

Page 1

1 October 28, 2015
 2 (9:05 a.m.)
 3 CHAIRMAN:
 4 Q. Good morning. We have no matters of
 5 procedural import. I think we can proceed
 6 directly to Madam Greene to continue her
 7 cross-examination.
 8 GREENE, Q.C.:
 9 Q. Good morning, Mr. Chair and Commissioners.
 10 Good morning, panel.
 11 MR. MOORE:
 12 A. Good morning.
 13 MR. HENDERSON:
 14 A. Good morning.
 15 MR. LEDREW:
 16 A. Good morning.
 17 MR. HUMPHRIES:
 18 A. Good morning.
 19 MR. DARREN MOORE:
 20 MR. ROB HENDERSON:
 21 MR. TERRY LEDREW:
 22 MR. PAUL HUMPHRIES:
 23 CROSS-EXAMINATION BY GREENE, Q.C.:
 24 Q. Before we carry on with talking about the
 25 Sunnyside replacement equipment project, there

Page 2

1 were a couple of issues I would like to
 2 clarify from yesterday. There are a couple
 3 relating to the black start project at
 4 Holyrood. When we were talking yesterday
 5 about that project, Mr. Humphries, you
 6 indicated that Hydro had finalized an
 7 application seeking approval for a new CT by
 8 December of 2013, by Christmas of 2013, is
 9 that correct?
 10 MR. HUMPHRIES:
 11 A. I said it was nearly completion.
 12 GREENE, Q.C.:
 13 Q. And at that point in time, the unit you were
 14 thinking about was a 60 megawatt?
 15 MR. HUMPHRIES:
 16 A. A 60 megawatt, yes.
 17 GREENE, Q.C.:
 18 Q. And what type of unit were you considering at
 19 that time?
 20 MR. HUMPHRIES:
 21 A. Well, we were considering a unit that most
 22 likely probably would have been an Aero
 23 derivative type unit similar to the units that
 24 we have at Hardwoods and Stephenville, and we
 25 were as well seeking to have synchronous

Page 3

1 condenser capability.
 2 GREENE, Q.C.:
 3 Q. And that would have been similar to a unit
 4 that Hydro would have asked the manufacturer
 5 to manufacture, or was it a gray market unit?
 6 MR. HUMPHRIES:
 7 A. No, at that time it would have been a new
 8 unit.
 9 GREENE, Q.C.:
 10 Q. I'm sorry, I didn't hear you.
 11 MR. HUMPHRIES:
 12 A. It would have been a new unit, I think, at
 13 that time.
 14 GREENE, Q.C.:
 15 Q. And that was in December of 2013?
 16 MR. HUMPHRIES:
 17 A. Yes.
 18 MR. HENDERSON:
 19 A. I'm just going to add to that. We would have
 20 publicly tendered for that project, so we
 21 would be looking for technically qualified
 22 bids on that, so we would have been specifying
 23 a 60 megawatt gas turbine and it would be -
 24 that would be basically it, but it would have
 25 a lot more technical details. So it's

Page 4

1 possible that a gray market type of unit might
 2 qualify if it met the specifications. I
 3 wouldn't say it would not. The assumption was
 4 that it wouldn't be in terms of the estimates
 5 that had been done.
 6 GREENE, Q.C.:
 7 Q. Okay, yesterday as well when we were talking
 8 about this, there was a question to Mr. LeDrew
 9 whether at any point in time prior to the fall
 10 of 2012, Hydro had considered placing
 11 temporary diesels at the Holyrood site to act
 12 as the black start capability for the Holyrood
 13 plant, and if you like, we can go to the
 14 transcript of yesterday at page 102. It
 15 started at page 102 and actually carried on to
 16 page 103, and at that time Mr. LeDrew
 17 confirmed, as manager of the plant, he was not
 18 involved in any discussions with respect to
 19 the temporary diesels during the period of
 20 2010 when the stop work order was in place,
 21 and through 2011 when AMEC was doing the
 22 condition assessment. My question as a follow
 23 up clarification one is did Hydro at any time
 24 prior to when it filed the application before
 25 the Board in 2013, October, 2013, consider the

Page 5

1 use of temporary diesel units at the Holyrood
 2 plant for black start capability at the plant?
 3 MR. LEDREW:
 4 A. Not to my knowledge.
 5 MR. HENDERSON:
 6 A. I'll just - the diesels was one of the options
 7 that AMEC had brought forward, so it was
 8 considered. It would have been part of that
 9 review.
 10 GREENE, Q.C.:
 11 Q. In December of 2012?
 12 MR. HENDERSON:
 13 A. It would have been December, 2011, that that
 14 report was completed and presented to Hydro in
 15 January, 2012, and in that was options for
 16 diesel units. I think it was five 2 megawatt
 17 diesel units would have been presented as an
 18 option at that time, so that the option was
 19 known and would have been part of the
 20 consideration at that time.
 21 GREENE, Q.C.:
 22 Q. And none of those options were deemed
 23 acceptable, isn't that correct? Hydro did not
 24 accept any of the options put forward by AMEC?
 25 MR. HENDERSON:

Page 6

1 A. Well, I'm not sure in terms of accepted. I
 2 think what Hydro did is it looked at the
 3 options that it had. Consideration of the new
 4 CT that was coming, the - so that there was an
 5 interim period in which there would be a
 6 solution coming in three years time, the
 7 diesel option that was presented by AMEC would
 8 not be in service until the late winter or
 9 early spring of 2013. So there was one year -
 10 it would basically be that current year and
 11 the following year that a diesel would not be
 12 available in accordance with what AMEC
 13 presented to us, so then that would have been
 14 part of the consideration in terms of going
 15 with Hardwoods as the interim solution until
 16 the new CT came in. So the diesels was there
 17 as an option for consideration, and the
 18 decision that was made at the time obviously
 19 did not choose to go with that. The choice
 20 that was made in consideration of everything
 21 was to go with the Hardwoods as interim and a
 22 new CT in 2015.
 23 GREENE, Q.C.:
 24 Q. Okay, so up to the AMEC Report in December of
 25 2011, Hydro, I understand from Mr. LeDrew's

Page 7

1 evidence, did not consider the use of
 2 temporary diesels to be put in place while the
 3 stop work order was there through all of 2010
 4 or through 2011 when there were problems with
 5 the unit, and it was available only for
 6 limited purposes?
 7 MR. HENDERSON:
 8 A. It was available for black start.
 9 GREENE, Q.C.:
 10 Q. And then when AMEC filed its report in
 11 December of 2011 with a - 2012, while AMEC had
 12 suggested the use of refurbish the units and
 13 actually get backup units while the existing
 14 unit was being refurbished, and came up with
 15 other options, was there serious consideration
 16 given by Hydro to the AMEC proposal, either
 17 one of the options that AMEC had considered?
 18 MR. HENDERSON:
 19 A. There would have been a - you're using the
 20 word "serious consideration". I mean, it
 21 would have been all serious consideration,
 22 recognizing the need for being able to black
 23 start Holyrood and the cost and reflecting the
 24 fact that there would be a new CT coming in a
 25 couple of years. There was a period of time

Page 8

1 that would have been an exposure, based on the
 2 information received from AMEC, that would
 3 have carried through 2012 into 2013. So the -
 4 again I wasn't part of the decision, but all I
 5 can say is that all those things were there
 6 for the people that made the decision to
 7 evaluate and there was a decision with regard
 8 to least cost would have been to use the
 9 interim solution, and that's where the obvious
 10 decision was, and that's the case.
 11 GREENE, Q.C.:
 12 Q. And as you indicated, you weren't involved in
 13 those discussions, were you, with respect to
 14 the final -
 15 MR. HENDERSON:
 16 A. No, other than I was aware that Hardwoods
 17 would have to be used as an interim solution.
 18 GREENE, Q.C.:
 19 Q. And from the record, the only information we
 20 have with respect to Hydro's consideration are
 21 the emails that we looked at yesterday?
 22 MR. HENDERSON:
 23 A. The only evidence is that, but we do have the
 24 evidence of the decision and the obvious
 25 consideration here was the cost of putting in

Page 9

1 a solution and it was - the choice was, I'll
 2 say the least cost solution was to go with an
 3 interim solution.
 4 GREENE, Q.C.:
 5 Q. Another issue from yesterday is with respect
 6 to the failure of Unit 1, and I wonder could
 7 you please bring up, Ms. Gray, the transcript
 8 from yesterday at page 135, and it deals with
 9 lines 2 to 18, and, Mr. LeDrew, I'd just like
 10 to bring your attention to line 8. We see you
 11 said, "We have two 600 volt diesels in the
 12 station as well and they did not start. In
 13 all things being equal, if the yard had went
 14 to a blackout state immediately, which it did
 15 three and a half minutes later, but if it had
 16 went to a blackout state, the emergency
 17 diesels would have started and your standby AC
 18 pump would have started and recovered that an
 19 adequate scenario with the DC pump on oil
 20 supply". I took from that answer you were
 21 saying that if we didn't have brown out, the
 22 diesel would have started immediately and we
 23 wouldn't have had a problem, is that the
 24 correct interpretation of that answer?
 25 (9:15 a.m.)

Page 10

1 MR. LEDREW:
 2 A. We would have recovered adequate voltage in
 3 the plant for the standby AC pump to start.
 4 Now there's a question - we now know that 28
 5 seconds after inadequate supply, we started to
 6 tear up bearings on that machine, so we did go
 7 back and investigate how quickly can a loss of
 8 supply from our yard, and how quickly can our
 9 transfer schemes enact and a diesel come in
 10 service and energize that bus to allow that
 11 motor to restart to recover oil, and from what
 12 we've heard from diesel vendors and OEMs, that
 13 that is unlikely that that would happen in
 14 that 28 second window.
 15 GREENE, Q.C.:
 16 Q. Right, so if we could go to PR-PUB-126, page
 17 1, lines 18 to 23. I think that's what you
 18 were just describing for us.
 19 MR. LEDREW:
 20 A. Could you just restate that one?
 21 GREENE, Q.C.:
 22 Q. If you look at lines 18 to 23, I'm told that
 23 that indicates that even if there had been an
 24 immediate blackout, there wasn't sufficient
 25 time for the diesels to have kicked in to have

Page 11

1 started the pump before the damage.
 2 MR. LEDREW:
 3 A. Yes, that was our conclusion.
 4 GREENE, Q.C.:
 5 Q. So I just wanted to clarify that even if there
 6 had been an immediate blackout, we still would
 7 have had a problem with the pump?
 8 MR. LEDREW:
 9 A. That's correct, yeah.
 10 GREENE, Q.C.:
 11 Q. Okay, and we'll talk a little bit more about
 12 that with Liberty when we come to the common
 13 mode failure problem. Coming back now to the
 14 air blast circuit breakers where we had left
 15 off yesterday with Mr. Moore. We were talking
 16 about the breaker, B1L03, at Sunnyside that
 17 didn't work properly on January 4th, and at
 18 that time you had indicated that Hydro's
 19 standard for preventative maintenance was to
 20 do it on a six year cycle, is that correct?
 21 MR. MOORE:
 22 A. That's correct, yeah, the six year maintenance
 23 program for air blast circuit breakers is what
 24 we - for major preventative maintenance
 25 inspections on a six year cycle for those

Page 12

1 breakers.
 2 GREENE, Q.C.:
 3 Q. Now Liberty, when they looked at it, made a
 4 recommendation that given the age of the air
 5 blast circuit breakers that Hydro had, and
 6 given the condition of those breakers and the
 7 problems Hydro had been experiencing, that the
 8 cycle be reduced to four years, is that
 9 correct?
 10 MR. MOORE:
 11 A. In Liberty's review, as well as our own root
 12 cause analysis when we analyzed the outages,
 13 we looked at the age of the air blast circuit
 14 breakers and our existing maintenance program
 15 and did determine going forward that there
 16 would be an opportunity to shorten up the
 17 outage time frame for those assets based on
 18 the age to four years from six years.
 19 GREENE, Q.C.:
 20 Q. And Hydro has now implemented that new
 21 standard, is that correct?
 22 MR. MOORE:
 23 A. Yes, that's correct, we have.
 24 GREENE, Q.C.:
 25 Q. And Hydro also has a plan to replace all of

Page 13

1 the current air blast circuit breakers that it
 2 has, is that correct?
 3 MR. MOORE:
 4 A. Yes, that's correct, we do have a plan by year
 5 2020 to do a replacement program of all our
 6 air blast circuit breakers.
 7 GREENE, Q.C.:
 8 Q. And that plan was accelerated as a result -
 9 following the outages in 2014, is that
 10 correct?
 11 MR. MOORE:
 12 A. Through our root cause analysis of the outages
 13 of 2014, we made a determination as well as
 14 the six year to four year preventative
 15 maintenance cycle, we also made a considered
 16 decision to accelerate the replacement of our
 17 air blast circuit breaker program.
 18 GREENE, Q.C.:
 19 Q. Yesterday when you were talking about the
 20 decision to defer preventative maintenance,
 21 you described how you develop an annual work
 22 plan each year. When is the work plan
 23 actually developed for the upcoming year?
 24 MR. MOORE:
 25 A. When we develop our annual work plan, we start

Page 14

1 in the year previous to look at our
 2 preventative maintenance items that are coming
 3 up the next year. We also look at - we looked
 4 at our 2010 to 2015 recovery plan that we'd
 5 put in place back in 2009 for terminal station
 6 equipment. So when we develop our annual work
 7 plan, we start late in the year previous and
 8 then our goal is in the first quarter of the
 9 year of the execution plan to have our annual
 10 work plan finalized, which would include, like
 11 as we talked about yesterday, any maintenance
 12 that is still due in the PM recovery plan
 13 based on the most overdue maintenance and the
 14 available resources we have to execute the
 15 work. In the first quarter of the year, we
 16 finalize our annual work plan because it does
 17 take some time to make sure that we confirm
 18 delivery of any materials that are required
 19 through capital programs and to finalize out
 20 outage plan for the year. So by the end of
 21 first quarter of the year we have our annual
 22 work plan finalized and ready to start
 23 tracking against.
 24 GREENE, Q.C.:
 25 Q. Could we go to the transcript from yesterday,

Page 15

1 please, page 161 at lines 12 to 16, and here
 2 you're talking about the 2012 plan, but you
 3 say there, "So that's how it was developed,
 4 but that was based on the resources that we
 5 had at the time and the operating budget that
 6 we were managing too at the time". So when
 7 you do prepare your annual work plans, you
 8 base it on your available resources and the
 9 approved budget, is that how I read that
 10 answer?
 11 MR. MOORE:
 12 A. That's correct. When we develop our annual
 13 work plan, Hydro is very committed to
 14 execution of our preventative maintenance
 15 program, and we look at the most overdue, in
 16 particular, for terminal stations. As I
 17 indicated yesterday, our other assets like our
 18 transmission lines, distribution lines, diesel
 19 plants, we were doing very well with regard to
 20 tracking against our plan for those assets,
 21 but we recognized back in 2009 that we needed
 22 a very deliberate six year recovery plan for
 23 terminal station equipment, so when we
 24 developed the annual work plan as indicated
 25 there in the transcript, we looked at the most

Page 16

1 overdue maintenance that we had and the
 2 highest priority based on, for example,
 3 transformers that are associated with
 4 generating equipment and we develop our annual
 5 work plan based on our available resources
 6 which are tied to the approved operating
 7 budget for the upcoming year.
 8 GREENE, Q.C.:
 9 Q. Yes, so when you do your work plan, you do
 10 have to take into account the existing
 11 resources and your approved budget, is that
 12 how I take that, and that would be the same
 13 for each year?
 14 MR. MOORE:
 15 A. That's correct. Hydro is very committed to
 16 our preventative maintenance program, but
 17 we're also very committed to the appropriate
 18 balance of cost versus execution of work.
 19 GREENE, Q.C.:
 20 Q. Okay, and in doing your annual work plans, you
 21 included your preventative maintenance that
 22 you would normally have to do that year, you
 23 also included your overdue preventative
 24 maintenance from previous years, you made an
 25 allotment for corrective maintenance work, and

Page 17

1 you made an allotment for the impact your
 2 resources might - the impact of capital budget
 3 projects for your resources, is that how the
 4 plan was developed, as I understood your
 5 evidence?
 6 MR. MOORE:
 7 A. That's correct, but with respect to capital,
 8 it would be an allowance for our resources
 9 that would be allocated to any planned capital
 10 work for that year.
 11 GREENE, Q.C.:
 12 Q. And you also explained yesterday that one of
 13 the reasons you got further behind in your
 14 preventative maintenance cycles was the amount
 15 of corrective maintenance work, is that
 16 correct?
 17 MR. MOORE:
 18 A. It was the amount of corrective maintenance
 19 work, higher priority corrective maintenance
 20 work that was unknown when we developed our
 21 plan that was determined to be a higher
 22 priority for immediate reliability for our
 23 customers, but it's also the amount of
 24 unplanned capital work that we were faced with
 25 as well. Like, an example of an unplanned

Page 18

1 capital job that we were faced with in 2013
 2 that took our resources away from some of our
 3 six year preventative maintenance activities
 4 would have been the replacement of the
 5 generator at the Hardwoods gas turbine.
 6 GREENE, Q.C.:
 7 Q. And we don't need to go through all your
 8 examples, but yesterday, again if we could go
 9 to the transcript of yesterday at page 157,
 10 you listed off your corrective maintenance
 11 work for 2013, and over to page 158, you said,
 12 that the estimate you came up with was a list
 13 of overtime work of 10,000 hours. Do you
 14 recall that?
 15 MR. MOORE:
 16 A. Yes, that's correct.
 17 GREENE, Q.C.:
 18 Q. Okay.
 19 MR. MOORE:
 20 A. I was just looking for the RFI that lists out
 21 the volume of work that we were faced with in
 22 2013 and 2014, and it actually lists the
 23 person hours of work that was not accounted
 24 for in our annual work plan for 2013 and 2014.
 25 GREENE, Q.C.:

Page 19

1 Q. And -
 2 MR. MOORE:
 3 A. I'm just looking for the actual RFI number now
 4 that lists that out for reference.
 5 GREENE, Q.C.:
 6 Q. That's fine if you want, I don't need it. My
 7 question was going to be - you were looking
 8 and we can go back to the table that showed
 9 the preventative maintenance cycle backlogs
 10 for the transformers and for the circuit
 11 breakers, and I'll start with 2013. You were
 12 in 2013, you had all of this work, why didn't
 13 you consider going and asking for additional
 14 resources?
 15 MR. MOORE:
 16 A. It was late in - well, as we progressed
 17 through the year in 2013, and the amount of -
 18 the hours of break in work, capital and
 19 corrective that we indicated in the RFI that
 20 we were faced with in 2013, and when we looked
 21 at it, we were four years into our six year
 22 recovery plan, and as I mentioned, the only
 23 reason we would actually re-prioritize any of
 24 our six year preventative maintenance
 25 activities would be higher priority corrective

Page 20

1 maintenance and capital work that were of a
 2 more immediate and urgent nature for
 3 reliability for our customers. It was late in
 4 2013 and we did an evaluation of four years
 5 into our six year recovery plan as to the
 6 progress, and a decision was made then that we
 7 put forward in our amended GRA application
 8 what we would require for resources and the
 9 associated operating budget to finalize our
 10 six year recovery plan by the end of 2015, and
 11 that's well described in the amended GRA and
 12 the evidence as to what we felt would be the
 13 resources required to achieve our full
 14 recovery plan by the end of 2015, and I will
 15 say that we will be completed by the end of
 16 2015.
 17 GREENE, Q.C.:
 18 Q. And I understand that that was the decision
 19 that was made and it was reflected in a GRA
 20 that was filed. My question is why didn't
 21 Hydro consider that earlier? You had said in
 22 our earlier answer you were limited by the
 23 amount of resources and your budget when you
 24 developed your work plan. Did you, as the
 25 manager, feel that you were restricted based

Page 21

1 on any parameters that were given to you with
 2 respect to cost of resources?
 3 MR. MOORE:
 4 A. As a manager managing our operating budget,
 5 which we've clearly explained in previous
 6 testimony and in evidence, that on an annual
 7 basis we develop an operating budget based on
 8 the operating budget guidelines that are
 9 distributed to the corporation by finance, and
 10 we're very committed to working to our
 11 operating budget, and as we indicated, you
 12 know, that's one of our most effective tools
 13 that we have as operations managers to ensure
 14 we keep the rural deficit manageable, which is
 15 very important to us as a corporation. So we
 16 were working towards our recovery plan and
 17 fully committed to our preventative
 18 maintenance program, and as I indicated, the
 19 only thing that would take us off or cause us
 20 to re-prioritize any of our six year
 21 maintenance would be any capital or corrective
 22 work that was unplanned for that would be of a
 23 higher priority for our customers and the
 24 reliability to our customers, so at the end of
 25 2013, we were four years into a six year plan,

Page 22

1 we had realized that we weren't as far along
 2 as we would have liked to have been in this
 3 six year recovery plan, and so then we put
 4 forward in our 2014 and 2015 test year a plan
 5 to be fully recovered by the end of 2015.
 6 GREENE, Q.C.:
 7 Q. Yes, I understand what - and you're repeating
 8 your answer now several times, but perhaps if
 9 we go to PR-PUB-167 and talk about the
 10 question that I'm asking. PR-PUB-167, and my
 11 question was in prior years at any point in
 12 time, and we can do this for the breakers and
 13 we can do it for the transformers, when you
 14 were looking at it and seeing that you weren't
 15 completing the plan and you weren't even
 16 staying on target with your plan, why didn't
 17 you back in 2011, 2012, or even 2013, say,
 18 hang on here now, I need additional resources
 19 because I understood Hydro believes
 20 preventative maintenance is very important - I
 21 gathered that yesterday, and last week, that's
 22 why you do it.
 23 MR. MOORE:
 24 A. Uh-hm.
 25 GREENE, Q.C.:

Page 23

1 Q. So you saw you weren't doing your cycles and
 2 I'm trying to understand why there wasn't a
 3 review of why you didn't look at additional
 4 resources in 2011, 2012, or even early in
 5 2013, why you allowed them to get further
 6 behind?
 7 (9:30 a.m.)
 8 MR. MOORE:
 9 A. As I indicated yesterday when we talked about
 10 this issue, I took the position that I'm
 11 currently in in 2011, and we looked at - well,
 12 that was two years then into our six year
 13 recovery plan. So we did have a plan put
 14 forward for 2012, an annual work plan, which
 15 included the most overdue maintenance in
 16 terminal stations for air blast circuit
 17 breakers and power transformers, as we talked
 18 about the numbers here in the RFI. So we did
 19 have a plan for 2012. There are a number of
 20 items that we documented in RFIs that were
 21 break in work that we've talked about that
 22 took us way from that plan. Then we put
 23 forward our 2013 annual work plan, and in 2013
 24 we really wanted to focus on - the corporate
 25 target, as we talked about in a previous RFI,

Page 24

1 would have been 90 percent of PM in a given
 2 year, so that was the target at that time that
 3 as a manager we were accountable for. So we
 4 put forward a 2013 plan that included the most
 5 overdue maintenance, plus a portion of I'll
 6 call it the base maintenance that we do each
 7 year, so at that point we were four years into
 8 our six year recovery plan, realized that we
 9 were not as far along as we would have liked
 10 to have been in our six year plan, and it
 11 wasn't until we put forward the 2014/2015 test
 12 years that we formally requested additional
 13 budget and resources to achieve success by the
 14 end of 2015, which we will achieve by the end
 15 of this year.
 16 GREENE, Q.C.:
 17 Q. And one of the guidelines you've already
 18 indicated in looking at this is what your
 19 approved budget is for the year and your
 20 existing resources, is that correct?
 21 MR. MOORE:
 22 A. That's correct, we are very committed to the
 23 balance between work execution, reliability,
 24 and least cost supply for our customers.
 25 GREENE, Q.C.:

Page 25

1 Q. And that was the prevailing factor versus the
 2 fact you weren't catching up on your
 3 preventative maintenance, was it?
 4 MR. MOORE:
 5 A. I wouldn't call it the prevailing factor. I
 6 would call it a balance between managing to
 7 least cost - to our budgets to ensure least
 8 cost service for our customers versus our
 9 targets to achieve execution of our
 10 preventative maintenance program, and we had a
 11 six year plan which was very considered to get
 12 us to where we wanted to be by the end of
 13 2015, and based on what we've put forward in
 14 this 2014/2015 test years, we will achieve
 15 success by the end of this year.
 16 GREENE, Q.C.:
 17 Q. Right, but that's because of the accelerated
 18 effort in 2014, which was the fourth year of
 19 your six year plan?
 20 MR. MOORE:
 21 A. That's right, at the fourth year of our six
 22 year plan we made a very considered decision
 23 that an accelerated plan was required to
 24 complete our six year plan, which is, I think,
 25 clearly reflected in our two test years.

Page 26

1 GREENE, Q.C.:
 2 Q. And, of course, it was after the outages in
 3 January of 2014. Now you mentioned that the
 4 delay preventative -
 5 MR. MOORE:
 6 A. I would say, yes, the timing was after the
 7 outages in 2014.
 8 GREENE, Q.C.:
 9 Q. Right.
 10 MR. MOORE:
 11 A. But, you know, in 2013, we were certainly
 12 tracking against our - actuals against our
 13 plan and we very clearly knew exactly where we
 14 were in 2013, and back at that time we would
 15 have been working towards thinking about a
 16 revised - because I think we did have a 2013
 17 test year put forward, and Hydro realized at
 18 the time that, you know, we do need to put in
 19 a revised test year for 2014/2015, and we did
 20 make a very considered decision at that time
 21 to make sure that a full recovery plan was in
 22 place to the end of 2015.
 23 GREENE, Q.C.:
 24 Q. You also talked about your deferral
 25 preventative maintenance to do - the only

Page 27

1 reason you defer it is if you do more urgent
 2 work, and you talked about yesterday how that
 3 decision got made by the group, the long term
 4 asset managers, the work execution people, and
 5 your short term schedulers.
 6 MR. MOORE:
 7 A. That's correct, those are the people that are
 8 very experienced operational managers within
 9 our team that track our annual work plan on a
 10 regular basis and are very aware of any break
 11 in work that may come in, and very knowledge
 12 and experienced when it comes to prioritizing
 13 our work, and would through a consultative
 14 process as well with our systems operations
 15 group, when it comes to planning out outages
 16 to get the work executed would have made those
 17 decisions.
 18 GREENE, Q.C.:
 19 Q. So up until the acceleration of the plan, it
 20 was an accepted practice at Hydro to defer
 21 preventative maintenance to do corrective
 22 maintenance work?
 23 MR. MOORE:
 24 A. I would say that the way we manage our work at
 25 Hydro, we develop, as we talked about, an

Page 28

1 annual work plan each year which looks at any
 2 deferred maintenance of the highest priority
 3 that needs to be included in the annual work
 4 plan that year. We're very committed to our
 5 preventative maintenance program because that
 6 is - we talked about our key tool to ensure
 7 our assets are in a suitable condition to
 8 provide reliable service. The only reason we
 9 would re-prioritize any of our preventative
 10 maintenance activities would be for any
 11 unknown work, whether it be operating,
 12 corrective maintenance, or capital that is
 13 determined to be of a higher priority nature
 14 for immediate reliability supply to our
 15 customers, and that's the only reason we would
 16 in any way stretch out our plan to longer
 17 intervals because of anything that's of a
 18 higher priority, a more urgent nature for our
 19 customers supply.
 20 GREENE, Q.C.:
 21 Q. And if we go to the transcript from yesterday,
 22 please, at page 201. Here you were describing
 23 the process the individuals responsible would
 24 follow with respect to making a decision to
 25 defer preventative maintenance to do

Page 29

1 corrective maintenance work, and you had given
 2 evidence that at that time there were no
 3 guidelines that Hydro had issued to these
 4 people as to the factors they should take into
 5 account in making the decision to defer
 6 preventative maintenance. Do you recall that?
 7 MR. MOORE:
 8 A. We talked about it yesterday that with respect
 9 to any written documentation, but we do have a
 10 very - you know, our people are very
 11 knowledgeable about the priority of work, the
 12 different types of work, corrective
 13 maintenance, preventative maintenance, capital
 14 and operating work, very familiar with that,
 15 very familiar with our assets, the condition
 16 of our assets, the operational history, very
 17 familiar with the maintenance programs that
 18 are recommended by the original equipment
 19 manufacturers, so I'll say that through the
 20 positions and senior leadership roles that
 21 these people have accepted, and through their
 22 knowledge of the assets and operation of the
 23 assets over time, they are very familiar with
 24 what needs to be considered when making a
 25 decision of what would be higher priority work

Page 30

1 for our customers versus what would have been
 2 in our original plan.
 3 GREENE, Q.C.:
 4 Q. Okay, of course, we all accept that they are
 5 knowledgeable, they do know the equipment and
 6 they exercise judgment with respect to making
 7 that decision as to what is a higher priority?
 8 MR. MOORE:
 9 A. That's correct, it is a very -
 10 GREENE, Q.C.:
 11 Q. Judgment based decision?
 12 MR. MOORE:
 13 A. Any work that we would do with our resources
 14 that takes us away from our annual work plan
 15 would be a very considered knowledgeable
 16 decision by very knowledgeable experienced
 17 employees.
 18 GREENE, Q.C.:
 19 Q. Made by different individuals who may have
 20 different judgments?
 21 MR. MOORE:
 22 A. I would say that all our managers are
 23 certainly very well aligned with what would be
 24 the highest priority work for customer supply
 25 and to ensure our mandate of least cost

Page 31

1 reliable service. They may - obviously, every
 2 person brings something different to the table
 3 when they make a decision, but they are fully
 4 aligned on what our mandate is for our
 5 customers, definitely.
 6 GREENE, Q.C.:
 7 Q. And I wanted to take you to page 201, lines 22
 8 to 25, and on down. If you begin there, you
 9 said, "It's a very considered extensive
 10 decision making process". You talked about
 11 how you have developed now guidelines that are
 12 in writing that you are giving to the people
 13 who make the decisions, pointing out what they
 14 should take into account and recording how
 15 they do assess it, and you go on to say, "They
 16 now use the form, we have a record", but then
 17 go on to say, "The rigor of the decision
 18 making is just as strong now as it was back
 19 then". I want to ask you about that and the
 20 basis for your ability to be able to say that
 21 statement?
 22 MR. MOORE:
 23 A. What I'll say is the people that make
 24 decisions about any work of a higher priority
 25 nature that would take us off our annual work

Page 32

1 plan is a very considered decision by very
 2 knowledgeable people taking into account, you
 3 know, reliability up to that time of the
 4 assets, the asset condition, any known
 5 operating issues with the assets, knowledge of
 6 what the manufacturer had recommended as
 7 maintenance for the assets and very considered
 8 decisions of anything that'll take you off
 9 plan. What we have in place now is a - we
 10 talked about it there yesterday, I'll call it
 11 a management of change form that is used now
 12 to document any of those decisions and an
 13 opportunity for every person involved with the
 14 decision to sign off. The amount of rigor
 15 that goes into the decision itself, I think,
 16 is still as strong and will continue to be as
 17 strong as it's always been. What we're doing
 18 now is ensuring that we have a documented
 19 record of that decision going forward.
 20 GREENE, Q.C.:
 21 Q. And in the past, we just talked about the fact
 22 there was no guidelines. There was no record
 23 kept of the decisions as well, was there,
 24 other than the change in the work plan?
 25 MR. MOORE:

Page 33

1 A. That's right. The documentation at the time
 2 would have been reflected in our computerized
 3 maintenance management system where we would
 4 have, I guess, changed target dates and years
 5 for preventative maintenance activities, and
 6 our short term planning and scheduling people,
 7 the folks who develop our weekly work
 8 schedules and our annual work plan, would
 9 certainly keep track of any of those changes
 10 through their normal maintenance planning
 11 process, but the form that we have in place
 12 now would not have been obviously in place at
 13 that time.

14 GREENE, Q.C.:

15 Q. And with respect to the monitoring of the work
 16 plan, I understand from previous testimony
 17 that has changed as well. I understand that
 18 it was before a monthly verbal update, is that
 19 correct? I think, Mr. Henderson, you gave
 20 evidence to that effect before.

