll say that my thinking at
 11 that time was primarily around the system
 12 capacity requirements. It wasn't - I wasn't
 13 thinking so much on the voltage issue as I was
 14 thinking about system capacity and having that
 15 unit on along with the - to ensure that we had
 16 sufficient reserve in the morning, you know,
 17 to stay out of any alerts and to make sure
 18 that we were in good shape for the next
 19 morning. I was generally aware of the voltage
 20 issue on the Avalon. I'll say from my years
 21 of experience, I knew that the Avalon voltage
 22 was a critical point that we had to ensure
 23 that we had generators on at certain levels,
 24 but I did not appreciate, and it wasn't
 25 conveyed to me that that morning's peak was

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1 one that would get us into a voltage collapse
 2 situation.
 3 MR. O'BRIEN:
 4 Q. It wasn't conveyed to you to that extent to
 5 that point?
 6 MR. HENDERSON:
 7 A. To that extent, no.
 8 MR. O'BRIEN:
 9 Q. Okay.
 10 MR. HENDERSON:
 11 A. And the focus was obviously getting the units
 12 on, and that's where my - it was my biggest,
 13 I'll say, having the full capability and
 14 reserves that we required for the morning
 15 peak.
 16 MR. O'BRIEN:
 17 Q. And was that conveyed to you, Mr. Humphries,
 18 would you have had the same understanding as
 19 Mr. Henderson?
 20 MR. HUMPHRIES:
 21 A. Yes, same understanding.
 22 MR. O'BRIEN:
 23 Q. Same understanding, okay. I wonder if we
 24 could turn to page 5 under the analysis and
 25 conclusion. I want to ask you a few questions

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1 about some comments here. Paragraph (a), "The
 2 primary root cause operating culture". Under
 3 that first paragraph, "There are many lessons
 4 to be learned from the March 4th events, but
 5 Liberty has determined one overriding root
 6 cause; the current operating culture at Hydro,
 7 which does not appear to have changed since
 8 our review of the January, 2014, events,
 9 continues to adversely influence Hydro's
 10 decision making and contributes to operational
 11 incidents". Now we've had a number of
 12 discussions about decision making throughout
 13 the course of this hearing. I wonder is it
 14 fair to say that there have been issues,
 15 continued issues, that have adversely affected
 16 Hydro's decision making?
 17 MR. HENDERSON:
 18 A. I would say to you that there's more work to
 19 be done by us to ensure that we are fully
 20 aware of situations and that the proper alerts
 21 and communications come out of the people who
 22 know the greatest knowledge of the technical
 23 issues of the system, fully communicate the
 24 impact that those issues that could have on
 25 customers, so that we're fully informed and

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1 ready to respond if there was an issue, and
 2 have the right resources in play to deal with
 3 those issues. So there is no doubt a lot of
 4 room here for us to improve that type of focus
 5 that we should have in the company.
 6 MR. O'BRIEN:
 7 Q. And Mr. Henderson, those are fairly strong
 8 words in terms of an overriding root cause
 9 being linked to an operating culture. What do
 10 you have to say about that?
 11 (10:45 a.m.)
 12 MR. HENDERSON:
 13 A. Well, what I would say is that we have a very
 14 strong focus on reliability at Hydro. We have
 15 - our team, from everybody, I'll say, from the
 16 frontlines up are very focused on reliability,
 17 and reliability is a prime focus for us with
 18 respect to the work that we do each and every
 19 day, and our employees are committed to
 20 responding and bringing customers into service
 21 and avoiding or preventing customer outages.
 22 So to me, there's absolutely no doubt that we
 23 have a strong reliability culture, but I think
 24 there is certainly room to improve, so I want
 25 to emphasize to everyone here that Hydro and

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1 its team of dedicated people from lineworkers,
 2 electricians, P & C technologists, they are
 3 all absolutely committed to reliable service
 4 to our customers, but there are definite areas
 5 for us to improve, to be more aware of
 6 situations that can evolve so that we are in
 7 the best position to respond. We've made
 8 changes since January 2014. There's a number
 9 of things that we've done since then, and I
 10 think being aware of system capacity issues
 11 and risks are much more prevalent. There's
 12 daily discussions, we meet every morning
 13 looking at system capacity requirements,
 14 looking out seven days. This is a change that
 15 we implemented since January 2014 to ensure
 16 that there's full visibility of the urgency of
 17 different work that we're doing. There's been
 18 those types of changes. Since March 4th, we
 19 had a system peak that occurred, I'm going to
 20 say, somewhere around the 13th of March, and
 21 at that time we were - as a group, we were
 22 fully on top of the issue with a lot of
 23 communications people there just to ensure
 24 that everybody from - I'll say everybody
 25 working that day were fully aware of the

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1 situation and making sure that we're in the
 2 best position to respond to prevent any issues
 3 should they arise on that day of the peak. So
 4 we recognize the improvement that's required,
 5 agree with Liberty that improvement is
 6 required, and we're committed to doing that.
 7 MR. O'BRIEN:
 8 Q. Mr. Henderson, on March 4th, based on your
 9 testimony just a few minutes ago, and Mr.
 10 Humphries, I understood that neither or nor
 11 Mr. Humphries were aware of the significance
 12 of what could occur if this Unit 1 never got
 13 back up in time. Is that fair to say?
 14 MR. HENDERSON:
 15 A. That's fair to say that we were not aware of
 16 the significance that that could have that
 17 morning.
 18 MR. O'BRIEN:
 19 Q. Okay, and Mr. Martin in his testimony, and I
 20 want to ask you about this, Mr. Martin in his
 21 testimony talked about the importance of
 22 leadership and I asked him a question about
 23 whether leadership was important in a
 24 regulated utility and he said, "Leadership is
 25 important anywhere". That was his comments,

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1 and in general, it's important. I wonder
 2 whether or not you can comment on whether or
 3 not there was some oversight - there's still
 4 some issues with oversight in the operations
 5 department now. If you are not aware before
 6 you go to bed that night of the significance
 7 of what occurred, Mr. Humphries is not aware
 8 of the significance, is there an oversight or
 9 a leadership issue there?
 10 MR. HENDERSON:
 11 A. Well, I would say that I certainly needed to
 12 ask more questions that night to understand
 13 where we were. I should not have, in my view,
 14 accepted that everything would have happened
 15 and it was not clearly communicated back to
 16 the people at Holyrood that I need to know if
 17 anything is going off plan for that morning.
 18 There is also in terms of for me is asking the
 19 questions that I fully understand and it's
 20 clear to people that they need to inform, and
 21 that's my responsibility to ensure that people
 22 do know that they have that full
 23 accountability and responsibility to advise if
 24 there's vulnerabilities in the system where
 25 customer service can be impacted.

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1 MR. O'BRIEN:
 2 Q. Okay, I wonder if we could stay on this page
 3 here, and the next paragraph, I want to talk
 4 you about this, "Liberty developed concerns
 5 about Hydro's operating culture early in its
 6 reviews of the January 2014 events. Initial
 7 conversations with Hydro personnel disclosed
 8 that Hydro did not view the need to shed load
 9 during the supply shortage as a particularly
 10 unusual event. Operators felt that they
 11 remained in sufficient control of the system
 12 and did not declare an emergency. Liberty's
 13 experience indicates the need to resort to
 14 rotating outages to compromise an exceedingly
 15 rare once in a career event. Many system
 16 operators never experience it. Further, when
 17 events begin to require special measures,
 18 caution dictates concern and a special
 19 preparedness for identifying contingencies
 20 that might take major sectors off or even the
 21 whole system down. Hydro's approach does not
 22 sufficiently consider such possibilities
 23 because the ability to shed even more load
 24 remains as the primary response". I want to
 25 ask you, and my question is really two parts;

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1 is Hydro's position at this stage that its
 2 customers should accept rotating outages and
 3 load shedding as part of Hydro's standard
 4 operating or planning practice; if so, can you
 5 tell me what other jurisdictions or utilities
 6 have that practice?
 7 MR. HENDERSON:
 8 A. I would say to you that that is not Hydro's
 9 practice, that is not Hydro's manner of
 10 operating. Having rotating outages is an
 11 exceptional event, one that I would never
 12 expect to have in my lifetime in my career.
 13 That type of thing was extremely unusual, and
 14 something that should - if you have it once,
 15 that should be the end of it. I agree with
 16 the rarity of it, and I disagree that that's
 17 something that we accept as being a normal
 18 practice. I think back in terms of the
 19 conversations that I had with Liberty at the
 20 start of the review, I think it came about
 21 from the under frequency load shedding which
 22 we experienced on our system, which is very
 23 unusual in the context of the greater North
 24 American grid, and that was something that we
 25 have accepted on our system. What we do is we

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1 work constantly and there's guidelines given
 2 to our operators to always maintain sufficient
 3 reserves to minimize the impact of an under
 4 frequency event, but the reality is operating
 5 an island system, you do have under frequency
 6 events and that's something that once we get
 7 interconnected, we look forward to that being
 8 something that would be a very rare event, but
 9 under frequency is something that every system
 10 has. It is used as a last ditch item to
 11 ensure that you save the system, if you like,
 12 don't cause a broader impact. So from that
 13 perspective, that would have been very
 14 unusual, I would agree, from Liberty's
 15 experience, and it's something that, I think,
 16 brought that conversation - because that
 17 conversation I had was around under frequency
 18 and that, but with respect to rotating
 19 outages, rotating outages is something that
 20 you avoid and you always do whatever you can
 21 to avoid that, and it's always been a focus
 22 and will continue to be a focus, but rotating
 23 outages is something that can happen if you
 24 get into very extreme unusual circumstances.
 25 What we had happen in January, 2014, should be

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1 an extreme circumstance that we should not see
 2 again.
 3 MR. O'BRIEN:
 4 Q. How about the load shedding we saw in March of
 5 2015?
 6 MR. HENDERSON:
 7 A. So what happened in March, 2014, that one
 8 again from that standpoint, it was an event
 9 that the call was made to have rotating
 10 outages because we had lost so much generation
 11 on the Avalon, which was again an unusual
 12 circumstance from the standpoint that we got
 13 into a situation that, I'll say, we could have
 14 been much better prepared for, much more
 15 knowledgeable about, but once we got into the
 16 situation where you had so much happening, we
 17 had no choice that morning, but that's
 18 something that, I'll say, very much never want
 19 to see again.
 20 MR. O'BRIEN:
 21 Q. And in the context of - if we look back at
 22 planning for the purchase of the CT and the
 23 black start issue, we had a number of years
 24 there where you saw capacity issues creeping
 25 up on you, and do you see any concern there as

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1 being similar to having rotating outages, load
 2 shedding, and there being an operating culture
 3 at Hydro that outages are okay?
 4 MR. HENDERSON:
 5 A. Outages are not okay, and I don't think
 6 anybody is saying that we are saying outages
 7 are okay. I think what we're saying is the
 8 degree in which - of level of risk, if you
 9 like, in our system by the planning thresholds
 10 that we have established, the planning
 11 criteria we have, those by their very nature,
 12 there's no - in order to be a situation where
 13 you can have no outages, you have to add
 14 additional equipment to the system which comes
 15 at a cost, and what we have been doing over
 16 the years is establishing when to put in
 17 equipment, when our criteria - established
 18 planning criteria says when to do it. That's
 19 what we've been doing and that has been
 20 accepted within our jurisdiction as those are
 21 the planning criteria that we apply and we put
 22 in equipment when we get to the point that the
 23 criteria says you should have it, and it's
 24 done with - I'll say it has to be done with a
 25 level of urgency and making sure that you

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1 cover off risk and get those things in on
 2 time, and that's the manner in which our
 3 system has been operated. We can move the bar
 4 to a new level of having more reserve, having
 5 greater redundancy, and all those things, and
 6 we'd welcome that further discussion if that's
 7 where our customers would like to have those
 8 levels and improve them, we're for that, but
 9 we've been planning and using the guidelines
 10 that have been established and followed for
 11 many years for operating our system, and
 12 that's - to say that that's the ultimate,
 13 that's the best, we can always get better and
 14 we're certainly open to any discussions with
 15 our customers to look at what we might do to
 16 further improve, recognizing that there's a
 17 cost related to additional reliability
 18 improvements.
 19 MR. O'BRIEN:
 20 Q. And the last question I had, just in terms of
 21 leadership, we looked at the preventative
 22 maintenance piece over the last number of
 23 years and specifically, I guess, with respect
 24 to the transformers and the breakers, and for
 25 Mr. Moore testimony, it appeared to me that

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1 this catch-up program was something that was
 2 designed by a regional manager, it was
 3 something that had no direction from Mr.
 4 Haynes, and even from Mr. Moore's testimony
 5 there didn't seem to be an indication that Mr.
 6 Haynes was given an annual number as to where
 7 they were with their catch-up phase. Was
 8 there a leadership concern for you with
 9 respect to that maintenance piece, looking
 10 back on it now? To you, Mr. Henderson, yes.
 11 MR. HENDERSON:
 12 A. Oh, I'm sorry, you prefaced it with Mr. Moore,
 13 and I wasn't -
 14 MR. O'BRIEN:
 15 Q. I know, I'm sorry.
 16 MR. HENDERSON:
 17 A. Absolutely, there was -
 18 MR. O'BRIEN:
 19 Q. There's an oversight issue with that point,
 20 isn't there?
 21 MR. HENDERSON:
 22 A. There is an issue there of, I'll say, the
 23 operations folks making sure when they're
 24 aware of a situation, ensuring that anything
 25 that has that kind of reliability impact is

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1 well conveyed through the ranks to ensure that
 2 it has the right visibility. So each person
 3 in the company has a responsibility to ensure
 4 that, so communicating that, and that's
 5 precisely why we, I'll say, put in changes in
 6 terms of the level of monitoring that we do is
 7 to ensure that it has high visibility in terms
 8 of where we are in tracking our annual
 9 maintenance, and so it's -
 10 MR. O'BRIEN:
 11 Q. It goes up to the CEO now.
 12 MR. HENDERSON:
 13 A. It goes up to the CEO, and it's something that
 14 I have regular discussions on that progress
 15 because certainly it was a surprise in the
 16 sense that we were having as much difficulty
 17 in completing it, and once it was made aware,
 18 we made adjustments in our budgets and in our
 19 processes to ensure that we got that type of
 20 oversight going on.
 21 MR. O'BRIEN:
 22 Q. Okay, I have no further questions, Mr. Chair.
 23 (11:00 a.m.)
 24 CHAIRMAN:
 25 Q. Okay, we will break.