21 MR. MOORE:

22 A. That's correct. Rob, did you want to answer?

23 MR. HENDERSON:

24 A. I was just going to say, yes, it was a verbal
 25 monthly update that each of the managers would

Page 34

1 indicate how they are doing with respect to
 2 their plan and what they were dealing with in
 3 terms of that month's exceptional items, which
 4 in 2013 there were quite a few exceptional
 5 items that we were managing.

6 GREENE, Q.C.:

7 Q. And now it is a written weekly report, is that
 8 correct?

9 MR. MOORE:

10 A. That's correct. Our annual work plan now is
 11 tracked on a weekly basis and each of the
 12 managers who are accountable for a portion of
 13 their assets, like, for example, our regional
 14 manager in Central Newfoundland, they provide
 15 a weekly update on the annual work plan, so
 16 actual activities completed versus what was
 17 planned, and they prepare a weekly report
 18 indicating what was achieved that week, what
 19 may have not been achieved that week, for
 20 example, if an outage got cancelled for
 21 weather reasons and they indicate what time
 22 that activity will be rescheduled within that
 23 calendar year, such that we achieve our annual
 24 work plan that year and our winter readiness
 25 target date of December 1st.

Page 35

1 GREENE, Q.C.:

2 Q. And the target for completion of PMs is also
 3 changed from 90 percent to 100 percent, is
 4 that correct?

5 MR. MOORE:

6 A. That's correct. We work towards, and I'll say
 7 that in 2014, we were successful in completing
 8 100 percent of what we had scheduled that
 9 year.

10 GREENE, Q.C.:

11 Q. So now if we move to the Western Avalon
 12 transformer T5 project, here as I understand
 13 it, that tap changer was damaged, the tap
 14 changer for T5 was damaged on January 5th and
 15 it had to be rewound and the transformer
 16 windings had to be cleaned. As I understand
 17 it, the cause of that was a breaker, B1L37
 18 which did not operate properly, is that
 19 correct, Mr. Moore?

20 MR. MOORE:

21 A. Yes, when we did the root cause analysis to
 22 determine why we had a failure of the tap
 23 changer on T5, and we explained a little bit
 24 yesterday about the tap changer versus the
 25 main compartment, I guess, for the transformer

Page 36

1 itself, what we determined is that a failure -
 2 I can go to the exact RFI number that does
 3 explain the failure, but one of the air blast
 4 circuit breakers in the Western Avalon
 5 terminal station at that time, it was
 6 determined when we did our root cause analysis
 7 that it closed at three times without one of
 8 the three phases of the breaker closing, and
 9 we've since followed up with a consultant who
 10 actually prepared a report and did an
 11 investigation into that failure, and
 12 determined that, I'll say, voltage issues
 13 because of only two of the three phases of
 14 that breaker closing would have caused the -
 15 was the most probable cause of the tap changer
 16 failure that day.

17 GREENE, Q.C.:

18 Q. So again that breaker was B1L37, and it's
 19 another air blast circuit breaker, is that
 20 correct?

21 MR. MOORE:

22 A. That's correct, B1L37 is an air blast circuit
 23 breaker.

24 GREENE, Q.C.:

25 Q. So it was another one that didn't work right?

Page 37

1 MR. MOORE:
 2 A. It is a breaker that didn't operate as it
 3 should have that day. I'll say that since
 4 that time we did a full investigation into
 5 operation of that breaker, and it worked
 6 properly since then, and in 2014 after we had
 7 the event, we did the full maintenance
 8 inspection on that breaker and testing and it
 9 did work properly, and then further follow up
 10 to that as part of our overhaul program, we
 11 did as an extra level of diligence, I'll say,
 12 we did an overhaul of that breaker in 2015 and
 13 never did find any evidence as to why that
 14 breaker didn't operate that day. We also had
 15 the same issue when we talked about yesterday,
 16 BIL03 in Sunnyside, we brought in ABB at that
 17 time who would have been the breaker
 18 manufacturer to help us with a full root cause
 19 analysis of why we had an air blast circuit
 20 breaker on that day not perform as it should,
 21 and we did an exhaustive investigation and we
 22 even tested all the auxiliary systems since,
 23 like, the DC system and the compressed air
 24 system that's required to operate that breaker
 25 and never did find any conclusive evidence as

Page 38

1 to why the breakers didn't operate. Now ABB
 2 did offer an opinion in our root cause
 3 analysis report that we submitted to the
 4 Board, I think, back in March, 2014, that on
 5 two occasions in the report they indicated
 6 that the cold weather events that day may
 7 affect the operation of air blast circuit
 8 breakers.
 9 (9:45 a.m.)
 10 GREENE, Q.C.:
 11 Q. Well, I guess, we shouldn't have them in
 12 Newfoundland then, but to go back to the air
 13 blast circuit breakers, you have reduced the
 14 cycle to a four year cycle and you are
 15 replacing all of the breakers. We do know for
 16 whatever reason, while it may have worked on
 17 other days, it didn't work that day and that
 18 was the cause of the damage for that
 19 transformer, is that correct?
 20 MR. MOORE:
 21 A. We do know - we've concluded through our root
 22 cause analysis and bringing in a third party
 23 to do a root cause analysis of that failure
 24 that day in Western Avalon, that one phase did
 25 not close on that breaker that day, that three

Page 39

1 times, and that resulted in the failure of the
 2 tap changer on T5.
 3 GREENE, Q.C.:
 4 Q. Now that breaker, as I understand from the
 5 record, was installed in 1968, so it was 46
 6 years old in 2014, is that correct?
 7 MR. MOORE:
 8 A. That sounds to be correct, yes.
 9 GREENE, Q.C.:
 10 Q. I also understand from the record that the
 11 last preventative maintenance done on that
 12 breaker was in 2005 prior to its failure, is
 13 that correct?
 14 MR. MOORE:
 15 A. That's correct, that's what our maintenance
 16 records indicate.
 17 GREENE, Q.C.:
 18 Q. So that by the time it didn't work properly in
 19 January of 2014, it was two and a half years
 20 beyond its preventative maintenance cycle, is
 21 that correct?
 22 MR. MOORE:
 23 A. That's right. That is another one of the
 24 assets that would have been in our six year
 25 recovery plan and we would have determined

Page 40

1 that that was an overdue air blast circuit
 2 breaker that needed to be completed by the end
 3 of 2015.
 4 GREENE, Q.C.:
 5 Q. Can we go back, please, to PR-PUB-NLH 167. We
 6 know that this breaker was supposed to have
 7 been done in 2011. It wasn't done the next
 8 year either, was it?
 9 MR. MOORE:
 10 A. No, as I indicated, that breaker was completed
 11 for PM in 2014.
 12 GREENE, Q.C.:
 13 Q. Now you indicated the most critical breakers
 14 are normally included in the following year
 15 annual work plan. The Western Avalon breaker
 16 didn't make it to the 2012 or 2013 plan, did
 17 it?
 18 MR. MOORE:
 19 A. No, that's correct. As I indicated, when we
 20 develop our annual work plan, and fully
 21 committed to achieving completion of our six
 22 year recovery plan by the end of 2015, and we
 23 prioritize based on the most overdue, but also
 24 taking into account the criticality of the
 25 breaker, such as associated with generating

Page 41

1 equipment, and when we looked at how many were
 2 overdue and based on a criticality assessment
 3 associated with - you know, with the most
 4 important breakers being associated with
 5 generating equipment, our plan to complete
 6 that breaker would have been in 2014.
 7 GREENE, Q.C.:
 8 Q. Like Sunnyside, all the breakers were to be
 9 done then?
 10 MR. MOORE:
 11 A. No, no, in Western Avalon.
 12 MR. HENDERSON:
 13 A. I just - Darren, I just want to add because I
 14 think my understanding is that it was in the
 15 2013 work plan, but didn't get done because of
 16 the work, so in terms of - I can't say what
 17 was in the 2012 work plan, but I did look at
 18 what was in the 2013 work plan, and I know
 19 that the Sunnyside breaker, B1L03, and T1 at
 20 Sunnyside was not in the 2013 work plan, and I
 21 believe that B1L37 was in the work plan for
 22 2013, but it got deferred because of all of
 23 the work going on in 2013. I just didn't want
 24 to leave the thought that it wasn't on the
 25 radar to be done. It just ended up being

Page 42

1 deferred through that decision making process
 2 that Darren explained.
 3 GREENE, Q.C.:
 4 Q. I also understand that this breaker was
 5 planned to be replaced in 2018, is that
 6 correct?
 7 MR. MOORE:
 8 A. That sounds to be correct as part of our long
 9 term capital program.
 10 GREENE, Q.C.:
 11 Q. Given the fact that it hadn't been done as
 12 preventative maintenance in 2014, and it was
 13 going to be replaced in 2018, was there any
 14 consideration at Hydro not to do the
 15 maintenance until it was replaced?
 16 MR. MOORE:
 17 A. No, we would not have looked at not completing
 18 our maintenance. As indicated, we are very
 19 committed to our six year maintenance program,
 20 you know, to ensure reliable supply for our
 21 customers. As Rob just indicated, it's
 22 believed that we had included that one in the
 23 2013 annual work plan. It got deferred
 24 because of the high volume of break in work
 25 that we've explained in 2013, and we were

Page 43

1 fully committed to completing the preventative
 2 maintenance on that breaker. The fact it was
 3 due to be replaced in four years time would
 4 not have caused us to make a decision to not
 5 abide by our preventative maintenance program.
 6 GREENE, Q.C.:
 7 Q. The next breaker that I want to talk about
 8 that didn't work properly in January, 2014, is
 9 the Holyrood breaker, B1L17. On January 5th,
 10 this breaker at the Holyrood terminal station
 11 didn't work properly, is that correct?
 12 MR. MOORE:
 13 A. That's correct, that breaker failed to operate
 14 on one phase, it was determined as well, of
 15 the three phase breaker on that date.
 16 GREENE, Q.C.:
 17 Q. Now this had actually had its preventative
 18 maintenance done, isn't that correct?
 19 MR. MOORE:
 20 A. That's correct. When we looked at our
 21 maintenance records for that breaker, we had
 22 been adhering to our six year preventative
 23 maintenance program for that breaker.
 24 GREENE, Q.C.:
 25 Q. And that's because it had failed in 2013, is

Page 44

1 that right? It failed in 2013 and you had to
 2 repair it?
 3 MR. MOORE:
 4 A. In 2013, that was an event, as we talked about
 5 in the terminal station at Holyrood, where we
 6 had a severe weather event which caused, I'll
 7 say, flashovers of the insulators on the
 8 breaker due to high salt contamination and
 9 snow and water and high winds. At that time,
 10 I won't say that the breaker failed, but I
 11 will say that the breaker was associated with
 12 a failure in the switch yard due to severe
 13 contamination on the insulators on the
 14 breaker.
 15 GREENE, Q.C.:
 16 Q. And after that happened, what did you do with
 17 the breaker after the 2013 event?
 18 MR. MOORE:
 19 A. When we had that event in 2013, we made a
 20 decision that we would apply, and I know this
 21 is documented in another RFI as well, but I
 22 don't recall the exact number, what we decided
 23 to do was provide an RTV coating which is kind
 24 of a silicone rubberized coating on the
 25 insulators of the breaker, and the intention

Page 45

1 of that coating is to further prevent or allow
 2 the breaker to, I guess, go through any
 3 further severe weather events to help prevent
 4 any of the flashover incidents that we seen in
 5 the winter of 2013. So we made a decision
 6 that we should apply that protective coating
 7 to the insulators on that breaker to try to
 8 further prevent a similar event happening
 9 through the following winters in that station.
 10 GREENE, Q.C.:
 11 Q. So Hydro did this themselves, they took the
 12 bushing out of service. Can you explain how
 13 you did the repair work?
 14 MR. MOORE:
 15 A. Yes, the way that is done is typically when
 16 you apply this coating, the prudent way to do
 17 it would be in a shop environment inside as
 18 opposed to outside, so what we do then we
 19 dismantle the - we remove the insulators from
 20 the breaker and take the insulators back into
 21 the shop environment, apply the coating, and
 22 then we would put the parts back on the
 23 breaker in the switch yard and then we would
 24 run the breaker right through a full complete
 25 test, an operational test, to ensure that the

Page 46

1 breaker is working properly. Now while we
 2 have the parts removed, we actually ensure
 3 that the breaker is secured with a weather
 4 tight, I'll call it cover in the switch yard
 5 and our very experienced terminal station
 6 employees, these are employees that have been
 7 working in our stations for many years,
 8 professional journeymen, safely secure the
 9 breaker with a weather tight cover to ensure
 10 that any snow, wind type thing does not get
 11 involved or into the breaker while we have the
 12 parts removed for the coating. When we put
 13 the parts back on the breaker, we go through a
 14 full test, like I just indicated, and the idea
 15 of the test, I guess, is two-fold. One is to
 16 confirm that the breaker operates as designed
 17 when we do our test. The other, I guess, goal
 18 of doing the test is that air blast circuit
 19 breakers operate on compressed air and we have
 20 a very extensive program to ensure that the
 21 compressed air supplied to the station is
 22 clean dry air, so that no moisture gets into
 23 the compressed air and into the breaker. So
 24 in doing the test of the breaker after we do
 25 maintenance work, once we go through the

Page 47

1 complete test, all air, I guess, is purged or
 2 replaced in the breaker such that any air that
 3 remains for the maintenance would be replaced
 4 with clean dry air from the compressed air
 5 system, and the last time I was in Holyrood
 6 was last Friday, actually, and did a walk
 7 through of the station with our frontline
 8 supervisor just to talk about our compressed
 9 air system, and what the folks do to make sure
 10 that it operates as it should, and I think the
 11 dew point at that time when I was there was -
 12 95 degrees C, so unless we hit -95 degrees C,
 13 we should not see any moisture in our
 14 compressed air system in that station.
 15 GREENE, Q.C.:
 16 Q. And then we come up to January of 2014, that
 17 breaker that had been repaired the previous
 18 year by Hydro didn't operate properly, is that
 19 correct?
 20 MR. MOORE:
 21 A. What we discovered - that's right, the
 22 breaker, as I indicate, did not operate
 23 properly on one phase, and when we did the
 24 root cause analysis with the manufacturer on
 25 site, we found evidence of corrosion in one of

Page 48

1 the phases of that breaker, the components in
 2 the phase of that breaker would indicate
 3 somehow that at some point in time moisture
 4 did get into the air system in that breaker.
 5 GREENE, Q.C.:
 6 Q. And it did cause it to freeze?
 7 MR. MOORE:
 8 A. We think it may be a combination of corrosion
 9 plus freezing due to the very severe cold
 10 weather that we experienced up to that period.
 11 GREENE, Q.C.:
 12 Q. Could we go to PR-PUB-NLH-066, please. As I
 13 understand it, it's a no-no to have moisture
 14 in the bushing and you should do all you can
 15 to ensure they're properly covered, that's my
 16 way of describing it?
 17 MR. MOORE:
 18 A. I will say that, yes, we're very - like I just
 19 described about our compressed air system,
 20 there's a very huge amount of effort,
 21 maintenance, and oversight required to ensure
 22 that the air system is completely full, for
 23 lack of a better word, of clean dry air so
 24 that no moisture gets into the breaker itself,
 25 and our experienced employees that work in

Page 49

1 these stations, many stations, many years, are
 2 certainly well aware of this requirement and
 3 very committed to do work in a very considered
 4 fashion to ensure that that is the case.
 5 GREENE, Q.C.:
 6 Q. And ideally the time period involved in having
 7 it disassembled to do the repair should be as
 8 short as possible, is that correct?
 9 MR. MOORE:
 10 A. We strive to - when we remove the insulators
 11 for coating of RTV, which was for all the
 12 reasons we talked about to ensure the
 13 integrity of those insulators going into the
 14 future winter seasons, we would strive to have
 15 the breaker in that condition for, I'll say,
 16 the least amount of time as possible, but
 17 having said that, the crews that were
 18 involved, journeypersons, electricians working
 19 in the station and have been for many years
 20 and very committed to this, did have a very
 21 secure water tight cover over the components
 22 of the breaker that were left in the yard
 23 while the other parts were being recoated.
 24 GREENE, Q.C.:
 25 Q. If we could go to page 2 of the RFI that's on

Page 50

1 the screen, and we see how long it did take
 2 for the work, and at lines 4 to 6, we see that
 3 we had other work again come up that prevented
 4 Hydro from completing the procedure longer
 5 than the period indicated from February to
 6 April, so over a month.
 7 MR. MOORE:
 8 A. That's right, the RFI does indicate the - if
 9 you go down through the bullets there, the
 10 higher priority work that our crews that were
 11 working on recoating the insulators on that
 12 breaker had to tend with for immediate needs
 13 for customer supply.
 14 GREENE, Q.C.:
 15 Q. So the breaker took longer to repair because
 16 the crews were busy doing other work, is that
 17 how I - that's how I read that answer.
 18 MR. MOORE:
 19 A. The breaker took longer to repair than we
 20 would have liked due to higher priority work
 21 taking those crews away from that job that
 22 were of more urgent nature at that time for
 23 our customers. That's what the four bullets
 24 actually indicate in the RFI.
 25 GREENE, Q.C.:

Page 51

1 Q. And you've indicated that in Hydro's opinion
 2 the bushing was properly secured, that there
 3 was a cover over that, is that correct?
 4 MR. MOORE:
 5 A. That's correct. I have no reason to believe
 6 that our crews would not have secured that
 7 breaker in a very deliberate water proof
 8 secure fashion. GREENE, Q.C.:
 9 GREENE, Q.C.:
 10 Q. And we don't know where the moisture came
 11 from, but we do know that that was the cause
 12 of the breaker failure?
 13 MR. MOORE:
 14 A. We do know - it is a fact that there was
 15 evidence of moisture in that phase of the
 16 breaker due to the - we found evidence of
 17 corrosion, and we do know there must have been
 18 freezing as well on that day when the breaker
 19 failed to operate, but we don't have any 100
 20 percent conclusive evidence as to the source
 21 of the moisture in that breaker.
 22 GREENE, Q.C.:
 23 Q. And did Hydro test for moisture before putting
 24 the bushing back into service?
 25 MR. MOORE:

Page 52

1 A. Our test, as I indicated there that we've been
 2 doing for many years, I'll say many decades,
 3 to ensure that the breaker contains clean dry
 4 air when it goes back in service is that full
 5 function test of the breaker, and during that
 6 test the breaker is replaced completely with -
 7 it was our understanding from the original
 8 manufacturer that that would always ensure
 9 that the breaker would be completely purged
 10 with clean dry air, and what we've done as an
 11 opportunity or - we always look for continual
 12 improvement when we do root cause analysis and
 13 failure analysis of our assets. So what we've
 14 done moving forward to ensure that that
 15 possibility doesn't exist any more, or could
 16 exist any more, that there may be moisture in
 17 that breaker is that before the breaker goes
 18 back in service on the power system now, we
 19 have a drain valve at the bottom of the
 20 compressed air tank on each phase and the
 21 crews will actually open the drain valve just
 22 as an additional check to make sure that there
 23 is no moisture present in the air system of
 24 that breaker. So that's an improvement that
 25 we've made based on our root cause analysis of

Page 53

1 this failure. We still don't conclusive know
 2 how moisture got into that breaker, but as an
 3 extra diligence - we are a learning
 4 organization, we always look for opportunities
 5 for improvement when we do a root cause
 6 analysis. We've added that step now before we
 7 put our air blast circuit breakers back in
 8 service after maintenance.
 9 (10:00 a.m.)
 10 GREENE, Q.C.:
 11 Q. Now the failure of that breaker caused Unit 1
 12 to be unavailable from January 5th to January
 13 8th, 2014, is that correct?
 14 MR. MOORE:
 15 A. That's correct.
 16 GREENE, Q.C.:
 17 Q. And if we look at that period, can we go now
 18 please to Table 3.1 on page 17 of Liberty's
 19 July 6th prudence report, July 6th, 2015? And
 20 this table indicates during the period from
 21 January 1 to 12 the units that were
 22 unavailable at that time, and it goes to
 23 Liberty's review of the additional supply
 24 costs that Hydro incurred in that January
 25 period. Liberty, as you know, found that the

Page 54

1 actions that Hydro did take to enter into the
 2 capacity assistance agreements and its use of
 3 gas turbines was prudent and that the supply
 4 cost Hydro was seeking to recover were
 5 appropriate with the exception of that period
 6 of January 5th to 8th when unit one was not
 7 available to the system to supply load because
 8 of the failure of the breaker.
 9 And I guess the question, and probably
 10 will be pursued more with the other panel, is
 11 if Hydro had to pay more for capacity to
 12 replace unit one and if unit one did fail
 13 because of an imprudent maintenance procedure,
 14 which is an issue for the Commissioners to
 15 decide after all of the evidence, how do we
 16 calculate the amount that Hydro paid for
 17 additional capacity related to the failure of
 18 unit one?
 19 So if we look at that table, we see it is
 20 shaded from January 5th to the 8th for the
 21 period the unit was unavailable as a result of
 22 that breaker. And I know, I understand that
 23 I'm to ask questions about numbers and
 24 calculations to the next panel, but there were
 25 just a few questions on this I thought might

Page 55

1 be more appropriate for the operations people.
 2 Hydro has suggested -- Liberty was unable
 3 to determine, and they'll explain, it's in
 4 their report, how they didn't have specific
 5 information to be able to calculate a specific
 6 amount of cost and they were looking at a way
 7 of estimating it and one of the things is what
 8 period is relevant to consider. Liberty
 9 looked at the period January 9th to 12th.
 10 Hydro has suggested you could look at the
 11 period January 1 to 4 as representative or
 12 even take an average of January, the first
 13 four days and the last four days. If you look
 14 at the period January 1 to January 4th, that's
 15 the period when there were rotating outages.
 16 Is that correct, Mr. Henderson?
 17 MR. HENDERSON:
 18 A. Yes, that's correct.
 19 GREENE, Q.C.:
 20 Q. Okay. Also, if you look at PR-PUB-NLH-132,
 21 Attachment 1, and if you look at the
 22 attachments, and I'm not going to go through
 23 them, but they give for -- I just wanted to
 24 show you as an example, it gives the capacity,
 25 what was unavailable. It gives the

Page 56

1 temperature for the day. It gives the peak.
 2 It gives -- so it gives the daily record for
 3 the load, the temperature, capacity
 4 assistance, so for each day. So subject to
 5 check, if we look at the first four days that
 6 Hydro is suggesting we should look at, I'd ask
 7 you to take, subject to check, that the
 8 average temperature for those days was -16.7
 9 degrees Celsius. And if we look at the period
 10 January 5th to the 8th, which was the period
 11 unit one was unavailable, again subject to
 12 check, but the average temperature was -9.3.
 13 And then for the period January 9th to 12th
 14 that the average temperature then was -6.8.
 15 And again, it's just taking those numbers and
 16 coming up with calculations of the average
 17 temperature for the periods.
 18 MR. HENDERSON:
 19 A. That's the average low temperature.
 20 GREENE, Q.C.:
 21 Q. Yes, yeah. And I wanted -- from the
 22 operations perspective, if you look at the
 23 period of January 5th to 8th, we look at the
 24 temperature and we look at the fact there was
 25 no rotating outages and then we look at -- so

Page 57

1 that's one scenario, and then you look at
 2 January 1st to the 4th where we had much lower
 3 temperatures and we have a lot of rotating
 4 outages. In Liberty's reply of September
 5 17th, and I'd like to go here now, please, Ms.
 6 Gray, Liberty's reply September 17th, page 27,
 7 lines 9 to 12, and the statement there saying
 8 "the first four days of January 2014 were
 9 particularly chaotic, characterized by extreme
 10 temperatures, supply shortages and manual load
 11 shedding" and then in the next line Liberty
 12 explains that for that reason, they're using
 13 the last four days because they think it's
 14 more representative.
 15 And I wanted, from an operations
 16 perspective your view of the first four days
 17 of the month. It must have been very
 18 challenging for Hydro at that time trying to
 19 manage with the rotating outages and the lack
 20 of capacity and then the additional problems
 21 of the Sunnyside failures. I don't know if
 22 you would agree that January 1 to -- the first
 23 four days was chaotic.
 24 MR. HENDERSON:
 25 A. I'm not sure that I would call it chaotic, but

Page 58

1 I would say that there was a lot of things
 2 going on to manage the situation that was
 3 evolved there. So there was -- you know,
 4 chaotic is a matter of how you look at things,
 5 I guess, but in particular those days, they
 6 were quite busy. There was a lot of activity
 7 going on managing the situation with the very
 8 cold weather and the equipment issues that we
 9 had. So, it was very, very busy.
 10 GREENE, Q.C.:
 11 Q. And would you agree that they were also very
 12 challenging for Hydro?
 13 MR. HENDERSON:
 14 A. It was very challenging. It was a situation
 15 that we had never experienced before and it
 16 was indeed very challenging for all of our
 17 employees in trying to sustain as much power
 18 as we could to our customers.
 19 GREENE, Q.C.:
 20 Q. Any other questions relating to the
 21 calculation I assume should be with the other
 22 panel? Is that correct?
 23 MR. HENDERSON:
 24 A. That's correct.
 25 GREENE, Q.C.:

Page 59

1 Q. And we may see you again for that, but it is
 2 the next panel, isn't it? Yeah.
 3 MR. HENDERSON:
 4 A. No rest for the weary.
 5 GREENE, Q.C.:
 6 Q. No. I guess we all might feel weary at this
 7 point, Mr. Henderson. Thank you very much.
 8 That concludes my questions.
 9 CHAIRMAN:
 10 Q. Okay. I guess we're over to Newfoundland
 11 Power, Mr. O'Brien.
 12 CROSS-EXAMINATION BY MR. LIAM O'BRIEN
 13 MR. O'BRIEN:
 14 Q. Yes, thank you, Mr. Chair. Yes, gentlemen, I
 15 think what I'd do today is probably start
 16 where Ms. Greene started and talk about the
 17 Sunnyside replacement equipment. I do have
 18 some questions about black start and CT, but I
 19 think I'll put them at the end, just where
 20 we've talked about the Sunnyside replacement.
 21 I just wanted, just for the record, just
 22 to confirm, in terms of the ultimate
 23 accountability for preventative maintenance,
 24 that lies with you, Mr. Henderson? Is that
 25 right?

Page 60

1 MR. HENDERSON:
 2 A. Ultimately, yes.
 3 MR. O'BRIEN:
 4 Q. Yeah, okay. And Mr. Moore, in terms of where
 5 you fall into the mix, I've listened to your
 6 testimony yesterday and today, just in terms
 7 of who makes the call on what maintenance gets
 8 done each year and what's your involvement
 9 with that call personally?
 10 MR. MOORE:
 11 A. My accountability would be for our asset
 12 management program for our -- for Newfoundland
 13 and Labrador Hydro's transmission assets, our
 14 distribution assets, our network
 15 services/communications assets, our isolated
 16 diesel systems, as well as we're accountable
 17 for our vegetation management program, our
 18 fleet and our warehousing services. That's
 19 some of the highlights as to what would be
 20 under my realm of accountability and the
 21 senior managers that report directly to me, as
 22 we indicated, develop the annual work plan
 23 each year based on our asset management
 24 program for those assets, and ultimately I
 25 would see the final product that's prepared

Page 61

1 for the year and receive weekly reports now of
 2 progress against that plan each year and, you
 3 know, hold my direct reports accountable for
 4 developing any necessary recovery plans for
 5 any of the work that may take us off plan or
 6 may need to be rescheduled for various
 7 reasons, such as outage changes or weather-
 8 related changes. But my accountability is
 9 achieving our asset management program for the
 10 assets that I just explained.

11 MR. O'BRIEN:
 12 Q. Okay. And I guess it was more of a simplistic
 13 question in terms of the groups that you talk
 14 about who make these decisions for the annual
 15 plan, the short term planning and scheduling,
 16 the long term asset planning and the work
 17 execution and operations, these all report
 18 into you. Is that right?

19 MR. MOORE:
 20 A. That's correct.

21 MR. O'BRIEN:
 22 Q. Okay. And I'm going to ask that we turn to
 23 the Liberty report at page 24, the initial
 24 one, and if we can scroll up, there's a --
 25 actually, sorry, page 25. There's a heading

Page 62

1 "maintenance practices there" and I just
 2 wanted to confirm I guess with the panel, the
 3 first few sentences under that paragraph to
 4 see if you would agree with those sentences.
 5 The first one "good utility practice requires
 6 a structured and comprehensive approach to
 7 maintenance." Is there any issue with that
 8 sentence?

9 MR. MOORE:
 10 A. No. I would agree that any utility should
 11 certainly have a very structured and
 12 comprehensive maintenance program for their
 13 assets to ensure reliable supply.

14 MR. O'BRIEN:
 15 Q. Okay. So we're -- all right. There's no
 16 disagreement with that. And that "such an
 17 approach identifies and provides for regular
 18 performance of inspection and repair
 19 activities designed to keep equipment in good
 20 working order, prolong its life, protect
 21 against service failures with material
 22 consequences." There's no issue with that
 23 sentence, is there?

24 (10:15 a.m.)
 25 MR. MOORE:

Page 63

1 A. No, that would be certainly the goals of any
 2 good asset management program.

3 MR. O'BRIEN:
 4 Q. Okay. And that "those consequences can
 5 include either or both avoidable damage to
 6 equipment and disruption to service to
 7 customers." There's no disagreement with
 8 that?

9 MR. MOORE:
 10 A. That would be the goal of your asset
 11 management maintenance program, to ensure that
 12 you do prevent damage to equipment and provide
 13 reliable service to customers.

14 MR. O'BRIEN:
 15 Q. And the next sentence there, "good practice
 16 calls for the identification of appropriate
 17 cycles for the performance of recurring
 18 maintenance activities." You don't take issue
 19 with that?

20 MR. MOORE:
 21 A. No, that sounds to be a fair statement with
 22 respect to maintenance programs.

23 MR. O'BRIEN:
 24 Q. And I guess based on your testimony, that's
 25 sort of where you've come to grounds on your

Page 64

1 six-year cycle for maintenance? Is that
 2 right?

3 MR. MOORE:
 4 A. That's correct.

5 MR. O'BRIEN:
 6 Q. That's the idea behind it is that good utility
 7 practice requires those types of cycles?

8 MR. MOORE:
 9 A. That's right. When you plan your maintenance,
 10 they're the things that you certainly would
 11 consider.

12 MR. O'BRIEN:
 13 Q. And when you came to the idea of a six-year
 14 cycle for maintenance, I believe you testified
 15 that you also did a review of some other
 16 jurisdictions at some point and saw that there
 17 was some had four-year, some had eight-year,
 18 but Hydro concluded that six-year was the
 19 appropriate cycle for you?