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1 (RECESS)
 2 (11:37 a.m.)
 3 CHAIRMAN:
 4 Q. Okay, we are back to continue.
 5 JOHNSON, Q.C.:
 6 Q. Thank you, Mr. Chairman, panellists, good
 7 morning.
 8 MR. HENDERSON:
 9 A. Good morning.
 10 MR. HUMPHRIES:
 11 A. Good morning.
 12 MR. LEDREW:
 13 A. Good morning.
 14 MR. MOORE:
 15 A. Good morning.
 16 CROSS-EXAMINATION BY JOHNSON, Q.C.:
 17 JOHNSON, Q.C.:
 18 Q. I'm going to start off on the black start
 19 issue, and we've heard that essentially black
 20 start capability was established at Holyrood
 21 essentially from day one, would that be
 22 correct, when that facility got commissioned
 23 and underway?
 24 MR. HENDERSON:
 25 A. I don't know exactly when it went in, but I

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1 would expect that it went in when the plant
 2 went in, but I'm not sure.
 3 JOHNSON, Q.C.:
 4 Q. Yeah, early days?
 5 MR. HENDERSON:
 6 A. Early days.
 7 MR. LEDREW:
 8 A. Oh, yes, early days, yeah, in the 70s.
 9 JOHNSON, Q.C.:
 10 Q. And then we had it from those early, early
 11 days all the way up to March of 2010 when all
 12 of a sudden, or I won't prejudge it, but we've
 13 got a stop work order in March of 2010, is
 14 that right?
 15 MR. LEDREW:
 16 A. That's correct, yeah.
 17 JOHNSON, Q.C.:
 18 Q. And then as we've seen in the time line that
 19 Ms. Greene brought us through that was in the
 20 Liberty Report, it was under a stop work order
 21 from March, 2010, to February of 2011, when
 22 that gas turbine was ok'd for emergency use
 23 only, right?
 24 MR. LEDREW:
 25 A. Correct.

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1 JOHNSON, Q.C.:
 2 Q. And then it became unavailable again January
 3 of 2012, is that right?
 4 MR. LEDREW:
 5 A. That's correct, yeah.
 6 JOHNSON, Q.C.:
 7 Q. And we've heard, and I guess you've confirmed,
 8 that the lack of Holyrood onsite black start
 9 capability actually, in fact, extended a power
 10 outage to a very significant number of
 11 customers by 11 hours by Hydro's calculations
 12 in January of 2013, that's correct?
 13 MR. LEDREW:
 14 A. That's correct as well, yes.
 15 JOHNSON, Q.C.:
 16 Q. And so this would have been in the height of
 17 winter in January, and in terms of the number
 18 of customers that were impacted by this, it's
 19 probably on the record, but do you know the
 20 number?
 21 MR. HENDERSON:
 22 A. I don't know the number. I can say that it
 23 was a significant number of customers, I can
 24 say that much, but I did go looking for it in
 25 the record and couldn't find it, and I asked

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1 some people and they did not have the numbers,
 2 they'd have to go to Newfoundland Power to get
 3 the numbers.
 4 JOHNSON, Q.C.:
 5 Q. Perhaps you could undertake to provide the
 6 numbers of customers who were impacted by
 7 that, is that okay?
 8 MR. HENDERSON:
 9 A. Sure.
 10 MS. GLYNN:
 11 Q. Noted on the record.
 12 JOHNSON, Q.C.:
 13 Q. Thank you. Now going back to this stop work
 14 order in March of 2010, who issued the stop
 15 work order?
 16 MR. LEDREW:
 17 A. It would be Provincial Department of
 18 Occupational Health and Safety.
 19 JOHNSON, Q.C.:
 20 Q. And how did they get involved to the point
 21 where they're issuing a stop work order?
 22 MR. LEDREW:
 23 A. Well, at the time we had oil leaks coming out
 24 of the gear box assembly on the unit and it
 25 was causing a smouldering condition on the

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1 back end when we would operate the machine.
 2 JOHNSON, Q.C.:
 3 Q. And how did it get to the point where
 4 Occupational Health and Safety became involved
 5 with that issue?
 6 MR. LEDREW:
 7 A. Well, we met with our local OHS Committee and
 8 went through the explanation of what we
 9 believed to be occurring with the machine and
 10 the various organizations we had in to try to
 11 alleviate it, but we could not successfully
 12 eliminate the - we could reduce it, but we
 13 couldn't eliminate the leakage that was
 14 occurring.
 15 JOHNSON, Q.C.:
 16 Q. So this is a worker committee at the Holyrood
 17 plant that's on this OHS Committee?
 18 MR. LEDREW:
 19 A. It's a cross-functional representation from
 20 the workers and the employer as well.
 21 JOHNSON, Q.C.:
 22 Q. So Mr. LeDrew, you would have been on that
 23 committee as the plant manager, I take it?
 24 MR. LEDREW:
 25 A. Yes, but I would be - I was a member on that

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1 committee, yes.
 2 JOHNSON, Q.C.:
 3 Q. And so for what period of time leading up to
 4 the stop work order of March, 2010, were these
 5 issues being brought forward for management?
 6 MR. LEDREW:
 7 A. We were going through a number of iterations
 8 and had brought in other third parties to
 9 assist us to diagnose the problem, and our own
 10 staff were working on trying to reduce the
 11 amount of leakage that was occurring there.
 12 JOHNSON, Q.C.:
 13 Q. But for what period of time had this been
 14 worked on?
 15 MR. LEDREW:
 16 A. Oh, I'd be guessing now. It would have to be
 17 - it would be a number of months, I'm quite
 18 sure.
 19 JOHNSON, Q.C.:
 20 Q. Would it have extended back into 2009, for
 21 instance?
 22 MR. LEDREW:
 23 A. No, I don't think.
 24 JOHNSON, Q.C.:
 25 Q. And so then was there a self-report to

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1 Occupational Health and Safety, the regulator,
 2 is that how it worked?
 3 MR. LEDREW:
 4 A. No. Well, in the main when you're trying to
 5 repair a piece of equipment, you're trying to
 6 repair it to put it back to a position that
 7 we've corrected the defect. We were unable to
 8 correct the defect through our own efforts and
 9 then we brought in external agencies to assist
 10 us, but we still were unable to correct the
 11 defect 100 percent, so the employees were
 12 expecting us to have it fully resolved and
 13 that turned out to be a much larger repair.
 14 JOHNSON, Q.C.:
 15 Q. Yes, so did the employees make a complaint to
 16 Occupational Health and Safety?
 17 MR. LEDREW:
 18 A. Well, there's two avenues. I mean, you can
 19 raise a concern to your committee member if an
 20 employee has a concern, so you can raise the
 21 concern with his co-worker who is a
 22 representative on the committee, and ask for
 23 resolve to the issue, or at any time you can
 24 call an outside inspector to come to the site
 25 and to do an impartial investigation.

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1 JOHNSON, Q.C.:
 2 Q. So in this particular circumstance, what
 3 happened, how did the OHS regulator come and
 4 get involved?
 5 MR. LEDREW:
 6 A. And I don't know if I can answer that because
 7 it's not a requirement for the inspector to
 8 tell me how they arrived on site, so they can
 9 show up at any time, called in or just wanting
 10 to do an ad hoc inspection, so I really don't
 11 have an answer for that.
 12 JOHNSON, Q.C.:
 13 Q. But do you know if you called them in?
 14 MR. LEDREW:
 15 A. No, I did not.
 16 JOHNSON, Q.C.:
 17 Q. And do you know if your management people at
 18 Holyrood facility called them in?
 19 MR. LEDREW:
 20 A. I would be doubtful that that would have
 21 occurred.
 22 JOHNSON, Q.C.:
 23 Q. And so, I take it, that it's likely that there
 24 was someone on staff, one of the employees,
 25 reached out, whether a member of the

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1 Occupational Health and Safety Committee, or
 2 another reached out to the Occupational Health
 3 and Safety regulator?
 4 MR. LEDREW:
 5 A. That or an ad hoc inspection as well.
 6 JOHNSON, Q.C.:
 7 Q. And, I take it, that the workers were actually
 8 concerned about safety issues, that's why it
 9 was brought to the table?
 10 MR. LEDREW:
 11 A. Yes, well, the concern was the smouldering
 12 that was occurring when we were running the
 13 unit and it would get worse as the unit was
 14 ran for an extended period of time, and we had
 15 done steps and trying to repair, as well as
 16 put emergency response techs on call and
 17 actually dispatched. So there was a number of
 18 corrective measures put in place to try to
 19 alleviate those concerns.
 20 JOHNSON, Q.C.:
 21 Q. When the stop work order came down, did Hydro
 22 have or you folks at Holyrood, management, did
 23 you have advance notice of the stop work order
 24 coming?
 25 (11:45 a.m.)

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1 MR. LEDREW:
 2 A. No, we would be - typically, they would come
 3 to site, do an investigation, speak to
 4 affected parties, and then normally come back
 5 and deliver - if it was a stop work order or a
 6 change request, they would normally hand
 7 deliver it to the more senior person at site
 8 on that day.
 9 JOHNSON, Q.C.:
 10 Q. And so what had transpired then in terms of
 11 them issuing that stop work order, had they
 12 come on site, did an inspection and then go
 13 back and come back with a letter, is that how
 14 it worked?
 15 MR. LEDREW:
 16 A. Yes, that's what happened, yeah.
 17 JOHNSON, Q.C.:
 18 Q. Okay, all right. Had this regulator issued
 19 stop work orders at Holyrood before?
 20 MR. LEDREW:
 21 A. Yes, there's been issues over the years in my
 22 tenure there managing the plant, there was
 23 occasions on various issues where those things
 24 would happen, yes.
 25 JOHNSON, Q.C.:

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1 Q. Actually issue stop work orders?
 2 MR. LEDREW:
 3 A. There would be - well, it would be requesting
 4 - normally the activity that was causing the
 5 concern would be asked to be ceased. Other
 6 activities would continue, but that job would
 7 not proceed until various steps were put in
 8 place that was to the satisfaction of the
 9 department.
 10 JOHNSON, Q.C.:
 11 Q. So would it be true to say that these stop
 12 work orders, that would be a very rare event?
 13 MR. LEDREW:
 14 A. Oh, yes, I would - probably four or five in my
 15 20 something years there.
 16 JOHNSON, Q.C.:
 17 Q. And then that stop work order, as we've heard,
 18 stayed in place for nearly a year up to, I
 19 think, February, 2011?
 20 MR. LEDREW:
 21 A. Correct, yeah.
 22 JOHNSON, Q.C.:
 23 Q. And then the AMEC Report, if we could turn to
 24 PR-PUB-002, and in particular - is there an
 25 attachment to this? Yes, Page III, up at the

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1 top. This report was issued in December 19th,
 2 2011, and as we see it says up at the top
 3 there, "The existing GT generator should not
 4 be operated, started, operated, shutdown,
 5 except in an emergency situation, and in such
 6 emergency its operation should be", and I
 7 guess it should say, "should be observed
 8 remotely to ensure personnel safety. Fire
 9 from lube oil system gear box seals remains a
 10 possible safety issue. Catastrophic failure
 11 of the power turbine is a possibility". So
 12 even then when it got re-instituted and the
 13 Occupational Health and Safety regulator,
 14 basically they were saying you can do it only
 15 in emergencies, but you can't really test it
 16 and when you start it, stand back, is that
 17 pretty much it?
 18 MR. LEDREW:
 19 A. Yes, we wouldn't dispatch - you can start that
 20 gas turbine from the main control room in the
 21 power house, but our practice was to have an
 22 operator go out into the control room attached
 23 to the gas turbine itself, so this practice
 24 here now had us step back from the gas turbine
 25 itself and start from the main power house.

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1 JOHNSON, Q.C.:

2 Q. Okay, and so would you clear the yard and

3 stuff like this when this was going on, or how

4 would that work?

5 MR. LEDREW:

6 A. Well, it's a separate building from the main

7 power house, if you've been to the site, so

8 it's - we would have our emergency response

9 techs outside the facility during that period

10 of time when this condition was known.

11 JOHNSON, Q.C.:

12 Q. So that was a contingency that was put in

13 place under the authority and say so of

14 Occupational Health and Safety?

15 MR. LEDREW:

16 A. Yes, with the strength of that recommendation

17 from AMEC that only in a very emergency

18 situation we would run it, and that was

19 generally thought to be a black start, not for

20 a peaking purpose.

21 JOHNSON, Q.C.:

22 Q. I understand. So with this limitation that it

23 should not be operated, started, operated,

24 shutdown, except in emergency situation, were

25 you allowed to still nevertheless test it for

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1 black start purposes?

2 MR. LEDREW:

3 A. No, we wouldn't test it. We'd only - at that

4 point, it would only be operated if we

5 actually required it for a black start.

6 JOHNSON, Q.C.:

7 Q. So that would be a departure then from the way

8 that that gas turbine unit would have been

9 open for testing, say, prior to the stop work

10 order, you would have been able to test it,

11 etc?

12 MR. LEDREW:

13 A. Correct, earlier in the process we were using

14 it for both black start and peaking, and as

15 the condition got known, that the availability

16 of the machine was changing.

17 JOHNSON, Q.C.:

18 Q. Did you - have you ever seen in your years at

19 Holyrood that type of limit put on equipment

20 at the facility whereby, you know, it's a very

21 carefully subscribed as to how you got to

22 handle that piece of equipment in terms of

23 only use it during emergencies, don't have

24 anybody around?

25 MR. LEDREW:

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1 A. There are - our work permit system allows or

2 provides for advisories on equipment and when

3 you're starting equipment that has a known

4 condition, so that happens on occasion, but I

5 can't say it never happens, but it does happen

6 on occasion where we would have somebody

7 validate or verify the piece of equipment

8 before you went ahead to start it.