20 MR. MOORE:
 21 A. That's right. We would have compared -- like
 22 our original maintenance program, or the
 23 maintenance program that we've had in place
 24 for many years is largely based upon any
 25 recommendations that the original equipment

Page 65

1 manufacturer would have supplied at the time.
 2 But we obviously communicate and consult with
 3 other utilities with respect to the duration
 4 of their maintenance program and compare
 5 against our own to do a validation of the
 6 cycles and we did that back in around 2002,
 7 2003. We did a reliability centred
 8 maintenance view of our maintenance program,
 9 just to test to see, you know, where we were
 10 to with respect to our cycles, and we did
 11 another review back in the 2012 timeframe,
 12 which, as you stated, would have consulted
 13 with other utilities and we determined that
 14 typically between four and eight years would
 15 be what other utilities are using, kind of to
 16 test against what we had in place for our
 17 assets.
 18 MR. O'BRIEN:
 19 Q. And in terms of what you have in place though,
 20 that six years, you've got built into that
 21 what your recommendation cycles would be for
 22 the manufacturer's recommended cycles, that
 23 kind of thing? That's built into your six
 24 years, right?
 25 MR. MOORE:

Page 66

1 A. That's correct. But we've also indicated
 2 that, you know, since the outages of 2014, we
 3 did a very extensive root cause analysis of
 4 the failures and have adjusted the cycle for
 5 air blast circuit breakers to four years from
 6 six years, based on our exhaustive and
 7 extensive root cause failure analysis of those
 8 outages.
 9 MR. O'BRIEN:
 10 Q. And is that based on recommended maintenance
 11 from the manufacturers or is that based on
 12 root cause analysis?
 13 MR. MOORE:
 14 A. It's more on the root cause analysis and a
 15 comparison to what other utilities are doing
 16 for maybe some of the aging assets that the
 17 other utilities in Canada are also facing, and
 18 also the knowledge of the condition of the
 19 assets and the operational history of our very
 20 experienced employees and managers and
 21 engineers.
 22 MR. O'BRIEN:
 23 Q. Okay.
 24 MR. MOORE:
 25 A. So a combination really of all that would have

Page 67

1 led to that decision.
 2 MR. O'BRIEN:
 3 Q. And that decision arose after 2014?
 4 MR. MOORE:
 5 A. As part of our root cause analysis of the
 6 outages.
 7 MR. O'BRIEN:
 8 Q. Okay. Let's just talk about transformers
 9 again. So I believe you indicated you've got
 10 105 transformers. Is that right? Was that
 11 the figure?
 12 MR. MOORE:
 13 A. Power transformers on the high voltage power
 14 system.
 15 MR. O'BRIEN:
 16 Q. Power transformers I should say, yeah. And
 17 before -- so let's say before 2010 when you
 18 talked about this, what I'll call an
 19 accelerated plan to try to get back on track
 20 with your six-year plan, before that, did you
 21 have a goal as to how many of those you wanted
 22 to get done for preventative maintenance on an
 23 annual basis? Was it one-sixth? I presume it
 24 must have been.
 25 MR. MOORE:

Page 68

1 A. The way it would have been, that's right,
 2 through a six-year program, if you take all
 3 your power transformers and each shop, like
 4 you know, there's a crew in Whitbourne, for
 5 example, that looks after the Avalon Peninsula
 6 and there's a crew in Bishop Falls that would
 7 look after central, but the way it would be
 8 done, that's right, of the 105 power
 9 transformers, typically one-sixth of those
 10 would be required each year to be completed on
 11 a six-year cycle, if you do the rough math,
 12 right.
 13 MR. O'BRIEN:
 14 Q. Yes, because there'd be no sense having a six-
 15 year cycle unless you were going to do one-
 16 sixth of them every year or something along
 17 that line on an average. So you're looking at
 18 17 or 18 transformers looked at per year,
 19 something in that range?
 20 MR. MOORE:
 21 A. Yeah, if you do the -- that's right, the rough
 22 math, that's what you would see.
 23 MR. O'BRIEN:
 24 Q. Okay. And can we pull up the Liberty report
 25 there, page 26, Table 5.1? And we looked at

Page 69

1 this yesterday. So clearly, in terms of the
 2 number of overdue transformers in those
 3 timeframes, clearly at the end of each year,
 4 you weren't getting the 17 or 18. Is that a
 5 fair assessment on an annual basis?
 6 MR. MOORE:
 7 A. That's a fair assessment based on those
 8 numbers and, you know, as I indicated, in
 9 2009, if you look at the number there, that's
 10 when it was realized at the time that we
 11 needed to put in place a very considered plan
 12 to achieve or to get back on track and be
 13 fully covered on our preventative maintenance
 14 on those assets, and when we looked at the
 15 number of transformers at the time, the number
 16 that were overdue, our decision making process
 17 led us to a six-year plan to be fully
 18 recovered by the end of 2015.
 19 MR. O'BRIEN:
 20 Q. Okay. And let's scroll down a little bit
 21 there for 5.2 there, the overdue breaker
 22 maintenance. It's the same deal I guess there
 23 with those. You're seeing -- well, let me ask
 24 you first, and I just had trouble from
 25 calculating, but is it 65 in that range of air

Page 70

1 blast circuit breakers you've got?
 2 MR. MOORE:
 3 A. In 2009, the number would have been 63.
 4 MR. O'BRIEN:
 5 Q. Okay.
 6 MR. MOORE:
 7 A. That's somewhat less as of -
 8 MR. O'BRIEN:
 9 Q. As of today, I understand there's been a
 10 change.
 11 MR. MOORE:
 12 A. - I'll say today because we've been going
 13 through a replacement program.
 14 MR. O'BRIEN:
 15 Q. Yeah. But if we use say 2014 as a cutoff,
 16 would have been 63-65 range?
 17 MR. MOORE:
 18 A. Right. That's a good number to use.
 19 MR. O'BRIEN:
 20 Q. Okay. And so you're looking at doing one-
 21 sixth of those on an annual basis as well that
 22 would have been the -- in order to fit into
 23 that cycle.
 24 MR. MOORE:
 25 A. That's right.

Page 71

1 MR. O'BRIEN:
 2 Q. So 10 or 11 a year.
 3 MR. MOORE:
 4 A. Same commentary as we just talked about for
 5 transformers.
 6 MR. O'BRIEN:
 7 Q. Right, so you got 10 or 11 a year you're
 8 looking at those. Prior to this plan to
 9 accelerate, I guess, or to catch up in 2010,
 10 just give me the lay of the land in terms of
 11 how it was -- was there a change in 2010 as to
 12 how your group decided to look at maintenance
 13 and put together its annual plan? Was there
 14 an annual plan say prior to 2010 that was done
 15 in the same way as it was done after 2010?
 16 MR. MOORE:
 17 A. I would say back prior to that time, there
 18 would have been annual work plans and we would
 19 have a very, I'll say, extensive maintenance
 20 program that would have been documented in our
 21 computerized maintenance management system.
 22 But around the 2008, I think, '09 timeframe is
 23 when we -- when Hydro repositioned itself and
 24 restructured itself to be more focused on
 25 asset management, and back at that time, we

Page 72

1 would have put in place people who would have
 2 been fully accountable for long term asset
 3 planning, work execution, operations and short
 4 term planning and scheduling, such that any
 5 site that you would go visit in Hydro, if you
 6 walked into that site, the same structure and
 7 focus would exist for asset management.
 8 So, back around that timeframe, 2008-
 9 2009, there would have been a dedicated team
 10 looking at long term asset planning and one of
 11 the functions of the long term asset planning
 12 group is to determine and set the preventative
 13 maintenance schedule. So that team, at that
 14 time, did an analysis of where we were in
 15 terminal stations with respect to our
 16 preventative maintenance program and I
 17 indicated the other assets, such as I'll speak
 18 to TRO, like our transmission lines, our
 19 distribution systems, we were doing very well
 20 achieving our preventative maintenance goals
 21 and objectives each year. But because we were
 22 more refocused and restructured to have a
 23 better focus on asset management, the team
 24 actually dug into where we were to with
 25 respect to our terminal station PMS,

Page 73

1 recognized that we weren't achieving our
 2 objectives and determined that a very
 3 considered plan was required to be fully
 4 recovered on our preventative maintenance
 5 program for these assets and embarked upon a
 6 six-year recovery plan in 2010 to achieve that
 7 objective and get fully recovered in terminal
 8 stations.
 9 MR. O'BRIEN:
 10 Q. Okay.
 11 MR. MOORE:
 12 A. And as I indicated, we will be -- we will have
 13 that done now at the end of 2015, which is
 14 quickly nearing.
 15 MR. O'BRIEN:
 16 Q. Okay. Well, can you tell me what the process
 17 was prior to 2010, in terms of determining
 18 what maintenance was going to be done on an
 19 annual basis? So, was there an annual plan
 20 set say in 2007-2008 in terms of what work was
 21 going to be done each year, similar to the way
 22 it's done now? Was there an annual plan put
 23 together by a group?
 24 MR. MOORE:
 25 A. There would have been, but back at that time,

Page 74

1 there certainly would have been an annual work
 2 plan and back at that time, our -- I'll call
 3 them our maintenance planning or our planning
 4 and scheduling group, would have been managing
 5 our preventative maintenance program through
 6 our computerized maintenance management system
 7 and would have been looking at the schedules
 8 for preventative maintenance activities, would
 9 have been looking what was in our corrective
 10 maintenance and our preventative maintenance
 11 backlog and developing a plan that year to
 12 achieve completion of the annual work plan.
 13 But it wasn't until around 2008-2009 where we
 14 -- like I said, we had the additional focus on
 15 key aspects of asset management and
 16 established a long term asset planning group
 17 who really, you know, involved additional
 18 management oversight, I'll say, in development
 19 of these plans to ensure that we were
 20 certainly better committed and more oversight
 21 in completion of what we had planned to do and
 22 from there, when they dug into the details,
 23 they developed a six-year recovery plan, as we
 24 just talked about.
 25 MR. O'BRIEN:

Page 75

1 Q. Okay. No, I understand that.
 2 MR. MOORE:
 3 A. But it would have been more in the hands of
 4 the -- I'll say the maintenance planning group
 5 at that time to ensure that all maintenance
 6 activities were on a schedule and then between
 7 the work execution group or the frontline
 8 supervisors and the work execution managers
 9 would have been working towards achieving what
 10 was in the plan that year.
 11 MR. O'BRIEN:
 12 Q. No, I understand that, I guess, and in terms
 13 of the recovery plan, I'm not -- I will ask
 14 you to talk about the recovery plan. What I'm
 15 trying to focus on is prior to the recovery
 16 plan.
 17 MR. MOORE:
 18 A. Right.
 19 MR. O'BRIEN:
 20 Q. What was the plan? How did Hydro focus on
 21 what maintenance was going to be done on an
 22 annual basis? Was there a group that sat down
 23 in the first quarter that said "now, we need
 24 to get 10 or 11 of these transformers done in
 25 this year. We need air blast circuit breakers

Page 76

1 done in this year. We need 17 or 18
 2 transformers done in this year. We need these
 3 other assets done in this year. How are we
 4 going to prioritize all this work?" Was
 5 there a group that did that in order to meet
 6 with that six-year plan or try to?
 7 MR. MOORE:
 8 A. Prior to 2010, the group that would have been
 9 doing that would have been our, I'll say, our
 10 planning and scheduling or our maintenance
 11 planning group and they would be managing that
 12 through the computerized maintenance
 13 management system.
 14 MR. O'BRIEN:
 15 Q. And who would they report in to?
 16 MR. MOORE:
 17 A. They would have reported in to the regional
 18 manager at the time.
 19 MR. O'BRIEN:
 20 Q. Okay. So that was where you had three
 21 separate regional managers as opposed to
 22 somebody like yourself, prior to your
 23 position? Is that right?
 24 MR. MOORE:
 25 A. That's correct.

Page 77

1 MR. O'BRIEN:
 2 Q. Okay. And those regional managers, would they
 3 oversee this throughout the year that the plan
 4 is being done, followed through with?
 5 MR. MOORE:
 6 A. Part of their accountability at that time
 7 would have been to oversee execution of the
 8 annual work plan and at that time, the target
 9 corporately for achieving preventative
 10 maintenance activities would have been 90
 11 percent each year.
 12 MR. O'BRIEN:
 13 Q. So in terms of a six-year cycle, the target
 14 was not to meet a six-year cycle, it was to be
 15 90 percent of a six-year cycle?
 16 MR. MOORE:
 17 A. Our goal was to achieve the six-year recovery
 18 plan, 100 percent. But corporately, we did
 19 set a target of achieving at least 90 percent
 20 of our PMs in a given year, taking into
 21 account any possible corrective maintenance or
 22 breaking work that may happen.
 23 MR. O'BRIEN:
 24 Q. Okay.
 25 MR. MOORE:

Page 78

1 A. We also looked at some additional -- like I
 2 mentioned in evidence there yesterday, I took
 3 the position back in I'll say mid-2011 and
 4 started digging into and where we were to
 5 along the ways for our recovery plan, and
 6 beginning in 2013, we enhanced the
 7 accountability of completion of PMs by --
 8 actually we talked about this during the GRA
 9 as well that preventative maintenance targets
 10 are actually in performance contracts now for
 11 key managers. So that actual documentation of
 12 the target for preventative maintenance
 13 started in 2013.
 14 MR. O'BRIEN:
 15 Q. In 2013. So, and when was that communicated,
 16 end of 2012 or was it for -
 17 MR. MOORE:
 18 A. That's right, late 2012 we would have been
 19 developing the performance contracts.
 20 MR. O'BRIEN:
 21 Q. Okay. So as of the start of 2013, it was that
 22 90 percent had changed to 100 percent was now
 23 in a management -
 24 MR. MOORE:
 25 A. In 2013, it was -- the 90 percent target that

Page 79

1 was in the corporation at that time for
 2 completion of preventative maintenance
 3 activities would have been documented as a
 4 target in the -
 5 MR. O'BRIEN:
 6 Q. Okay. So it didn't change to 100 until after?
 7 MR. MOORE:
 8 A. But it was documented as 100 percent as a --
 9 the way the performance contracts are
 10 developed, there's threshold target and
 11 opportunity.
 12 MR. O'BRIEN:
 13 Q. Okay.
 14 MR. MOORE:
 15 A. So the 100 percent would have been documented
 16 as an opportunity at that time.
 17 MR. O'BRIEN:
 18 Q. Oh, I see, okay.
 19 MR. MOORE:
 20 A. And then in 2014, we changed to a target of
 21 100 percent and as we indicated, we now track
 22 preventative maintenance activities on the
 23 annual work plan on a weekly basis with
 24 reporting from all the key managers and that
 25 tracking goes right up to the CEO level on a

Page 80

1 weekly basis now.
 2 (10:30 a.m.)
 3 MR. O'BRIEN:
 4 Q. Okay. And that's since 2014?
 5 MR. MOORE:
 6 A. That's correct.
 7 MR. O'BRIEN:
 8 Q. Okay. Back prior to the 2010 accelerated
 9 plan, did that tracking go up to the CEO?
 10 MR. MOORE:
 11 A. At that time, it didn't go up to the CEO. It
 12 would have been, as Rob indicated, a monthly
 13 verbal report at that time.
 14 MR. O'BRIEN:
 15 Q. Okay. So it would have gone to Mr. Haynes in
 16 2008? Is that correct?
 17 MR. MOORE:
 18 A. That's right. He would have been aware of -
 19 MR. O'BRIEN:
 20 Q. On a verbal basis?
 21 MR. MOORE:
 22 A. Right.
 23 MR. O'BRIEN:
 24 Q. Okay. And what would he have been aware of?
 25 I mean, how would that reach him sort of?

Page 81

1 Would it say on a monthly basis, "here we are
 2 with preventative maintenance. Here we are
 3 with corrective maintenance. Here we are with
 4 other work done, capital work"? How did that
 5 get to Mr. Haynes?
 6 MR. MOORE:
 7 A. There would have been a monthly update to him
 8 through the monthly reporting process, but it
 9 would have been more of a, I guess, verbal
 10 discussion to Mr. Haynes at that time as to
 11 how we were tracking against our preventative
 12 maintenance and corrective maintenance and
 13 capital program. So, there were, I'll say,
 14 reporting mechanisms in place, but not to the
 15 level of weekly detail that we see now since
 16 2014.
 17 MR. O'BRIEN:
 18 Q. And prior to 2010, had Hydro met the 90
 19 percent target at any point?
 20 MR. MOORE:
 21 A. I can't speak to the full Hydro numbers. I do
 22 have some numbers here for the TRO group.
 23 MR. O'BRIEN:
 24 Q. Okay.
 25 MR. MOORE:

Page 82

1 A. Like I mentioned, I took on the position in
 2 mid-2011.
 3 MR. O'BRIEN:
 4 Q. But prior to 2010 now was my question.
 5 MR. MOORE:
 6 A. I only have the numbers here for 2010 and
 7 beyond.
 8 MR. O'BRIEN:
 9 Q. Okay.
 10 MR. MOORE:
 11 A. I don't have the numbers here for prior to
 12 that.
 13 MR. O'BRIEN:
 14 Q. Can Mr. Henderson answer that question? Do
 15 you know?
 16 MR. HENDERSON:
 17 Q. Whether there's -
 18 MR. O'BRIEN:
 19 Q. Prior to 2010, did Hydro meet the 90 percent
 20 target for preventative maintenance at any
 21 point?
 22 MR. HENDERSON:
 23 A. I couldn't say for sure at this point.
 24 MR. O'BRIEN:
 25 Q. Can you undertake to provide that?

Page 83

1 MR. HENDERSON:
 2 A. Because I haven't gone looking to see what
 3 that -- what happened back in those days.
 4 MR. O'BRIEN:
 5 Q. Okay. Can you undertake to provide that
 6 information?
 7 MR. HENDERSON:
 8 A. We'll have a look to see what we can provide.
 9 I know the measurement and I'll say rigour to
 10 measurement is evolved over that time, so I'm
 11 not sure what detail -
 12 MR. O'BRIEN:
 13 Q. Can you explain that?
 14 MR. HENDERSON:
 15 A. What I mean is in terms of going through the
 16 process of implementing a more focused asset
 17 management process, part of that was looking
 18 at how we measure our performance and so as I
 19 -- when I came into the position, I was able
 20 to see that there was evolution happening in
 21 terms of the -- what we call the asset owners
 22 were meeting regularly to talk about how
 23 they're measuring because each area was doing
 24 things a little differently and we were
 25 getting to a more standardized approach to

Page 84

1 measuring performance. So, it did evolve over
 2 that period of time. So I'm not sure what the
 3 detail -- you know, we may have it in one form
 4 at one point and earlier it was a different
 5 form. So that's all I'm saying is it changed.
 6 MR. O'BRIEN:
 7 Q. Okay.
 8 MR. HENDERSON:
 9 A. And I -- to Terry here, I don't know if you
 10 can -- sorry to bring you into the discussion.
 11 MR. LEDREW:
 12 A. Help.
 13 MR. O'BRIEN:
 14 Q. Bring him in.
 15 MR. HENDERSON:
 16 A. But you would have been looking after it at
 17 Holyrood, so you would be able to talk a bit
 18 about what was happening.
 19 MR. O'BRIEN:
 20 Q. So it's separate areas would deal with the
 21 preventative maintenance? Is there any way
 22 that it was brought together for say Mr.
 23 Haynes to look at?
 24 MR. LEDREW:
 25 A. Well, it is now.

Page 85

1 MR. O'BRIEN:
 2 Q. Okay.
 3 MR. LEDREW:
 4 A. With the asset owner and the reorganization
 5 that happened in '09, there was accepted
 6 definition and rigour around breaking work,
 7 preventative maintenance targets, and so those
 8 things got compiled.
 9 MR. O'BRIEN:
 10 Q. In 2009?
 11 MR. LEDREW:
 12 Q. And would roll up to Jim Haynes, yeah.
 13 MR. O'BRIEN:
 14 Q. Okay. But prior to 2009 then, it was each
 15 area, each manager dealt with that themselves?
 16 MR. LEDREW:
 17 A. Yeah. We would use the same tool that Darren
 18 spoke, that was used at the Holyrood facility
 19 as well and we would have PMS in the register
 20 that would get executed by our planning group
 21 and we would track our own performance locally
 22 at the operational regions.
 23 MR. O'BRIEN:
 24 Q. Okay. And would you have your own planning
 25 group then at each area that dealt with that?

Page 86

1 MR. LEDREW:
 2 A. Yes, we do, yeah.
 3 MR. O'BRIEN:
 4 Q. Okay. And now that's not the case? It's a
 5 separate planning group or a combined planning
 6 group? Is that how it works?
 7 MR. LEDREW:
 8 A. No. There are still separate planning groups
 9 around, dispersed around the major centres,
 10 but there is an asset -- a technical council
 11 now that provides oversight to those groups so
 12 that everybody is managing the data sets
 13 consistently -
 14 MR. O'BRIEN:
 15 Q. In the same way.
 16 MR. LEDREW:
 17 A. - and the definitions are consistent.
 18 MR. O'BRIEN:
 19 Q. Okay. So in 2011, you came into the picture
 20 then, Mr. Moore, was it, or mid-2011? Is that
 21 what you said?
 22 MR. MOORE:
 23 A. That's correct.
 24 MR. O'BRIEN:
 25 Q. Would you have been involved, Mr. Henderson,

Page 87

1 from say 2010 forward when there was a
 2 decision made to accelerate and catch up on
 3 the preventative maintenance?
 4 MR. HENDERSON:
 5 A. No, I wasn't -- I wasn't aware of this issue
 6 until we started to look at it in -- well, it
 7 probably came most to my attention in 2014
 8 that we were in the middle of a catch-up
 9 phase.
 10 MR. O'BRIEN:
 11 Q. Okay. And who can speak to then the 2010 plan
 12 itself, where did this arise, whose idea was
 13 it?
 14 MR. MOORE:
 15 A. I can speak to it. It was prior to when I
 16 went into the position, but I do know how it
 17 was evolved.
 18 MR. O'BRIEN:
 19 Q. Okay.
 20 MR. MOORE:
 21 A. Like I mentioned, back in I'll say 2008- 2009
 22 timeframe when we restructured and implemented
 23 the long term asset planning groups throughout
 24 the organization, that team then would have
 25 been accountable for developing and setting,

Page 88

1 I'll say, the preventative maintenance program
 2 and they were the group that would then look
 3 at how we were progressing with our plan and
 4 whether we're meeting our objectives. So led
 5 by the long term asset planning manager for
 6 terminal stations, that person took the lead
 7 back at that time to do a real good analysis
 8 of where we were to with respect to PMS in
 9 terminal stations and made a very considered
 10 decision that a six-year recovery plan was the
 11 best way forward to get to a place where we
 12 were fully recovered and fully compliant with
 13 our preventative maintenance program in
 14 terminal stations.
 15 MR. O'BRIEN:
 16 Q. So the long term asset manager for terminal
 17 stations, who was that?
 18 MR. MOORE:
 19 A. At that time, and still is the case, it would
 20 be a gentleman named Hughie Ireland.
 21 MR. O'BRIEN:
 22 Q. Okay. And do you know whether he took
 23 instruction from Mr. Haynes to develop this
 24 plan? How did that work?
 25 MR. MOORE:

Page 89

1 A. That wouldn't have been, I'll say, a direct
 2 instruction from Mr. Haynes, but by virtue of
 3 the fact that he's the manager accountable for
 4 implementing a preventative maintenance
 5 program, you know, he took it upon himself as
 6 a senior leader within Hydro to determine that
 7 where we were with respect to preventative
 8 maintenance in terminal stations was not
 9 meeting our targets and that a very considered
 10 long term plan was required to get us back to
 11 a place, back to square one I'll call it, by
 12 the end of 2015. So, I won't say it was a
 13 direct instruction from Mr. Haynes, but by
 14 virtue of the senior role that Hughie accepted
 15 accountability for, you know, he fully
 16 understood that that was his role to ensure
 17 that we had a plan in place to be compliant
 18 with our preventative maintenance program.
 19 MR. O'BRIEN:
 20 Q. And was there a change at all at that stage in
 21 terms of reporting to Mr. Haynes? Was it
 22 still a monthly basis as to whether or not
 23 this plan was being followed up on?
 24 MR. MOORE:
 25 A. When the plan was first put in place in 2010,

Page 90

1 the reporting would have been the same as we
 2 talked about, on a monthly basis.
 3 MR. O'BRIEN:
 4 Q. Okay. And I understand it's different now.
 5 MR. MOORE:
 6 A. Back at that time.
 7 MR. O'BRIEN:
 8 Q. Was there a written document in terms of this
 9 plan?
 10 MR. MOORE:
 11 A. It wouldn't have been a written document, but
 12 it would have been -- I'll say documented, for
 13 lack of a better word, and implemented in our
 14 computerized maintenance management system.
 15 So when we developed our annual work plans and
 16 looking at the most overdue and most critical
 17 maintenance that was in place or required say
 18 in terminal stations, it would have been
 19 documented in the annual work plan each year
 20 and it would have been managed through our
 21 computerized maintenance management system,
 22 based on the last date that the preventative
 23 maintenance was done, would have been
 24 documented in the maintenance system and the
 25 planners would have been managing based on

Page 91

1 that?
 2 MR. O'BRIEN:
 3 Q. So was there a computer program that captured
 4 this plan, that sort of told you each year
 5 what you had to do? How did that work?
 6 MR. MOORE:
 7 A. Yeah, there is a program, but again, it's
 8 documented in our computerized maintenance
 9 management system. It wouldn't be, I'll say,
 10 a separate documented report as such.
 11 MR. LEDREW:
 12 A. The JD Edwards triggers. Preventative
 13 maintenance is triggered at -- anything
 14 scheduled to be executed in the upcoming year,
 15 there's a trigger happens and that produces a
 16 report: this is all due for this year.
 17 MR. O'BRIEN:
 18 Q. Okay. So you get that full report then?
 19 MR. MOORE:
 20 A. Correct.
 21 MR. O'BRIEN:
 22 Q. And it's a summary, I guess, at the beginning
 23 of the year and you work from that? Is that
 24 how that -- the group would then work from
 25 that summary report?

Page 92

1 MR. MOORE:
 2 A. That's correct.
 3 MR. O'BRIEN:
 4 Q. Okay. And so in 2010 then, I just want to get
 5 an idea as to what the plan was in terms of
 6 how you were going to catch up. Was the plan
 7 then to say, okay, the computer system was
 8 going to generate, say, with respect to
 9 breakers, if you're going to do 10 or 11 in
 10 the normal scheme of things, we're going to do
 11 13 or 14 this year. How would that -- how
 12 does that work?
 13 MR. MOORE:
 14 A. That would have been communicated from the
 15 long term asset planning team and long term
 16 asset planning manager at that time to
 17 determine that a six-year plan was required
 18 and the instructions would have been given to
 19 the short term planning and scheduling group
 20 who manage the computerized maintenance
 21 management system, as Terry just talked about
 22 in JD Edwards, and they would have been given
 23 instructions as to "when you develop the
 24 annual work plan each year, we need to include
 25 the most overdue maintenance in terminal

Page 93

1 stations first for each shop." And that's how
 2 the plan would have been developed. Also
 3 consideration to criticality such as we talked
 4 about transformers and circuit breakers that
 5 may be associated with our generating
 6 facilities. So the short term planning and
 7 scheduling group, on a yearly basis, 2010,
 8 '11, '12, you know, as they worked through
 9 this plan, would have been know that when they
 10 look at the last time the maintenance was done
 11 in the computerized maintenance management
 12 system, and given that criteria or that
 13 criticality criteria, they would have
 14 developed the plan each year based on that in
 15 the computerized maintenance management
 16 system.
 17 MR. O'BRIEN:
 18 Q. Okay. And that criticality criteria, that
 19 wasn't part of the computer summary printout,
 20 was it?
 21 MR. MOORE:
 22 A. No, but that would have been an understanding
 23 of -
 24 MR. O'BRIEN:
 25 Q. That was a judgment call.

Page 94

1 MR. MOORE:
 2 A. - the people that were developing the schedule
 3 that, you know, the focus would be on our
 4 generating facilities first, and in 2014, we
 5 documented a much more formal asset
 6 criticality ranking for our air blast circuit
 7 breakers and power transformers.
 8 MR. O'BRIEN:
 9 Q. Yeah, I understand that, yeah.
 10 MR. MOORE:
 11 A. But prior to then, the understanding would
 12 have been -
 13 MR. O'BRIEN:
 14 Q. You didn't have that documentation.
 15 MR. MOORE:
 16 A. - the generating facilities would have been
 17 the highest priority.
 18 MR. O'BRIEN:
 19 Q. And who would have communicated that to this
 20 group as to what the actual criteria are, the
 21 criticality, the generating -- can you explain
 22 to me how that would have gotten communicated
 23 to these individuals?
 24 MR. MOORE:
 25 A. That would have been done by communication

Page 95

1 between the long term asset planning manager
 2 with the short term planning and scheduling
 3 team and also the work execution managers and
 4 the regional managers. So there would have
 5 been communication and discussion about that
 6 criteria each year when we developed our
 7 annual work plan. All these people work in
 8 the same office and communicate on a daily
 9 basis and there's continuous communication
 10 with respect to execution of our plan and
 11 development of our plans. So that would have
 12 been communication between those teams and
 13 well understood that this is how we were going
 14 to proceed forward to implement annual work
 15 plans and additional work to ensure that we
 16 complete the recovery plan by the end of 2015.
 17 So that would have been a fair amount of
 18 communication and discussion among those teams
 19 as we develop our plans and manage our assets.
 20 MR. O'BRIEN:
 21 Q. And would Mr. Haynes have been involved in
 22 that process, in terms of communicating to
 23 those individuals what needs to be done for
 24 determining when preventative maintenance
 25 could be deferred or done or what got done

Page 96

1 each year?
 2 MR. MOORE:
 3 A. Mr. Haynes, at that time, my understanding
 4 would be that he wouldn't be involved with
 5 those direct day-to-day discussions of
 6 management of assets, but he would have been
 7 provided with the monthly updates of how we
 8 were progressing.
 9 MR. O'BRIEN:
 10 Q. The updates, okay.
 11 MR. MOORE:
 12 A. And you know, he would have fully understood
 13 all the positions that are in place in each
 14 operating region that are accountable for
 15 making these decisions and developing these
 16 plans and working toward the plans.
 17 MR. O'BRIEN:
 18 Q. So, in say 2010 or say at the end of 2010,
 19 there's 18 transformers that are still
 20 outstanding and there's 11 overdue breaker
 21 left from the overdue breaker maintenance,
 22 would that have been communicated to Mr.
 23 Haynes at the end of the year?
 24 MR. MOORE:
 25 A. I'm not sure if he would have had those exact

1 numbers at the end of the year at that time.
 2 MR. O'BRIEN:
 3 Q. I'm trying to get an idea as to how this would
 4 have been followed at the higher level.
 5 MR. MOORE:
 6 A. I will -
 7 MR. O'BRIEN:
 8 Q. Would you have been -- obviously you didn't
 9 come in until 2011.
 10 MR. MOORE:
 11 A. Right.
 12 MR. O'BRIEN:
 13 Q. But the manager would know?
 14 MR. MOORE:
 15 A. The regional managers would have certainly
 16 been well aware of how they were progressing
 17 on this plan each year, at that time, and Mr.
 18 Haynes would have -- my understanding would be
 19 he would have, you know, through a performance
 20 management system, would have had those
 21 discussions in general as to how we were
 22 progressing with our maintenance program with
 23 his regional managers. But, I can't say for
 24 sure as to what exact numbers may have been
 25 communicated to him or even how often he would

1 Q. That's helpful, yeah.
 2 MR. HENDERSON:
 3 A. In 2014 for -- you know, when I started to be
 4 aware of what was happening here, that's when
 5 -- you know, when I was aware of this issue,
 6 we -- in 2014, we said we need to be watching
 7 this and you know, having more frequent
 8 reporting. That's when we introduced the
 9 weekly reporting on progress of the annual
 10 work plan.
 11 MR. O'BRIEN:
 12 Q. Okay.
 13 (10:45 a.m.)
 14 MR. HENDERSON:
 15 A. Prior to that, we were talking more high level
 16 on performance and exceptions, I'll say, in
 17 terms of if there was something that was not
 18 happening as it should, it would be reported
 19 up and that would be addressed. And so in my
 20 experience, it was dealing with a lot of the
 21 exceptional items, rather than dealing with
 22 the day-to-day maintenance activities.
 23 MR. O'BRIEN:
 24 Q. Okay. And I guess one of the reasons I ask
 25 that is just based on Mr. Moore's testimony

1 be aware of those numbers at that time.
 2 MR. O'BRIEN:
 3 Q. And Mr. Henderson, you wouldn't have been
 4 involved at that point?
 5 MR. HENDERSON:
 6 A. No, I wasn't involved with that, no.
 7 MR. O'BRIEN:
 8 Q. In terms of going forward then, who else might
 9 have been given updates? Would this have gone
 10 up further through to Mr. Martin at all in
 11 terms of how the plan was progressing?
 12 MR. HENDERSON:
 13 A. I can speak in my time.
 14 MR. MOORE:
 15 A. Yes, okay.
 16 MR. O'BRIEN:
 17 Q. Yeah.
 18 MR. HENDERSON:
 19 A. I did not have that kind of discussion with
 20 Mr. Martin.
 21 MR. O'BRIEN:
 22 Q. Okay.
 23 MR. HENDERSON:
 24 A. The reporting, we changed the reporting.
 25 MR. O'BRIEN:

1 earlier about there being a change in target
 2 at the end of 2012 and now being reflected
 3 preventative maintenance in 2013. I'm just
 4 wondering -- clearly at some point in 2012,
 5 there was an issue that was brought up further
 6 above you, Mr. Moore, in terms of there
 7 needing to be more focus on preventative
 8 maintenance. Is that fair to say?
 9 MR. MOORE:
 10 A. I think it's fair to say that in 2012, when I
 11 was into the second year of this position, I
 12 was aware of where we were progressing, you
 13 know, against our 90 percent target for
 14 preventative maintenance and felt at that time
 15 that there needed to be additional focus --
 16 I'll say focus or additional detail placed
 17 into the performance contracts of our regional
 18 managers in 2013 so that it was very clear
 19 what was expected. It was always well
 20 understood what was expected for preventative
 21 maintenance, but we were three years then into
 22 a six-year plan for terminal stations and we
 23 felt that it was very -- the appropriate time
 24 to enhance the accountability for completion
 25 of preventative maintenance at that time and

Page 101

1 that's when we wanted to clearly document it
 2 in performance contracts moving, you know,
 3 from 2013 onward.
 4 MR. O'BRIEN:
 5 Q. So did you have a concern at that time that
 6 you weren't going to meet this six-year catch-
 7 up goal?
 8 MR. MOORE:
 9 A. I wouldn't say it was a concern at that time.
 10 We were three years into a six-year plan, but
 11 it was recognized that very clear instruction
 12 as an opportunity improvement should be
 13 included in performance contracts. So, as an
 14 opportunity to further clarify expectations,
 15 we felt that we would put it -- the prudent
 16 thing to do would be put it into the
 17 performance contracts in 2013 moving forward.
 18 So, I wouldn't call it a concern, but an
 19 opportunity to further clarify expectations.
 20 MR. O'BRIEN:
 21 Q. So you changed the performance contract to
 22 include it now as a target, to change the
 23 target, and it wasn't because you had any
 24 concern over whether or not you were going to
 25 catch up with this plan or follow through with

Page 102

1 this plan? That had nothing to do with it?
 2 MR. MOORE:
 3 A. No, it was more of a -- as continual
 4 improvement as being one of our focuses of our
 5 management philosophy, I guess, in Hydro, we
 6 felt that an opportunity to further clarify
 7 expectations around preventative maintenance
 8 and to bring more attention to it was the
 9 prudent thing to do starting in 2013.
 10 MR. O'BRIEN:
 11 Q. And was this your decision to include that or
 12 was this a decision made above you?
 13 MR. MOORE:
 14 A. That would have been a decision that, you
 15 know, I would have been involved with, but at
 16 the time, you know, would have been a
 17 discussion as well between myself and Mr.
 18 Henderson about not necessarily where we were
 19 tracking against preventative maintenance, but
 20 an opportunity to further clarify the
 21 accountabilities of our managers moving
 22 forward.
 23 MR. O'BRIEN:
 24 Q. Mr. Henderson wasn't in the role he's in now
 25 in 2012. Would he have been involved in a

Page 103

1 discussion in changing targets in 2013 -- for
 2 2013?
 3 MR. HENDERSON:
 4 A. Maybe I can just -
 5 MR. O'BRIEN:
 6 Q. Yeah.
 7 MR. HENDERSON:
 8 A. These performance contract measures were
 9 finalized when I got into the position. So I
 10 was the one that finally signed off on these
 11 particular PM targets to ensure that -- you
 12 know, that was highly visible in terms of the
 13 managers' accountability and so that was --
 14 Darren and I had that discussion when we were
 15 looking to finalize those performance
 16 contracts in early 2013.
 17 MR. O'BRIEN:
 18 Q. Okay. And so is it fair to say then it's
 19 something you -- it was your idea, Mr. Moore,
 20 but it was finalized through discussions with
 21 Mr. Henderson? Is that a fair way to
 22 characterize it?
 23 MR. HENDERSON:
 24 A. I'm trying to recall, but I know that we had
 25 that discussion and said that this was a very

Page 104

1 important measure that we needed to have and
 2 we had to help make sure that that
 3 accountability was there. I'm trying to
 4 recall now how that started because you're
 5 trying to say well, whose idea it was.
 6 MR. O'BRIEN:
 7 Q. Well, I'm just trying to get a flavour, yeah.
 8 MR. HENDERSON:
 9 A. And it could have come through a discussion
 10 recognizing that this is a critical aspect of
 11 the jobs of the regional managers to get their
 12 PMS done and we had discussions around
 13 ensuring that that gets done, because we
 14 wanted to ensure that we were positioning the
 15 system to be as reliable as possible and had
 16 that high focus on the managers.
 17 MR. O'BRIEN:
 18 Q. And the reason I'm asking it is that you are
 19 three years into a plan at this point and this
 20 thing -- and this discussion, by the sounds of
 21 it, didn't happen in 2010 or 2011, and I'm
 22 wondering why it's happening and why the
 23 change is happening in 2012 into 2013, and not
 24 early on. Because wouldn't it have been a key
 25 part of these roles earlier on as well?