9 JOHNSON, Q.C.:

10 Q. How did this gas turbine reach the point that

11 you could only start it under these very

12 carefully circumscribed conditions?

13 MR. LEDREW:

14 A. Well, the primary concern we were chasing was

15 the presence of leaks coming out of the gear

16 box, out of both ends of the gear box, and

17 that was finding its way into hot surfaces

18 that was smouldering the combustible product,

19 so we were endeavouring to try to find a

20 repair to the sealed arrangement on a gear

21 box.

22 JOHNSON, Q.C.:

23 Q. Was this unit receiving regular preventative

24 maintenance over the years?

25 MR. LEDREW:

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1 A. Yes, I think we filed in a previous RFI all

2 the maintenance interventions that had

3 happened over the years and the most recent

4 history.

5 JOHNSON, Q.C.:

6 Q. But despite all the preventative maintenance,

7 it arrived at that sort of sorry state?

8 MR. LEDREW:

9 A. Yes, the gear box itself was a very expensive

10 and a difficult piece of equipment to remove.

11 The building wasn't designed to take it out

12 easily, so it meant dismantling the building

13 to get the piece out, it had to be shipped to

14 the US, and we were endeavouring to try to

15 find a repair that was simpler to solve it.

16 JOHNSON, Q.C.:

17 Q. If I could go to page I of that AMEC report

18 for a second. Scroll down a few more inches if

19 you would, please. There you go, the

20 assessment basis, and it indicates under

21 assessment basis in the executive summary of

22 AMEC, "A black start installation of 10

23 megawatts is required at the Holyrood thermal

24 generating station site to ensure the

25 capability of the Holyrood units to quickly

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1 return to service in the event of a major
 2 system failure", and Paragraph 2, "The black
 3 start capability must be maintained during any
 4 refurbishment or replacement. This
 5 particularly impacts the existing GTG
 6 refurbishment option since refurbishment of
 7 the existing unit may take an outage of
 8 months, during which another standby
 9 generation unit may be needed and its cost
 10 borne by the project", and then it goes on to
 11 talk about for the existing unit, the least
 12 cost, etc., and, I guess, these are actual
 13 statements of AMEC's observations, would that
 14 be correct?
 15 MR. LEDREW:
 16 A. Yes, that's their words, yeah.
 17 JOHNSON, Q.C.:
 18 Q. And these clearly appear to me to state that
 19 black start capability needs to be at the
 20 site, according to this assessment basis,
 21 would that be fair?
 22 MR. LEDREW:
 23 A. That's correct.
 24 JOHNSON, Q.C.:
 25 Q. And you're aware, I take it, that Liberty's

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1 reply evidence says that, "The decision to
 2 rely on the Hardwood CT as the black start
 3 resource was "plainly wrong". In other words,
 4 they're saying this is not even - this is not
 5 a close case, this is plainly wrong, and it
 6 would be your understanding that this is not
 7 something that's being judged in hindsight,
 8 right, this is saying, look, knowing what you
 9 knew about how black start is supposed to
 10 operate, it's not negotiable, it's got to be
 11 at Holyrood, is that right?
 12 MR. LEDREW:
 13 A. Well, you know, AMEC were brought in to look
 14 at the condition of the existing unit and it
 15 was their understanding - we did not ask AMEC
 16 to look at other potential options for black
 17 start other than looking at this unit and what
 18 we can do to restore it here at this site, so
 19 they didn't spend any time in that space to
 20 look at are there other black start models out
 21 there that we could entertain. That wasn't
 22 part of their scope of work.
 23 JOHNSON, Q.C.:
 24 Q. But they clearly say that a black start
 25 installation is required at the Holyrood

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1 thermal generating station site, right?
 2 MR. LEDREW:
 3 A. That's correct, yes.
 4 MR. HENDERSON:
 5 A. I would suggest that that's because we told
 6 them that what we require here is to have it
 7 at that site. That's part of what we would
 8 have given them in our direction to do this
 9 study is to establish black start capability
 10 at the site, so they were not asked - and it
 11 was no option given to them to say do it
 12 somewhere else, it was have it at the site and
 13 that's the manner in which the assessment was
 14 done.
 15 JOHNSON, Q.C.:
 16 Q. But would it be true to say that Holyrood
 17 during this period when there was reliance on
 18 Hardwoods, that Holyrood did not have the
 19 benefit of a black start resource or have
 20 black start capability when judged against
 21 standard definitions of black start, wouldn't
 22 that be true?
 23 MR. HENDERSON:
 24 A. We did not have black start at Holyrood, and
 25 that's - I agree that we did not have black

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1 start at Holyrood, but we did have an ability
 2 to and made sure we had an ability to start
 3 the Holyrood plant if we had a sustained
 4 transmission problem for the Avalon region so
 5 that we could get that plant up and running to
 6 supply customers in the Avalon region.
 7 JOHNSON, Q.C.:
 8 Q. But you didn't have black start at Holyrood,
 9 but you required black start at Holyrood, I
 10 put to you, would that be correct?
 11 MR. HENDERSON:
 12 A. Our intention was to have black start at
 13 Holyrood established, but we looked at an
 14 interim solution when we had this equipment
 15 problem, knowing that we had a combustion
 16 turbine coming - I think I went through this
 17 the other day, knowing that we had a
 18 combustion turbine coming, we looked at this
 19 and said that the least cost option was to go
 20 with bringing in the new CT and including with
 21 the new CT - putting it at the Holyrood site
 22 and including black start capability. So that
 23 was our intention was to reestablish black
 24 start capability at Holyrood with the new CT.
 25 We looked at it as an interim solution to have

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1 Hardwoods bridge the period of time to when
 2 the new CT was in. I think that's clear from
 3 our statements the other day.
 4 JOHNSON, Q.C.:
 5 Q. Well, while you're looking at interim
 6 solutions, as you call them, why didn't you
 7 look at the interim solution of putting some
 8 diesel units at Holyrood for black start?
 9 MR. LEDREW:
 10 A. The options that AMEC had put forward included
 11 a 10 megawatt diesel option, five 2 megawatt
 12 diesels, and at the time that was part of the
 13 consideration, and the consideration was that
 14 the - was the result of using Hardwoods as the
 15 bridge to when the new CT comes in.
 16 JOHNSON, Q.C.:
 17 Q. So using Hardwoods as the bridge, does that
 18 match up with how black start is actually
 19 supposed to work when you look at accepted
 20 definitions of black start? In this regard,
 21 could I turn you to page 54 of the Liberty
 22 Report. Liberty starts off at the top of page
 23 54 saying, "Liberty found troubling the shift
 24 in definition of black start. Consider the
 25 North American Electric Reliability

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1 Corporation's definition of a black start
 2 resource, a generating unit or units and its
 3 associated set of equipment which has the
 4 ability to be started with", and they have
 5 underlined, "without support from the system",
 6 and then they go on to say, "The North Eastern
 7 Power Coordinating Council defines black start
 8 capability as the ability of a generating unit
 9 or station to go from a shutdown condition to
 10 an operating condition and start delivering
 11 power", and again emphasis added on these
 12 words, "without assistance from the electric
 13 system". So how do we square up using
 14 Hardwoods, even if it's interim, with meeting
 15 what's understood to be required for a black
 16 start resource?
 17 MR. LEDREW:
 18 A. I can repeat what I already said.
 19 JOHNSON, Q.C.:
 20 Q. It doesn't add up, it doesn't square.
 21 MR. LEDREW:
 22 A. No, what I'm saying is, is that what we had in
 23 place was the ability to restore customers on
 24 the Avalon Peninsula using Hardwoods and
 25 Holyrood as the interim measure until a new CT

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1 came in play. The AMEC report indicated that
 2 we could have other options in there in place
 3 in the spring, late winter, of 2013, and the
 4 decision made at that time was not to go with
 5 that solution, it was to go with one, which
 6 was to have Hardwoods bridge to 2015 and put
 7 in the new CT. Put the new CT in in 2015 to
 8 provide that onsite black start capability,
 9 which would fit this precise definition, but
 10 what we had done was looking at an interim
 11 solution. Given the fact that we had a
 12 facility that no longer could do the role, we
 13 looked at what are our options. The option
 14 was there to use Hardwoods, not giving the
 15 exact same capability of having an onsite one,
 16 I think we've been clear that we know that
 17 that's not the case, it didn't get the same
 18 ability, but it did provide a mechanism to
 19 deal with the types of situations that we had
 20 experienced which was sustained long term
 21 outages to the transmission system and being
 22 able to restore customer service. That was -
 23 you know, I don't think I can be any clearer.
 24 I think that that's what the case was the case
 25 here, we used Hardwoods in that manner to

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1 bridge that period of time until the new CT
 2 came in, and had it reestablish black start
 3 capability at Holyrood.
 4 JOHNSON, Q.C.:
 5 Q. Okay, so what you guys - I'm sorry, what you
 6 gentlemen settled on is a solution that, in
 7 fact, contrary to these definitions would have
 8 required support from the system, or would
 9 have required assistance from the electric
 10 system in terms of lines coming out from
 11 Hardwoods?
 12 MR. HENDERSON:
 13 A. I understand that, and -
 14 JOHNSON, Q.C.:
 15 Q. Right.
 16 MR. HENDERSON:
 17 A. What I'm saying - I'm saying we did not have
 18 it at the site, and I think that's clear, and
 19 we had intended to get it back at the site in
 20 2015.
 21 JOHNSON, Q.C.:
 22 Q. So in your judgment, good utility practice
 23 would have permitted you on an interim basis
 24 to depart from accepted definitions of a black
 25 start resource?

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1 MR. HENDERSON:
 2 A. We're not saying anything about the definition
 3 of black start. We made the decision that we
 4 would not have local black start at Holyrood
 5 for an interim basis until we had the new CT
 6 in place at Holyrood, and we were using
 7 Hardwoods as the interim solution to be able
 8 to restore the customers in the Avalon area
 9 for a sustained transmission outage.
 10 JOHNSON, Q.C.:
 11 Q. The discussion of crews that we've been
 12 having, just to put some meat around it for a
 13 few minutes, and I'm speaking now of the crews
 14 who were responsible for maintaining the 105
 15 power transformers that we've been discussing,
 16 and the 60 odd air blast circuit breakers, and
 17 I take it there's four crews; there's one in
 18 Whitbourne, there's one in Bishop Falls,
 19 there's one in Stephenville, and there's one
 20 in St. Anthony?
 21 MR. HENDERSON:
 22 A. It's in Port Saunders, but it's -
 23 JOHNSON, Q.C.:
 24 Q. Port Saunders for the Northern Peninsula, that
 25 would make sense. How many power transformers

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1 would come under each crew in terms of
 2 responsibility for power transformers?
 3 MR. MOORE:
 4 A. Without going to the list, I guess, that we
 5 talked about there yesterday that we reviewed,
 6 I think there's a fairly equal allotment among
 7 the four crews.
 8 JOHNSON, Q.C.:
 9 Q. Okay, perhaps you could file that as an
 10 undertaking and I'd ask you, if you could, to
 11 file the same data as regards responsibility
 12 for air blast circuit breakers. Would that be
 13 possible?
 14 MR. MOORE:
 15 A. Yes, we could do that. We could define which
 16 air blast circuit breakers and which power
 17 transformers are assigned to which crews.
 18 JOHNSON, Q.C.:
 19 Q. Yeah, and show the numbers that each crew has.
 20 MR. MOORE:
 21 A. Yes, we can do that.
 22 JOHNSON, Q.C.:
 23 Q. Thank you.
 24 MS. GLYNN:
 25 A. Noted on the record.

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1 JOHNSON, Q.C.:
 2 Q. Thank you, and how many individuals work on
 3 one of these crews?
 4 MR. MOORE:
 5 A. A typical crew, if I refer to, say, the Bishop
 6 Falls crew, normally you would have a
 7 frontline supervisor who's responsible for the
 8 electrical and mechanical crew, and that
 9 normally would be, I'll say, four
 10 journey person electricians, industrial
 11 electricians. There would be one, maybe two,
 12 what we call terminal maintenance "A", and
 13 they are responsible for operating some of the
 14 heavy equipment and assisting with the
 15 journey persons. There may be one person with
 16 mechanical maintenance, say, journey person
 17 mechanic, and we would also have protection
 18 and control technologists in each area. So in
 19 Bishop Falls right now there's three to four
 20 protection control technologists, for example.
 21 JOHNSON, Q.C.:
 22 Q. Okay, so we'd be talking seven in total, plus
 23 the supervisor?
 24 MR. MOORE:
 25 A. That would be about right as an estimate.

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1 JOHNSON, Q.C.:
 2 Q. And would each of the crews, no matter where
 3 they are around the island, would they have
 4 the same complement?
 5 MR. MOORE:
 6 A. Very close.
 7 JOHNSON, Q.C.:
 8 Q. So in that vicinity, okay, and when they're
 9 carrying out, for instance, this preventative
 10 maintenance, they're going as a unit, as a
 11 complete crew, right?
 12 MR. MOORE:
 13 A. Depending on the work order that they're
 14 assigned, some jobs require more person hours,
 15 shall we say, to complete than others. So
 16 depending on the job they're doing, there may
 17 be - the crew may be broke up and doing
 18 several different jobs in any given day, so it
 19 depends on the size and complexity of the job.
 20 JOHNSON, Q.C.:
 21 Q. Okay, so how about typically if they were
 22 going to do a six year planned preventative
 23 maintenance on a transformer, would they
 24 typically have the full crew complement for
 25 that?