Page 105

1 You're making a change in the plan now to try
 2 to catch up. I would have thought that would
 3 have been the time to do it.
 4 MR. HENDERSON:
 5 A. I just would like to say that in the
 6 discussion in 2013 when we went through this,
 7 we were talking about overall PMS. We weren't
 8 -- this is not the catch up. This is overall
 9 PM completion. There wasn't a specific
 10 discussion on the terminal station maintenance
 11 on the transformers as part of that. You
 12 know, we did not highlight as a separate item
 13 in the performance contract. We were talking
 14 about PM completion overall.
 15 MR. O'BRIEN:
 16 Q. I understand that, yeah.
 17 MR. HENDERSON:
 18 A. So I just wanted to -- I wasn't sure with your
 19 question whether you were thinking that this
 20 was the catch up was in the performance
 21 contract.
 22 MR. O'BRIEN:
 23 Q. Well, I would have thought that the catch up
 24 was not just for transformers. It would have
 25 been -- or sorry, for -- was it just for

Page 106

1 transformers, just for overdue breaker
 2 maintenance or was it for all PM?
 3 MR. MOORE:
 4 A. No, it was -- the six-year program starting in
 5 2010 was for terminal station equipment.
 6 MR. O'BRIEN:
 7 Q. Just for terminal station equipment?
 8 MR. MOORE:
 9 A. That's correct, yes.
 10 MR. O'BRIEN:
 11 Q. Okay. And so that's a separate program from
 12 your whole PM?
 13 MR. MOORE:
 14 A. Well, it's part of the overall PM program,
 15 I'll say.
 16 MR. O'BRIEN:
 17 Q. Part of the overall, okay. Just take me back
 18 now through the criteria that the -- so when
 19 there's an annual plan that's put in place
 20 each year, I want to get a bit more detail on
 21 the criteria as to how you decide what work
 22 takes priority. You mentioned in terms of
 23 which of these assets might be further out in
 24 terms of the last time it underwent
 25 maintenance, most overdue, that kind of thing.

Page 107

1 You also mentioned those associated with
 2 generating stations. Just tell me the
 3 generation part of it. Just give me a little
 4 bit more detail on that. What are you talking
 5 about there?
 6 MR. MOORE:
 7 A. Yeah, I guess I can use a little bit of --
 8 maybe a bit of an example to try to further
 9 clarify it.
 10 MR. O'BRIEN:
 11 Q. Yeah.
 12 MR. MOORE:
 13 A. Like our maintenance planning group are the
 14 group or our short term planning and
 15 scheduling group are the group that will
 16 always be looking at our computerized
 17 maintenance management system and keeping
 18 track of what's in backlog and the last
 19 completed date of PMS and that's all
 20 documented within our computerized maintenance
 21 management system. So when they go to develop
 22 an annual work plan for a year, you know,
 23 they're given direction and through
 24 consultation with our work execution managers,
 25 our long term asset planning manager and even

Page 108

1 the regional manager to look at, you know,
 2 what the most overdue and critical backlog
 3 work is required to be put in the annual work
 4 plan that year, plus any other maintenance
 5 that's due based on the schedule for that
 6 year.
 7 So that group then would take that and
 8 develop the annual work plan for that year and
 9 the different types of work that would be
 10 included would be our preventative maintenance
 11 program, an allotment for corrective
 12 maintenance, whether it be work from --
 13 critical work from backlog that needs to be
 14 done because we're waiting on or need to plan
 15 outages to complete that work, and also an
 16 allotment for any corrective maintenance that
 17 we may find as we do our preventative
 18 maintenance throughout the year or things that
 19 may happen on the power system throughout that
 20 year, and there will also be an allotment for
 21 operating project work and capital work.
 22 But all that would be based on the
 23 resources that we have available in each
 24 region and the resources certainly are very
 25 reflective of the operating budget that's

Page 109

1 approved for that region each year. So you
 2 look at your available resources, the work
 3 that's required that year, the most critical
 4 backlog preventative maintenance work and
 5 overdue maintenance work, recognize that there
 6 was a six-year plan for terminal stations, and
 7 also any corrective maintenance backlog that's
 8 awaiting outages, for example, to be scheduled
 9 and then they would develop an annual work
 10 plan based on the available resources that
 11 year, recognizing that there would be some
 12 contractor type work for some of our capital
 13 program work and our internal resources do
 14 work on some capital, but not all capital. So
 15 that's how the plan would be laid out for that
 16 year.
 17 MR. O'BRIEN:
 18 Q. And when you say critical backlog, you're
 19 talking corrective maintenance there, are you,
 20 not preventative maintenance?
 21 MR. MOORE:
 22 A. Backlog really applies to both because any -
 23 MR. O'BRIEN:
 24 Q. If you put aside the -
 25 MR. MOORE:

Page 110

1 A. - any preventative maintenance that wasn't
 2 completed at the time when it was specified to
 3 be completed would be considered part of the
 4 backlog. So, if there was a preventative
 5 maintenance activity that was due say the
 6 previous year on a power transformer that --
 7 we talked about the reasons why some of this
 8 work does get deferred to later years.
 9 MR. O'BRIEN:
 10 Q. Yeah, something got deferred from the year
 11 before.
 12 MR. MOORE:
 13 A. That would be considered a preventative
 14 maintenance item that's in backlog.
 15 MR. O'BRIEN:
 16 Q. Yeah.
 17 MR. MOORE:
 18 A. But there's also corrective maintenance
 19 activities that come up because when you do a
 20 thorough preventative maintenance program, I
 21 mean, you do find things on your assets that
 22 do need to be corrected, but they often get
 23 placed in work order backlog because, you
 24 know, they require outages normally to get
 25 that work complete, planned outages.

Page 111

1 MR. O'BRIEN:
 2 Q. So this is when a preventative maintenance
 3 issue has led to a corrective issue?
 4 MR. MOORE:
 5 A. Right.
 6 MR. O'BRIEN:
 7 Q. Yeah, okay. But put aside that, if some -- if
 8 a preventative maintenance had been planned
 9 for say 2011 and never got done, then -
 10 MR. MOORE:
 11 A. That would become part of the backlog. That's
 12 correct.
 13 MR. O'BRIEN:
 14 Q. Yeah, that's part of the backlog, but it's not
 15 a critical issue? You don't deem that
 16 critical. You deem that that's another year
 17 past when it was supposed to be done? Is that
 18 right?
 19 MR. MOORE:
 20 A. No, well I can't say it wouldn't be a critical
 21 issue. That probably wouldn't be the best way
 22 to look at it. What we would look at is all
 23 the preventative maintenance activities that
 24 may be in backlog and we would develop our
 25 plans going forward to address the most

Page 112

1 critical first, which may be a transformer
 2 associated with a generating station would be
 3 done at the highest priority.
 4 MR. O'BRIEN:
 5 Q. Okay. And in terms of say prioritizing
 6 transformers, apart from generating station --
 7 when you're talking generating stations, what
 8 are you talking about exactly?
 9 MR. MOORE:
 10 A. Well, I would look at, say, a transformer
 11 that's associated with maybe unit two in Bay
 12 D'Espoir, a 75 megawatt hydro generating unit,
 13 only has one transformer to transform the
 14 energy produced by that unit up to the
 15 transmission voltage. So if anything happened
 16 to cause that transformer to be out of
 17 service, it would result in that generating
 18 unit not being available for service for the
 19 power system. So of all our 105 power
 20 transformers, the ones that are directly
 21 associated with generation would be considered
 22 our highest asset, critical power
 23 transformers.
 24 MR. O'BRIEN:
 25 Q. And the Sunnyside -

Page 113

1 MR. MOORE:
 2 A. Just as an example, using Bay D’Espoir.
 3 MR. O’BRIEN:
 4 Q. What about the Sunnyside transformer? Is
 5 there any criticality to that?
 6 MR. MOORE:
 7 A. Since 2014, and in the June 2nd 2014 reports
 8 to the Board, we’ve gone through and ranked
 9 all of our 105 power transformers using a very
 10 rigorous criteria and Sunnyside T1 would be
 11 documented in that report. I can’t remember
 12 off the top of my head where it falls in the
 13 list of 105, but it certainly wouldn’t have
 14 had the same critical ranking or criteria as
 15 a, say, T1 for unit two in Bay D’Espoir, for
 16 example.
 17 MR. O’BRIEN:
 18 Q. Okay.
 19 MR. MOORE:
 20 A. Because if you look at the design of the
 21 Sunnyside system, there’s two transformers in
 22 the Sunnyside yard, T1 and T4, and either one
 23 of those transformers can supply full load at
 24 any given time. So there’s redundancy in that
 25 station. Whereas a T2 in Bay D’Espoir, there

Page 114

1 is no redundancy for that generating unit.
 2 MR. O’BRIEN:
 3 Q. Without the right redundancy. But in terms of
 4 how you analyze -- let’s say you had -- you’re
 5 talking about Bay D’Espoir and the unit two in
 6 Bay D’Espoir and that had been done three
 7 years ago.
 8 MR. MOORE:
 9 A. Right.
 10 MR. O’BRIEN:
 11 Q. And Sunnyside is due now at six, right, so
 12 it’s past it’s six years, is there -- and
 13 there’s no corrective maintenance that’s in
 14 the plan, how do you prioritize those two?
 15 MR. MOORE:
 16 A. The way we would look at it, if I use maybe
 17 the Whitbourne crew as an example, we talk
 18 about say 105 power transformers. So of that
 19 we said we’d do -- with the rough math we
 20 talked about a little bit earlier, we’d say 17
 21 or 18 transformers per year. Now across the
 22 Island Interconnected system for these power
 23 transformers, there’s really four crews that
 24 do that work. There’d be a crew in
 25 Whitbourne. There’d be a crew in Bishop

Page 115

1 Falls, a crew in Stephenville and a crew on
 2 the Northern Peninsula. So if we want to
 3 continue on with the rough math, each of those
 4 shops would be accountable to get, if we
 5 wanted to maintain our preventative
 6 maintenance schedule, they would have to do
 7 maybe five power transformers per year each
 8 from a preventative maintenance perspective to
 9 keep up with our -- and be on track with our
 10 six-year program.
 11 MR. O’BRIEN:
 12 Q. To go beyond, yeah.
 13 (11:00 a.m.)
 14 MR. MOORE:
 15 A. So what we would look at, if we look at the
 16 Whitbourne crew, we would look at all the
 17 transformers in the eastern terminal stations
 18 that they’re accountable for doing maintenance
 19 on and we would look at the last date that
 20 those transformers were done. And from there,
 21 we would start with the most overdue for that
 22 year or at that time and develop our annual
 23 work plan such that they would have I’ll say
 24 five, maybe six power transformers in their
 25 plan that year to ensure that we’re also, at

Page 116

1 that time, would have been keeping up with our
 2 2010 to 2015 recovery plan. So that shop
 3 would have five or six power transformers that
 4 year and we would determine what would be an
 5 annual work plan that year based on the most
 6 overdue transformers, but bearing in mind any
 7 transformers that at that time we talked about
 8 the criticality would be based on generating
 9 sources and those type things.
 10 But since 2014, the criteria is certainly
 11 -- and criticality is much more rigorous now.
 12 We went through a more extensive process to
 13 establish criticality, but back in 2010, we
 14 would have looked at the five or six most
 15 overdue transformers that were in -
 16 MR. O’BRIEN:
 17 Q. In each area?
 18 MR. MOORE:
 19 A. - in the realm of the Whitbourne shop and
 20 that’s what would have been in their annual
 21 work plan.
 22 MR. O’BRIEN:
 23 Q. So if you had ones in another area that were
 24 much more overdue and ones in Whitbourne area
 25 that were all under six years, you wouldn’t

Page 117

1 have Whitbourne crew do some of the other
 2 ones?
 3 MR. MOORE:
 4 A. We might do some of that in a given year.
 5 MR. O'BRIEN:
 6 Q. Okay.
 7 MR. MOORE:
 8 A. We do move crews around the island to help out
 9 other crews, as warranted, but the base plan
 10 would start off with typically what each crew
 11 would do in each year based on the most
 12 overdue and what were most critical.
 13 MR. O'BRIEN:
 14 Q. Okay. I think we're at 11 there, Mr. Chair.
 15 CHAIRMAN:
 16 Q. I think we'll take a preventative maintenance
 17 break.
 18 (BREAK - 11:02 a.m.)
 19 (RESUME - 11:35 a.m.)
 20 CHAIRMAN:
 21 Q. So we're back to Mr. O'Brien I believe.
 22 MR. O'BRIEN:
 23 Q. Thank you, Mr. Chair.
 24 CHAIRMAN:
 25 Q. In Mr. Moore's words, we're all fully

Page 118

1 recovered, sir.
 2 MR. MOORE:
 3 A. Yes, we are, sir.
 4 MR. O'BRIEN:
 5 Q. Mr. Moore, we were talking about, I guess, the
 6 criteria when we left off in terms of the
 7 annual plan and how you prioritize. I did
 8 have a question -- you had mentioned in terms
 9 of transformers connected to generating
 10 stations as being more -- having more
 11 priority, I guess, in terms of work. Is that
 12 right?
 13 MR. MOORE:
 14 A. That's what we talked about, yes, before the
 15 break.
 16 MR. O'BRIEN:
 17 Q. And does the same apply to air blast breakers?
 18 MR. MOORE:
 19 A. Yes. We would look at prioritizing our air
 20 blast circuit breakers based on anything
 21 associated with a generating facility.
 22 MR. O'BRIEN:
 23 Q. So there wouldn't be sort of -- 230 kV
 24 breakers across the system wouldn't have high
 25 priority, like equal priority?

Page 119

1 MR. MOORE:
 2 A. They would be obviously of a high priority,
 3 and depending on the redundancy that may be
 4 built into the power system, you know, others
 5 may take precedence over a circuit breaker
 6 that may have a redundant configuration type
 7 thing, but we would look at the highest
 8 priority being the generating facilities first
 9 and then some of our terminal stations are
 10 built with, I'll say a ring bus configuration
 11 so that there's, you know, two alternate
 12 sources of electricity to flow. So any
 13 circuit breaker in that type of configuration
 14 may not take as high a priority for if you
 15 just have a single circuit breaker say
 16 supplying customers rather than two sources of
 17 electricity. So they're some of the things
 18 that we would use to -- or would have used at
 19 that time to prioritize the execution of our
 20 annual work plan. And again, in 2014, we
 21 formalized that criteria much fuller.
 22 MR. O'BRIEN:
 23 Q. In terms of a list of criticalization, I
 24 guess, is that what it was?
 25 MR. MOORE:

Page 120

1 A. Yes, that's right, and the criteria that we
 2 used as documented in the June 2nd, 2014
 3 reports.
 4 MR. O'BRIEN:
 5 Q. And I think I had asked the question earlier,
 6 in terms of, I guess, prior to 2014 and
 7 prioritizing, if you had say one asset that
 8 was three years out from its last preventative
 9 maintenance but you had another one that was
 10 six, but the three-year would fall ahead
 11 prioritizing, would you do the three-year
 12 first even though another one's been six,
 13 seven years out, maybe even past its cycle?
 14 MR. MOORE:
 15 A. I would say we would have included both in the
 16 annual work plan, but if the three-year was
 17 very critical to a generating facility and the
 18 six-year may have redundancy built into the
 19 configuration of the power system, the three-
 20 year may take higher priority, but the goal
 21 would be to achieve both.
 22 MR. O'BRIEN:
 23 Q. And when you say -- is there separate like
 24 cycle for those assets that are attached to a
 25 generating unit?

Page 121

1 MR. MOORE:
 2 A. No, the six-year cycle -- or at that time, the
 3 six-year cycle would have applied to all air
 4 blast circuit breakers.
 5 MR. O'BRIEN:
 6 Q. To all of them, yeah.
 7 MR. MOORE:
 8 A. Which we've since changed to four years.
 9 MR. O'BRIEN:
 10 Q. And now it's a four-year but it's still to
 11 all?
 12 MR. MOORE:
 13 A. Yes.
 14 MR. O'BRIEN:
 15 Q. Okay. And I'm just trying to get a sense of
 16 sort of how you would move up -- if one of
 17 those assets was say three years out, how it
 18 would move up in priority from another asset
 19 that was six or seven years out and was
 20 outside its cycle. If there wasn't corrective
 21 maintenance involved with that particular
 22 three-year -- the asset that had been three
 23 years out, how would you move it up ahead of
 24 one that's six or seven years out?
 25 MR. MOORE:

Page 122

1 A. Essentially what we would do is the short term
 2 planning and scheduling group would build the
 3 annual work plan that year and decide which
 4 breakers would be included in the annual work
 5 plan. So you know, it actually wouldn't move
 6 ahead in priority as such, but the
 7 instructions were given to the short term
 8 planning and scheduling group to look at the
 9 most overdue, but also look at the criticality
 10 associated with generating stations and from
 11 there you need to make decisions as to which
 12 breakers need to be included in that year's
 13 annual work plan, which ones would have been
 14 the highest priority to include in the plan.
 15 But they all would have still remained
 16 documented with the last due date in the
 17 computerized maintenance management system for
 18 that group to manage the scheduling of.
 19 MR. O'BRIEN:
 20 Q. I guess I understand that. The summary report
 21 would sort of spit out in terms of the
 22 timeline, I take it?
 23 MR. MOORE:
 24 A. Yes, that's right.
 25 MR. O'BRIEN:

Page 123

1 Q. And so I'm just struggling with how one would
 2 get moved up in a timeline if it's already --
 3 it's only been three years since it got last
 4 done. Like is there -
 5 MR. MOORE:
 6 A. No, that wouldn't happen. We would start with
 7 -- like I explained about the Whitbourne shop,
 8 I guess, the most overdue would be the first
 9 one and then the second most overdue would be
 10 the second one, until you've reached the
 11 allotment that could be done that year with
 12 those resources in that shop.
 13 MR. O'BRIEN:
 14 Q. Okay.
 15 MR. MOORE:
 16 A. But I guess all we're saying is that, you
 17 know, for example, if there was five -- if the
 18 five most overdue breakers were required that
 19 year in that shop, but let's say number six
 20 was associated with a key piece of generating
 21 equipment, then that number six may make the
 22 list and number five we may look at scheduling
 23 for the subsequent year, based on that
 24 criteria. But that's just an example of a
 25 decision that could be made.

Page 124

1 MR. O'BRIEN:
 2 Q. Okay.
 3 MR. MOORE:
 4 A. The other thing we look at too as well is like
 5 when we look at the power transformers and air
 6 blast circuit breakers, there's a -- if we
 7 look at PUB-NLH-174, there's a very extensive
 8 list of all the maintenance that we do in
 9 terminal stations. We do monthly air system
 10 checks. We do quarterly inspections in the
 11 terminal stations. We'll do an annual
 12 inspection, physical -- well, a visual
 13 inspection of power transformers, for example,
 14 and you know, there's oil sampling that takes
 15 place on different frequencies for different
 16 assets.
 17 So there's a significant amount of
 18 maintenance that happens on an annual basis in
 19 a terminal station that the numbers that we're
 20 talking about here that we put in the six-year
 21 plan for is our six-year PM, but there is a
 22 fair amount of other inspection and
 23 maintenance that takes place on these assets
 24 in these stations. So we would also have
 25 knowledge and the people involved with the

Page 125

1 decision making to build that annual work plan
 2 would have knowledge of what we have been
 3 finding say through our oil analysis or our
 4 visual inspections and those type things and
 5 that would also help prioritize what six-year
 6 PMs we would include in that annual work plan.
 7 MR. O'BRIEN:
 8 Q. In terms of resources, you had mentioned
 9 earlier, Ms. Greene had asked you about, I
 10 guess, how resources fit into this and the
 11 following of your operating budget and you've
 12 mentioned this a couple of times. You
 13 mentioned the rural deficit. Is that
 14 something that's actually in the forefront of
 15 the minds of these people who are planning the
 16 preventative maintenance on an annual basis
 17 that we got to keep the rural deficit down?
 18 MR. MOORE:
 19 A. It's very much in the minds of the managers in
 20 our team who are accountable for ensuring that
 21 there's an annual work plan put in place. But
 22 what I will say is that all people in a role
 23 of accountability, I guess, that are putting
 24 together this annual work plan are certainly
 25 very well aware of the operating budget that

Page 126

1 we have and the expectation that we work to
 2 and meet our operating budget as our means of
 3 providing least cost service, and whether
 4 everybody would be fully knowledgeable about
 5 the rural deficit, but I just wanted to use
 6 that as an example that, you know, that is our
 7 key tool to ensure that the rural deficit is
 8 managed is working to our operating budget.
 9 So, everybody is every clear and understand
 10 fully when we're developing our annual work
 11 plan and allocating our resources that
 12 managing to our budget is a balanced priority
 13 along with completing our maintenance program.
 14 MR. O'BRIEN:
 15 Q. And where does reliability fit into that
 16 analysis?
 17 MR. MOORE:
 18 A. We have extensive, I guess, reliability data
 19 that we report to the PUB on say a quarterly
 20 basis and we watch on a regular basis of --
 21 I'll use like our SAIDI/SAIFI numbers, for
 22 example, for the power system. So that's a
 23 measure of the duration of outages and the
 24 frequency of outages. So we do look at
 25 reliability numbers and I'll use an example.

Page 127

1 If we look at the reliability numbers say for
 2 our distribution systems, for example. If we
 3 have distribution feeders that for certain
 4 reasons, if the performance of that feeder say
 5 is not meeting our targets and then we do a
 6 root cause to determine what's happening,
 7 let's say that we determine that vegetation
 8 management is causing some outages on a
 9 distribution feeder, then when we develop our
 10 annual work plan and if we know vegetation
 11 management is affecting a certain feeder's
 12 reliability, then we would ensure that
 13 vegetation management would be addressed in
 14 that area, based on the reliability of that
 15 feeder, as an example.
 16 But reliability is very much in the
 17 forefront of how our assets are performing and
 18 the root cause analysis of when the assets
 19 don't perform to our reliability standards and
 20 what may need to be incorporated into our plan
 21 to improve that reliability going forward.
 22 MR. O'BRIEN:
 23 Q. And I guess the background to that is I would
 24 have thought reliability would be the
 25 forefront and would have been the main focus

Page 128

1 of a preventative maintenance program. Is
 2 that right?
 3 MR. MOORE:
 4 A. That is right. The main reason you do
 5 preventative maintenance is to ensure reliable
 6 supply to our customers and that's why the
 7 program is extensively documented and managed
 8 in a computerized maintenance management
 9 system such that we ensure that the highest
 10 priority work is addressed in a given year in
 11 the annual work plan.
 12 MR. O'BRIEN:
 13 Q. Yeah, I understand in terms of documentation,
 14 but in terms of being followed, wouldn't
 15 reliability be the main reason why a
 16 preventative maintenance program would be
 17 followed and kept up to date?
 18 MR. MOORE:
 19 A. That's right.
 20 MR. O'BRIEN:
 21 Q. Okay.
 22 MR. MOORE:
 23 A. That's the focus of our preventative
 24 maintenance program is to ensure reliability.
 25 MR. O'BRIEN:

Page 129

1 Q. And one of the questions Ms. Greene had for
 2 you is why you didn't consider more resources,
 3 putting more resources on the issue, consider
 4 whether you should contract out in 2010, 2011,
 5 2012 to try to catch up with this work. Why
 6 wasn't that considered?
 7 MR. MOORE:
 8 A. I'll say that it was -- at the point in which
 9 we considered that we realized -- because it
 10 was basically the six-year PMs in terminal
 11 stations that we had a recovery plan in place
 12 for and all our other major asset classes, we
 13 were doing a very good job meeting our
 14 preventative maintenance targets. So, in
 15 2013, and we talked about some of the large
 16 breaking work in 2013 and 2012. We did an
 17 analysis in 2013 and realized that, you know,
 18 we're four years into our six-year recovery
 19 program for terminal stations, not as far
 20 along as we would have liked to have been four
 21 years in and at that time, through the amended
 22 GRA, we put forward to the Board, the
 23 requirement for additional resources in 2014
 24 and 2015 to ensure that we were going to
 25 achieve our six-year recovery plan in 2015.

Page 130

1 (11:45 a.m.)
 2 MR. O'BRIEN:
 3 Q. So four years in, in 2013, you weren't as far
 4 along -- do you know if you were actually as
 5 far along as you should have been just with a
 6 regular six-year plan, the plan you had in
 7 place before 2010, before the catch-up idea?
 8 You had a six-year cycle then. Do you know if
 9 you were tracking for a regular six-year
 10 cycle?
 11 MR. MOORE:
 12 A. I don't have the numbers in front of me right
 13 now, but I think I'll say that we were
 14 completing on an annual basis typically what
 15 would have been in our annual plan, but we
 16 weren't getting to the point with -- I think
 17 the RFIs actually show the numbers that were
 18 overdue each year.
 19 MR. O'BRIEN:
 20 Q. I've looked at the numbers that were overdue
 21 each year, but -
 22 MR. MOORE:
 23 A. Now 2013 -
 24 MR. O'BRIEN:
 25 Q. - I think you were a few behind in each one.

Page 131

1 MR. MOORE:
 2 A. There was.
 3 MR. O'BRIEN:
 4 Q. On a regular six-year cycle, not just a catch-
 5 up, but a regular six-year cycle.
 6 MR. MOORE:
 7 A. And 2013 ended up being the most exceptional
 8 year where we documented that there was 10,000
 9 hours of regular -- or 10,000 person hours of
 10 breaking work on a regular basis and then
 11 10,000 hours worth of overtime on a breaking
 12 basis, which really definitely put us in a
 13 position in 2013 that we were not where we
 14 wanted to be with our six-year recovery plan
 15 in terminal stations.
 16 MR. O'BRIEN:
 17 Q. And that's the year you changed the target.
 18 MR. MOORE:
 19 A. And that's -- 2013 is when we documented the
 20 target in performance contracts to raise
 21 visibility, I guess, of that target and
 22 accountability with our regional managers.
 23 But it was in 2013, late in 2013 when we did
 24 the analysis of where we were with respect to
 25 our recovery program and what we would need to

Page 132

1 do to make sure that we completed it by the
 2 end of 2015 that we put forward in the two
 3 test years for 2014 and 2015 to record
 4 resources to get to achieve success.
 5 MR. O'BRIEN:
 6 Q. Can I ask you why it was a six-year plan for
 7 recovery from 2010 forward, why not a two or a
 8 three-year plan if you're -- prior to 2010,
 9 you were on six-year cycle anyway. In six
 10 years, you should get all of these things done
 11 anyway, shouldn't you?
 12 MR. MOORE:
 13 A. It's a good question. Like I was not
 14 obviously in the position that made that
 15 decision back in 2009. From what I
 16 understand, talking to the people who did
 17 develop the six-year recovery plan, was based
 18 on what was overdue in 2009 and looking at the
 19 available resources and our budget
 20 requirements -- because least cost is a high
 21 focus when you're a running a -- you know, in
 22 Hydro. So the people that made the decision
 23 to put together a six-year recovery plan felt
 24 that was a reasonable plan to get to the end
 25 of 2015 and be fully recovered in terminal

Page 133

1 stations, bearing in mind their knowledge of
 2 how the assets had been performing up to that
 3 time, where some of the known issues may or
 4 may not have been with the assets, the health
 5 of the asset, age, like very intimately
 6 familiar with how well the assets had been
 7 performing, and looked at what was overdue
 8 based on the resources available moving
 9 forward and all that decision making evolved
 10 into a six-year plan to be completed by the
 11 end of 2015.

12 MR. O'BRIEN:
 13 Q. But I understood that Hydro had come to the
 14 conclusion prior to that that six years was an
 15 appropriate cycle and now -

16 MR. MOORE:
 17 A. Yeah, that's right, the six-year cycle was
 18 established for -

19 MR. O'BRIEN:
 20 Q. Right, so six-year cycle was appropriate, and
 21 you hadn't been meeting it.

22 MR. MOORE:
 23 A. - for that particular maintenance tactic for
 24 those assets, yes.

25 MR. O'BRIEN:

Page 134

1 Q. So why not accelerate it for the catch-up
 2 plan?

3 MR. MOORE:
 4 A. I'll say that a six-year plan is actually an
 5 accelerated program because it's in those six
 6 years, we're still planning on completing all
 7 maintenance that becomes due that year, plus a
 8 portion of what was required from backlog. So
 9 I would say that the six-year program was an
 10 accelerated program.

11 MR. O'BRIEN:
 12 Q. But if you did every one of those -

13 MR. MOORE:
 14 A. That was reasonable to accomplish with the
 15 resources that we have available.

16 MR. O'BRIEN:
 17 Q. If you did every one of those in that six-year
 18 plan, you'd only do one of them in each -- in
 19 that plan, wouldn't you? It's not extra
 20 generators you're doing, or sorry, extra
 21 transformers you're doing or extra breakers
 22 you're doing.

23 MR. MOORE:
 24 A. Yeah. What we have to look at, in 2009, there
 25 was a portion that was in backlog. So we

Page 135

1 wanted to make sure that we completed what was
 2 in backlog plus anything that may become due
 3 over that six-year period as well.

4 MR. O'BRIEN:
 5 Q. You couldn't do the portion that was in
 6 backlog in the first year and then catch up by
 7 just -- I don't get it, why you wouldn't have
 8 done a shorter period.

9 MR. MOORE:
 10 A. I guess the volume of work in 2009 required
 11 that it was going to take six years to -- I
 12 guess what probably causes the confusion, when
 13 you look at it and say of all the power
 14 transformers, some are overdue, some are not,
 15 and that's probably what's causing the
 16 confusion. What we said we'd do over a six-
 17 year period, based on like we just talked
 18 about, this is a six-year maintenance tactic,
 19 what we said we'd do starting in 2010, we'd
 20 look at the most overdue and what can be
 21 accomplished in each shop and that's how we
 22 would tackle the 2010 maintenance program and
 23 then in 2011, you look at it the same way. So
 24 by tackling the most overdue and the most
 25 critical assets first, by the end of 2015, we

Page 136

1 would be back to a position where we wouldn't
 2 have any overdue maintenance any more on those
 3 assets. So it's really a focus each year of
 4 tackling the most overdue, most critical, as
 5 opposed to we got two that are overdue and six
 6 not overdue and that's how we're going to
 7 plan. The focus is looking at the most
 8 critical, most overdue and through a six-year
 9 period get to a point where we're fully
 10 recovered.

11 MR. O'BRIEN:
 12 Q. I guess I'm just not getting it. In terms of
 13 implementing that plan then and going forward
 14 was there an actual number given to each group
 15 to say here's how many extra you need to do
 16 each year in order to get to that point?

17 MR. MOORE:
 18 A. That's right. Each group were well aware of
 19 what was in the annual work plan and what
 20 transformers were required, if we use
 21 transformers for an example, that the
 22 Whitbourne shop were accountable to get done
 23 each year or on an annual work planning basis,
 24 but a plan was mapped out as to the numbers
 25 that would be required in each shop to get to

Page 137

1 the point where we're fully recovered in 2015.

2 MR. O'BRIEN:

3 Q. Is there any point during the year when you're

4 doing -- when you've already come to your

5 actual plan at the beginning of the year, is

6 there any point during the year that

7 preventative maintenance schedule is

8 reconsidered? Say one item that was not

9 supposed to be done until the next year is

10 moved up?

11 MR. MOORE:

12 A. There are things that -- there's multiple

13 things, I guess, that may cause us to -- you

14 know, we talked about capital breaking work

15 and corrective breaking work that may need to

16 come into the annual work plan and result in

17 an item that is in the plan -

18 MR. O'BRIEN:

19 Q. Being moved back.

20 MR. MOORE:

21 A. - may reprioritize to a later date. Some of

22 those could be -- I'm just trying to think of

23 a good example now to give.

24 MR. O'BRIEN:

25 Q. If there was say a minor issue that needed

Page 138

1 corrective work, would you move something up

2 that's supposed to be there next year, move it

3 up to this year?

4 MR. MOORE:

5 A. I'll use an example, I guess, if we want to

6 just illustrate by an example. In 2013, when

7 we had the failure in the Holyrood terminal

8 station with respect to the salt spray and the

9 weather and contamination in the yard, at that

10 time, we had tracking on the air blast circuit

11 breaker that was associated with unit one. So

12 in that year, the transformer, Holyrood T1,

13 was not in the annual work plan that year

14 because it wasn't due. But because of the

15 fact that we had a fault in the terminal

16 station and we knew that that fault

17 transferred through the transformer to the

18 generator, which was what we would call a

19 through fault, we felt it would be prudent at

20 that time to do a preventative -- our six-year

21 preventative maintenance inspection on that

22 transformer because it seen a fault that year

23 because of a weather related issue. So that's

24 an example.

25 MR. O'BRIEN:

Page 139

1 Q. That's the type of thing I'm asking, okay.

2 All right. And is there -- are there any

3 guidelines for how that gets done or is it

4 just a judgment call?

5 MR. MOORE:

6 A. I wouldn't say there's specific guidelines,

7 but, you know, the knowledgeable people who

8 are certainly operating and managing the power

9 system make those decisions as issues arise

10 throughout the year through operation of the

11 power system.

12 MR. O'BRIEN:

13 Q. I just want to touch again on the resources in

14 terms of what you had available in terms of

15 doing your preventative maintenance program

16 and I guess your regular maintenance program

17 from 2010 to say 2014. Was there a shortage

18 of resources at that time?

19 MR. MOORE:

20 A. I wouldn't characterize as a shortage of

21 resources. There's normal turnover that we

22 would see that we address through recruitment

23 and retention in any given year. But at the

24 time, we had -- our resources were based on

25 our operating budget that we had that year and

Page 140

1 the resources that we felt we need through our

2 annual work planning process to achieve

3 execution of the annual work plan.

4 MR. O'BRIEN:

5 Q. Did you have any resources that were seconded

6 out to any other areas in Nalcor, the Lower

7 Churchill Project or anything like that?

8 MR. MOORE:

9 A. In what year?

10 MR. O'BRIEN:

11 Q. In any of those years, 2010 to 2014, who could

12 have been doing -

13 MR. MOORE:

14 A. Not from my division, no.

15 MR. O'BRIEN:

16 Q. No.

17 MR. MOORE:

18 A. What I'll say, some of the -- 2013 was the

19 most exceptional year that our resources ended

20 up having to be focused on higher priority

21 work as we talked about in Holyrood.

22 MR. O'BRIEN:

23 Q. But that's within Hydro, is it?

24 MR. MOORE:

25 A. That's right, yes.

Page 141

1 MR. O'BRIEN:
 2 Q. Yeah, okay.
 3 MR. MOORE:
 4 A. But not to other divisions, no.
 5 MR. O'BRIEN:
 6 Q. All right. I just want to ask some specific
 7 questions now on the maintenance on the
 8 Sunnyside T1. You've mentioned the cause of
 9 the failure in earlier testimony, and that was
 10 due for maintenance in September 2013. Is
 11 that right?
 12 MR. MOORE:
 13 A. The six-year cycle would have been up in
 14 September 2013 for the six-year maintenance
 15 tactic.
 16 MR. O'BRIEN:
 17 Q. All right. And can you tell me any reason why
 18 that wasn't prioritized for that particular
 19 year? Was there any particular maintenance
 20 that was prioritized ahead of it?
 21 MR. MOORE:
 22 A. In the 2013 annual work plan, the Sunnyside
 23 transformer would have fell under the
 24 terminals crew in Whitbourne and the
 25 transformers that were on their plan this year

Page 142

1 would have been based on that criteria I
 2 talked about in 2013 of the most overdue
 3 transformers for that year. I don't have the
 4 exact transformer names and numbers in front
 5 of me here now from that annual work plan, but
 6 I do know that it would have been 2014 when we
 7 were going to do -- that transformer would
 8 have been in the annual work plan, and that
 9 would have been considered based on looking at
 10 the -- you know, all the other maintenance
 11 tactics that were done in Sunnyside up to that
 12 point in time as well, like on a quarterly and
 13 annual basis as well, right.
 14 MR. O'BRIEN:
 15 Q. I wonder if we could bring up PUB-NLH-170,
 16 Revision 1?
 17 MS. GRAY:
 18 Q. In the GRA?
 19 MR. O'BRIEN:
 20 Q. PR, sorry. And if we can -- so there's an
 21 attachment here - is it 170?
 22 MS. GRAY:
 23 Q. Oh, I'm sorry.
 24 MR. O'BRIEN:
 25 Q. Sorry, Revision 1. So that would have been --

Page 143

1 that transformer would have been last done --
 2 this is an attachment here. Those are all the
 3 terminal station power transformers. Is that
 4 right?
 5 MR. MOORE:
 6 A. That's correct. That's all 105 of them.
 7 MR. O'BRIEN:
 8 Q. 105 then at least.
 9 MR. MOORE:
 10 A. In the last two years that preventative -- the
 11 six-year preventative maintenance tactic was
 12 completed.
 13 MR. O'BRIEN:
 14 Q. Yes, you can see there's a number with the
 15 2014 date on it.
 16 MR. MOORE:
 17 A. That's correct.
 18 MR. O'BRIEN:
 19 Q. But I'm interested in the 2013 ones. So the
 20 transformer at Sunnyside would have been,
 21 which one? T1 -
 22 MR. MOORE:
 23 A. It's in alphabetical order there.
 24 MR. O'BRIEN:
 25 Q. Yeah.

Page 144

1 MR. MOORE:
 2 A. Sunnyside T1.
 3 MR. O'BRIEN:
 4 Q. So it would have been the T1. So that is on
 5 the next page there. It was last done
 6 September of 2007. Is that right?
 7 MR. MOORE:
 8 A. Yes, that's correct.
 9 MR. O'BRIEN:
 10 Q. All right. Okay. So if we go back to the
 11 first page and at the top, the Bay D'Espoir
 12 one is the second one in line there.
 13 MR. MOORE:
 14 A. Right.
 15 MR. O'BRIEN:
 16 Q. Right, so that was done prior to Sunnyside
 17 anyway, so that would have been in priority to
 18 Sunnyside. Is that right? That was last done
 19 in -
 20 MR. MOORE:
 21 A. It would be if you look at the numbers.
 22 MR. O'BRIEN:
 23 Q. Yeah.
 24 MR. MOORE:
 25 A. But as I described earlier, there's four

Page 145

1 shops, I'll call them, that do maintenance on
 2 our power transformers. So there's the
 3 Whitbourne shop and there's the Bishop Falls
 4 shop, a Stephenville shop and a crew on the
 5 Northern Peninsula. So the Bay D'Espoir
 6 transformer would have been done by the crew
 7 in Bishop Falls.
 8 MR. O'BRIEN:
 9 Q. In Bishop Falls, and in fact -
 10 MR. MOORE:
 11 A. And the Sunnyside transformer would have been
 12 done by the crew in Whitbourne.
 13 MR. O'BRIEN:
 14 Q. And that's what I wanted to get through, I
 15 guess. There's four transformers, if you go
 16 down the list done in 2013, in the Bay
 17 D'Espoir group.
 18 MR. MOORE:
 19 A. Right.
 20 MR. O'BRIEN:
 21 Q. Is that right?
 22 MR. MOORE:
 23 A. Just looking at the numbers now, just to -
 24 MR. O'BRIEN:
 25 Q. Just have a look.

Page 146

1 MR. MOORE:
 2 A. Yeah, you're right.
 3 MR. O'BRIEN:
 4 Q. Yeah, okay. And if we come down to Hinds
 5 Lake, the transformer there that was done in
 6 2013 but had been previously done in 2010, the
 7 T1 -
 8 MR. MOORE:
 9 A. Right.
 10 MR. O'BRIEN:
 11 Q. - who would have been doing that? Which crew
 12 would have done that?
 13 MR. MOORE:
 14 A. Stephenville.
 15 MR. O'BRIEN:
 16 Q. Stephenville, all right. And Holyrood here,
 17 we've got one there at the T1 was done in 2011
 18 and done again in 2013.
 19 MR. MOORE:
 20 A. That's correct. Actually that's the example
 21 that I just used.
 22 MR. O'BRIEN:
 23 Q. Yeah.
 24 MR. MOORE:
 25 A. Because in 2013, we had the failure in the

Page 147

1 yard in Holyrood.
 2 MR. O'BRIEN:
 3 Q. Right, so that would be a corrective
 4 maintenance issue, would it?
 5 (12:00 p.m.)
 6 MR. MOORE:
 7 A. Well, it would be -- it's still the same
 8 preventative maintenance check and tactic, but
 9 it would be in response to a situation that we
 10 seen on the power system that wasn't planned
 11 for or accounted for going into the year,
 12 right.
 13 MR. O'BRIEN:
 14 Q. Okay. And if we turn over to the next page,
 15 we've got Peter's Barron and Plum Point.
 16 There's three of them there that are done in
 17 2013.
 18 MR. MOORE:
 19 A. And they would be done by our TRO Northern
 20 crew.
 21 MR. O'BRIEN:
 22 Q. Northern crew, right.
 23 MR. MOORE:
 24 A. On the Northern Peninsula.
 25 MR. O'BRIEN:

Page 148

1 Q. And would they hold any priority over the
 2 Sunnyside one or it's just that they're done
 3 by a different crew?
 4 MR. MOORE:
 5 A. Typically when we develop our annual work
 6 plan, we look at the most overdue as priority,
 7 but then we develop the annual work plan based
 8 on the shop. So normally we wouldn't take say
 9 a transformer that is in Sunnyside that's
 10 overdue and ask the crew up on TRO Northern to
 11 go do that one instead of one that they're
 12 accountable for in their shop.
 13 MR. O'BRIEN:
 14 Q. Okay.
 15 MR. MOORE:
 16 A. So the annual work plan would have been
 17 developed and prioritized really by the crew
 18 that normally does that work in that work
 19 area.
 20 MR. O'BRIEN:
 21 Q. And the west -- there's one down here, Western
 22 Avalon T1.
 23 MR. MOORE:
 24 A. That's right. That would be part of the
 25 Whitbourne team.

Page 149

1 MR. O'BRIEN:
 2 Q. And that seems to be the only one done by the
 3 Whitbourne team that year.
 4 MR. MOORE:
 5 A. Well, except for Holyrood T1 that you'd
 6 mentioned.
 7 MR. O'BRIEN:
 8 Q. That's what I'm wondering. So that -- but
 9 that was a corrective maintenance one, right?
 10 MR. MOORE:
 11 A. That's right, but those two transformers -
 12 MR. O'BRIEN:
 13 Q. Is this a corrective maintenance too?
 14 MR. MOORE:
 15 A. - were done that year by the Whitbourne crew.
 16 MR. O'BRIEN:
 17 Q. Was any preventative maintenance on
 18 transformers done by the Whitbourne crew that
 19 year?
 20 MR. MOORE:
 21 A. They were the only two that were done by the
 22 Whitbourne crew that year, and the main reason
 23 for it is all the huge volume of work that
 24 took that crew off plan that year because all
 25 the main issues that we talked about that

Page 150

1 would have took them off plan with respect to
 2 the January 2013 failure in the Holyrood
 3 terminal station and the connection of the
 4 Newfoundland Power mobile generation, the RTV
 5 coating on the circuit breaker components
 6 themselves, and the installation of the new
 7 generator at Hardwoods, all would have
 8 involved the Whitbourne crew. So, the
 9 Whitbourne crew, I'll say was the most
 10 affected, if that's the right way to put it,
 11 by some of the larger events that we had
 12 happen in 2013.
 13 MR. O'BRIEN:
 14 Q. So with all of those things going on, why not
 15 consider more resources or contract out to get
 16 the Whitbourne stuff, that crew stuff done
 17 that year?
 18 MR. MOORE:
 19 A. And I'll say that we did that and it became
 20 part of the 2014 and '15 test year to get to a
 21 place where we were fully completed by the end
 22 of 2015, which we will be.
 23 MR. O'BRIEN:
 24 Q. When you say you did that, you actually
 25 contracted out resources in 2013?

Page 151

1 MR. MOORE:
 2 A. No, we put forward a plan to the Public
 3 Utilities Board and which is part of our 2014
 4 and '15 test years to include additional
 5 resources to complete the remainder of the
 6 recovery program by the end of 2015.
 7 MR. O'BRIEN:
 8 Q. No, that wasn't my question. My question, in
 9 2013, why not consider resources or additional
 10 resources to do the 2013 year when Whitbourne
 11 was obviously tied up, that crew was tied up
 12 with other things.
 13 MR. MOORE:
 14 A. I'll say the reason we didn't go with
 15 additional resources because maybe the
 16 breaking work that we were experiencing at
 17 that time would have been more of a -- the
 18 progress through the year, looking back
 19 through the year and realizing what we weren't
 20 accomplishing as part of our plan. So our
 21 only real opportunity to address that with
 22 extra resources was into the next year.
 23 MR. O'BRIEN:
 24 Q. And are you surmising that or is that your
 25 answer that that's what happened?

Page 152

1 MR. MOORE:
 2 A. That's what happened.
 3 MR. O'BRIEN:
 4 Q. Okay. And was there any opportunity in 2013
 5 to have any of the other crews do some of the
 6 preventative maintenance on the transformers?
 7 MR. MOORE:
 8 A. No, because they were fully focused on I'll
 9 say the recovery program in their areas itself
 10 and there was other additional breaking work
 11 that was happening on other parts of the
 12 system. The Stephenville crew, for example,
 13 were tied up with the rewind of the generator
 14 on the Stephenville gas turbine, as another
 15 example. And in the RFI itself, there's also
 16 a breaker in Bay D'Espoir that the Bishop
 17 Falls crew ended up working on that was a
 18 failure that happened throughout the year. So
 19 the highest volume, I guess, affected the
 20 Whitbourne crew.
 21 MR. O'BRIEN:
 22 Q. The Whitbourne crew.
 23 MR. MOORE:
 24 A. But there were other things that were
 25 happening which we documented in RFIs that

Page 153

1 were happening to other crews, so the
 2 opportunity for them to be taken off their
 3 recovery plan and the work that needed their
 4 attention for our customers was not there to
 5 go out and I'll say do a full blitz on the
 6 east coast of the additional PM work. The
 7 opportunity to get to a point where we were
 8 going to be fully recovered with our PMs was
 9 to look forward into 2014 and '15 and add the
 10 additional resources and put forward an
 11 application and a report to the Public
 12 Utilities Board for the 2014 and '15 test year
 13 to fully recover.
 14 MR. O'BRIEN:
 15 Q. Well, let me ask you, I mean, you're at a
 16 stage in 2010 where you're not performing, I
 17 would assume, in accordance with your six-year
 18 cycle. That was a reason for you to put
 19 forward a catch-up.
 20 MR. MOORE:
 21 A. That's right, yes.
 22 MR. O'BRIEN:
 23 Q. So you're not performing at that point.
 24 MR. MOORE:
 25 A. That's right. In 2009, we knew in terminal

Page 154

1 stations we had to implement a plan to make
 2 sure that we were fully on track with our
 3 preventative maintenance program.
 4 MR. O'BRIEN:
 5 Q. And I'm going to put to you that by four years
 6 in, you're still not even on a plan of doing
 7 one-sixth of these transformers and circuit
 8 breakers on an annual basis. Do you take
 9 issue with that?
 10 MR. MOORE:
 11 A. I agree that the numbers shown in the RFI show
 12 that four years into our six-year plan, we
 13 were not where we would have liked to be with
 14 respect to recovering on these PMs in our
 15 terminal stations.
 16 MR. O'BRIEN:
 17 Q. Why not consider in that year, in 2013,
 18 consider "look, we need more resources now"?
 19 MR. MOORE:
 20 A. The ability to bring in extra resources -- the
 21 other thing you have to think about in
 22 terminal stations too is, you know, resources
 23 fully capable to come in and just start doing
 24 work in our terminal stations, I mean, it's a
 25 highly specialized field of expertise. So the

Page 155

1 resources are just not sitting there fully
 2 available like you may see say in a
 3 construction union shop, for example, where
 4 you can draw upon that type of a shop to bring
 5 in resources. You either have to take the
 6 time to develop a very detailed request for
 7 proposals to go out and engage external
 8 resources and even to try to hire say
 9 additional, I'll say temporary or term
 10 employees to come in, I mean, they're not
 11 always readily available off the street to
 12 come in and do that work.
 13 So by the time we did the analysis moving
 14 through 2013 and realized exactly where we
 15 were to with our PM recovery program, the best
 16 course of action that we made a decision to
 17 look at would be what can we do in 2014 and
 18 2015 to achieve our objective of being fully
 19 recovered at the end of 2015, and that's when
 20 we put forward the plan that we submitted on
 21 June 2nd and with our test year to get the
 22 additional resources to do that. For those
 23 reasons, with respect to the availability of
 24 specialized resources, the time it would take
 25 to develop requests for proposals to look for

Page 156

1 contract resources, and managing the items
 2 that we were dealing with in 2013 at the same
 3 time, the opportunity to look for the extra
 4 resources was moving into 2014 and 2015 in a
 5 planned fashion.
 6 MR. O'BRIEN:
 7 Q. And that was after the events of 2013, 2014
 8 winter?
 9 MR. MOORE:
 10 A. The report went to the Board after the events
 11 of 2014, but -
 12 MR. O'BRIEN:
 13 Q. Was it prepared prior to that, prior to 2013?
 14 When was it prepared?
 15 MR. MOORE:
 16 A. No, it was late 2013 moving into -- well, it
 17 would have been the winter of 2014 when the
 18 plan, shall we say, that went forward to the
 19 Board would have been prepared and it was
 20 submitted on June 2nd. But we recognized late
 21 in 2013 that moving -- if we're going to
 22 achieve our two-year recovery plan, we're
 23 going to have to make a decision to do
 24 something to make sure that we complete our
 25 PMs that we set out to do for our customers

Page 157

1 and the opportunity to do that for us was to
 2 submit with our 2014-15 test year the
 3 resources and budget we would need to achieve
 4 that.
 5 MR. O'BRIEN:
 6 Q. And in 2013, would you have been made aware
 7 that the Whitbourne crew was going to be tied
 8 up and that there may be preventative
 9 maintenance decisions that needed to be
 10 deferred? Would you have been part of that?
 11 MR. MOORE:
 12 A. I was well aware of what the Whitbourne crew
 13 had been diverted to work on because of the
 14 high priority work that came up for our
 15 customers and certainly would have been fully
 16 abreast of what they were doing, but it was
 17 late in 2013 when I would have become fully
 18 aware of the actual detail of what -- of where
 19 we were to, I'd say, in our six-year plan at
 20 the end -- close to the end of year four. And
 21 at that time, we also made a decision to bring
 22 in a third party, AMEC, to have a look at our
 23 high voltage system from Bay D'Espoir right
 24 out to the Avalon Peninsula, just to do a good
 25 review and ensure we mitigate any risk moving

Page 158

1 into that winter of 2013 and '14, recognizing
 2 that we needed a plan going into '14 and '15
 3 to fully recover.
 4 MR. O'BRIEN:
 5 Q. And in the 2013 year and any other years, I
 6 suppose, in terms of using other crews, is
 7 that ever part of the plan at the beginning of
 8 the year, "well we need this much done in this
 9 area. We don't need as much done in that
 10 area. So, let's try to have one crew help out
 11 in another area"? Is that ever discussed?
 12 MR. MOORE:
 13 A. We do that many times throughout, you know,
 14 our work planning and work execution, whether
 15 it be with our line crews or distribution
 16 crews or terminals crews. There's lots of
 17 times that we move our crews throughout the
 18 province to assist with other crews, you know,
 19 as the opportunities and requirements permit.
 20 Typically when we do our annual work plan,
 21 like our first and foremost focus with our own
 22 internal crews is to complete our maintenance
 23 program.
 24 Like there's really three buckets of
 25 work, if you want to call it that, that we put

Page 159

1 in an annual work plan for our crews. One
 2 would be our maintenance program, which is the
 3 first priority always. The second piece of
 4 work that our crews work on would be to
 5 support capital programs, you know, like
 6 safely isolating and putting in work
 7 protection which safely isolates zones for
 8 people to work on the electricity system, you
 9 know, and providing permit holders and doing
 10 commissioning and those type things associated
 11 with capital work. And then the third piece
 12 of work that our crews may work on would be
 13 any capital programs. But normally, most of
 14 the capital work would be contracted
 15 resources.
 16 So when we look at our annual work
 17 planning efforts and the use of contractors,
 18 what we have been doing mostly up to this
 19 point in time was if there's more work than
 20 our crews can handle internally, then
 21 contractors would be brought in to work on
 22 capital work, as opposed to our core operation
 23 and maintenance work.
 24 MR. O'BRIEN:
 25 Q. So your annual 2013 plan, by January 1st you

Page 160

1 knew there were issues with the unit one at
 2 Holyrood. Is that right? January 2013.
 3 MR. LEDREW:
 4 A. 11th.
 5 MR. O'BRIEN:
 6 Q. Was there work needed to be done?
 7 MR. MOORE:
 8 A. Well, it wasn't January 1st. Terry?
 9 MR. O'BRIEN:
 10 Q. No, no, sorry, January.
 11 MR. LEDREW:
 12 A. It was January 11th.
 13 MR. O'BRIEN:
 14 Q. Yeah, so January 2013, sorry. Was the
 15 Whitbourne crew to be doing work on that? Did
 16 you know that from the start?
 17 MR. MOORE:
 18 A. In 2013, we obviously very quickly knew that
 19 our Whitbourne crew would be required to
 20 respond to the outages in January 2013 in the
 21 station, and then subsequently when the
 22 decision was made that the Newfoundland Power
 23 mobile generation would be required to help
 24 support the power system, our Whitbourne crew
 25 was involved with putting together or

Page 161

1 implementing and installing the infrastructure
 2 required for that mobile generation. So that
 3 was all happening throughout the winter of
 4 2013.
 5 They did have preventative maintenance on
 6 their schedule for that year, and I'll say as
 7 we worked through the first part of that year
 8 and we were tracking -- and we still knew --
 9 because normally your preventative maintenance
 10 season starts in the spring of the year and
 11 through to the fall of the year. So the crew
 12 was working on installation of that
 13 infrastructure in the winter of 2013 and the
 14 plan would have been for them to be fully
 15 focused then on the preventative maintenance
 16 starting that spring and in through the
 17 maintenance season.
 18 So that would have been the case, but
 19 then shortly after we had the issue in 2013 in
 20 the yard in Holyrood and the crew was also
 21 working on coating the insulator, so that we
 22 were well prepared going into winter of 2013,
 23 the issue also came up with the alternator in
 24 Hardwoods.
 25 MR. O'BRIEN:

Page 162

1 Q. When did that happen?
 2 MR. MOORE:
 3 A. So from there then, the -- what happened was
 4 we were -
 5 MR. O'BRIEN:
 6 Q. No, when did that happen?
 7 MR. MOORE:
 8 A. Oh, when did that happen?
 9 MR. O'BRIEN:
 10 Q. Yeah.
 11 MR. MOORE:
 12 A. What happened was we were doing a rewind on
 13 our Stephenville gas turbine generator out on
 14 the west coast and the original equipment
 15 manufacturer discovered a problem with their
 16 retaining rings on the rotor, which is the
 17 rotating component in the generator, and that
 18 unit is the exact same design and vintage as
 19 the Hardwoods unit. I think this was well
 20 explained in the capital budget application
 21 for Hardwoods alternator. So a decision was
 22 made that we knew that we had that issue with
 23 cracking on the retaining rings in
 24 Stephenville, so Hardwoods then would have to
 25 be done because of the issue that the

Page 163

1 recommendation from the manufacturer said
 2 we'll need to address the alternator in
 3 Hardwoods because it probably has a similar
 4 issue and possible failure that we've seen in
 5 Stephenville. So a decision was made to go
 6 forward with an unbudgeted capital budget
 7 proposal to do the Hardwoods alternator.
 8 So before the crews really got a chance
 9 to get very much of their maintenance program
 10 done that year, they were then focusing their
 11 attention on getting that Hardwoods unit,
 12 which is very critical to winter operation,
 13 with the generator replaced and back in
 14 service for the winter of 2013-14. So it was
 15 -- I'll say we were well into the maintenance
 16 season in 2013 when we did the analysis and
 17 realized that -- and the numbers that are
 18 shown in the RFI, that we were not where we
 19 wanted to be four years into our recovery
 20 program, and that's when we started doing the
 21 analysis and planning and say well, what can
 22 we do now to achieve our 2015 objective and
 23 the 2014 year ended up being the -- by the
 24 time the formal plan was put forward as to
 25 what we were going to do to recover.

Page 164

1 MR. O'BRIEN:
 2 Q. I think what I'm getting at here, Mr. Moore,
 3 really is, is that you know in January there's
 4 a major issue that the Whitbourne crew was
 5 going to have to deal with?
 6 MR. MOORE:
 7 A. That's correct.
 8 MR. O'BRIEN:
 9 Q. Right, and I believe what you said earlier was
 10 that it wasn't very long into the maintenance
 11 schedule that the Hardwoods issue comes up?
 12 MR. MOORE:
 13 A. Right.
 14 MR. O'BRIEN:
 15 Q. Okay so at that point in time were you
 16 informed the Whitbourne crew was going to have
 17 difficulty now meeting its schedule for
 18 preventative maintenance, did you know that,
 19 and did you understand that to be the case?
 20 (12:15 p.m.)
 21 MR. MOORE:
 22 A. At that time, I would have been aware of it
 23 and knowing that we were going to have issues
 24 achieving our preventative maintenance that
 25 year, but at that time we didn't have the

Page 165

1 weekly tracking tool that we have in place now
 2 that looks at our annual work plan with the
 3 level of detail that we are reporting on now
 4 on a weekly basis, so I'll say that I didn't
 5 have all the detailed knowledge half way 2013
 6 in the midst of while we were dealing with all
 7 the issues that were coming before us in 2013
 8 as well that, you know, everybody's attention
 9 was focused on these failures and unbudgeted
 10 capital proposals that were needed to focus on
 11 for our customers that year. So I'll say it
 12 was well into 2013 before I was informed to
 13 the detail where we needed - where it was
 14 known that we would need a detailed plan
 15 moving into 2014 and 2015 to achieve our
 16 objective of being recovered on these terminal
 17 station PMS.

18 MR. O'BRIEN:
 19 Q. Did you make any inquiries, and the reason I'm
 20 asking this is because I see so many
 21 transformers which are done in other areas
 22 which have - in my mind, would have less
 23 priority by the basis of having done - a
 24 couple had been done a few years prior, and
 25 this transformer at Sunnyside is over its six

Page 166

1 year period, and the Whitbourne crew is going
 2 to be the one doing this transformer at
 3 Sunnyside, and I presume other transformers in
 4 its area. Did you make any inquiries to say
 5 is this Whitbourne crew going to be able to do
 6 its preventative maintenance for the rest of
 7 the year, and if not, are there other crews
 8 that we can take off certain areas or other
 9 resources we can get to try to make sure that
 10 we keep on plan?

11 MR. MOORE:
 12 A. I will say that the level of reporting at that
 13 time is no where near what we put in place for
 14 2014 for tracking our annual work plan that
 15 came to me, so I was aware that there was a
 16 plan for the Whitbourne crew, and certainly
 17 well aware of all the issues that would have
 18 taken them off plan, but it wasn't until late
 19 in 2013 that I became fully aware of the
 20 detail of what we weren't going to complete
 21 and what we would need to do additionally in
 22 2014 and 2015 to achieve our plan.

23 MR. O'BRIEN:
 24 Q. So is the answer, no, you didn't make
 25 inquiries?

Page 167

1 MR. MOORE:
 2 A. I would say that I was aware of what was
 3 happening at that time, but I do know that the
 4 priorities for the other crews were certainly
 5 in place and they were doing work that was
 6 necessary for other parts of the power system,
 7 and that we really couldn't take them off the
 8 work that they had on their plan as part of
 9 recovery to go to another area to work on
 10 another recovery plan when they already had a
 11 full recovery plan on their plate that year.