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1 MR. MOORE:
 2 A. You normally wouldn't need the full crew to do
 3 the six year PM on a power transformer.
 4 JOHNSON, Q.C.:
 5 Q. No?
 6 MR. MOORE:
 7 A. I can go look at the exact work order and get
 8 the exact details, but as a very close
 9 estimate, typically for a power transformer
 10 you would have two protection and control
 11 technologists, and two to three electricians,
 12 and the terminal maintenance "A" as I
 13 mentioned, which is the person who would
 14 operate, say, the truck and assist with the
 15 journeypersons to do that job. So you
 16 wouldn't need necessarily the full allotment
 17 or crew from that shop to do one transformer.
 18 JOHNSON, Q.C.:
 19 Q. And how about in relation to the six year
 20 planned maintenance - preventative maintenance
 21 on the air blast circuit breakers, the same?
 22 MR. MOORE:
 23 A. That would be roughly about the same size of a
 24 crew.
 25 JOHNSON, Q.C.:

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1 Q. Okay. In addition to carrying out this
 2 preventative maintenance on the power
 3 transformers and air blast circuit breakers, I
 4 take it they'd also be responsible for doing
 5 the corrective maintenance?
 6 MR. MOORE:
 7 A. That's correct.
 8 JOHNSON, Q.C.:
 9 Q. And what other assets do they carry out
 10 preventative maintenance and corrective
 11 maintenance on?
 12 MR. MOORE:
 13 A. We're still just talking about the terminal's
 14 maintenance crew, right?
 15 JOHNSON, Q.C.:
 16 Q. Okay.
 17 MR. MOORE:
 18 A. Yes, okay.
 19 JOHNSON, Q.C.:
 20 Q. That would be it?
 21 MR. MOORE:
 22 A. They would be responsible for maintenance on
 23 all aspects within a terminal station, which
 24 would include in addition to air blast circuit
 25 breakers, there's other design breakers that

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1 we have. There's oil to operate circuit
 2 breakers, there's SF6 breakers, they work on
 3 disconnect switches in the station, they work
 4 on - they also do work at the Hardwoods gas
 5 turbine site, the Whitbourne crew would. So
 6 they'd do work on the gas turbine. Anything
 7 that's in the actual terminal station yard
 8 would be under their realm of responsibility
 9 for corrective and preventative maintenance.
 10 JOHNSON, Q.C.:
 11 Q. So whatever is in the fence, we'll say?
 12 MR. MOORE:
 13 A. Basically, yes.
 14 JOHNSON, Q.C.:
 15 Q. Okay, and do they have other duties? You
 16 mentioned Whitbourne crew would have some
 17 duties at Hardwoods. Would likewise the
 18 Stephenville crew have duties at the
 19 Stephenville turbine, is that right?
 20 MR. MOORE:
 21 A. That's right, they would do the operation and
 22 maintenance of the Stephenville gas turbine.
 23 JOHNSON, Q.C.:
 24 Q. Okay.
 25 MR. MOORE:

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1 A. The Stephenville crew would do that.
 2 JOHNSON, Q.C.:
 3 Q. I just wanted to talk for a few minutes
 4 regarding this catch-up plan. If we could
 5 turn to page 39 of Liberty's Report, and
 6 Liberty has provided Table 8.1, and below is
 7 Table 8.2. We might not be able to get them
 8 both on the one time, that's okay - well, I
 9 guess we can. We're seeing there for 2010
 10 right on through to 2015 the amount of
 11 projects planned, what was completed, etc, and
 12 just to give us a practical feel, how long in
 13 days on average does a six year transformer
 14 preventative maintenance regime take?
 15 MR. MOORE:
 16 A. To do the full six year PM on a power
 17 transformer, that would be on average anywhere
 18 from two to four days for the crew to do that
 19 work.
 20 JOHNSON, Q.C.:
 21 Q. Two to four, and how about the six year
 22 preventative maintenance on the air blast
 23 circuit breakers?
 24 MR. MOORE:
 25 A. That would be about the same, and subject to

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1 check if I wanted to go into our work order
 2 system and get the exact estimates.
 3 JOHNSON, Q.C.:
 4 Q. Okay, but in that vicinity.
 5 MR. MOORE:
 6 A. Yes.
 7 JOHNSON, Q.C.:
 8 Q. Okay, and if we were to look for the record as
 9 to the type of work that they would be doing
 10 on these six year preventative maintenance
 11 tasks, I think we would have to have regard to
 12 prudence, PR-PUB-20, Attachment 1, is that
 13 right, for the record, Mr. Moore?
 14 (Gwen's first part)
 15 MR. MOORE:
 16 A. Yes, if we wanted to bring up the RFI, just to
 17 make sure?
 18 JOHNSON, Q.C.:
 19 Q. Yeah.
 20 MR. MOORE:
 21 A. Yes, that's correct.
 22 JOHNSON, Q.C.:
 23 Q. Attachment -

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1 MR. MOORE:
 2 A. PUB-NLH-174 describes maintenance tactics that
 3 are completed in terminal stations.
 4 JOHNSON, Q.C.:
 5 Q. Yes, and that's in fact an attachment to PR-
 6 PUB-NLH-020?
 7 MR. MOORE:
 8 A. That's correct.
 9 JOHNSON, Q.C.:
 10 Q. Okay. So if we just go to page five of eight
 11 of Attachment 1? A little bit further, if we
 12 could. There you go. So, here we see the
 13 breaker six-year PM and it goes on for 15-20
 14 lines, air blast conductor, timing, trip coil
 15 measurement, check auxiliary, all these
 16 various checks are set out there and if we go
 17 a little bit further to page six of eight, we
 18 see this is what the power transformer six-
 19 year PM would have consisted of. And that's
 20 what -- that's the task as that's assigned?
 21 Is that right?
 22 MR. MOORE:
 23 A. That's correct, yes.
 24 JOHNSON, Q.C.:
 25 Q. Okay. Now if we just could go back to Table

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1 8.1 for a second? And I was looking at Table
 2 8.1 from the point of view of trying to get a
 3 sense of what it cost per six-year transformer
 4 maintenance and I see, for instance, in 2010
 5 that you completed 15 at a cost of about
 6 \$300,000. In 2011, completed 11 at a cost of
 7 257. So would I be right that these generally
 8 fall into about a \$20,000 per completed
 9 maintenance session? Would that be about
 10 right?
 11 MR. MOORE:
 12 A. Based on the numbers that we've provided there
 13 in the table, yes, or in the report there.
 14 JOHNSON, Q.C.:
 15 Q. Okay, and then I notice for the Table 8.2, for
 16 instance, in 2010 there was four completed at
 17 a cost of 45,000 and the next year, in 2011,
 18 three at a cost of 62,000, et cetera, you can
 19 go on. But by my quick math, these looked
 20 like they could come in somewhere between 10
 21 and 20,000. Would that be typical?
 22 MR. MOORE:
 23 A. Looking at the numbers provided, yes.
 24 JOHNSON, Q.C.:
 25 Q. Okay. And that, would that include all labour

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1 and materials and that sort of thing?
 2 MR. MOORE:
 3 A. Those numbers, from my understanding, included
 4 basically the labour required to do -- and any
 5 materials required just to do that specific PM
 6 at that time.
 7 (12:15 p.m.)
 8 JOHNSON, Q.C.:
 9 Q. Yes, okay. So just labour costs?
 10 MR. MOORE:
 11 A. And some material. Typically during a PM,
 12 there's very little material used.
 13 JOHNSON, Q.C.:
 14 Q. Right.
 15 MR. MOORE:
 16 A. What we typically do, if there's items found
 17 during a preventative maintenance inspection
 18 and corrective maintenance work is required,
 19 then we would actually initiate corrective
 20 maintenance work orders at that time and then
 21 any cost of material used for the corrective
 22 work that may be found is charged to a
 23 corrective maintenance work order.
 24 JOHNSON, Q.C.:
 25 Q. Right. And so would they do the corrective

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1 work at the same visit as they're doing the
 2 PM?
 3 MR. MOORE:
 4 A. They may or may not, depending on the nature
 5 of the work that's required.
 6 JOHNSON, Q.C.:
 7 Q. Okay. And I guess they could make an
 8 assessment as to how necessary it was to do
 9 that corrective or whether it could wait?
 10 MR. MOORE:
 11 A. That's right.
 12 JOHNSON, Q.C.:
 13 Q. But you don't -
 14 MR. MOORE:
 15 A. In consultation with their frontline
 16 supervisor and if necessary, you know, our
 17 engineering resources as well.
 18 JOHNSON, Q.C.:
 19 Q. Okay. I feel like we're neighbours looking
 20 over a fence here.
 21 MR. LEDREW:
 22 A. Tool time.
 23 JOHNSON, Q.C.:
 24 Q. Tool time, is it? Yeah. There you go. Thank
 25 you very much. Okay, so it's that

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1 preventative maintenance that would give them
 2 the insight as to how important and how urgent
 3 any corrective maintenance could be?
 4 MR. MOORE:
 5 A. The preventative maintenance tactic, yes, is
 6 the -- does give us an assessment of the
 7 condition of that asset.
 8 JOHNSON, Q.C.:
 9 Q. Yeah. Yesterday you described preventative
 10 maintenance as a foundational tool for
 11 customer reliability. Do you recall using
 12 that expression?
 13 MR. MOORE:
 14 A. Yes, I recall that.
 15 JOHNSON, Q.C.:
 16 Q. And just explain how you view preventative
 17 maintenance as being a foundational tool for
 18 customer reliability?
 19 MR. MOORE:
 20 A. To elaborate on that comment, our preventative
 21 maintenance program is our -- when we develop
 22 our plan to do maintenance and assess the
 23 condition of our assets to ensure that they
 24 provide reliable services to our customers, as
 25 a proactive means of assessing the condition

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1 of the asset and determining if any corrective
 2 maintenance is required on that asset. The
 3 preventative maintenance inspection gives us
 4 that assessment of that asset so we can
 5 proactively attend to anything that may be
 6 found during the preventative maintenance
 7 check and that is our primary tool that allows
 8 us to ensure that that asset operates reliably
 9 for our customers.
 10 JOHNSON, Q.C.:
 11 Q. So it gives you an opportunity, as you say, to
 12 be proactive?
 13 MR. MOORE:
 14 A. That's correct, yes. It's a preventative
 15 tactic.
 16 JOHNSON, Q.C.:
 17 Q. Okay. And so you'd have no trouble agreeing
 18 that preventative maintenance affords Hydro or
 19 affords in fact any utility the opportunity to
 20 identify and address equipment failure
 21 potential before they occur?
 22 MR. MOORE:
 23 A. That would be one of the purposes of
 24 preventative maintenance.
 25 JOHNSON, Q.C.:

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1 Q. And I guess an added benefit, besides
 2 reliability, is that preventative maintenance
 3 can fend off perhaps more expensive corrective
 4 maintenance expenditures?
 5 MR. MOORE:
 6 A. That would be the hope when you do proactive
 7 maintenance, yes.
 8 JOHNSON, Q.C.:
 9 Q. Right. And I guess, I take it you would agree
 10 with me that getting behind on preventative
 11 maintenance, that would, by necessity, hinder
 12 the utility's opportunity to identify and
 13 address equipment issues?
 14 MR. MOORE:
 15 A. I would say that being behind on preventative
 16 maintenance, I agree, is definitely not where
 17 we want to be.
 18 JOHNSON, Q.C.:
 19 Q. Right.
 20 MR. MOORE:
 21 A. And as a result, back in 2009, the analysis
 22 was done and we recognized that in terminal
 23 stations, on terminal station equipment, we
 24 were not completing our six-year preventative
 25 maintenance cycles on time and there was some

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1 maintenance that was behind, so we made a
 2 decision to initiate a six-year recovery plan
 3 because we are committed to doing our
 4 preventative maintenance and proactively doing
 5 maintenance on our assets. That's not saying
 6 that higher priority work can't happen in a
 7 year that's been unforeseen that may cause you
 8 to reprioritize that preventative maintenance.
 9 But that's not what we want. But we did
 10 recognize what you're saying, that yes, it is
 11 our tool. It's our proactive tool and for
 12 that reason, we initiated a plan to be fully
 13 recovered at the end of 2015 because it is our
 14 primary proactive tool to assess the condition
 15 of our assets for our customers.
 16 JOHNSON, Q.C.:
 17 Q. So on the level of a foundational tool
 18 principle discussion, I take it you would
 19 agree that if preventative maintenance is
 20 deferred that by nature, it exposes customers
 21 to increased risks to their reliable service,
 22 right?
 23 MR. MOORE:
 24 A. I would agree when we do initiate a
 25 preventative maintenance cycle and made a

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1 conscious decision that a six-year cycle was
 2 what we would do for these PMS, any time we
 3 defer that maintenance beyond the six-year
 4 cycle, there is a level of risk -
 5 JOHNSON, Q.C.:
 6 Q. Yes, that's right.
 7 MR. MOORE:
 8 A. - that needs to be assessed and discussed when
 9 you make that decision.
 10 JOHNSON, Q.C.:
 11 Q. That's right.
 12 MR. MOORE:
 13 A. But now having said that, that only happens
 14 when we're faced with higher priority work
 15 that needs to be done for our customers. So
 16 it's not a risk that's taken lightly. It's a
 17 risk that's driven by a need of higher
 18 priority work that needs to be done.
 19 JOHNSON, Q.C.:
 20 Q. Whether it's taken lightly, it doesn't remove
 21 the risk or not, right?
 22 MR. MOORE:
 23 A. No, I would agree, there is some risk that
 24 needs to be evaluated when you make that
 25 decision.

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1 JOHNSON, Q.C.:
 2 Q. So let's just go -- let's return then to the
 3 discussion on 8.1 because this is the catch-up
 4 plan that we're looking at here now. And if
 5 we look at your catch-up plan on the
 6 transformer six-year maintenance, I take it
 7 you would agree with me that by the time the
 8 first year of the catch-up plan is done,
 9 you're behind by three, right?
 10 MR. MOORE:
 11 A. Okay, we're back in 2010, year one?
 12 JOHNSON, Q.C.:
 13 Q. Right.
 14 MR. MOORE:
 15 A. Okay, yes, yeah, I see those numbers.
 16 JOHNSON, Q.C.:
 17 Q. Right. And then by the time the 2011 is over,
 18 now you're behind by nine, right, a total of
 19 nine?
 20 MR. MOORE:
 21 A. Okay, yes. Yes, I'm doing the math there.
 22 Yes, that's right.
 23 JOHNSON, Q.C.:
 24 Q. Yeah. And then by the time 2012 is over, now
 25 you're behind by 12, right?

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1 MR. MOORE:
 2 A. There is some of that in the numbers. The
 3 math is not always that exact because I think
 4 when we talked about it there yesterday, going
 5 through some of the discussion on completion
 6 of maintenance, when Mr. O'Brien was asking
 7 questions, some of the completed in those
 8 years may not have been the assets that were
 9 planned because of different reasons. Like we
 10 used the example in 2013, we did the
 11 preventative maintenance inspection on
 12 Holyrood unit one because of the fault that
 13 that transformer was exposed to due to the
 14 January 2013 events. So, when we look at the
 15 number that were planned that year and the
 16 number that were completed, some that were
 17 completed may not have been the original ones
 18 that were planned that year.
 19 JOHNSON, Q.C.:
 20 Q. But you're not -
 21 MR. MOORE:
 22 A. For various reasons.
 23 JOHNSON, Q.C.:
 24 Q. You're not taking issue with Liberty's
 25 statement that's above the Table 8.1 that

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1 Hydro fell far behind its plan by 19
 2 transformers at the end of 2013, right?
 3 MR. MOORE:
 4 A. No, we're not taking exception to that.
 5 That's right.
 6 JOHNSON, Q.C.:
 7 Q. Okay.
 8 MR. MOORE:
 9 A. I just wanted to explain the math a little bit
 10 clearer for that table, that's all.
 11 JOHNSON, Q.C.:
 12 Q. Understood. And then if we go down to the air
 13 blast circuit breaker six-year maintenance,
 14 again and then this is connection with your
 15 catch-up plan, by the end of 2010, you're
 16 behind by six because you had planned ten and
 17 there was four done?
 18 MR. MOORE:
 19 A. Right.
 20 JOHNSON, Q.C.:
 21 Q. And then by the end of 2011, you're behind by
 22 14?
 23 MR. MOORE:
 24 A. That's right.
 25 JOHNSON, Q.C.:

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1 Q. And by the end of 2012, you're behind by 18?
 2 MR. MOORE:
 3 A. Yeah, I'm following the math there.
 4 JOHNSON, Q.C.:
 5 Q. Okay. And by the end of 2013, you're behind
 6 by 20. So I take it, Mr. Moore, that you
 7 would agree that with each passing year, under
 8 this catch-up plan, more preventative
 9 maintenance is getting deferred. So I take it
 10 you would agree that electricity customers are
 11 being exposed to increasing risks to reliable
 12 service as time went on under this plan? Is
 13 that right? That's the way it was -
 14 MR. MOORE:
 15 A. I would not say that our customers were
 16 exposed to increasing risk as we went through
 17 this plan. It was recognized that through a
 18 six-year period, we need to be fully recovered
 19 on preventative maintenance for transformers
 20 and air blast circuit breakers, and I agree
 21 what the numbers in the table there are
 22 showing, but in each of those years, as we
 23 described yesterday, there was higher priority
 24 work that required the attention of our crews
 25 that caused us to have to reprioritize some of

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1 the PMS and there was a very considered
 2 decision to do that and very knowledgeable
 3 people who know the assets that made that
 4 decision.
 5 We also talked about in each year -- we
 6 talked about the table in PUB-NLH-174 there a
 7 few moments ago. There's a very extensive
 8 maintenance program in our terminal stations
 9 each year that we have been completing, the
 10 monthly checks, the quarterly checks, the
 11 annual inspections. So we've been doing all
 12 the annual inspections to ensure that any risk
 13 to our customers is mitigated because we were
 14 in the middle of a six-year recovery program
 15 to get the six-year PMS back on track by the
 16 end of 2015.
 17 JOHNSON, Q.C.:
 18 Q. But Mr. Moore, I mean, what I asked you is
 19 that under this plan, we saw how the amount of
 20 preventative maintenance that you're behind on
 21 is actually growing in each year of the catch-
 22 up and I would have thought that it would be
 23 no point of dispute about the fact that while
 24 these numbers were growing, customers were
 25 being put at increasing risk to reliable

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1 service. Now you can talk about why the
 2 preventative maintenance wasn't done and other
 3 things overtook you, but from the point of
 4 view of reliable transformers and reliable
 5 circuit breakers, the risk for customers
 6 reliability was increasing. Isn't that
 7 correct?
 8 MR. HENDERSON:
 9 A. I'm just going to interject here for just a
 10 sec. If you look -- I'm not sure whether
 11 we're interpreting Table 8.1 and 8.2
 12 correctly. I think if you go to PR-PUB-NLH-
 13 167, and this shows the number of air blast
 14 circuit breakers overdue relative to their
 15 six-year maintenance at the end of each year,
 16 and just because of the math you were doing
 17 was showing it growing, I wasn't sure that
 18 that was my understanding that it was growing,
 19 and if you look at this table here, if you
 20 look at 2009, there was 19 behind. In 2010,
 21 it was 17. In 2011, it was 20. In 2012, it
 22 was 20. In 2013, it was 21. So, there was
 23 more stability in the numbers, not to say that
 24 we weren't making the progress that we wanted
 25 to, just it wasn't growing. It was more --

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1 there was a little bit of progress in one year
 2 and then it levelled off.
 3 And the other thing that's going on here
 4 that's not really evident in the numbers, and
 5 I don't think it's in the evidence, but each
 6 year, there was a selection of the most
 7 overdue chosen to be done and what's not here,
 8 and I don't know the answer to this, but just
 9 to say that the priority was given to the most
 10 overdue and there's also, these numbers don't
 11 mean like the 11 that were overdue in 2013 are
 12 the same, those 11 were still overdue in 2013.
 13 They could have been different transformers.
 14 So the amount of time past their due date
 15 should have been improving over this period of
 16 time and that evidence is not here, but it
 17 should have been because of that
 18 prioritization each year.
 19 So, I just don't think we can look at the
 20 numbers and make some kind of assumption on
 21 increasing risk, but certainly it's indicating
 22 that we weren't making the improvements, in
 23 terms of getting on track, as we intended to.
 24 But, there's more behind the numbers that I
 25 think need to be sussed out before you start

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1 saying we're getting increasing risk.
 2 JOHNSON, Q.C.:
 3 Q. Okay.
 4 MR. HENDERSON:
 5 A. Just because the -- but those two numbers
 6 weren't adding up, and if I -- also go to PR-
 7 PUB-NLH-169 and this one shows the terminal
 8 station transformers overdue and it's 2009 was
 9 23, 2010 was 18. So progress was made in 2010
 10 relative to reducing the number. But then it
 11 just levelled off for three really, 18, 17,
 12 17, and then in 2013, it made a significant
 13 increase because of the things that we talked
 14 about that happened in 2013.
 15 So again, I just wanted to show that this
 16 is where the numbers were already done and I
 17 think -- I'm not sure why the two don't add up
 18 but this was the one to indicate the ones that
 19 were overdue.
 20 JOHNSON, Q.C.:
 21 Q. Okay. But I guess I take it that you would
 22 certainly agree that even by your approach to
 23 the numbers, we're certainly not seeing any
 24 improvement in terms of the numbers that you
 25 still have left behind?

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1 MR. HENDERSON:
 2 A. I'm not -- I wouldn't -- I'm not disputing
 3 that. It was your comment that you were
 4 saying it was increasing and I just want to
 5 make sure that you saw this RFI where it
 6 showed it was more of a stable number until
 7 2013 in particular on the transformers. The
 8 other thing that's going on here is each year
 9 there's a prioritization that's being done
 10 that should have been -- and that would have
 11 been picking up the most overdue, so that the
 12 amount of years past due should have been
 13 declining, but that was not a question asked
 14 or shown in an answer. So I don't know, I
 15 can't tell you that. I've been asking the
 16 question myself in trying to understand this,
 17 but I don't have that answer yet, but that
 18 should have been happening. So, to say we
 19 were having increasing risk, I just didn't
 20 want to leave that out there with that
 21 impression because that's not what I was
 22 seeing, other than 2013, I would agree was a
 23 big increase.
 24 (12:30 p.m.)
 25 JOHNSON, Q.C.:

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1 Q. If we look at Table 5.1 for a moment, and I
 2 had a question on this, and I think it's
 3 probably best handled by an undertaking. And
 4 that is, in relation to the overdue
 5 transformer maintenance and indeed Table 5.2,
 6 the overdue breaker maintenance, starting
 7 first with the transformer maintenance, in
 8 2013, we're seeing that there's 27 that's
 9 listed for -- that's listed as overdue for
 10 maintenance, right?
 11 MR. MOORE:
 12 A. That's correct, yes.
 13 JOHNSON, Q.C.:
 14 Q. Okay. And I'd like to know how many of the 27
 15 that were identified in 2013 were amongst the
 16 numbers reflected in each of the '07, '08,
 17 '09, '10, '11 and '12.
 18 MR. MOORE:
 19 A. Just want to -
 20 JOHNSON, Q.C.:
 21 Q. Would that be possible?
 22 MR. MOORE:
 23 A. Yeah, I just want to make sure I clearly
 24 understand the question. So, if we provided
 25 it, I guess, the 27 that's listed for 2013, so

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1 you'd want to know specifically what
 2 transformers they are and you're wondering the
 3 last time maintenance was done on those? Is
 4 that the question?
 5 JOHNSON, Q.C.:
 6 Q. No, what I'm looking for is to see how many of
 7 those 27, okay, were actually listed as being
 8 overdue in '07, '08, '09, '10, '11 and '12.
 9 MR. MOORE:
 10 A. Yeah, we have the data to be able to get you
 11 that answer.
 12 JOHNSON, Q.C.:
 13 Q. Okay, and the same for -
 14 MR. MOORE:
 15 A. I just wanted to make sure I was very clear on
 16 the question, that's all.
 17 JOHNSON, Q.C.:
 18 Q. And the same for the overdue breaker
 19 maintenance.
 20 MR. MOORE:
 21 A. Yeah, we can do that.
 22 JOHNSON, Q.C.:
 23 Q. Okay. thanks.
 24 MS. GLYNN:
 25 Q. Noted on the record.

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1 JOHNSON, Q.C.:
 2 Q. Thank you. Now we understood from the
 3 discussion yesterday with Mr. O'Brien and
 4 again today that in 2008-09, there was a
 5 dedicated team looking at long term asset
 6 planning and then there was some arrival at a
 7 plan to catch up, right?
 8 MR. MOORE:
 9 A. That's correct, yes.
 10 JOHNSON, Q.C.:
 11 Q. Okay, all right. And then the plan was to
 12 catch up within the six-year period, and --
 13 but I guess from this morning, are we to
 14 understand that the person who designed this
 15 plan was just Mr. Ireland? Is that right?
 16 MR. MOORE:
 17 A. He would have led the development of that
 18 plan, in consultation with our short term
 19 planning and scheduling team and the regional
 20 manager, our regional managers at that time
 21 that were accountable for these assets. So it
 22 would have been a consultive approach, but the
 23 long term asset planning team are accountable
 24 for I'll say setting the preventative
 25 maintenance program going forward. So his

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1 team would have led the development of the
 2 plan, in consultation with all concerned
 3 parties.
 4 JOHNSON, Q.C.:
 5 Q. Okay. So who was on the dedicated team?
 6 MR. MOORE:
 7 A. Who's in our long term asset planning group?
 8 JOHNSON, Q.C.:
 9 Q. Yeah, what positions?
 10 MR. MOORE:
 11 A. At that time or now?
 12 JOHNSON, Q.C.:
 13 Q. At that time.
 14 MR. MOORE:
 15 A. At that time, well Mr. Ireland was the manager
 16 of long term asset planning for generation and
 17 terminals, it was called at that time, and he
 18 would have had I'll say a plant -- an
 19 equipment engineer and two asset specialists.
 20 JOHNSON, Q.C.:
 21 Q. Okay. And so at what date was this six-year
 22 recovery plan settled upon and said this is
 23 the company plan?
 24 MR. MOORE:
 25 A. I don't have an exact date, but I do know it

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1 would have been late in 2009 because the first
 2 year of the plan would have been in 2010 and
 3 the direction that would have been given to
 4 the short term planning and scheduling group
 5 who developed the annual work plans would --
 6 they would have been given the direction of
 7 what would have been needed in the 2010 annual
 8 work plan as year one of the six-year plan and
 9 it would have been, I'll say, laid out for the
 10 six-year period, but going into the 2010 year,
 11 the people who were setting and establishing
 12 the annual work plan would have known what was
 13 required to be placed into the plan that year.
 14 JOHNSON, Q.C.:
 15 Q. And did a document emanate from this dedicated
 16 team saying look, here's our catch-up plan?
 17 It's on a sheet of paper and here it is.
 18 MR. MOORE:
 19 A. Yeah, we actually documented that plan on a --
 20 I'll call it a spreadsheet, showing what was
 21 required for each crew to complete in each
 22 year to achieve that plan.
 23 JOHNSON, Q.C.:
 24 Q. Okay.
 25 MR. MOORE:

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1 A. And I don't remember now if we actually filed
 2 that as an RFI or not. I'd have to check.
 3 JOHNSON, Q.C.:
 4 Q. Maybe you could -
 5 MR. MOORE:
 6 A. I remember we actually had a copy of the plan
 7 when we were in discussions with Liberty and
 8 explaining how we were going to achieve
 9 success over the six-year period. So we
 10 discussed the plan at that time, but I'm not
 11 sure if it was actually filed, to be honest.
 12 JOHNSON, Q.C.:
 13 Q. Perhaps you could undertake to see whether it
 14 has been filed and if not, to file that.
 15 MR. MOORE:
 16 A. Yes, I can get you a copy of that. That's
 17 fine.
 18 MS. GLYNN:
 19 Q. Noted on the record.
 20 JOHNSON, Q.C.:
 21 Q. Thank you. And I take it that once that six-
 22 year plan got put in place by Mr. Ireland and
 23 the others, there was no adjustments made to
 24 that six-year plan. It stayed in place right
 25 up until the application to the Board in 2014?