12 MR. O'BRIEN:
 13 Q. But how did you know their recovery plan had
 14 more priority than what was done for the
 15 Whitbourne area? If the Whitbourne area is
 16 not going to even get at it or barely get at
 17 it, wouldn't there have been a reason for you
 18 to at least inquire to say what can we re-
 19 prioritize across these groups and see if we
 20 can get at least some done in Whitbourne area,
 21 and re-prioritize, or get some more resources,
 22 wouldn't that have been an appropriate step to
 23 take?

24 MR. MOORE:
 25 A. That would have been a step to take if - like

Page 168

1 I say, if we had all that detail as we're
 2 working through the year because the level of
 3 reporting, like I indicated, in 2014 is far
 4 more detailed than what we had in place prior
 5 to 2014, but I will say that the priorities
 6 that the other crews were working on in that
 7 year for the recovery program was just as high
 8 a priority as what would have been on the
 9 Whitbourne crews plate for that year. So
 10 their attention was completing the recovery
 11 program in their shop for that year, and the
 12 opportunity to move those crews away from the
 13 priorities that they were focused on to focus
 14 on what the Whitbourne crew had on their plate
 15 that we needed to defer into 2014, that
 16 opportunity wasn't there, and it wasn't until
 17 we put forward our plan in 2014 and 2015 to
 18 the Board to look for additional cost and
 19 resources to fully execute that plan, that was
 20 our opportunity to achieve our objective by
 21 the end of 2015. The opportunity to take
 22 crews from other areas away from priority work
 23 to work on priority work, just didn't exist at
 24 that time.

25 MR. O'BRIEN:

Page 169

1 Q. I'm just not getting a sense that you actually
 2 asked to see what work was more prioritized?
 3 MR. MOORE:
 4 A. I would have understood and consulted with my
 5 managers at that time to know what was on each
 6 person's plate, and what wasn't getting done
 7 throughout the year, and fully understood what
 8 each crew was working on and what the
 9 priorities were, and known that the
 10 opportunity just wasn't there to move a crew
 11 off one piece of work to another piece of work
 12 of equal priority, basically.
 13 MR. O'BRIEN:
 14 Q. So when you say you would have, did you
 15 actually do that?
 16 MR. MOORE:
 17 A. Yes, I would have talked to my managers on a
 18 regular basis with monthly reporting, as we
 19 talked about earlier, that obviously doesn't
 20 have the rigor of our weekly reporting that we
 21 have in place now, but there would have been
 22 monthly reports provided to me from each of
 23 the regional managers of where we were with
 24 our PMs and the opportunity to take existing
 25 resources in another area off a piece of

Page 170

1 priority work in that area to move to another
 2 area didn't exist at that time. It wasn't
 3 until moving into 2014 that we could get to a
 4 point of seeking additional resources to get
 5 caught up on our six year program by the end
 6 of 2015.
 7 MR. HENDERSON:
 8 A. I just would like to add a couple of comments,
 9 Mr. O'Brien. Part way through 2013, I'll say
 10 I was asking the questions as to whether we're
 11 going to get the PM work done, and I was being
 12 reassured that we're going to get it done.
 13 One of the things that came about was the
 14 volume of work that was involved with the
 15 Hardwoods generator turned out to be a lot
 16 more than what was anticipated at that point.
 17 So in the fall of 2013, there was an impact on
 18 the maintenance in the fall because before we
 19 went into the fall, the questions I was asking
 20 as to are we going to get the maintenance
 21 required done this year, and I was assured we
 22 were, but then as the Hardwoods piece came
 23 through, it was after that that it became
 24 aware to me that a lot of work had been
 25 shifted in order to accommodate the work that

Page 171

1 needed to be done at Hardwoods to ensure that
 2 unit was getting completed and ready for that
 3 winter. It was in the fall where things
 4 shifted. I just wanted to indicate part of
 5 the element here is the volume of work was
 6 underestimated in terms of the amount that the
 7 Whitbourne crew, so there was a point that it
 8 would have been, you know, I'll say, close to
 9 impossible at that point with the other work
 10 that was already scheduled and the priority
 11 put on that to shift the crews over, but that
 12 part of it, I'll say, I'm saying that just as
 13 a likely scenario because it wasn't directly
 14 said to me because what I was told going into
 15 the fall is that we're on track to get the
 16 maintenance done for this winter, and the
 17 Hardwoods gas turbine and the volume of work
 18 in that was a major impact that fall.
 19 MR. O'BRIEN:
 20 Q. And who would you have been speaking with, Mr.
 21 Henderson?
 22 MR. HENDERSON:
 23 A. I would have spoken to Darren, but I also was
 24 talking to the people who were directly
 25 involved with the work execution, manager for

Page 172

1 that area. I spoke to him because we were at
 2 that time contemplating how we're going to get
 3 the Hardwoods work done, and my discussion
 4 with him was very direct, are we going to have
 5 this maintenance done before the end of the
 6 year, the maintenance that's required, and I
 7 was assured at that point that we were, but it
 8 was through that fall and the evolution of the
 9 work with the gas turbine that things changed.
 10 So it was at that point where we had a
 11 dramatic shift, at least in my mind, in terms
 12 of what we were going to get done that year.
 13 MR. O'BRIEN:
 14 Q. And you were following up on a monthly basis
 15 from the fall?
 16 MR. HENDERSON:
 17 A. I was following up on the - I wasn't getting
 18 into the detail of the maintenance program,
 19 that was left to the managers to be managing.
 20 I was in particular focusing on the Hardwoods
 21 work because the Hardwoods work was very
 22 critical coming into the winter, so that's
 23 where my attention was more. When I was
 24 assured that the PM work was being done, I
 25 didn't feel the necessity to keep following

Page 173

1 that. I was very interested in how well the
 2 work was going on at Hardwoods, knowing that
 3 that was a critical piece coming into the
 4 winter.
 5 MR. O'BRIEN:
 6 Q. So your -
 7 MR. HENDERSON:
 8 A. And I'll say also in parallel with that, we
 9 had initiated the discussion to have AMEC
 10 brought in to do a complete assessment of how
 11 we were positioned for the coming winter, so
 12 we had brought AMEC in and they started that
 13 work in the fall to review the - what we
 14 wanted them to do was look at all of the
 15 assets, as Darren has said, from Bay d'Espoir
 16 into the Avalon Peninsula because that was our
 17 critical area of concern, and have them have a
 18 look to be able to provide some assurance to
 19 the management that we are good for coming
 20 into the winter of 2013/2014, knowing the
 21 volume of work and the things that had
 22 happened during that year, and so we initiated
 23 that report. So they were the activities that
 24 we undertook to get ourselves to that level of
 25 comfort, that we were in a good shape, a

Page 174

1 reasonable shape going into the winter of
 2 2014.
 3 MR. O'BRIEN:
 4 Q. And you say you spoke with Mr. Moore. You
 5 would have spoken with Mr. Moore in the fall
 6 and been assured that preventative maintenance
 7 was going to be completed?
 8 MR. HENDERSON:
 9 A. The conversation that I had in that regard was
 10 not with Mr. Moore. It was with one of the
 11 people that reports to Mr. Moore, who is
 12 actually the person who manages the crews.
 13 MR. O'BRIEN:
 14 Q. And so, Mr. Moore, would you have been or were
 15 you aware that, or was it your understanding
 16 that in the fall things were still on track to
 17 be finished by the end of the year?
 18 MR. MOORE:
 19 A. That's correct. All throughout the year, as
 20 always, I would have been getting monthly
 21 updates from my direct reports, my regional
 22 managers, as to how we were progressing with
 23 our preventative maintenance program and
 24 before Hardwoods really became on our plate in
 25 the fall, like Rob mentioned, we were looking

Page 175

1 like we were going to complete our
 2 preventative maintenance activities in the
 3 portion of our six year recovery plan in 2013
 4 by the Whitbourne crew, but it was the
 5 Hardwoods unit that really took that crew off
 6 plan that fall, and was well into the fall
 7 when we realized that - you know, I was asking
 8 questions and I was getting regular updates
 9 from my managers that we realized that we were
 10 not going to be able to complete our
 11 preventative maintenance activities for the
 12 Whitbourne crew that year that we had in our
 13 plan, and there was no opportunity - because I
 14 have regular reporting, regular discussions
 15 with the regional managers in other areas.
 16 They were fully engaged in completing what was
 17 on their annual work plan that year, which was
 18 also of high priority for our customers in
 19 other areas.
 20 MR. O'BRIEN:
 21 Q. Let me ask you about the transformer, the
 22 Sunnyside transformer. Ms. Greene asked you a
 23 few questions about - just in terms of the
 24 issue that arose, I guess, around September
 25 about the gas leaking, I guess, from the tap

Page 176

1 changer area. That's what you're assuming was
 2 the cause, the acetylene gas that was found,
 3 or the increase in acetylene gas. That
 4 particular transformer, had it undergone
 5 preventative maintenance in that year, would
 6 there have been an opportunity to determine
 7 the cause of that increase in parts per
 8 million of the gas?
 9 MR. MOORE:
 10 A. On our six year preventative maintenance item
 11 that we would have done in September, 2013, we
 12 would not have done any kind of intrusive
 13 maintenance where we would have taken the
 14 cover off the transformer and drained the oil
 15 down and gone into do an inspection to see if
 16 there was any leakage actually happening
 17 between the tap changer compartment and the
 18 transformer compartment. What we have been
 19 doing, the action we took with respect to the
 20 acetylene gas, we consulted with the
 21 manufacturer on that transformer and others of
 22 a similar design, and their opinion that they
 23 provided to us and they were very confident
 24 that it was gas that was migrating from the
 25 tap changer compartment to the transformer

Page 177

1 compartment, and we've been monitoring that
 2 level well back into the 1990s and it's been
 3 very stable within a consistent band along
 4 that time. So that's the action we took,
 5 we've been doing continuous monitoring, we
 6 consulted with the manufacturer, and then in
 7 2015 we had the opportunity to go in in a
 8 planned fashion and do an inspection of a
 9 similar transformer, same design, same
 10 vintage, to validate the opinion of the
 11 manufacturer and just validate that that is
 12 actually happening.

13 MR. O'BRIEN:
 14 Q. And that's the Stony Brook one you were
 15 talking about, is that correct?

16 MR. MOORE:
 17 A. Yes, that's correct, yes.

18 MR. O'BRIEN:
 19 Q. I wonder can you tell me whether or not it's
 20 possible that these findings could have been
 21 related to a bushing defect?

22 MR. MOORE:
 23 A. No. We consulted with the manufacturer who
 24 came in and assisted with a failure analysis
 25 on that transformer, and the most probable

Page 178

1 cause of the failure of that transformer was a
 2 bushing failure, but the bushing failure would
 3 not have been the cause of the levels of
 4 acetylene gas that we have been seeing back to
 5 the 1990s.

6 MR. O'BRIEN:
 7 Q. Let me ask you, could you have - that
 8 particular transformer, how old was it?

9 MR. MOORE:
 10 A. The age of that transformer?

11 MR. O'BRIEN:
 12 Q. Yeah.

13 MR. MOORE:
 14 A. That one was 40 plus years old at that time.
 15 (12:30 p.m.)

16 MR. O'BRIEN:
 17 Q. Yeah, 40 plus, okay. Would it have been
 18 possible to - I understand what you did with
 19 it was to move up testing, is that right, to
 20 do further testing of the levels of gas at
 21 that point?

22 MR. MOORE:
 23 A. We would have done follow up testing on the
 24 gas levels and oil sampling in that
 25 transformer in early 2014 had it not failed.

Page 179

1 MR. O'BRIEN:
 2 Q. And do you normally do an annual one, how does
 3 that go?

4 MR. MOORE:
 5 A. Yeah, we take an annual oil sample for
 6 transformers that are free breathing, as we
 7 call it, there is an exposure to the
 8 atmosphere in part of the transformer,
 9 anything that's sealed, we do it every three
 10 years, and those tactics are outlined in PUB-
 11 NLH-174.

12 MR. O'BRIEN:
 13 Q. Yes, and I just want to clarify in terms of
 14 what steps you would have taken is to do
 15 another test on the gas, but not an annual
 16 one, to do one in early 2014, was that your
 17 plan?

18 MR. MOORE:
 19 A. We would have, yes.

20 MR. O'BRIEN:
 21 Q. Is it possible to have isolated that unit and
 22 done some testing, just follow up testing just
 23 to make sure there's no issues with it?

24 MR. MOORE:
 25 A. The follow up testing that we would have had

Page 180

1 to do, I guess, to go in and do that test, an
 2 internal inspection on that transformer, would
 3 have required a significant amount of time and
 4 person hours of labour to get that work done,
 5 and for other reasons that we just talked
 6 about with respect to Hardwoods, that
 7 opportunity didn't exist in 2013, but our plan
 8 was to do the six year preventative
 9 maintenance check on that transformer would
 10 have been in our 2014 annual work plan.

11 MR. O'BRIEN:
 12 Q. But the testing of that - I mean, if you were
 13 going to follow up in early 2014, you could
 14 have done testing, say, in November or
 15 December and isolated the unit and done a
 16 follow up test earlier, could you?

17 MR. MOORE:
 18 A. It wasn't until 2014 that we would have had
 19 the opportunity to have the resources to be
 20 able to do that.

21 MR. O'BRIEN:
 22 Q. Okay. When you consider deferring maintenance
 23 to another year in terms of the risk analysis,
 24 is there a specific analysis of impact to the
 25 customer that you undertake?

Page 181

1 MR. MOORE:
 2 A. That would be a large part of the discussion
 3 that the people who are making that decision
 4 would have as to the criticality of that asset
 5 in the power system and its effect that it may
 6 have on customers for reliability with respect
 7 to, you know, which assets can be re-
 8 prioritized to a later year because of break
 9 in work.
 10 MR. O'BRIEN:
 11 Q. Right, and how do you value that?
 12 MR. MOORE:
 13 A. That certainly would be a big part of the
 14 discussion, yes.
 15 MR. O'BRIEN:
 16 Q. And how do you value that? Is that just a
 17 reliability thing, is there any focused
 18 discussion over how this is going to impact
 19 customers in one area over another, how is it
 20 dealt with?
 21 MR. MOORE:
 22 A. It would be a discussion as to where that
 23 asset sits in the power system and what impact
 24 it could have on customers if there was a
 25 failure. You know, we would look at things as

Page 182

1 is there a redundant transformer. In the case
 2 of Sunnyside T1, there was a redundant
 3 transformer, T4, that could fully supply all
 4 customers if T1 was out of service. Those
 5 type of things would enter into the
 6 discussion. On the distribution feeder, for
 7 example, is it just a radial feeder or is
 8 there a second feed to customers, and what are
 9 the number of customers, and is it a remote
 10 area where crews would have difficulty to
 11 access, and there's a large amount of
 12 discussions that is highly customer focused
 13 when we look at execution of our program and
 14 when higher priority work affects our plan and
 15 we need to re-prioritize, customer focus is
 16 very much highly on the radar in the
 17 discussion.
 18 MR. O'BRIEN:
 19 Q. And when you decide to defer a maintenance
 20 into another year, there's no set date on when
 21 that maintenance is going to be done, is it?
 22 It just comes out of that computer in terms of
 23 which one has priority in time line, and then
 24 you restart the prioritizing process in the
 25 beginning of the year, don't you?

Page 183

1 MR. MOORE:
 2 A. I'll say that it is tracked in the
 3 computerized maintenance management system,
 4 but people that are accountable for the
 5 maintenance set the dates in the system.
 6 MR. O'BRIEN:
 7 Q. Right.
 8 MR. LEDREW:
 9 A. It would be by month.
 10 MR. MOORE:
 11 A. Yes, oh, yes.
 12 MR. LEDREW:
 13 A. If there was PM scheduled for 2014, it would
 14 flag the month it's expected to be executed.
 15 MR. O'BRIEN:
 16 Q. But based on other criteria that you talked
 17 about in terms of criticality and that kind of
 18 stuff, attachments to generators, all that
 19 kind of stuff, it could be moved out of that
 20 as well, is that right?
 21 MR. LEDREW:
 22 A. Oh, yeah.
 23 MR. MOORE:
 24 A. That's correct, yes.
 25 MR. O'BRIEN:

Page 184

1 Q. So now it's gone outside of the year it was
 2 supposed to be done into a new year?
 3 MR. MOORE:
 4 A. That's right.
 5 MR. O'BRIEN:
 6 Q. And could be moved again?
 7 MR. MOORE:
 8 A. That's right, but very knowledgeable people
 9 make those decisions and it's just tracked in
 10 a computerized maintenance management system.
 11 MR. LEDREW:
 12 A. I would, though, first outside the month, so
 13 if it's scheduled to be done in June and it's
 14 coming up on its six year in June, it would
 15 still be intended to be executed in that year,
 16 but we may not get June because of
 17 coordination of outages and other activities.
 18 It would a later iteration to move it out of
 19 the year, I would suggest.
 20 MR. O'BRIEN:
 21 Q. Or you could have corrective work that comes
 22 up or capital work that comes up.
 23 MR. MOORE:
 24 A. Right.
 25 MR. O'BRIEN:

Page 185

1 Q. And it could move anywhere at that point, it
 2 could move into the next year. How do you
 3 value customer impact when you're deciding to
 4 move, knowing that you don't have a set date
 5 for the next year when you're going to do that
 6 corrective maintenance?
 7 MR. MOORE:
 8 A. We would look at, like I just explained, how
 9 that asset is in the power system, for lack of
 10 a better way to put it, and the effect that a
 11 failure of that asset, or if that asset wasn't
 12 available for service, what impact that would
 13 have on customers, so that would be a big part
 14 of the discussion when we look at re-
 15 prioritizing how an asset would be changed or
 16 deferred for preventative maintenance.
 17 MR. O'BRIEN:
 18 Q. And knowing -
 19 MR. MOORE:
 20 A. So it's very much a strong consideration and
 21 very much part of the discussion.
 22 MR. O'BRIEN:
 23 Q. But knowing that - let's suppose it's already
 24 been moved from one year to another, is that
 25 taken into consideration as well?

Page 186

1 MR. MOORE:
 2 A. Yes, we would definitely consider what impact
 3 that may have on customers when we're making
 4 those decisions, and to minimize the risk of
 5 outages to customers would be a big part of
 6 the decision making process.
 7 MR. O'BRIEN:
 8 Q. The B1L03 air blast circuit breaker, I have
 9 asked earlier just in terms of sort of how
 10 critical these breakers are, and I believe you
 11 indicated still that these breakers that are
 12 near a generating station are more critical
 13 than other breakers on the line?
 14 MR. MOORE:
 15 A. That's right.
 16 MR. O'BRIEN:
 17 Q. I'm going to ask if we can pull up PR-PUB-NLH
 18 168, and those are the air blast circuit
 19 breakers, to just get an idea if we can go
 20 through those as well the same way we did with
 21 the transformers. I have them broken down
 22 myself just in terms of what was done in 2013.
 23 MR. MOORE:
 24 A. Okay.
 25 MR. O'BRIEN:

Page 187

1 Q. And maybe I can point them to you. If we go
 2 down to BDE TS1 is the location, Bay d'Espoir
 3 TS1, and that's the B2T4.
 4 MR. MOORE:
 5 A. Right.
 6 MR. O'BRIEN:
 7 Q. So that one was done - again that's done two
 8 years after it was last done. Would that have
 9 had any priority or again are we just talking
 10 the fact that this is in Bay d'Espoir versus
 11 Whitbourne?
 12 MR. MOORE:
 13 A. No, that breaker actually misoperated in 2013,
 14 which is documented in one of our RFIs.
 15 MR. O'BRIEN:
 16 Q. All right.
 17 MR. MOORE:
 18 A. And that was actually - we did the full
 19 preventative maintenance check because the
 20 breaker misoperated, but that would have been
 21 actually break in work that year because of
 22 the misoperation of the breaker.
 23 MR. O'BRIEN:
 24 Q. In the Whitbourne area, what would the
 25 Whitbourne area cover in terms of the breakers

Page 188

1 that we're looking at here?
 2 MR. MOORE:
 3 A. If we wanted to look at the breakers that fall
 4 under the Whitbourne area -
 5 MR. O'BRIEN:
 6 Q. Yeah.
 7 MR. MOORE:
 8 A. It would be - if we want to move down through
 9 the list.
 10 MR. O'BRIEN:
 11 Q. Sure.
 12 MR. MOORE:
 13 A. Holyrood would be the first station.
 14 MR. O'BRIEN:
 15 Q. The Holyrood ones, yeah.
 16 MR. MOORE:
 17 A. HRD.
 18 MR. O'BRIEN:
 19 Q. Yeah.
 20 MR. MOORE:
 21 A. And then further down the list would be
 22 Hardwoods, HWD.
 23 MR. O'BRIEN:
 24 Q. Right.
 25 MR. MOORE:

Page 189

1 A. And Oxen Pond, OPD.
 2 MR. O'BRIEN:
 3 Q. Right.
 4 MR. MOORE:
 5 A. Sunnyside, SSD. That would be it on that page
 6 for Whitbourne. Go to the next page, the next
 7 page would be Western Avalon, WAV, and further
 8 up should have been Come by Chance, CBC,
 9 further up the list.
 10 MR. O'BRIEN:
 11 Q. Okay, those are all the ones covered there.
 12 MR. MOORE:
 13 A. It's not on that list for some reason.
 14 MR. O'BRIEN:
 15 Q. They don't get coverage, do they?
 16 MR. MOORE:
 17 A. No, I just can't explain right now why it's
 18 not on that particular list there.
 19 MR. O'BRIEN:
 20 Q. Okay, but those are the ones there -
 21 MR. MOORE:
 22 A. They're not air blast circuit breakers, I
 23 expect, is probably the reason.
 24 MR. LEDREW:
 25 A. There's only one breaker.

Page 190

1 MR. MOORE:
 2 A. Right, and that's what it would be.
 3 MR. O'BRIEN:
 4 Q. So when I look at the list myself, the ones
 5 that were done in 2013, I broke them out,
 6 there was four done in Hardwoods - actually,
 7 five done in Hardwoods. Does that make sense
 8 given the work that was done in Hardwoods?
 9 Would you have done a lot of circuit breakers?
 10 MR. MOORE:
 11 A. It does, yes, because there was a major
 12 project happening that year with the
 13 generating station or the Hardwoods gas
 14 turbine.
 15 MR. O'BRIEN:
 16 Q. All right.
 17 MR. MOORE:
 18 A. So it would make sense that we would focus on
 19 the air blast circuit breakers there as well.
 20 MR. O'BRIEN:
 21 Q. Okay, and there's a bunch in Bay d'Espoir.
 22 Other than that, there doesn't seem to be any
 23 breakers - there's one done at Holyrood,
 24 sorry, that's the only other one. So there
 25 seems to be six in total that were done that

Page 191

1 year.
 2 MR. MOORE:
 3 A. Right.
 4 MR. O'BRIEN:
 5 Q. By the Whitbourne crew, based on what you're
 6 saying?
 7 MR. MOORE:
 8 A. Right.
 9 MR. O'BRIEN:
 10 Q. And again in terms of extra resources, that
 11 wasn't on your radar until later on that year?
 12 MR. MOORE:
 13 A. Yeah, because of what we talked about with
 14 respect to the Hardwoods gas turbine, it was -
 15 I was receiving regular communication and
 16 having regular conversations and updates with
 17 the regional managers, but it wasn't until
 18 late into 2013 when we realized we needed to
 19 put forward a plan and implement a plan into
 20 2014 and 2015 to get where we need to be with
 21 our preventative maintenance program on these
 22 assets.
 23 MR. O'BRIEN:
 24 Q. And let me ask you about that. The 2013,
 25 there had been - you mentioned that the 2013,

Page 192

1 late 2013, there was an idea that we need to
 2 move forward with another plan to get more
 3 resources, I guess, to do this, and that was
 4 built into the amended GRA?
 5 MR. MOORE:
 6 A. That's right.
 7 MR. O'BRIEN:
 8 Q. Which was filed in November, 2014. That
 9 wasn't a driving force for the amended GRA, I
 10 take it?
 11 MR. MOORE:
 12 A. No.
 13 MR. O'BRIEN:
 14 Q. That was just -
 15 MR. MOORE:
 16 A. But it was part of the amended GRA.
 17 MR. O'BRIEN:
 18 Q. I see it as part of it, but it certainly
 19 wasn't a driving force?
 20 MR. MOORE:
 21 A. No, it wasn't the only reason that we put
 22 forward an amended GRA, but it was part of the
 23 application.
 24 MR. O'BRIEN:
 25 Q. Yeah, but you're saying at that point in late

Page 193

1 2013, you saw that as a need. Did you
 2 consider making any separate application at
 3 that time?
 4 MR. MOORE:
 5 A. Not at that time because it was late into 2013
 6 when we saw that need, and going into late
 7 2013 and then into 2014 when we experienced
 8 the issues that we did experience, I'll say,
 9 with the power system, no, the ability to put
 10 together an application for additional budget
 11 and additional resources at that time was -
 12 everybody's attention was focused on the
 13 immediate needs of the power system and
 14 customers at that time.
 15 MR. O'BRIEN:
 16 Q. And, I guess, my thought process is that
 17 you've indicated that reliability is at the
 18 forefront of preventative maintenance?
 19 MR. MOORE:
 20 A. Right.
 21 MR. O'BRIEN:
 22 Q. And I'm wondering why you'd wait to go through
 23 this process and why not just make an
 24 immediate application to say, look, we're not
 25 getting this preventative maintenance done, we

Page 194

1 need to get it done now, and put it in front
 2 of the Board as a separate application?
 3 MR. MOORE:
 4 A. I'll say that our opportunity to fully develop
 5 that application to the Board and put forward
 6 a strong case was well into 2014, and in
 7 particular, after we went through the outages
 8 of 2014, but through 2014, we did make efforts
 9 to bring in additional resources to begin
 10 completion of that recovery program in 2014.
 11 We did proceed to work on the recovery
 12 programs for those PMS, realizing that they
 13 were a foundational tool for customer
 14 reliability. So we did proceed to work
 15 towards achieving that objective in 2014, but
 16 the application to the Public Utilities Board
 17 to include that in 2014/2015 test year became
 18 part of the application that was submitted in
 19 2014.
 20 MR. O'BRIEN:
 21 Q. So you decided to proceed anyway, because I do
 22 see in 2014, you got a lot of breakers done,
 23 there was, I think, over half of the breakers
 24 were done in 2014.
 25 MR. MOORE:

Page 195

1 A. Yeah, because -
 2 MR. O'BRIEN:
 3 Q. So it seems to have been a concerted effort at
 4 that point in time?
 5 MR. MOORE:
 6 A. It was, and I'll say that the dollar amount
 7 that's required to get that work done was
 8 submitted to the Board on June 2nd in 2014,
 9 and I'll say it became part of the test year
 10 for 2014/2015, but the actual report to the
 11 Public Utilities Board -
 12 MR. O'BRIEN:
 13 Q. Was in June.
 14 MR. MOORE:
 15 A. Was a very considered plan to do the 2014/2015
 16 catch up program was June 2nd, and after that
 17 report went to the Board would have been when
 18 we entered into our maintenance season and
 19 made that very concerted effort to achieve our
 20 preventative maintenance, recognizing that
 21 that is our tool to ensure customer
 22 reliability.
 23 MR. O'BRIEN:
 24 Q. And your remedy, I guess, in terms of some of
 25 the issues you had with deferral of

Page 196

1 preventative maintenance system moved to this
 2 one week reporting system and to have that in
 3 writing and to flow through right up to the
 4 CEO, is that right?
 5 MR. MOORE:
 6 A. I'll say, yeah, that was the main tool that
 7 was put in place in 2014 and onward to ensure
 8 that we were very focused on completing our
 9 annual work plan and very considered recovery
 10 plans were in place to ensure that we struck
 11 to the plan and that the reporting and
 12 visibility was at all levels within the
 13 organization.
 14 (12:45 a.m.)
 15 MR. O'BRIEN:
 16 Q. In Liberty's reply evidence, they appear to
 17 take the position that there's no evidence of
 18 any form of structured or significant analysis
 19 of the risks of deferring maintenance. Do you
 20 take issue with that?
 21 MR. MOORE:
 22 A. I'll say that there was very strong discussion
 23 and analysis completed, but to the point where
 24 it's actually documented on a form that could
 25 be submitted for review, that wasn't taking

Page 197

1 place, but there was very strong consideration
 2 and decision making made at the time.
 3 MR. O'BRIEN:
 4 Q. So in terms of -
 5 MR. MOORE:
 6 A. By very knowledgeable people who knew the
 7 condition and health of the assets.
 8 MR. O'BRIEN:
 9 Q. So in terms of evidence of that, it's on the
 10 basis of your testimony as to what you
 11 understood was going on?
 12 MR. MOORE:
 13 A. That's correct.
 14 MR. O'BRIEN:
 15 Q. Okay. Let me ask you about the Western Avalon
 16 terminal station, and that was the B1L37 that
 17 tripped after trying to energize, is that
 18 right? What was the issue with that again?
 19 MR. MOORE:
 20 A. The breaker, B1L37, what we determined through
 21 our root cause failure analysis is that on
 22 three occasions when that breaker was closed
 23 and tripped again, that it wasn't closing on
 24 one phase. So it was only energizing on two
 25 phases.

Page 198

1 MR. O'BRIEN:
 2 Q. Right, and you end up having to replace a tap
 3 changer and clean transformer windings, is
 4 that what was required?
 5 MR. MOORE:
 6 A. That's correct, we ended up having to replace
 7 the tap changer and do a complete oil
 8 cleansing, shall we say, of that transformer
 9 before it went back in service.
 10 MR. O'BRIEN:
 11 Q. And as Ms. Greene had asked you earlier today,
 12 that one was two and a half years outside of
 13 its six year cycle, is that right?
 14 MR. MOORE:
 15 A. That's right, the air blast circuit breaker
 16 was two and a half years outside that cycle.
 17 MR. O'BRIEN:
 18 Q. And can you give us any reason why it would
 19 have gone that long outside of its cycle?
 20 MR. MOORE:
 21 A. Looking back in time now and thinking about
 22 how we developed the annual work plan, and how
 23 we would have looked at the most overdue that
 24 would have been in the plan as a priority
 25 going into that year, and that breaker itself

Page 199

1 would have been, based on that criteria - we
 2 indicated earlier that it looks like it may
 3 have been in the 2013 annual work plan, but
 4 for sure definitely it would have been in the
 5 2014 annual work plan based on that criteria
 6 of being the most overdue in looking at our
 7 generating facilities. I'm thinking that that
 8 breaker as well, I would need to validate
 9 this, may have been more difficult, for lack
 10 of a better word, to schedule an outage
 11 because of the configuration of the power
 12 system, but we definitely had it planned for
 13 2014 to get that maintenance done on that
 14 breaker.
 15 MR. O'BRIEN:
 16 Q. I guess, in terms of a response, I'm more
 17 looking for as much detail if you can give me
 18 because this has been subject to a couple of
 19 investigations and I'm wondering how far
 20 you've gotten into this and investigating it
 21 to determine what exactly the reason was for
 22 this going that far beyond its - I know you're
 23 indicating, well, that might have been it,
 24 that would have been it -
 25 MR. MOORE:

Page 200

1 A. No, I - I know what you're saying, yes.
 2 MR. O'BRIEN:
 3 Q. But what is the - what's the reason that it
 4 went two and a half years?
 5 MR. MOORE:
 6 A. The reason is we would have been in our, as we
 7 indicated, our six year recovery plan, and we
 8 prioritized our most overdue maintenance going
 9 into a year for each crew to focus on for the
 10 annual work plan, and based on that criteria,
 11 that breaker was on the list, I think, for
 12 2014 in the annual work plan, and also, like,
 13 when that breaker didn't operate as it should
 14 have back in 2014 or the winter of 2014, we
 15 have since done a full maintenance inspection
 16 and an overhaul on that breaker, and never did
 17 find any conclusive evidence as to why that
 18 breaker didn't operate on that day. So there
 19 would have been a number of other inspections,
 20 as I indicated, like, an annual visual
 21 inspection in terminal stations and that
 22 breaker would have been operated successfully
 23 in the past, but that day it didn't operate.
 24 We didn't find any conclusive reason to
 25 determine why it didn't operate through out

Page 201

1 successful preventative maintenance checks and
 2 the overhaul of that breaker. So in
 3 developing the annual work plan, that breaker
 4 would have been scheduled in 2014 based on the
 5 criteria that we had talked about.
 6 MR. O'BRIEN:
 7 Q. So it should have been done in July of 2011,
 8 is that right?
 9 MR. MOORE:
 10 A. If we look at the six year cycle, that's
 11 right.
 12 MR. O'BRIEN:
 13 Q. And it wasn't scheduled for 2012, is that
 14 right?
 15 MR. MOORE:
 16 A. That's correct.
 17 MR. O'BRIEN:
 18 Q. And who would have been responsible for doing
 19 that? That would have been the Whitbourne
 20 crew, would it?
 21 MR. MOORE:
 22 A. Yes.
 23 MR. O'BRIEN:
 24 Q. What we've got up here, the 168, look at WAV
 25 TS B1L08.