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1 MR. MOORE:
 2 A. There was no adjustment to the plan, I guess,
 3 that was mapped out at that time in the
 4 spreadsheet, but the adjustments actually
 5 would take place within our computerized
 6 maintenance management system. So, the
 7 preventative maintenance checks that would
 8 have been in the 2010 annual work plan would
 9 have -- the dates would have been set in our
 10 computerized maintenance management system,
 11 our JD Edwards system, for that year for the
 12 annual work plan.
 13 JOHNSON, Q.C.:
 14 Q. Yes.
 15 MR. MOORE:
 16 A. And then at the end of 2010, the actual
 17 completion would have been recorded for each
 18 work order. So progress of the plan was
 19 tracked through our JD Edwards system, but we
 20 wouldn't have adjusted the initial, I'll say,
 21 spreadsheet that was developed in 2009.
 22 JOHNSON, Q.C.:
 23 Q. Okay. And this plan, you referred to it as a
 24 considered plan, but I take it that there was
 25 -- in terms of reporting up the line in terms

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1 of progress to plan, it was left at a verbal
 2 type basis? Is that right?
 3 MR. MOORE:
 4 A. There was monthly reporting taking place of
 5 progress against our annual work plan.
 6 JOHNSON, Q.C.:
 7 Q. Yeah. And these are verbals, right?
 8 MR. MOORE:
 9 A. Yes, at that time.
 10 JOHNSON, Q.C.:
 11 Q. Run into somebody in the hall or call them up?
 12 MR. MOORE:
 13 A. No, no, it was part of the monthly reporting
 14 that we would be submitting at that time as
 15 managers.
 16 JOHNSON, Q.C.:
 17 Q. Okay.
 18 MR. MOORE:
 19 A. Now having said that, like we talked about now
 20 it's actually a weekly monitoring now against
 21 our annual work plan that gets reported right
 22 to the CEO level. But at that time, it would
 23 have been a monthly update like we talked
 24 about.
 25 JOHNSON, Q.C.:

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1 Q. And how -- and again, there was no criticality
 2 guidelines as to when you could get pushed off
 3 preventative maintenance and something else
 4 trumped the work? There was nothing
 5 formalized like that under this plan?
 6 MR. MOORE:
 7 A. No, actually we do have our -- like work order
 8 priority is very well documented and the
 9 people that are -- our short term planning and
 10 scheduling group who develop our weekly
 11 schedules and our annual work plan and
 12 schedule the work for the crews do so based on
 13 work order priority and again, we talked about
 14 the preventative maintenance would have been
 15 starting with the most overdue first. That
 16 was given the highest priority. And if it was
 17 associated with a generating unit, it would
 18 have caused it to be of a higher priority. So
 19 there was a guidelines given and well known
 20 and well understood and talked about on a
 21 regular basis with the people that were
 22 developing the schedules and the people that
 23 were executing the work.
 24 JOHNSON, Q.C.:
 25 Q. And these guidelines, were these written down?

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1 MR. MOORE:
 2 A. Work order priority is documented.
 3 JOHNSON, Q.C.:
 4 Q. Yeah, but the guidelines to come up with the
 5 work order priority, they weren't written?
 6 MR. MOORE:
 7 A. Yeah, our work order priority is well
 8 documented, what constitutes a priority one
 9 work order documented in our computerized
 10 maintenance management system and a priority
 11 two, three and four work order. They're well
 12 documented.
 13 JOHNSON, Q.C.:
 14 Q. Okay. But actual written guidance as to look,
 15 it's okay to defer this preventative
 16 maintenance on this breaker at this time?
 17 MR. MOORE:
 18 A. No, I won't say there's written guidance -
 19 JOHNSON, Q.C.:
 20 Q. No.
 21 MR. MOORE:
 22 A. - that describes that. It is a -- what
 23 happens is if -- like I explained, the only
 24 reason why we would talk about deferring
 25 preventative maintenance would be if an outage

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1 got cancelled, then we may reprioritize that
 2 to some other time in the same calendar year.
 3 But to cause a preventative maintenance
 4 activity to be pushed off to a future year or
 5 reprioritized to a future year, would only be
 6 done if higher priority work comes into the
 7 plan that was unaccounted for for our
 8 customers, and that would be a very deliberate
 9 discussion amongst the regional manager and
 10 the long term asset planning manager and the
 11 short term planning and scheduling and work
 12 execution people to make that decision. But
 13 to say they had a written document that told
 14 them how to go down through that decision
 15 making process, not at that time, no.
 16 JOHNSON, Q.C.:
 17 Q. Nothing like that, okay. And in fact, I think
 18 Mr. Henderson indicated as well that this plan
 19 that had been in place that this is something
 20 he said that probably only came to his
 21 attention in 2014, that Hydro was in this
 22 catch-up phase. So, you know, as I understand
 23 it, you know, Mr. Henderson, by this point,
 24 you're well ensconced into the role as VP of
 25 Hydro, but even at that -- you know, you're in

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1 2014 before you are aware that this catch up -
 2 - you were in this catch-up phase? That's
 3 what you said yesterday?
 4 MR. HENDERSON:
 5 A. That's right. I was not aware, that I recall,
 6 of it being brought to my attention. It was
 7 more around the focus of getting the annual
 8 maintenance done.
 9 JOHNSON, Q.C.:
 10 Q. Right.
 11 MR. HENDERSON:
 12 A. Which I didn't realize it included a plan for
 13 catch up.
 14 JOHNSON, Q.C.:
 15 Q. Right, okay. And it sounds like you -- from
 16 the discussion yesterday, that you'd have to
 17 do some investigation at the time, some
 18 digging, as to where you actually were at any
 19 one point in relation to the catch-up plan.
 20 Would that be fair?
 21 MR. MOORE:
 22 A. I'm sure if we characterized it that way.
 23 That's probably not quite clear. Like on a
 24 monthly basis, I was well aware of the
 25 progress of our annual work plan and where we

Page 172

1 were against preventative maintenance that was
 2 scheduled and preventative maintenance that
 3 was completed and that was part of our monthly
 4 reporting process. But as we talked about I
 5 think earlier this morning when we talked
 6 about the work at the Hardwoods gas turbine,
 7 it was really late in 2013 when we realized
 8 that the volume of work that our crews were
 9 going to be required to complete on that job
 10 versus what was initially planned to do
 11 earlier in the year was tremendous. I think
 12 something like 20,000 hours of work in all in
 13 2013 that we documented.
 14 JOHNSON, Q.C.:
 15 Q. Right, okay. But now -
 16 MR. MOORE:
 17 A. But I was aware of progress of -- and did have
 18 regular discussions with my managers on, you
 19 know, how we were doing with completion of our
 20 annual work plan and our preventative
 21 maintenance program. But it was late in 2013
 22 when we realized that we were going to be not
 23 as far along in the four-year plan that we
 24 would have liked to have been, which the
 25 numbers are showing here in Table 5.1 and 5.2.

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1 JOHNSON, Q.C.:

2 Q. But compared to the system now, as I

3 understand it, the new system that you folks

4 have for tracking where things are, I mean,

5 that seems to almost be like a push of a

6 button almost now, where you can see where

7 things are. Is that right?

8 MR. MOORE:

9 A. It's not a push of a button. There's a report

10 that comes to me and like we explained, right

11 up to the CEO level, on a weekly basis, but

12 it's generated from the actual annual work

13 plans that each area is using to manage their

14 work.

15 JOHNSON, Q.C.:

16 Q. Yes.

17 MR. MOORE:

18 A. So on a weekly basis, the people who track the

19 annual work plan and schedule the work, our

20 short term planning and scheduling group, they

21 go in on a weekly basis and tabulate how far -

22 - what's completed versus what's planned on a

23 cumulative basis each week. And that report

24 then goes through -- we have a person assigned

25 that does the data analysis and generates the

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1 spreadsheets and then each area will get that

2 curve showing actual to date compared to

3 planned work to date accompanied with a report

4 to indicate anything that was completed that

5 week, anything that may have been scheduled

6 but might have to get deferred to a future

7 week, say a planned outage may have not --

8 because of weather reasons, we couldn't get

9 the planned outage or whatever.

10 So the regional manager provides to me,

11 on a weekly basis, that report of actual

12 versus planned, what got accomplished, what

13 was in the plan that may not have got

14 accomplished and what the recovery plan is to

15 make sure that that gets completed within that

16 calendar year. So that comes to me on a

17 weekly basis, but I wouldn't call it a push of

18 a button. There's a fair amount of analysis

19 that goes into that report on a weekly basis

20 that by the time it hits my inbox, shall we

21 say.

22 JOHNSON, Q.C.:

23 Q. And I used the wrong term of push of a button.

24 But let me understand then, and you just

25 outlined in some detail, helpful detail, as to

Page 175

1 the type of information that you are now

2 getting on a weekly basis.

3 MR. MOORE:

4 A. Yes.

5 JOHNSON, Q.C.:

6 Q. At any one time prior to that system was

7 brought in, how would you have gotten about

8 getting that sort of overall assessment as to

9 where we are, you know, almost on a real time

10 basis?

11 MR. MOORE:

12 A. In order to do that at that time would have

13 required the same kind of rigor and analysis,

14 but it would require -- like the reporting we

15 had in place back before then, shall we say,

16 was a monthly report and that monthly report

17 would come to me from my managers and indicate

18 just on a number basis, the number of

19 preventative maintenance activities that are

20 scheduled for that year and the number that

21 we've completed to date. And the corporate

22 target at that time was to complete 90 percent

23 of your preventative maintenance activities in

24 a given year, and we've since -- obviously

25 we've provided evidence that we've changed

Page 176

1 that target since to 100 percent.

2 But back then, we were managing to a

3 corporate target of 90 percent completion of

4 PMs and just based on numbers, I would know --

5 and those numbers would include that recovery

6 plan. But they weren't separated to say that,

7 you know, ten are recovery and 80 are not

8 recovery. They were just the full PMs that

9 were scheduled that year.

10 (12:45 p.m.)

11 JOHNSON, Q.C.:

12 Q. Right.

13 MR. MOORE:

14 A. And on a monthly basis, I would know how many

15 we got completed and working towards a target

16 of 90 percent completion in any given year.

17 And since that time, we've come to realize

18 that, as we just explained, more rigor is

19 required around that and now down to a weekly

20 basis tracking all work activities,

21 accompanied with a report of anything that may

22 not have got done and when it's going to be

23 rescheduled for as a recovery plan within that

24 calendar year. So the rigor around the

25 reporting is increased tenfold.

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1 JOHNSON, Q.C.:

2 Q. And I would suggest to you that the quality of

3 the information that you're now receiving, in

4 terms of, you know, the insights that you

5 could draw from the information sounds like

6 it's improved.

7 MR. MOORE:

8 A. Yes, I would agree with that, yes.

9 JOHNSON, Q.C.:

10 Q. But I guess in any event, even before this was

11 brought in, I take it that you're telling us

12 that, Mr. Moore, and I take it you ended your

13 role sometime in 2011?

14 MR. MOORE:

15 A. That's right. Midway through 2011.

16 JOHNSON, Q.C.:

17 Q. But you'd certainly be telling us that as at

18 the end of 2011, you knew that you were behind

19 on this catch-up plan, right?

20 MR. MOORE:

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1 A. At the end of 2011, the way the reporting was

2 designed at that time that I was receiving on

3 a monthly basis, I would have known what

4 percent of our PMs we would have completed in

5 2011 and the direction would have been to

6 develop the 2012 annual work plan based on

7 that criteria of most overdue PMs first as the

8 highest priority, to develop our 2012 annual

9 work plan. So we went off in 2012 with that

10 plan and there were a number of work items

11 that we talked about that took us off plan in

12 2012.

13 JOHNSON, Q.C.:

14 Q. Yes.

15 MR. MOORE:

16 A. Such that we didn't achieve, a that time would

17 have been our 90 percent target. I think it

18 was something like 84 percent overall for TRO

19 in 2012, I'd have to check the exact numbers,

20 so based on those results, in 2013 we decided

21 and we talked about this yesterday, and I

22 discussed this with VP at the time that what

23 we should do is clearly articulate the

24 expectation for completing preventative

25 maintenance in performance documents, right,

Page 179

1 in 2013.

2 JOHNSON, Q.C.:

3 Q. Right, and I understand and there's no need to

4 repeat that, but I was just trying to say

5 there was no two ways about it that at the end

6 of 2011, you knew you were behind.

7 MR. MOORE:

8 A. I knew where we were to and what would be

9 required in the 2012 annual work plan to work

10 towards achieving our 2015 target, yes.

11 JOHNSON, Q.C.:

12 Q. And likewise at the end of 2012 you knew that

13 you were behind, right?

14 MR. MOORE:

15 A. That's correct.

16 JOHNSON, Q.C.:

17 Q. And now you indicated yesterday that resources

18 were, the resources that you had available

19 were reflective of the operating budget

20 approved for that particular region each year,

21 do you recall that?

22 MR. MOORE:

23 A. That's correct, yes.

24 JOHNSON, Q.C.:

25 Q. And then you would develop an annual work plan

Page 180

1 based on the available resources, right?

2 MR. MOORE:

3 A. That's correct.

4 JOHNSON, Q.C.:

5 Q. And I take it that you did not--did you seek,

6 I should ask you, did you seek more in the

7 budget to make up the, you know, the fact that

8 you were falling behind relative to your

9 catch-up plan, did you look for further

10 resources in 2012?

11 MR. MOORE:

12 A. No, we didn't look for additional resources

13 until 2014, but I will say that in 2012 and

14 2013, when we developed the annual work plan,

15 we allotted, with our existing resources,

16 sufficient time or allocation in our annual

17 plan to do what we needed to do as part of our

18 preventative maintenance recovery program with

19 an allotment or contingency for corrective

20 maintenance work and an allowance for some

21 capital and operating projects. So going into

22 each of those years, 2012, 2013, our existing

23 resources would have achieved a portion of our

24 recovery plan sufficient to work towards the

25 2015 target. But what happened in 2012 and

Page 181

1 even more so in 2013, a higher volume of
 2 higher priority work got injected into the
 3 plan, which ended up taking us not as far
 4 along in our recovery plan as we would have
 5 liked, and it wasn't until 2014 and '15 that
 6 we identified the additional resources that
 7 would be required to get us to success by the
 8 end of 2015.

9 JOHNSON, Q.C.:

10 Q. And I guess likewise you gave no--so you
 11 didn't consider the need to bring on extra
 12 contracting help for 2012 or 2013, did you?