Page 202

1 MR. MOORE:
 2 A. Okay.
 3 MR. O'BRIEN:
 4 Q. There's a two year period in between when that
 5 one was done. It's done in 2012.
 6 MR. MOORE:
 7 A. Yeah, I would have to -
 8 MR. O'BRIEN:
 9 Q. Any priority associated with that one over
 10 this one?
 11 MR. HENDERSON:
 12 A. I can guess why that one was done. That was
 13 the year that we brought into service the Vale
 14 terminal station and that breaker supplies the
 15 line down to Vale.
 16 MR. O'BRIEN:
 17 Q. Okay.
 18 MR. HENDERSON:
 19 A. So I think in terms of - there would have been
 20 a fair bit of work done on that line that
 21 year, which would have included a PM because
 22 there would have been protection changes and
 23 everything else associated with bringing into
 24 service that station that year.
 25 MR. O'BRIEN:

Page 203

1 Q. Okay. There were a couple done in Sunnyside
 2 that year, if you go to B3T4 in 2012.
 3 MR. MOORE:
 4 A. That's right, that one would have been - if
 5 you look at that, that was overdue as well, so
 6 that was done in 2012 as part of the recovery
 7 program.
 8 MR. O'BRIEN:
 9 Q. So was there anything holding back the
 10 Whitbourne crew from doing its preventative
 11 maintenance in 2012?
 12 MR. MOORE:
 13 A. In 2012, we have documented some of the break
 14 in work that occurred that year, and one of
 15 them Mr. Henderson just mentioned, we were
 16 putting the new terminal station in place in
 17 Vale for Long Harbour for the nickel
 18 processing plant, and that work of putting
 19 that station in service and commissioning did
 20 take longer than anticipated - than the
 21 original plan anticipated, so that did take
 22 our Whitbourne crew away from some of the
 23 preventative maintenance that we had scheduled
 24 that year.
 25 MR. O'BRIEN:

Page 204

1 Q. Did you meet your preventative maintenance
 2 criteria for that year, the numbers you were
 3 supposed to meet?
 4 MR. MOORE:
 5 A. The overall level that we completed in 2012
 6 didn't meet the 90 percent that we had planned
 7 that year overall for TRO.
 8 MR. O'BRIEN:
 9 Q. And so 90 percent, that's 90 percent of 1/6th,
 10 is that right?
 11 MR. MOORE:
 12 A. It's 90 percent of what's planned for that
 13 year. It was the corporate target -
 14 MR. O'BRIEN:
 15 Q. Or was it 90 percent of -
 16 MR. MOORE:
 17 A. At that time.
 18 MR. O'BRIEN:
 19 Q. So it's 1/6th plus the extra that you were
 20 going to do to catch up?
 21 MR. MOORE:
 22 A. That's right, which we have since changed to
 23 100 percent as our target.
 24 MR. O'BRIEN:
 25 Q. The Holyrood B1L17 breaker is a different type

Page 205

1 of breaker, was it?
 2 MR. MOORE:
 3 A. That's correct, a different type of breaker
 4 than -
 5 MR. O'BRIEN:
 6 Q. Than the ones that we've been talking about
 7 already at Sunnyside?
 8 MR. MOORE:
 9 A. They're all air blast circuit breakers, but
 10 the B1L17 breaker in Holyrood is a different
 11 design than the Sunnyside B1L03 breaker.
 12 MR. O'BRIEN:
 13 Q. I have a couple of questions about that one.
 14 There's no issue obviously with that one in
 15 terms of the six year plan or deferral of
 16 maintenance on that one, I don't believe, and
 17 there was a question raised by Liberty
 18 Consulting Group about the maintenance
 19 procedure with this particular breaker about
 20 the temporary covers to remain in place and
 21 exposed to the weather. I wonder if we could
 22 bring up PUB-NLH-067. I just want to get some
 23 clarification there.
 24 MR. MOORE:
 25 A. Okay.

Page 206

1 MR. O'BRIEN:
 2 Q. And if we move to the next page of 067 - maybe
 3 it's 066, is it?
 4 MS. GRAY:
 5 Q. O66?
 6 MR. O'BRIEN:
 7 Q. Yeah, okay, the second page there, I guess.
 8 So in that table there, it appears that the
 9 delay in reinstalling the columns interpreting
 10 the heads--the interrupting heads, sorry, that
 11 there was a delay between performing the work,
 12 February 27th to 28th and then transporting
 13 them to the site, was the work completed, the
 14 coating completed the 27th to the 28th? I'm
 15 just trying to get a sense of why it took so
 16 long for it to be then transported to be
 17 reinstalled. It seems to be a few weeks
 18 there.
 19 MR. MOORE:
 20 A. Yeah, the actual RTV coating occurred in the
 21 Whitbourne shop on the 27th and 28th of
 22 February, as indicated in the table and they
 23 were brought back to the Holyrood switch yard
 24 on the 18th of March. If you scroll down to
 25 the bullets, I guess that are down further in

Page 207

1 the RFI, they're the pieces of work that that
 2 crew were required to complete while the parts
 3 that were being re-insulated in the shop
 4 remained in the shop before they had the
 5 opportunity to bring those parts back to the
 6 switch yard to reinstall on the breaker.
 7 MR. O'BRIEN:
 8 Q. And I guess that's what I was trying to get
 9 clarification on, that work, those bullets
 10 there, that all was completed between February
 11 28th and March 18th, was it?
 12 MR. MOORE:
 13 A. That's correct, yes.
 14 MR. O'BRIEN:
 15 Q. And on February 28th, the way I read the
 16 table, I just want to make sure I didn't read
 17 it wrong, the work in the shop had been
 18 completed, had it?
 19 MR. MOORE:
 20 A. The parts were recoated in the shop on
 21 February 27th and 28th, yes.
 22 MR. O'BRIEN:
 23 Q. And was there any further work necessary in
 24 the shop at that point?
 25 MR. MOORE:

Page 208

1 A. No.
 2 MR. O'BRIEN:
 3 Q. Is there any reason another crew couldn't have
 4 taken, if the Whitbourne crew was tied up,
 5 taken on that role and picked them up and
 6 reinstalled them?
 7 MR. MOORE:
 8 A. It's possible if there was another crew
 9 available, but all other crews were focussed
 10 on other priority work in their particular
 11 areas.
 12 MR. O'BRIEN:
 13 Q. And you know that or was there an inquiry made
 14 or -
 15 MR. MOORE:
 16 A. Yes, I would have known that at the time, I
 17 would have been well aware of and getting
 18 regular verbal updates on progress of our work
 19 plan knowing that the parts were in the shop
 20 and I would have been well aware of, through,
 21 you know, discussions and reporting from other
 22 regional managers as to the focus of the work
 23 by other crews on other priority work in their
 24 areas for our customers. So the ability to
 25 take -

Page 209

1 MR. O'BRIEN:
 2 Q. You would have been kept in the loop on this
 3 particular issue, would you?
 4 MR. MOORE:
 5 A. - a crew off one job and move to another job,
 6 sometimes you have to evaluate the priority
 7 that that crew was working on at the time,
 8 right?
 9 MR. O'BRIEN:
 10 Q. I understand that, yeah, I understand that. I
 11 guess my question is would you have had
 12 particular knowledge of this issue as it was
 13 occurring or is it something that the managers
 14 in that area would have been dealing with and
 15 then later let you know, "here's what I did"?
 16 MR. MOORE:
 17 A. In all likelihood, I'm going back by memory
 18 now, but I would have been aware of that job
 19 and what was happening and would have been
 20 getting verbal updates from my managers, but
 21 the managers who are accountable for the
 22 execution of that work in that area, would
 23 have been fully in tune with that job
 24 basically on a daily basis because they are
 25 accountable to execute that work and would

Page 210

1 have been fully aware that the crews installed
 2 a suitable waterproof cover over the breaker
 3 while those parts were removed to protect it
 4 from the weather elements and would have been
 5 certainly involved in the decisionmaking that
 6 would have taken that crew away from bringing
 7 those parts back to the Holyrood switch yard
 8 to deal with these higher priority items, so
 9 the accountability to make those decisions on
 10 a daily basis certainly would be with the,
 11 I'll say the work execution manager for that
 12 area and I would get regular updating, but to
 13 say I'd get daily updating as the work
 14 progressed, we'd leave that to the
 15 accountability of the manager who is doing
 16 that work, right?
 17 MR. O'BRIEN:
 18 Q. I assume that to be the case, yeah. I assumed
 19 that to be the case. I guess my question is
 20 more than, for that particular manager, would
 21 that manager have known that this is something
 22 we don't want to have go too long?
 23 MR. MOORE:
 24 A. That would have been their focus that they
 25 wouldn't have wanted to leave -

Page 211

1 MR. O'BRIEN:
 2 Q. Temporary covers there -
 3 MR. MOORE:
 4 A. That dismantling with suitable covers, I'll
 5 say, in the yard any longer than need be, but
 6 realizing that things can and did happen that
 7 took the crew to higher priority work while
 8 that was in place and they would have made a
 9 decision at the time that what was in place in
 10 the yard to secure those assets while we were
 11 doing the RTV coating was certainly a very
 12 good practice to ensure that those assets were
 13 protected from the elements.
 14 MR. O'BRIEN:
 15 Q. Is there a standard that's required to be
 16 followed for, in that scenario in terms of the
 17 coating or the coverings, sorry.
 18 MR. MOORE:
 19 A. Yeah, we would have, we supplied a copy of the
 20 work method, I think, one of the RFIs that
 21 talks about, you know, that a suitable cover
 22 needs to be in place but we don't actually
 23 have a standard that, a specification for the
 24 cover shall we say, because any time you
 25 dismantle a breaker, depending upon the amount

Page 212

1 of dismantling -
 2 MR. O'BRIEN:
 3 Q. Different type of cover, yeah.
 4 MR. MOORE:
 5 A. You know, the asset could be in different
 6 configurations, so what we do is we rely on
 7 our very experienced terminal station
 8 journeyman employees and their supervisor
 9 in consultation with their manager to ensure
 10 that a suitable weather-tight cover would be
 11 in place and well secured to protect against
 12 any of the elements that we could see in a
 13 switch yard in Newfoundland and Labrador.
 14 MR. O'BRIEN:
 15 Q. And it wasn't clear in your response to Ms.
 16 Greene as to whether or not Hydro was
 17 satisfied that the delay here resulted in a
 18 problem or that this problem was really as a
 19 result of freezing that would have happened
 20 anyway.
 21 MR. MOORE:
 22 A. No, the only thing that we can say with one
 23 hundred percent certainty is that there was
 24 moisture at some point or another that got
 25 into that air blast circuit breaker. We know

Page 213

1 that the breaker was dismantled. We know that
 2 there was a weather-proof cover put in place.
 3 We know that it was in place a little longer
 4 maybe than we would have had hoped because of
 5 higher priority work, but we had no reason to
 6 believe that that resulted in moisture getting
 7 into the breaker, there's nothing conclusive
 8 at all. The only thing that we're a hundred
 9 percent sure on is that moisture at some point
 10 in time got into that breaker.
 11 MR. O'BRIEN:
 12 Q. Yeah, we know moisture got in, yeah.
 13 (1:00 p.m.)
 14 MR. MOORE:
 15 A. Yeah, that's the only thing that we can say
 16 with any certainty.
 17 MR. O'BRIEN:
 18 Q. And you're not prepared to accept that it's
 19 more likely than not the moisture got in
 20 during the period when there was a temporary
 21 cover on?
 22 MR. MOORE:
 23 A. No, we had no reason to believe that with any
 24 certainty at all.
 25 MR. O'BRIEN:

Page 214

1 Q. I wonder if I could ask you, just in terms of
 2 the 1.2 million dollars to be amortized over
 3 five years and that relates, I guess Mr.
 4 Henderson, in terms of recovery for this plan,
 5 stepping up the plan to get back in line. Now
 6 is that to get in line with a four-year plan
 7 or get back in line with your six-year plan?
 8 MR. HENDERSON:
 9 A. Well that is to get in line with the long term
 10 plan and I guess just to go into the four-year
 11 plan for a moment, the cost--well first of
 12 all, let me say the cost was to get everything
 13 back in line for the end of 2015 at which
 14 point we would begin the four-year cycle, but
 15 we were also doing the breaker replacements
 16 and the review of the breaker replacements
 17 that we're doing, will, in effect, have very
 18 few that are going to be done in a four-year
 19 cycle because we'll have all of the breakers
 20 replaced before any of them sort of fall into
 21 a four-year cycle.
 22 MR. O'BRIEN:
 23 Q. Yes.
 24 MR. HENDERSON:
 25 A. So it's going to be very few maintained at a

Page 215

1 four-year cycle because they'll be replaced
 2 before it comes up.
 3 MR. O'BRIEN:
 4 Q. And they won't need to be maintained in the
 5 four-year cycle?
 6 MR. HENDERSON:
 7 A. So the new breakers are a different design
 8 type and they would fall into the six-year
 9 cycle.
 10 MR. O'BRIEN:
 11 Q. Six-year plan, okay. So I take it that Hydro
 12 certainly doesn't take issue with the fact
 13 that this work needs to be done, needs to be
 14 stepped up and be brought in line with your
 15 six-year plan anyway, that that was a
 16 requirement.
 17 MR. HENDERSON:
 18 A. Absolutely, yes.
 19 MR. O'BRIEN:
 20 Q. Now, is Hydro seeking this as a, what I would
 21 call an extraordinary cost?
 22 MR. HENDERSON:
 23 A. When, in putting forward that cost and we
 24 asked for it to be amortized over that period
 25 of time, it was because we did not see this as

Page 216

1 a requirement that would be required every
 2 year, so it's extraordinary over this period
 3 of time -
 4 MR. O'BRIEN:
 5 Q. In that fashion, yes.
 6 MR. HENDERSON:
 7 A. - so in consideration of establishing rates
 8 based on 2015 costs, this would be an element
 9 that we would say is not indicative -
 10 MR. O'BRIEN:
 11 Q. It's a one-time thing.
 12 MR. HENDERSON:
 13 A. - that it would be carried forward in the
 14 future, so our proposal is -
 15 MR. O'BRIEN:
 16 Q. To amortize it then.
 17 MR. HENDERSON:
 18 A. - let's amortize it over a period of time to
 19 take care of that cost.
 20 MR. O'BRIEN:
 21 Q. When Hydro was last in for a GRA in 2007, your
 22 last GRA, would you have built into your
 23 revenue requirement the idea that you were
 24 going to be doing the operating costs
 25 associated with and whatever other costs

Page 217

1 associated with doing maintenance on a six-
 2 year plan?
 3 MR. HENDERSON:
 4 A. It would have been based on whatever was our
 5 standard plan at that time, so my
 6 understanding is we were doing this particular
 7 equipment on a six-year cycle at that time, so
 8 it would have carried forward a--that
 9 assumption would have been carried forward.
 10 The only thing over that period of time, there
 11 was a review, as Darren mentioned, of the
 12 maintenance tactics and the period between and
 13 it confirmed a six-year cycle, but what I
 14 would say to you, I'm not sure if there could
 15 have been changes made in the actual PM
 16 tactics that may result in them being done in
 17 a different manner or for longer periods of
 18 time. I just would, you know, we're only
 19 talking about the six-year cycle and I just--I
 20 don't know, but just that there could be other
 21 things that we're doing that could be changing
 22 costs with respect to maintaining breakers and
 23 transformers.
 24 MR. O'BRIEN:
 25 Q. But I guess my question is back in 2007 there

Page 218

1 was a six-year cycle for breakers and
 2 transformers, is that right?
 3 MR. HENDERSON:
 4 A. That's right.
 5 MR. O'BRIEN:
 6 Q. And so I presume in terms of when you
 7 presented your rate case, you would have built
 8 in the cost of doing those on a six-year
 9 basis, would you not?
 10 MR. HENDERSON:
 11 A. We would have, my only thing is I can't say
 12 for sure the tactics that were done on a six-
 13 year cycle back in 2007 were the exact same
 14 tactics that we came up when we did a review
 15 in 2009. Where I'm going with that is that
 16 the cost of the tactic could be higher if it
 17 had changed or it could be different.
 18 MR. O'BRIEN:
 19 Q. Okay, and I guess my concern is is that it
 20 appears if it was built in over a six-year
 21 period and Hydro hasn't performed in
 22 accordance with that six-year cycle, what
 23 would the regulatory principle be for Hydro to
 24 recover the cost now of catching up in another
 25 test year?

Page 219

1 MR. HENDERSON:
 2 A. The principle is that this is work that's
 3 required to be done. It's as a result of a
 4 reprioritization of work and getting work
 5 done, so it was work that has to be done and
 6 from our view, is that's the cost of looking
 7 after the power system that is required during
 8 that test year and therefore, putting forward
 9 the full cost of what's required in that test
 10 year, this should be included, but again
 11 recognizing that it's not something that you
 12 would do every year because it was the
 13 culmination of that catch up that it would
 14 appropriate for it to be deferred.
 15 MR. O'BRIEN:
 16 Q. No, I understand that and I don't disagree
 17 that it's work that needs to be done and I get
 18 your point. I guess my question is wasn't it
 19 work that needed to be done in 2007 and wasn't
 20 it built into the rates in 2007 for Hydro to
 21 do this work?
 22 MR. HENDERSON:
 23 A. As I said, in 2007 there would have been a
 24 particular tactic on this that we were doing.
 25 That may have changed, which would change the

Page 220

1 amount of time it would take to do tactics.
 2 There's also, this is only one element of a
 3 complete program of terminal station
 4 maintenance, so there's a lot of things that
 5 would have changed and priorities would have
 6 been applied to all of that work, so in
 7 isolation, the six-year, yes, it's the same,
 8 but there are other things that come into play
 9 that may have changed over that period of
 10 time.
 11 MR. O'BRIEN:
 12 Q. And you're not able to tell me right now what
 13 types of things they would be?
 14 MR. HENDERSON:
 15 A. No, I don't have that kind of detail. I'm
 16 just saying theoretically that those things,
 17 those types of things have changed and we did
 18 do a review in 2009, I think that Darren
 19 mentioned and I would expect that things
 20 didn't remain exactly the same as they were in
 21 2007 through to today.
 22 MR. O'BRIEN:
 23 Q. Okay, I'm going to move to another line of
 24 questioning. I want to talk about the 100
 25 megawatt CT. I just want to talk a little bit

Page 221

1 about the purchase of the asset right now and
 2 I understood from Mr. Martin's testimony and I
 3 believe, Mr. Henderson, you had confirmed
 4 this, that you were the one to make the CT
 5 happen, but that Mr. MacIsaac was responsible
 6 for the bid package and for the construction
 7 and procurement, that sort of thing, is that
 8 correct?
 9 MR. HENDERSON:
 10 A. That's correct. The recommendation that came
 11 to me for the project and, of course, it got
 12 approved and so Mr. MacIsaac, as the vice-
 13 president for project execution, was
 14 responsible for completing that project.
 15 MR. O'BRIEN:
 16 Q. Okay, and Mr. Humphries, I understood from
 17 your testimony you would have been involved in
 18 terms of the details of what's required for
 19 the system, is that right?
 20 MR. HUMPHRIES:
 21 A. Yes, and actually preparing the application,
 22 we would have prepared.
 23 MR. O'BRIEN:
 24 Q. Okay, and I wanted to ask you a little bit
 25 about that, I'll get into that a bit later

Page 222

1 too, but your shop prepares the application
 2 for that, is that right?
 3 MR. HUMPHRIES:
 4 A. That's correct.
 5 MR. O'BRIEN:
 6 Q. And I think, Mr. Martin had indicated that you
 7 would be responsible for developing the
 8 recommendation as to what type of generation
 9 is required as well?
 10 MR. HUMPHRIES:
 11 A. Well we would evaluate alternatives in
 12 general, you know, combustion turbines, hydro
 13 electric alternatives, wind and do an analysis
 14 and come up with a preferred technology type,
 15 yes.
 16 MR. O'BRIEN:
 17 Q. And I'll ask you, I assume Mr. Martin would
 18 have had final approval on what's being
 19 purchased or was that left to you, Mr.
 20 Henderson?
 21 MR. HENDERSON:
 22 A. Mr. Martin was part of that.
 23 MR. O'BRIEN:
 24 Q. In terms of the time line, I understood that
 25 you made your application to the Board in

Page 223

1 April of 2014, does that sound about right,
 2 the formal application was filled out?
 3 MR. HENDERSON:
 4 A. Yes.
 5 MR. O'BRIEN:
 6 Q. And you received approval and we can bring up
 7 the Board, the subject to check May 7th, does
 8 that sound about right?
 9 MR. HENDERSON:
 10 A. That sounds about right, yes.
 11 MR. O'BRIEN:
 12 Q. Okay. Now when you made your initial
 13 application, you had already done a site
 14 assessment as to where you're going to put the
 15 CT, is that right?
 16 MR. HENDERSON:
 17 A. That's correct.
 18 MR. O'BRIEN:
 19 Q. Okay. In fact, that was done sometime prior?
 20 MR. HENDERSON:
 21 A. It had been done actually in 2012, I think we
 22 discussed yesterday.
 23 MR. O'BRIEN:
 24 Q. Yeah, and that's the assessment.
 25 MR. HENDERSON:

Page 224

1 A. And that's part of the--the assessment that
 2 was done.
 3 MR. O'BRIEN:
 4 Q. And that was, you mentioned about a risk
 5 workshop and I went through some documents and
 6 noted that there was something run by
 7 WorleyParsons, is that right?
 8 MR. HENDERSON:
 9 A. That's correct.
 10 MR. O'BRIEN:
 11 Q. Okay, and that was in March of 2012, does that
 12 sound right?
 13 MR. HENDERSON:
 14 A. I'm not sure of the time, but it was during
 15 2012 certainly.
 16 MR. O'BRIEN:
 17 Q. Okay, and Ms. Greene had taken you through
 18 some emails as well, one of which I think was
 19 from Mr. Haynes to you, Mr. Henderson, that
 20 really seemed to, around April of 2010 that
 21 you were focussed on Holyrood as the site,
 22 does that sound about right?
 23 MR. HENDERSON:
 24 A. That would be right.
 25 MR. O'BRIEN:

1 Q. Okay. Were you involved with that process,
 2 Mr. Humphries?
 3 MR. HUMPHRIES:
 4 A. Process for?
 5 MR. O'BRIEN:
 6 Q. Of the site assessment.
 7 MR. HUMPHRIES:
 8 A. Yes, I was for portions of it.
 9 MR. O'BRIEN:
 10 Q. Okay. And Mr. LeDrew, were you involved with
 11 that?
 12 MR. LEDREW:
 13 A. Yes, I was.
 14 MR. O'BRIEN:
 15 Q. Okay, and just take me through sort of how
 16 that site assessment took place? I mean, how
 17 long did it take, where did it take place,
 18 that kind of stuff, other details on it, the
 19 risk workshop, I guess and -
 20 MR. LEDREW:
 21 A. There was a day and a half session with a
 22 number of folks that was held at the Holyrood
 23 centre, plus there was some meetings at head
 24 office as well and it was lead on a template
 25 that WorleyParsons had that guided us through

1 MR. HENDERSON:
 2 A. I'm not sure what prompted the timing of it.
 3 I take it that's your question?
 4 MR. O'BRIEN:
 5 Q. That's my question, yes, I'm trying to -
 6 MR. HENDERSON:
 7 A. And I'm aware during that time there was
 8 considerable work being done on estimates for
 9 the new combustion turbine in preparation
 10 knowing that there would be a capital
 11 application being put to the Public Utilities
 12 Board for a combustion turbine, so I was aware
 13 that there was an engineering group assigned
 14 to do a thorough capital cost estimate for
 15 that and it would have been part of that
 16 process, but why in March I couldn't say, but
 17 it was after the January 2013 incident and we
 18 were looking at because of--I'm sorry, it
 19 wasn't, I'm confused -
 20 MR. LEDREW:
 21 A. Wrong year.
 22 MR. HENDERSON:
 23 A. Wrong year. yes, I was kind of thinking we had
 24 that--there was something that happened at the
 25 beginning of that year which was the black

1 that process.
 2 MR. O'BRIEN:
 3 Q. And WorleyParsons was retained to assist you
 4 with this, is that right?
 5 MR. LEDREW:
 6 A. Yes, there was an individual working inside of
 7 PETS that had a lot of background in risk
 8 assessment and was an employee on contract
 9 with us and he was assigned to bring us
 10 through that process.
 11 MR. O'BRIEN:
 12 Q. Okay, and when were they retained? When did
 13 this whole process start?
 14 MR. LEDREW:
 15 A. Well that individual was on for other
 16 activities that PETS were executing, so--and
 17 was reassigned to lead this initiative to do
 18 the risk assessment.
 19 MR. O'BRIEN:
 20 Q. Okay, so if we're talking a day and a half,
 21 say, in March of 2012, would this have been
 22 contemplated earlier than that or did this
 23 just start in March in terms of now we're
 24 going to start looking at a site assessment?
 25 How did that come to pass?

1 start, so it may have been part of that
 2 discussion as to have a look at it right then
 3 after that came up.
 4 MR. HUMPHRIES:
 5 A. I can add a little more.
 6 MR. O'BRIEN:
 7 Q. Sure, go ahead.
 8 MR. HUMPHRIES:
 9 A. And I think Mr. Henderson is right, it was at
 10 that time that the black start at Holyrood
 11 became an issue and we started to consider the
 12 option of putting a combustion turbine there
 13 to cover it off, and as well I think through
 14 the initial assessments for the combustion
 15 turbine, the whole question of the ability to
 16 be able to establish a second unit at
 17 Hardwoods for, because of the residential and
 18 environmental concerns was an issue, so the
 19 decision was made to do a complete assessment
 20 of both the Hardwoods Holyrood and alternate
 21 sites.
 22 (1:15 p.m.)
 23 MR. O'BRIEN:
 24 Q. And I understood from your testimony
 25 yesterday, Mr. Henderson, that you had thought

Page 229

1 maybe it's a good idea to have a second site
 2 near the St. John's area but that didn't seem
 3 to go much further than that after the
 4 assessment, is that right, and everybody
 5 focussed on Holyrood?
 6 MR. HENDERSON:
 7 A. Yes, and once the assessment was done, I guess
 8 the risks and costs related to going to
 9 another site was abandoned and the Holyrood
 10 option was the area of focus.
 11 MR. O'BRIEN:
 12 Q. Right, and is it fair to say it didn't take
 13 very long in terms of timeframe for the
 14 assessment to be done and come to a conclusion
 15 Holyrood was the right answer here for this?
 16 MR. HENDERSON:
 17 A. Yes, I think that's correct.
 18 MR. O'BRIEN:
 19 Q. Yeah, it was a short period of time. And, Mr.
 20 Humphries, your recollection is that it might
 21 have been associated with the black start?
 22 MR. HUMPHRIES:
 23 A. I think that was a portion of it, yes.
 24 MR. O'BRIEN:
 25 Q. And how about you, Mr. LeDrew, do you have the

Page 230

1 same sort of recollection?
 2 MR. LEDREW:
 3 A. Yeah, in hindsight I would say that's what
 4 triggered it, yeah.
 5 MR. O'BRIEN:
 6 Q. Okay. And at the time, in terms of a site
 7 assessment, we know right now that there's a
 8 100 megawatt or 123 megawatt CT, the site
 9 assessment, did that--at that time you were
 10 looking at a 50 megawatt CT, is that right?
 11 MR. HUMPHRIES:
 12 A. A 60, I believe.
 13 MR. O'BRIEN:
 14 Q. 60, was it? Would it have mattered one way or
 15 another, 60 or 100, in terms of the site
 16 assessment?
 17 MR. HUMPHRIES:
 18 A. No, I don't think so.
 19 MR. LEDREW:
 20 A. Just to add one point.
 21 MR. O'BRIEN:
 22 Q. Yes, go ahead.
 23 MR. LEDREW:
 24 A. The assessment was beyond just physical space,
 25 it looked at all the environmental

Page 231

1 considerations, refueling options, community
 2 involvement, you know, all of those factors.
 3 MR. O'BRIEN:
 4 Q. Yes, I guess my point was more that, look, you
 5 looked at all of this stuff and it didn't take
 6 you very long to do it and you came to a
 7 conclusion that Holyrood is the right spot,
 8 that's a fair assessment?
 9 MR. LEDREW:
 10 A. In a couple of weeks, probably, it was all
 11 done.
 12 MR. O'BRIEN:
 13 Q. In terms of, I wonder if we could bring up the
 14 application, the April 10th, 2014 application
 15 and we may not need it, there's a quote in
 16 there that Hydro had learned that suppliers
 17 could provide combustion turbines in a 100
 18 megawatt range and have them installed and
 19 commissioned at the Holyrood site within 8
 20 months of making the commitment. Does that
 21 sound about right?
 22 MR. HUMPHRIES:
 23 A. Yes.
 24 MR. O'BRIEN:
 25 Q. And that would have been in the application?

Page 232

1 MR. HUMPHRIES:
 2 A. Subject to check, yes, I think.
 3 MR. O'BRIEN:
 4 Q. Can you give me some basis for that statement,
 5 how did Holyrood come to that--sorry, Hydro
 6 come to that conclusion?
 7 MR. HUMPHRIES:
 8 A. Well based on the work that project execution
 9 had been doing on looking at the procurement
 10 for to get combustion turbine, looking at
 11 opportunities that were available in the
 12 market, at the grey market, and with
 13 discussion with those owners, it was
 14 determined that that would be achievable.
 15 MR. O'BRIEN:
 16 Q. Okay. And the CT itself, from the RFIS
 17 there's a title transfer release there from
 18 September 18th, 2014, is that about the time
 19 when it was purchased, is that fair to say?
 20 MR. HENDERSON:
 21 A. That would be--that's what I would say, yes.
 22 MR. O'BRIEN:
 23 Q. And how about when it was transferred, when
 24 you took possession of it, what sort of
 25 timeframe in 2014?