13 MR. MOORE:

14 A. Not in 2012 and 2013 because like I just
 15 explained, if we were able to achieve our
 16 annual work plan as laid out that year without
 17 the volume of break-in work that we seen, we
 18 would have been able to achieve a portion of
 19 the recovery in each of those years using our
 20 existing resources and within our existing
 21 budget, and that was our goal, to balance cost
 22 and completion of work within our deliberate
 23 plan that we set for 2010 to '15.

24 JOHNSON, Q.C.:

25 Q. Now when you managed to get or there was

Page 182

1 contractors brought in, as you've indicated,
 2 in 2014, right?

3 MR. MOORE:

4 A. That's correct, yes.

5 JOHNSON, Q.C.:

6 Q. To really get things moving along.

7 MR. MOORE:

8 A. Right, we had the time to go to the market and
 9 find a suitable contractor that could come in
 10 with the expertise to do this work on our
 11 terminal stations.

12 JOHNSON, Q.C.:

13 Q. Yes, so you didn't have the time prior to that
 14 to go to the market and look for these people?

15 MR. MOORE:

16 A. Like I explained, we didn't--it wasn't a
 17 consideration for 2012 and 2013 because if we
 18 were able to stick to plan without the volume
 19 of break-in work that we seen, there really
 20 wasn't a need to go to the market at that time
 21 and realization wasn't there until late in the
 22 year such that you wouldn't get the work done
 23 before your December 1st winter critical date.

24 JOHNSON, Q.C.:

25 Q. So tell us, in 2014 when the decision was

Page 183

1 taken to go and get help from contractors, how
 2 did you go about that?

3 MR. MOORE:

4 A. We did an analysis, I'll say the first quarter
 5 or winter/spring of 2014 and we looked at the
 6 data showing all of our power transformers and
 7 all of our air blast circuit breakers, the
 8 dates that we did the last preventative
 9 maintenance check and what would be required
 10 to complete the remaining work by the end of
 11 2015. We did an analysis of asset criticality
 12 using a specified criteria that we outlined in
 13 the June 2nd, 2014 report that we submitted to
 14 the Public Utilities Board and we made a
 15 decision that based on asset criticality and
 16 what was still left overdue to be completed by
 17 the end of 2015, we went out and went to the
 18 market and got contractors to come in to do
 19 the most critical work--the plan was to do the
 20 most critical work in 2014 and then the
 21 remaining work in 2015, such that we would be
 22 fully recovered.

23 JOHNSON, Q.C.:

24 Q. Okay, and these contractors, would these
 25 contractors assisted in each of the office's

Page 184

1 regions, like the Bishop's Falls, the Northern
 2 Peninsula, is that how -

3 MR. MOORE:

4 A. Mostly in the TRO Central Region, Bishop's
 5 Falls, Stephenville and Whitbourne.

6 JOHNSON, Q.C.:

7 Q. Okay, so how many contractors were involved?

8 MR. MOORE:

9 A. When we went out to the market, we actually
 10 hired one contractor at the time, but I will
 11 say one but there was actually two. There was
 12 one contractor brought in to do the full
 13 preventative maintenance inspection on power
 14 transformers and we brought in another, I'll
 15 say contractor, but it was the equipment, the
 16 OEM, the original equipment manufacturer to
 17 come in and work with our own crews to do the
 18 remaining air blast circuit breakers or the
 19 critical recovery air blast circuit breakers
 20 that year.

21 JOHNSON, Q.C.:

22 Q. Okay, so the contracting firm, not the OEM
 23 support but the contracting firm, a local
 24 company?

25 MR. MOORE:

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1 A. No, they were a company from Alberta at the
 2 time.
 3 JOHNSON, Q.C.:
 4 Q. From Alberta?
 5 MR. MOORE:
 6 A. Yes.
 7 JOHNSON, Q.C.:
 8 Q. And so how many people did they send down here
 9 for this work?
 10 MR. MOORE:
 11 A. They sent down a crew, I'm trying to remember
 12 now, I think it was three to four people in a
 13 crew and one of our own internal employees
 14 went around with them as they did their work
 15 to make sure that, you know, for site safety
 16 and to ensure that the equipment was isolated
 17 safely and just to oversee the work activity.
 18 JOHNSON, Q.C.:
 19 Q. Are you saying that the Alberta company
 20 supplied three to four people?
 21 MR. MOORE:
 22 A. Yes.
 23 JOHNSON, Q.C.:
 24 Q. And that's what helped to clear up this
 25 backlog as quickly as that?

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1 MR. MOORE:
 2 A. Well it would have been for the full
 3 maintenance season.
 4 JOHNSON, Q.C.:
 5 Q. Right, I see.
 6 MR. MOORE:
 7 A. So it's not just to come in and do one or two
 8 transformers, I mean they actually worked for
 9 the full maintenance season and worked some
 10 very extended hours beyond what I would call a
 11 normal work year for a crew.
 12 JOHNSON, Q.C.:
 13 Q. So did they work in conjunction with Hydro's
 14 own crews on doing the work or were they in a
 15 terminal station -
 16 MR. MOORE:
 17 A. They would have been assigned a specific
 18 number of transformers to do, but one of
 19 Hydro's employees would have been on site with
 20 the contractor to oversee their work, oversee
 21 the quality of the work, ensure site safety
 22 and ensure, like work protection permits were
 23 in place and that type of thing, right, like
 24 contractor oversight while they were in our
 25 terminal stations.

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1 JOHNSON, Q.C.:
 2 Q. And were there a number of bids for this work?
 3 MR. MOORE:
 4 A. There were a number of bids, I can't remember
 5 the exact number right now off the top of my
 6 head, to be honest.
 7 JOHNSON, Q.C.:
 8 Q. Including local companies too?
 9 MR. MOORE:
 10 A. I'm trying to remember now, I'd have to go
 11 back and check the actual records to see who
 12 bid on the work at the time.
 13 JOHNSON, Q.C.:
 14 Q. And their performance, was it good?
 15 MR. MOORE:
 16 A. Yeah, they--we provided them the actual
 17 criteria and specifications as, you know,
 18 what's required to do this six-year
 19 maintenance cycle on our assets and say we had
 20 someone on site to ensure that they complied
 21 to the contractual arrangement so that they
 22 did the work in the same manner that we would,
 23 to the same specification.
 24 JOHNSON, Q.C.:
 25 Q. Now was there anything that was--was there

Page 188

1 anything there preventing Hydro from seeking
 2 additional resources to get caught up on the
 3 six-year program, you know, prior to when it
 4 made its application?
 5 MR. MOORE:
 6 A. I would say with respect to preventing, like
 7 to bring in extra resources would be extra
 8 costs beyond the budget that we're managing
 9 to.
 10 JOHNSON, Q.C.:
 11 Q. Right.
 12 MR. MOORE:
 13 A. So in keeping with our mandate of least cost
 14 reliable service, our plan that year would be
 15 each year of 2012, 2013 would have been to do
 16 that portion of that recovery plan in that
 17 year with our existing resources, within our
 18 existing budget. So to bring in extra
 19 resources at the beginning of the year, not
 20 knowing that the break-in work was coming,
 21 really would have been a decision to bring in
 22 more resources beyond your existing budget, so
 23 if there's anything, I'll say, that was
 24 preventing us from just going out and hiring
 25 more resources in any given year beyond our

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1 work plan, it would have been a decision to
 2 work beyond our least cost budgeting approach.
 3 JOHNSON, Q.C.:
 4 Q. But, you know, it's least cost consistent with
 5 reliable service, though, right?
 6 MR. MOORE:
 7 A. Yes, I agree, the balance is very appropriate.
 8 JOHNSON, Q.C.:
 9 Q. Yeah, okay. And if I could bring you to page
 10 170 of the transcript yesterday.
 11 MR. MOORE:
 12 A. 170.
 13 JOHNSON, Q.C.:
 14 Q. Page 170, lines 2 to 6. You indicated, "It
 15 wasn't until moving it to 2014 that we could
 16 get to a point of seeking additional resources
 17 to get caught up on our six-year program by
 18 the end of 2015." And before you go into
 19 that, I also want to bring you to page 194 and
 20 if you scroll up a little bit to get to the
 21 tail end of 193, Mr O'Brien is asking, "I'm
 22 wondering why you'd wait to go through this
 23 process, why not just make an immediate
 24 application to say, look, we're not getting
 25 this preventative maintenance done, we need to

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1 get it done now and put it in front of the
 2 Board as a separate application." And then
 3 you said, "I'll say that our opportunity to
 4 fully develop that application to the Board
 5 and put forward a strong case was well into
 6 2014 and in particular, after we went through
 7 the outages." And first of all, on the first
 8 statement, I have to query why you would have
 9 regarded that it was not until moving into
 10 2014 that we could get to a point of seeking
 11 additional resources, I don't understand that.
 12 (1:00 p.m.)
 13 MR. MOORE:
 14 A. Just to elaborate a little bit, we talked a
 15 little bit about the volume of work and in
 16 particular at the Hardwoods gas turbine in
 17 2013, so it was very late in 2013 when we did
 18 the analysis that we realized that, you know,
 19 in order to get to where we said we were going
 20 to be by the end of 2015 that we're definitely
 21 not going to be able to do it with the
 22 existing resources that we have. There's
 23 going to be a need for additional resources in
 24 2014 and '15 in order to achieve what we set
 25 out to achieve by the end of 2015. And that's

Page 191

1 when, well we went through the outages then in
 2 January, that's well documented what we went
 3 through in January, and from there we
 4 developed a plan with cost estimates and
 5 submitted it to the Board on June 2nd, 2014
 6 for the extra resources that we felt we needed
 7 to get it completed by the end of 2015 what we
 8 set out to complete when we started the plan
 9 back in 2010.
 10 JOHNSON, Q.C.:
 11 Q. Well, the second statement that I brought you
 12 to, "Our opportunity to fully develop this
 13 application to the Board and put a strong case
 14 was well into 2014" and were you giving
 15 consideration to trying to get some resources?
 16 It sounds like you felt that you couldn't make
 17 the case, you couldn't have a clear shot at
 18 getting these resources until 2014, so was
 19 there discussions internally about, you know,
 20 what can we do here and someone saying, well,
 21 you know, we really don't have a case that's
 22 well screwed together to try to get these
 23 resources, it will have to wait. Was anything
 24 like that going on?
 25 MR. MOORE:

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1 A. No, I wouldn't say that was going on and if
 2 the way I phrased it there, I may have misled
 3 you, I guess what I was trying to say was that
 4 it was really late in 2013 when we did the
 5 analysis and all the break-in work that came
 6 on our plate in 2013, I think the 20000 hours
 7 that I spoke of, it wasn't until that time,
 8 late in 2013, that we realized that we won't
 9 be able to achieve the remainder of our
 10 recovery program by the end of 2015. So the
 11 January outages came and from there, we
 12 developed a plan and proposal to the Board on
 13 June 2nd for what we would need for extra
 14 resources to achieve success by the end of
 15 2015. So it's more of a--it wasn't until late
 16 in 2013 when we did the analysis that we
 17 realized that we're really not going to get
 18 there in 2015 without extra resources, but up
 19 until that time, our plans each year within
 20 our existing crews and budgets would have
 21 gotten us there without the break-in work that
 22 was coming against us in those two years.
 23 JOHNSON, Q.C.:
 24 Q. It sounds like there was a bit of a revelation
 25 at the end of 2013, which seems odd because

Page 193

1 you're not really keeping up with your plan by
 2 the end of 2012, by the end of 2011 either.
 3 MR. MOORE:
 4 A. No, and we realized that when we tracked the
 5 numbers, but it really wasn't until late 2013
 6 and we did the analysis that it was understood
 7 that we're not going to get there by the end
 8 of 2015 without extra resources.
 9 JOHNSON, Q.C.:
 10 Q. Mr. Henderson, would you expect, because we
 11 had evidence earlier about budgeting
 12 guidelines and, you know, how these are sent
 13 out, would you expect in a circumstance where,
 14 you know, preventative maintenance is, you
 15 know, you're not meeting the plan, you've got
 16 this catch-up situation, would you expect
 17 there to be an obligation on the managers
 18 below to come forward and say look, here's the
 19 circumstance, you know, we're not meeting it,
 20 you know, the preventative maintenance is very
 21 important. We need to have a discussion about
 22 the ways and means of getting around this.
 23 Maybe it means applying for more money in an
 24 operating budget, wouldn't that be an
 25 expectation before leaving it to, you know, a

Page 194

1 realization at the end of 2013, say, in this
 2 instance, but just generally?
 3 MR. HENDERSON:
 4 A. Well in--what I can say is that was, not the
 5 specifics to a catch-up or recovery program,
 6 but what was the discussion in the fall of
 7 2013 when we were putting forward the -- it
 8 was probably early fall 2013 when we were
 9 putting together the 2014 budget, those
 10 discussions were being had, what was required
 11 to get us on track with the maintenance and at
 12 that time there was a focus on some additional
 13 resources, P&C resources, there was additional
 14 planning resources to help with the work
 15 scheduling, so that discussion happened with
 16 respect to the 2014. So it was brought to me
 17 in the fall of 2013 by each of the managers
 18 indicating what they required to complete
 19 their annual work that they had ahead of them,
 20 and so that's what was put forward in the 2014
 21 budget and 2014 test year. So yes, the answer
 22 is yes, I would expect them to come forward
 23 with that and what I experienced in that fall
 24 of 2013 was that, people saying we need some
 25 additional resources and we put forward that

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1 in the 2014 budget.
 2 JOHNSON, Q.C.:
 3 Q. And I guess looking at what we've seen because
 4 it was almost like, if I can put it this way,
 5 every year it almost seemed to be a hoping
 6 against hope that, you know, b'ys, you know,
 7 we'll get there, but then at the same time,
 8 from 2010 to 2015, you've got increasing
 9 capital budget projects that are putting a
 10 strain, that's correct, right?
 11 MR. HENDERSON:
 12 A. That's correct.
 13 JOHNSON, Q.C.:
 14 Q. And I guess would you, in looking at this now,
 15 Mr. Henderson, would you not agree that
 16 someone should have put up their hand earlier
 17 and said, guys, we're treading water here at
 18 best, this preventative maintenance is very
 19 serious stuff, we need to have a good chat
 20 about other resources that we can get deployed
 21 here or found here, would that not be -
 22 MR. HENDERSON:
 23 A. That would be the expectation and I would
 24 expect in each year in the budget process
 25 that's what each manager brings forward when

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1 they put forward their budget proposal is the
 2 indication of what they require to do the work
 3 that they're expected to complete.
 4 JOHNSON, Q.C.:
 5 Q. Yes, and in terms of like this least cost
 6 consideration, I mean, I'm getting the sense
 7 that the budget may have been wagging the
 8 reliability dog a little bit in terms of, you
 9 know, each year, you know, we've got to be
 10 careful, it's least cost. Do you care to
 11 comment on that?
 12 MR. HENDERSON:
 13 A. I guess I can't say what was all in the minds
 14 of the people who were approving the budget
 15 prior to me coming into the role, but that
 16 discussion of what was required was what the
 17 managers brought forward. Whether they
 18 brought that forward in previous years and it
 19 was said, no, do it with the resources you
 20 have and find a way, or how that discussion
 21 went, I can't say, so I can't make a comment
 22 to say that the budget was taking priority
 23 over reliability. I would say that at that
 24 time the belief was that the reliability would
 25 be taken care of with the budget that was

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1 approved.
 2 JOHNSON, Q.C.:
 3 Q. The Liberty Report, I can bring you there to
 4 page 26, the first full paragraph of 26 and
 5 I'm referring to your plan. They talk about
 6 Hydro formed a goal of accelerating work, it
 7 sought a pace that would place work and
 8 equipment, including transformers and
 9 breakers, like T1 and B1L03 back on schedule
 10 by 2015, this is the statement I want to
 11 discuss with you. Liberty says "Prudence
 12 required the adoption of a plan of this type."
 13 But they go on to say, "It also required, that
 14 is to say Prudence also required making
 15 substantial progress in reaching the plan's
 16 goal, but that did not happen before January
 17 2014." Okay, and then they go on to say,
 18 "Hydro indicates that it deferred transformer
 19 and breaker maintenance to provide resources
 20 to address more critical issues. Failing to
 21 make progress reasonably in accord with plans
 22 for four years for this reason does not
 23 reflect good practice." Now, first do you
 24 agree that prudence in fact does require
 25 making substantial progress in reaching the

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1 recovery plan's goal?
 2 MR. HENDERSON:
 3 A. I would say that what was happening in each of
 4 those years is prudent decision making with
 5 regard to putting the priority on the work
 6 that was most necessary for a sustained
 7 reliable service to the customers and that was
 8 being done and that was the critical focus of
 9 our folks to ensure that the resources were
 10 placed on the items that were most critical,
 11 and they assessed and made decisions on that
 12 criticality based on their knowledge of the
 13 equipment and their knowledge of the condition
 14 and their experience.
 15 JOHNSON, Q.C.:
 16 Q. Okay, but I'm asking you very directly,
 17 Liberty says that prudence requires making
 18 substantial progress in reaching your plan's
 19 goal, because this is Hydro's catch-up plan,
 20 it's not anybody else's plan and they're
 21 saying this requires, prudence requires making
 22 substantial progress in reaching the plan's
 23 goal. They said that's a requirement of
 24 prudence. Do you agree?
 25 MR. HENDERSON:

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1 A. I agree that ideally we should have been
 2 making better progress on that plan, but we
 3 had other things that came into play that
 4 required the attention of the team and the
 5 resources and that's the way they were
 6 redirected.
 7 JOHNSON, Q.C.:
 8 Q. And I'm not asking you ideally, I'm asking you
 9 is your assessment -
 10 MR. HENDERSON:
 11 A. I understand what you're asking and to me,
 12 prudence decision is going to be up to the
 13 Board to decide, I'm providing the evidence to
 14 the Board for their decision that we were
 15 working towards that, our team was making
 16 critical decisions throughout the year as to
 17 where to address the resources that they had
 18 and I think that that was a prudent course for
 19 them to be taking to making those decisions to
 20 get the most critical work done. It would be
 21 up to the Board to decide whether that was the
 22 right decision or not.
 23 JOHNSON, Q.C.:
 24 Q. Do you agree that Hydro's progress over the
 25 four years in question or do you believe, I

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1 should say, that Hydro's progress over the
 2 first four years of that catch-up plan, that
 3 that was reasonable? Do you think that that
 4 was reasonable?
 5 MR. HENDERSON:
 6 A. I think you have to look at all of the
 7 decisions that were being made at the time,
 8 weighing all of the items that had to be
 9 decided by the people who are responsible, on
 10 the frontline, looking after this equipment to
 11 make those decisions for critical reliable
 12 service to our customers.
 13 JOHNSON, Q.C.:
 14 Q. So is it your assessment that progress made by
 15 Hydro from, in 2010, 2011m 2012, 2013 on
 16 Hydro's catch-up plan, that that was
 17 reasonable progress?
 18 MR. HENDERSON:
 19 A. My assessment is that our desired progress was
 20 a lot better than that, but there was other
 21 things that came into play that required
 22 decisions during that time and we were not
 23 able to make the progress in terms of number
 24 of units overdue at end of year that we
 25 intended to and had set out to do.

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1 JOHNSON, Q.C.:

2 Q. I'm genuinely interested, Mr. Henderson, in

3 finding out your position on this question and

4 the question is a simple one. Do you believe

5 that Hydro's progress in reaching its catch-up

6 plan over those four years was reasonable?

7 (1:15 p.m.)

8 MR. HENDERSON:

9 A. I think it was reasonable in the circumstances

10 that our employees and our engineers had to

11 assess and what they had before them. I think

12 they did as a reasonable job as they could

13 with what they had before them.

14 JOHNSON, Q.C.:

15 Q. And you say "given what they had before them",

16 what are you referring to?

17 MR. HENDERSON:

18 A. I'm referring to the work that was unforeseen

19 that they had to address, the weather

20 conditions that they had to address, the

21 system outages that had to be scheduled, the

22 manner in which those were scheduled, all of

23 the items that the utility has to take into

24 consideration in order to complete and

25 schedule work. There's many variables that

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1 people had to take into account. It's not as

2 simple as just take it out and fix it, you

3 have to schedule it, you have to make sure

4 you're doing it in a manner that has the least

5 impact on customers, you have to address

6 weather issues, you have to address a number

7 of items when you're doing the work and they

8 had all of that to face and they did as good

9 as job as they could with the resources and

10 the weather conditions, the outages they were

11 provided and all of those considerations.

12 JOHNSON, Q.C.:

13 Q. Okay, and so Hydro have evidence from, other

14 than itself, that would say or support the

15 contention that Hydro's progress reflected

16 good utility practice?

17 MR. HENDERSON:

18 A. We've put forward the evidence that we have to

19 indicate what we were doing, the

20 considerations that we had to take into

21 account in order to execute that work and so

22 what we have been endeavouring to do over the

23 last few days is to show you the

24 considerations that the people who are

25 managing the system had when they were making

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1 the decisions to defer.

2 JOHNSON, Q.C.:

3 Q. If I can turn to the acetylene issue and Mr.

4 Moore, you indicated yesterday that in terms

5 of consideration of more investigative

6 sampling would be the gas levels found. You

7 indicated that you'd have, you would have gone

8 back and done testing in early 2104, had it

9 not failed. Do you recall that?

10 MR. MOORE:

11 A. That's correct, yes.

12 JOHNSON, Q.C.:

13 Q. And why would you have to wait until the

14 winter and you know, there's more load going

15 on then, it's, you know, I take it this would

16 be a fairly critical transformer, why would

17 you suggest that you wouldn't get to that

18 until the winter?

19 MR. MOORE:

20 A. The most recent date of the test that we

21 looked at was, I think it showed a level of 11

22 and we were tracking since back to the early

23 '90s, but normally by the time we would have

24 got that test result back and a recommendation

25 from the testing facility and our engineer

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1 would have reviewed the test results and

2 looked at it over time, that engineer then

3 would have recommended doing an additional

4 test, which would have required a worker order

5 to be scheduled by one of the crew members or

6 a crew to go out and do that test. So the

7 reason I made that statement, just looking at

8 how we normally would have assessed the test

9 result and if there was a recommendation for a

10 follow-up test, then that would actually be

11 generated as a work order, get put into our

12 maintenance plan, which would likely be, you

13 know, sometime after the last test was done.

14 JOHNSON, Q.C.:

15 Q. And did you indicate that the acetylene was up

16 at 11 parts per million?

17 MR. MOORE:

18 A. I'm just subject to check here, I'm talking

19 about the last number that we provided, I

20 guess because we provided all the data going

21 back, every oil sample result on our

22 transformers going back to when we started the

23 program has been provided, so I'm going by

24 memory now on maybe the last number that we

25 talked about.

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1 JOHNSON, Q.C.:

2 Q. Well I believe that in fact it is 11, but you

3 can take that subject to check that that was

4 the last number and I take it did you

5 understand that Liberty's report, their

6 interim report to the Board, indicated that

7 acetylene should not be greater than 2 parts

8 per million. Are you aware that Liberty said

9 that?

10 MR. MOORE:

11 A. I do know that somewhere in the report, I

12 don't know if we want to go to the exact page.

13 JOHNSON, Q.C.:

14 Q. Yes, it's page 44 of their interim report. In

15 that first paragraph under the topic

16 "Transformer Fault Causes", they say in the

17 last sentence, "Acetylene should comprise no

18 more than 2 parts per million in the oil of a

19 transformer. Internal arcing generates

20 acetylene gas", et cetera. And what do you

21 make of Liberty's finding in that regard, that

22 it should not exceed two parts per million?

23 MR. MOORE:

24 A. I see it there and I know that Liberty

25 actually documented in that report, like I

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1 don't know where the source of that number and

2 the analysis behind that number and where that

3 recommendation comes from. I do see the

4 statement there. I will say what we've done,

5 we've been taking our readings and doing the

6 analysis going back to the early 1990s and

7 we've been trending those readings and they've

8 been constant within a band since the early

9 1990s, and we went to our original equipment

10 manufacturer and got a consultative opinion on

11 this transformer and their recommendation at

12 the time was that--or their opinion at the

13 time was that the source of the low levels of

14 acetylene gas that we've been seeing on a

15 constant basis since the early 1990s, are in

16 all likelihood coming from the tap changer

17 compartment where we explained yesterday

18 normal levels of acetylene gas happened

19 because of the nature of how a tap changer

20 operates, so we were--our action, I guess, on

21 the levels of gas that we've been seeing in

22 that transformer for decades would be to--and

23 was, to talk to our equipment manufacturer and

24 get their expert opinion on the levels that we

25 have been seeing in that transformer and what

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1 may be causing that, and their recommendation

2 was to continue monitoring. Now the last

3 reading they suggested that we go back and

4 take another sample just to verify the

5 results, which our equipment engineer would

6 have looked at the readings, looked at this

7 recommendation and ensured that the crews

8 would have gone out and done a follow-up

9 sample which didn't get to happen because the

10 transformer failed on January 4th, 2014.

11 JOHNSON, Q.C.:

12 Q. Yes. A couple of moments ago you alluded to

13 the fact that the level of acetylene gas had

14 been stable within a certain band for a number

15 of years.

16 MR. MOORE:

17 A. Yeah, it's not the exact number every year,

18 but I'll call it a ripple if you want to call

19 it that.

20 JOHNSON, Q.C.:

21 Q. Right, understood. Had it gone up to 11 parts

22 per million?

23 MR. MOORE:

24 A. I think it has, I'd have to look at the exact

25 numbers and that data is in the June 2nd, 2014

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1 report to the Board.

2 JOHNSON, Q.C.:

3 Q. Okay.

4 MR. MOORE:

5 A. We can look at the exact data. I do remember

6 one year it was 10 and like I mentioned, our

7 equipment manufacturer indicated that these

8 levels are, in their opinion, is coming from

9 the tap changer compartment and the monitoring

10 that we've been doing was their recommended

11 course of action and at some planned

12 opportunity we could go in and do a test to

13 validate that that is actually happening.

14 JOHNSON, Q.C.:

15 Q. Mr. Chairman, would there be a vehement

16 objection if we closed now and started

17 tomorrow morning bright and early.

18 CHAIRMAN:

19 Q. Absolutely.

20 Upon conclusion at 1:26 p.m.

CERTIFICATE

1
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 29th 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 29th day of October, A.D., 2015
12 Judy Moss

<p>-\$-</p> <p>\$20,000 [1] 143:8 \$300,000 [1] 143:6</p> <hr/> <p>-&-</p> <p>& [1] 98:2</p> <hr/> <p>-'-</p> <p>'07 [2] 160:16 161:8 '08 [2] 160:16 161:8 '08-09 [1] 45:16 '09 [2] 160:17 161:8 '10 [2] 160:17 161:8 '11 [4] 39:20,21 160:17 161:8 '12 [3] 42:19 160:17 161:8 '15 [3] 181:5,23 190:24 '90s [1] 203:23</p> <hr/> <p>-.-</p> <p>.22 [4] 29:2,5,7,12 .9 [1] 28:9</p> <hr/> <p>-0-</p> <p>074 [1] 25:21</p> <hr/> <p>-1-</p> <p>1 [16] 25:25 26:2 66:3,12 67:8 83:24 85:12 86:13 86:23 87:11 88:25 93:1 93:4 99:12 141:12 142:11 1's [1] 88:22 1.5 [1] 65:19 10 [4] 124:22 129:11 143:20 208:6 100 [6] 12:11 49:19 56:3 76:22 115:11 176:1 105 [1] 133:14 10:00 [1] 55:16 10:15 [1] 69:2 10:30 [1] 83:20 10:45 [1] 97:11 11 [8] 111:11 143:6 157:11,12 203:21 204:16 205:2 207:21 11:00 [1] 108:23 11:37 [1] 109:2 11:45 [1] 117:25 12 [1] 151:25 123 [1] 84:21 12:15 [1] 144:7 12:30 [1] 159:24 12:45 [1] 176:10 13 [1] 22:22 13th [1] 98:20 14 [1] 153:22 15 [1] 143:5</p>	<p>15-20 [1] 142:13 16 [3] 47:15 52:21 53:23 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