Page 233

1 MR. HENDERSON:
 2 A. You're probably going to have to ask Mr.
 3 MacIsaac when he's on the stand on that.
 4 MR. O'BRIEN:
 5 Q. I can do that.
 6 MR. HENDERSON:
 7 A. But there is a schedule of payments on certain
 8 milestones being met and I believe one of them
 9 for those assets was when they were located on
 10 site, so that there's payment made regarding--
 11 we had them in our possession on site.
 12 MR. O'BRIEN:
 13 Q. Okay. When did you start site preparations,
 14 do you know or is this something I should
 15 bring up with Mr. MacIsaac?
 16 MR. HENDERSON:
 17 A. I can recall that it was, you know, I'll say
 18 early in the summer, probably in June.
 19 MR. O'BRIEN:
 20 Q. Okay, and it would have been after the
 21 approval, obviously?
 22 MR. HENDERSON:
 23 A. Yes, yeah.
 24 MR. O'BRIEN:
 25 Q. Okay. Was there anything done prior to the

Page 234

1 approval to get ready for installation?
 2 MR. LEDREW:
 3 A. Well this facility was going to be built next
 4 to an operating facility, so we had to
 5 segregate space, we had to get different
 6 traffic flows because this was, the
 7 construction area was going to be right in the
 8 normal access route in and out of the facility
 9 for both normal traffic and emergency traffic,
 10 so there was a whole new route created to,
 11 around the construction site and new parking
 12 lots. There was a lot of thought went into
 13 sharing synergies with what we had based at
 14 Holyrood to help the project, as well as
 15 making sure that Holyrood could operate
 16 autonomous from a major construction project
 17 and wouldn't impact the delivery of reliable
 18 power to the customers.
 19 MR. O'BRIEN:
 20 Q. Okay, and in terms of when the unit was in
 21 service, we're looking at the end of February,
 22 early March, is that right?
 23 MR. HENDERSON:
 24 A. The unit produced first power at the end of
 25 January and then it was closer to the end of

Page 235

1 February, I think, I'm going to say February
 2 21st is the date that I recall in which all of
 3 the equipment was proven, the last component
 4 being the emissions controls that were
 5 required for the water injection.
 6 MR. O'BRIEN:
 7 Q. All right, okay. So in terms of when you
 8 applied, it's less than a year after you
 9 applied to when you're in service, 11 months?
 10 MR. HENDERSON:
 11 A. Yes, it was tremendous effort to accomplish
 12 that, that's what we did.
 13 MR. O'BRIEN:
 14 Q. Yeah, but it was done within 11 months, right?
 15 MR. HENDERSON:
 16 A. Yes.
 17 GREENE, Q.C.:
 18 Q. Excuse me for a moment, Mr. O'Brien, I
 19 wouldn't want Ms. Glynn upset with me for
 20 abandoning her responsibilities, but Ms. Gray
 21 brought the application up on the screen and I
 22 just wondered, we don't need to mark it as an
 23 information -
 24 MR. O'BRIEN:
 25 Q. No, that's fine, I don't think I'll need it at

Page 236

1 this point and if I do, I think we can mark it
 2 then. Thank you, Ms. Greene. I do want to
 3 get into an area we've had some discussion on
 4 this before, Mr. Humphries, and Ms. Greene has
 5 a few questions for you as well just on
 6 generation planning criteria and I do want to
 7 go back with respect to that. And I'll try
 8 not to go over too much of it, but there are
 9 some areas which weren't covered before, I
 10 want to get you to cover for us. When you
 11 were here last week, there was a fair
 12 discussion on planning criteria and loss of
 13 load expectation target of 2.8 hours a year
 14 and that was Hydro's criteria prior to 2014,
 15 is that right?
 16 MR. HUMPHRIES:
 17 A. That's correct.
 18 MR. O'BRIEN:
 19 Q. And it's still the criteria?
 20 MR. HUMPHRIES:
 21 A. It's still a part of our criteria, yes.
 22 MR. O'BRIEN:
 23 Q. Part of your criteria, right. And I'm
 24 wondering whether you can tell me where forced
 25 outage rates would enter into the equation of

Page 237

1 the loss of load target of 2.8, how does that
 2 work?
 3 MR. HUMPHRIES:
 4 A. Yeah, well the 2.8 is, as I said last week, is
 5 a probabilistic assessment, so that looks at
 6 load forecast, it looks at the generation and
 7 it also looks at the availability of that
 8 generation and it goes through and it
 9 determines a LOLH which would correlate to a
 10 level of reserve to meet the criteria, and so
 11 as the study periods increase, the probability
 12 of unavailability is increasing, so that would
 13 affect, have the affect of driving the LOLH
 14 higher.
 15 MR. O'BRIEN:
 16 Q. All right, okay, and these are assumptions, I
 17 guess, that Hydro uses in its planning model,
 18 is it, in terms of figuring out whether
 19 there's additional generation needed in the
 20 future, that sort of thing?
 21 MR. HUMPHRIES:
 22 A. Yes, that's correct.
 23 MR. O'BRIEN:
 24 Q. Okay. And for the LOLH forecasts, right now
 25 Hydro uses an assumption for forced outage

Page 238

1 assumptions based on data from 2000 to 2024,
 2 is that right? Do you know that?
 3 MR. HUMPHRIES:
 4 A. The forced outages are based on historic
 5 performance.
 6 MR. O'BRIEN:
 7 Q. Yeah, it's for each unit, right?
 8 MR. HUMPHRIES:
 9 A. Yes.
 10 MR. O'BRIEN:
 11 Q. And I know and perhaps we can bring up the
 12 Ventyx Report. Maybe you can give us a little
 13 background on this.
 14 GREENE, Q.C.:
 15 Q. And here, Mr. O'Brien, this does need to be
 16 marked as an Information item. I believe the
 17 number is Information No. 27.
 18 MR. O'BRIEN:
 19 Q. 27, so it will be under the generation, I
 20 think it's called generation reserve planning,
 21 March 2014, this is part of--no, here we go,
 22 maybe if we can scroll up just to the first
 23 page first, and this was a report done in 2014
 24 for Newfoundland and Labrador Hydro, a
 25 planning process review by Ventyx. Are you

Page 239

1 familiar with that report, Mr. Humphries?
 2 MR. HUMPHRIES:
 3 A. Yes, I am.
 4 MR. O'BRIEN:
 5 Q. Okay, can you just give me an overview as to
 6 what you retained Ventyx for?
 7 MR. HUMPHRIES:
 8 A. Well this review was initiated following the
 9 2014 outage and we retained Ventyx to complete
 10 a review of both generation planning
 11 methodologies and assumptions, as well as our
 12 load forecasting methodology consumptions.
 13 MR. O'BRIEN:
 14 Q. Okay. And if we could turn to page 5, there's
 15 a discussion here in the first full paragraph
 16 and I want to go down to the second line
 17 there, "The assumptions and strategist"--
 18 that's your planning model, is it, your
 19 computer, planning model.
 20 MR. HUMPHRIES:
 21 A. Yes.
 22 MR. O'BRIEN:
 23 Q. "The assumptions and strategist are based on
 24 data collected between 2000 and 2004. The
 25 generation forced outages assumption for

Page 240

1 Holyrood and Bay d'Espoir are 9.64 percent and
 2 .91 percent respectively. And they
 3 contributed to the forecast 2015 LOLH of 3. 98
 4 hours a year. Recent data from NLH operating
 5 data from 2008 to 2012 indicates that the
 6 historical performance for Bay d'Espoir has
 7 improved to .41 percent and worsened for
 8 Holyrood to 10.69 percent. These figures are
 9 relatively consistent with the current
 10 performance, however if the generation forced
 11 outage assumptions were improved for Bay
 12 d'Espoir, the 2015 LOLH would drop to 3. 69
 13 hours a year. If the generation forced outage
 14 assumptions were changed for Holyrood, the
 15 contribution to the 2015 LOLH would increase
 16 to 4.49 hours a year." I'm just trying to get
 17 a sense as to, first of all, whether or not
 18 Newfoundland and Labrador Hydro is using more
 19 recent data now when they input generation
 20 outages, forced outages into the strategist
 21 model.
 22 MR. HUMPHRIES:
 23 A. Well we continue to monitor our performance on
 24 an annual basis and starting in September of
 25 this year, we report that, actually we

Page 241

1 reported to the Board on a quarterly basis I
 2 believe it is now, but we also in our annual
 3 update, we include that 12 months review and
 4 what the implications of any changes are from
 5 a generation reserve or LOLH perspective.
 6 MR. O'BRIEN:
 7 Q. Right, okay. And I guess to answer my
 8 question then, is it fair to say that the data
 9 that you use now is still the 2000 to 2004
 10 data for their generating units or -
 11 MR. HUMPHRIES:
 12 A. We use that as a base assumption and then we
 13 do a sensitivity on that where we have
 14 actually increased the Holyrood forced outage
 15 rates by 2 percent to 11.64 and we've taken
 16 the forced or the UFOP for the combustion
 17 turbines and effectively doubled that from ten
 18 to twenty percent.
 19 MR. O'BRIEN:
 20 Q. Right.
 21 MR. HUMPHRIES:
 22 A. And we complete a sensitivity on that.
 23 MR. O'BRIEN:
 24 Q. And have you always done it in that fashion?
 25 MR. HUMPHRIES:

Page 242

1 A. No, that's only something we started to do
 2 since the Ventyx review.
 3 MR. O'BRIEN:
 4 Q. Okay, so since 2014.
 5 MR. HUMPHRIES:
 6 A. Yes.
 7 MR. O'BRIEN:
 8 Q. In terms of the, so is it fair to say then if
 9 you used more recent data, you may have--if
 10 you had of used that, say in 2009, 2010 into
 11 2012, then your load forecast--sorry, your
 12 LOLH figures might be off or understated?
 13 MR. HUMPHRIES:
 14 A. They could vary, yes, possibly, yes, based on
 15 that.
 16 MR. O'BRIEN:
 17 Q. Did you track those forced outage rates per
 18 unit back in 2008 to 2012 for planing
 19 purposes?
 20 MR. HUMPHRIES:
 21 A. Yes, for planning purposes they would be
 22 reviewed and the averages looked at every time
 23 we did a generation expansion.
 24 MR. O'BRIEN:
 25 Q. Okay, and why wouldn't you have included more

Page 243

1 recent data when you did that?
 2 MR. HUMPHRIES:
 3 A. Well, when we look at the averages, you know,
 4 they were still representative within--in the
 5 range of the assumptions, like Hydro's were
 6 lower in the case that they quoted there, and
 7 Holyrood slightly higher.
 8 MR. O'BRIEN:
 9 Q. Well Holyrood would have gone from 3.98 to
 10 4.49, right?
 11 MR. HUMPHRIES:
 12 A. No, but their forced outage percentage would
 13 have gone from 9.64 to 10.69.
 14 MR. O'BRIEN:
 15 Q. Right, okay.
 16 MR. HUMPHRIES:
 17 A. So what we've done since that, now by
 18 incorporating that, the sensitivity, we put a
 19 wider range on that.
 20 MR. O'BRIEN:
 21 Q. And we're at 1:30 there, Mr. Chair. I think
 22 maybe it is a good time.
 23 CHAIRMAN:
 24 Q. Your timing is exemplary. We will adjourn.
 25 Upon conclusion at 1:30 p.m.

Page 245

1 CERTIFICATE
 2 I, Judy Moss, hereby certify that the foregoing is a true
 3 and correct transcript of a hearing in the matter of
 4 Newfoundland and Labrador Hydro's General Rate
 5 Application heard on the 28th day of October, A.D., 2015
 6 before the Commissioners of the Public Utilities Board,
 7 St. John's, Newfoundland and Labrador and was transcribed
 8 by me to the best of my ability by means of a sound
 9 apparatus.
 10 Dated at St. John's, Newfoundland and Labrador
 11 this 28th day of October, A.D., 2015
 12 Judy Moss

-?-	12:30 [1] 178:15 12:45 [1] 196:14 12th [2] 55:9 56:13 13 [1] 92:11 135 [1] 9:8 14 [1] 92:11 157 [1] 18:9 158 [1] 18:11 16 [1] 15:1 161 [1] 15:1 167 [1] 40:5 168 [2] 186:18 201:24 17 [5] 53:18 68:18 69:4 76:1 114:20 170 [1] 142:21 17th [2] 57:5,6 18 [8] 9:9 10:17,22 68:18 69:4 76:1 96:19 114:21 18th [2] 207:11 232:18 18thof [1] 206:24 1968 [1] 39:5 1990s [2] 177:2 178:5 1:00 [1] 213:13 1:15 [1] 228:22 1:30 [2] 243:21,25 1st [4] 34:25 57:2 159:25 160:8	7:4,11 22:17 23:4,11 40:7 86:19 97:9 104:21 111:9 129:4 135:23 146:17 201:7 2012 [36] 4:10 5:11,15 7:11 8:3 15:2 22:17 23:4 23:14,19 40:16 41:17 65:11 78:16,18 100:2,4 100:10 102:25 104:23 129:5,16 201:13 202:5 203:2,6,11,13 204:5 223:21 224:11,15 226:21 240:5 242:11,18 2013 [125] 2:8,8 3:15 4:25 4:25 6:9 8:3 18:1,11,22 18:24 19:11,12,17,20 20:4 21:25 22:17 23:5 23:23,23 24:4 26:11,14 26:16 34:4 40:16 41:15 41:18,20,22,23 42:23,25 43:25 44:1,4,17,19 45:5 78:6,13,15,21,25 100:3 100:18 101:3,17 102:9 103:1,2,16 104:23 105:6 129:15,16,17 130:3,23 131:7,13,19,23,23 138:6 140:18 141:10,14,22 142:2 143:19 145:16 146:6,18,25 147:17 150:2 150:12,25 151:9,10 152:4 154:17 155:14 156:2,7 156:13,16,21 157:6,17 158:1,5 159:25 160:2,14 160:18,20 161:4,13,19 161:22 163:16 165:5,7 165:12 166:19 170:9,17 175:3 176:11 180:7 186:22 187:13 190:5 191:18,24,25 192:1 193:1 193:5,7 199:3 227:17 2013-14 [1] 163:14 2013/2014 [1] 173:20 2014 [95] 13:9,13 18:22 18:24 22:4 25:18 26:3,7 35:7 37:6 38:4 39:6,19 40:11 41:6 42:12 43:8 47:16 53:13 57:8 66:2 67:3 70:15 79:20 80:4 81:16 87:7 94:4 99:3,6 113:7,7 116:10 119:20 120:2,6 129:23 132:3 139:17 140:11 142:6 143:15 150:20 151:3 153:9,12 155:17 156:4,7 156:11,17 163:23 165:15 166:14,22 168:3,5,15,17 170:3 174:2 178:25 179:16 180:10,13,18 183:13 191:20 192:8 193:7 194:6,8,8,10,15 194:19,22,24 195:8 196:7 199:5,13 200:12,14,14 201:4 223:1 231:14 232:18,25 236:14 238:21 238:23 239:9 242:4 2014-15 [1] 157:2 2014/2015 [6] 24:11 25:14 26:19 194:17 195:10,15 2015 [48] 1:1 6:22 14:4 20:10,14,16 22:4,5 24:14	25:13 26:22 37:12 40:3 40:22 53:19 69:18 73:13 89:12 95:16 116:2 129:24 129:25 132:2,3,25 133:11 135:25 137:1 150:22 151:6 155:18,19 156:4 163:22 165:15 166:22 168:17,21 170:6 177:7 191:20 214:13 216:8 240:3,12,15 245:5,11 2018 [2] 42:5,13 2020 [1] 13:5 2024 [1] 238:1 21st [1] 235:2 22 [1] 31:7 23 [2] 10:17,22 230 [1] 118:23 24 [1] 61:23 25 [2] 31:8 61:25 26 [1] 68:25 27 [3] 57:6 238:17,19 27th [4] 206:12,14,21 207:21 28 [3] 1:1 10:4,14 28th [8] 206:12,14,21 207:11,15,21 245:5,11 2nd [6] 113:7 120:2 155:21 156:20 195:8,16	75 [1] 112:12 7th [1] 223:7 -8- 8 [2] 9:10 231:19 8th [5] 53:13 54:6,20 56:10,23 -9- 9 [1] 57:7 9.64 [2] 240:1 243:13 90 [15] 24:1 35:3 77:10 77:15,19 78:22,25 81:18 82:19 100:13 204:6,9,9 204:12,15 95 [1] 47:12 9:05 [1] 1:2 9:15 [1] 9:25 9:30 [1] 23:7 9:45 [1] 38:9 9th [2] 55:9 56:13 -A- A.D [2] 245:5,11 a.m [13] 1:2 9:25 23:7 38:9 53:9 62:24 80:2 99:13 115:13 117:18,19 130:1 196:14 abandoned [1] 229:9 abandoning [1] 235:20 ABB [2] 37:16 38:1 abide [1] 43:5 ability [6] 31:20 154:20 193:9 208:24 228:15 245:8 able [11] 7:22 31:20 55:5 83:19 84:17 166:5 173:18 175:10 180:20 220:12 228:16 above [2] 100:6 102:12 abreast [1] 157:16 Absolutely [1] 215:18 AC [2] 9:17 10:3 accelerate [4] 13:16 71:9 87:2 134:1 accelerated [7] 13:8 25:17,23 67:19 80:8 134:5,10 acceleration [1] 27:19 accept [3] 5:24 30:4 213:18 acceptable [1] 5:23 accepted [5] 6:1 27:20 29:21 85:5 89:14 access [2] 182:11 234:8 accommodate [1] 170:25 accomplish [2] 134:14 235:11 accomplished [1] 135:21 accomplishing [1]
-16.7 [1] 56:8 -6.8 [1] 56:14 -9.3 [1] 56:12 -95 [1] 47:12 -.- .41 [1] 240:7 .91 [1] 240:2 -0- 066 [1] 206:3 067 [1] 206:2 -1- 1 [10] 9:6 10:17 53:11,21 55:11,14,21 57:22 142:16 142:25 1.2 [1] 214:2 1/6th [2] 204:9,19 10 [4] 71:2,7 75:24 92:9 10,000 [4] 18:13 131:8,9 131:11 10.69 [2] 240:8 243:13 100 [14] 35:3,8 51:19 77:18 78:22 79:6,8,15 79:21 204:23 220:24 230:8,15 231:17 102 [2] 4:14,15 103 [1] 4:16 105 [8] 67:10 68:8 112:19 113:9,13 114:18 143:6,8 10:00 [1] 53:9 10:15 [1] 62:24 10:30 [1] 80:2 10:45 [1] 99:13 10th [1] 231:14 11 [8] 71:2,7 75:24 92:9 96:20 117:14 235:9,14 11.64 [1] 241:15 11:00 [1] 115:13 11:02 [1] 117:18 11:35 [1] 117:19 11:45 [1] 130:1 11th [2] 160:4,12 12 [4] 15:1 53:21 57:7 241:3 123 [1] 230:8 12:00 [1] 147:5 12:15 [1] 164:20	2 [4] 5:16 9:9 49:25 241:15 2.8 [3] 236:13 237:1,4 2000 [3] 238:1 239:24 241:9 2002 [1] 65:6 2003 [1] 65:7 2004 [2] 239:24 241:9 2005 [1] 39:12 2007 [8] 144:6 216:21 217:25 218:13 219:19,20 219:23 220:21 2007-2008 [1] 73:20 2008 [5] 71:22 72:8 80:16 240:5 242:18 2008-2009 [2] 74:13 87:21 2009 [15] 14:5 15:21 69:9 70:3 72:9 85:10,14 132:15,18 134:24 135:10 153:25 218:15 220:18 242:10 201 [2] 28:22 31:7 2010 [39] 4:20 7:3 14:4 67:17 71:9,11,14,15 73:6 73:17 76:8 80:8 81:18 82:4,6,19 87:1,11 89:25 92:4 93:7 96:18,18 104:21 106:5 116:2,13 129:4 130:7 132:7,8 135:19,22 139:17 140:11 146:6 153:16 224:20 242:10 2011 [17] 4:21 5:13 6:25	-2- 3.1 [1] 53:18 3.69 [1] 240:12 3.98 [2] 240:3 243:9 -4- 4 [2] 50:2 55:11 4.49 [2] 240:16 243:10 40 [2] 178:14,17 46 [1] 39:5 4th [3] 11:17 55:14 57:2 -5- 5 [1] 239:14 5.1 [1] 68:25 5.2 [1] 69:21 50 [1] 230:10 5th [7] 35:14 43:9 53:12 54:6,20 56:10,23 -6- 6 [1] 50:2 60 [6] 2:14,16 3:23 230:12 230:14,15 600 [1] 9:11 63 [1] 70:3 63-65 [1] 70:16 65 [1] 69:25 6th [2] 53:19,19 -7-		

<p>151:20 accordance [3] 6:12 153:17 218:22 account [6] 16:10 29:5 31:14 32:2 40:24 77:21 accountabilities [1] 102:21 accountability [14] 59:23 60:11,20 61:8 77:6 78:7 89:15 100:24 103:13 104:3 125:23 131:22 210:9,15 accountable [16] 24:3 34:12 60:16 61:3 72:2 87:25 89:3 96:14 115:4 115:18 125:20 136:22 148:12 183:4 209:21,25 accounted [2] 18:23 147:11 acetylene [4] 176:2,3,20 178:4 achievable [1] 232:14 achieve [22] 20:13 24:13 24:14 25:9,14 34:23 69:12 73:6 74:12 77:17 120:21 129:25 132:4 140:2 155:18 156:22 157:3 163:22 165:15 166:22 168:20 195:19 achieved [2] 34:18,19 achieving [9] 40:21 61:9 72:20 73:1 75:9 77:9,19 164:24 194:15 act [1] 4:11 action [3] 155:16 176:19 177:4 actions [1] 54:1 activities [20] 18:3 19:25 28:10 33:5 34:16 62:19 63:18 74:8 75:6 77:10 79:3,22 99:22 110:19 111:23 173:23 175:2,11 184:17 226:16 activity [3] 34:22 58:6 110:5 actual [10] 19:3 34:16 78:11 94:20 136:14 137:5 157:18 195:10 206:20 217:15 actuals [1] 26:12 add [6] 3:19 41:13 153:9 170:8 228:5 230:20 added [1] 53:6 additional [29] 19:13 22:18 23:3 24:12 52:22 53:23 54:17 57:20 74:14 74:17 78:1 95:15 100:15 100:16 129:23 151:4,9 151:15 152:10 153:6,10 155:9,22 168:18 170:4 193:10,11 194:9 237:19 additionally [1] 166:21 address [4] 111:25 139:22 151:21 163:2 addressed [3] 99:19 127:13 128:10 adequate [2] 9:19 10:2</p>	<p>adhering [1] 43:22 adjourn [1] 243:24 adjusted [1] 66:4 Aero [1] 2:22 affect [3] 38:7 237:13,13 affected [2] 150:10 152:19 affecting [1] 127:11 affects [1] 182:14 again [19] 8:4 18:8 36:18 50:3 56:11,15 59:1 67:9 91:7 119:20 139:13 146:18 184:6 187:7,9 191:10 197:18,23 219:10 against [12] 14:23 15:20 26:12,12 61:2 62:21 65:5 65:16 81:11 100:13 102:19 212:11 age [5] 12:4,13,18 133:5 178:10 aging [1] 66:16 ago [1] 114:7 agree [5] 57:22 58:11 62:4,10 154:11 agreements [1] 54:2 ahead [6] 120:10 121:23 122:6 141:20 228:7 230:22 air [53] 11:14,23 12:4,13 13:1,6,17 23:16 36:3,19 36:22 37:19,23 38:7,12 40:1 46:18,19,21,22,23 47:1,2,4,4,9,14 48:4,19 48:22,23 52:4,10,20,23 53:7 66:5 69:25 75:25 94:6 118:17,19 121:3 124:5,9 138:10 186:8,18 189:22 190:19 198:15 205:9 212:25 aligned [2] 30:23 31:4 allocated [1] 17:9 allocating [1] 126:11 allotment [6] 16:25 17:1 108:11,16,20 123:11 allow [2] 10:10 45:1 allowance [1] 17:8 allowed [1] 23:5 along [9] 22:1 24:9 68:16 78:5 126:13 129:20 130:4 130:5 177:3 alphabetical [1] 143:23 alternate [2] 119:11 228:20 alternatives [2] 222:11 222:13 alternator [4] 161:23 162:21 163:2,7 always [10] 32:17 52:8 52:11 53:4 100:19 107:16 155:11 159:3 174:20 241:24 AMEC [14] 4:21 5:7,24 6:7,12,24 7:10,11,16,17 8:2 157:22 173:9,12 amended [7] 20:7,11</p>	<p>129:21 192:4,9,16,22 among [1] 95:18 amortize [2] 216:16,18 amortized [2] 214:2 215:24 amount [19] 17:14,18,23 19:17 20:23 32:14 48:20 49:16 54:16 55:6 95:17 124:17,22 171:6 180:3 182:11 195:6 211:25 220:1 analysis [35] 12:12 13:12 35:21 36:6 37:19 38:3 38:22,23 47:24 52:12,13 52:25 53:6 66:3,7,12,14 67:5 72:14 88:7 125:3 126:16 127:18 129:17 131:24 155:13 163:16,21 177:24 180:23,24 196:18 196:23 197:21 222:13 analyze [1] 114:4 analyzed [1] 12:12 annual [110] 13:21,25 14:6,9,16,21 15:7,12,24 16:4,20 18:24 21:6 23:14 23:23 27:9 28:1,3 30:14 31:25 33:8 34:10,15,23 40:15,20 42:23 60:22 61:14 67:23 69:5 70:21 71:13,14,18 73:19,19,22 74:1,12 75:22 77:8 79:23 90:15,19 92:24 95:7,14 99:9 106:19 107:22 108:3 108:8 109:9 115:22 116:5 116:20 118:7 119:20 120:16 122:3,4,13 124:11 124:18 125:1,6,16,21,24 126:10 127:10 128:11 130:14,15 136:19,23 137:16 138:13 140:2,3 141:22 142:5,8,13 148:5 148:7,16 154:8 158:20 159:1,16,25 165:2 166:14 175:17 179:2,5,15 180:10 196:9 198:22 199:3,5 200:10,12,20 201:3 240:24 241:2 answer [12] 9:20,24 15:10 20:22 22:8 33:22 50:17 82:14 151:25 166:24 229:15 241:7 anticipated [3] 170:16 203:20,21 anyway [6] 132:9,11 144:17 194:21 212:20 215:15 apart [1] 112:6 apparatus [1] 245:9 appear [1] 196:16 application [24] 2:7 4:24 20:7 153:11 162:20 192:23 193:2,10,24 194:2 194:5,16,18 221:21 222:1 222:25 223:2,13 227:11 231:14,14,25 235:21 245:5 applied [4] 121:3 220:6 235:8,9 applies [1] 109:22</p>	<p>apply [5] 44:20 45:6,16 45:21 118:17 approach [3] 62:6,17 83:25 appropriate [10] 16:17 54:5 55:1 63:16 64:19 100:23 133:15,20 167:22 219:14 approval [5] 2:7 222:18 223:6 233:21 234:1 approved [6] 15:9 16:6 16:11 24:19 109:1 221:12 April [4] 50:6 223:1 224:20 231:14 area [34] 83:23 85:15,25 116:17,23,24 127:14 148:19 158:9,10,11 166:4 167:9,15,15,20 169:25 170:1,2 172:1 173:17 176:1 181:19 182:10 187:24,25 188:4 209:14 209:22 210:12 229:2,10 234:7 236:3 areas [11] 84:20 140:6 152:9 165:21 166:8 168:22 175:15,19 208:11 208:24 236:9 arise [2] 87:12 139:9 arose [2] 67:3 175:24 aside [2] 109:24 111:7 aspect [1] 104:10 aspects [1] 74:15 assess [1] 31:15 assessment [23] 4:22 41:2 69:5,7 173:10 223:14,24 224:1 225:6 225:16 226:8,18,24 228:19 229:4,7,14 230:7 230:9,16,24 231:8 237:5 assessments [1] 228:14 asset [42] 27:4 32:4 60:11 60:23 61:9,16 63:2,10 71:25 72:2,7,10,11,23 74:15,16 83:16,21 85:4 86:10 87:23 88:5,16 92:15,16 94:5 95:1 107:25 112:22 120:7 121:18,22 129:12 133:5 181:4,23 185:9,11,11,15 212:5 221:1 assets [50] 12:17 15:17 15:20 28:7 29:15,16,22 29:23 32:4,5,7 34:13 39:24 52:13 60:13,14,15 60:24 61:10 62:13 65:17 66:16,19 69:14 72:17 73:5 76:3 95:19 96:6 106:23 110:21 120:24 121:17 124:16,23 127:17 127:18 133:2,4,6,24 135:25 136:3 173:15 181:7 191:22 197:7 211:10,12 233:9 assigned [2] 226:9 227:13 assist [2] 158:18 226:3 assistance [2] 54:2 56:4 assisted [1] 177:24</p>	<p>associated [21] 16:3 20:9 40:25 41:3,4 44:11 93:5 107:1 112:2,11,21 118:21 122:10 123:20 138:11 159:10 202:9,23 216:25 217:1 229:21 assume [4] 58:21 153:17 210:18 222:17 assumed [1] 210:18 assuming [1] 176:1 assumption [5] 4:3 217:9 237:25 239:25 241:12 assumptions [8] 237:16 238:1 239:11,17,23 240:11,14 243:5 assurance [1] 173:18 assured [4] 170:21 172:7 172:24 174:6 atmosphere [1] 179:8 attached [1] 120:24 attachment [3] 55:21 142:21 143:2 attachments [2] 55:22 183:18 attention [9] 9:10 87:7 102:8 153:4 163:11 165:8 168:10 172:23 193:12 autonomous [1] 234:16 auxiliary [1] 37:22 availability [2] 155:23 237:7 available [20] 6:12 7:5,8 14:14 15:8 16:5 54:7 108:23 109:2,10 112:18 132:19 133:8 134:15 139:14 155:2,11 185:12 208:9 232:11 Avalon [11] 35:11 36:4 38:24 40:15 41:11 68:5 148:22 157:24 173:16 189:7 197:15 average [7] 55:12 56:8 56:12,14,16,19 68:17 averages [2] 242:22 243:3 avoidable [1] 63:5 awaiting [1] 109:8 aware [29] 8:16 27:10 49:2 80:18,24 87:5 97:16 98:1 99:4,5 100:12 125:25 136:18 157:6,12 157:18 164:22 166:15,17 166:19 167:2 170:24 174:15 208:17,20 209:18 210:1 227:7,12 away [7] 18:2 30:14 50:21 168:12,22 203:22 210:6</p> <hr/> <p style="text-align: center;">-B-</p> <p>B1L03 [5] 11:16 37:16 41:19 186:8 205:11 B1L08 [1] 201:25 B1L17 [3] 43:9 204:25 205:10</p>
---	---	---	--	---

<p>B1L37 [6] 35:17 36:18 36:22 41:21 197:16,20 B2T4 [1] 187:3 B3T4 [1] 203:2 background [3] 127:23 226:7 238:13 backlog [18] 74:11 107:18 108:2,13 109:4,7 109:18,22 110:4,14,23 111:11,14,24 134:8,25 135:2,6 backlogs [1] 19:9 backup [1] 7:13 balance [3] 16:18 24:23 25:6 balanced [1] 126:12 band [1] 177:3 barely [1] 167:16 Barron [1] 147:15 base [4] 15:8 24:6 117:9 241:12 based [54] 8:1 12:17 14:13 15:4 16:2,5 20:25 21:7 25:13 30:11 40:23 41:2 52:25 60:23 63:24 64:24 66:6,10,11 69:7 90:22,25 93:14 99:25 108:5,22 109:10 116:5,8 117:11 118:20 123:23 127:14 132:17 133:8 135:17 139:24 142:1,9 148:7 183:16 191:5 199:1 199:5 200:10 201:4 216:8 217:4 232:8 234:13 238:1 238:4 239:23 242:14 basis [38] 21:7 27:10 31:20 34:11 67:23 69:5 70:21 73:19 75:22 79:23 80:1,20 81:1 89:22 90:2 93:7 95:9 124:18 125:16 126:20,20 130:14 131:10 131:12 136:23 142:13 154:8 165:4,23 169:18 172:14 197:10 209:24 210:10 218:9 232:4 240:24 241:1 Bay [18] 112:11 113:2,15 113:25 114:5,6 144:11 145:5,16 152:16 157:23 173:15 187:2,10 190:21 240:1,6,11 BDE [1] 187:2 bearing [2] 116:6 133:1 bearings [1] 10:6 became [7] 150:19 166:19 170:23 174:24 194:17 195:9 228:11 become [3] 111:11 135:2 157:17 becomes [1] 134:7 begin [3] 31:8 194:9 214:14 beginning [6] 78:6 91:22 137:5 158:7 182:25 227:25 behind [4] 17:13 23:6 64:6 130:25</p>	<p>believes [1] 22:19 best [4] 88:11 111:21 155:15 245:8 better [6] 48:23 72:23 74:20 90:13 185:10 199:10 between [13] 24:23 25:6 65:14 75:6 95:1,12 102:17 176:17 202:4 206:11 207:10 217:12 239:24 beyond [5] 39:20 82:7 115:12 199:22 230:24 bid [1] 221:6 bids [1] 3:22 big [3] 181:13 185:13 186:5 Bishop [6] 68:6 114:25 145:3,7,9 152:16 bit [13] 11:11 35:23 69:20 84:17 106:20 107:4,7,8 114:20 202:20 220:25 221:24,25 black [9] 2:3 4:12 5:2 7:8 7:22 59:18 227:25 228:10 229:21 blackout [4] 9:14,16 10:24 11:6 blast [33] 11:14,23 12:5 12:13 13:1,6,17 23:16 36:3,19,22 37:19 38:7 38:13 40:1 46:18 53:7 66:5 70:1 75:25 94:6 118:17,20 121:4 124:6 138:10 186:8,18 189:22 190:19 198:15 205:9 212:25 blitz [1] 153:5 Board [20] 4:25 38:4 113:8 129:22 151:3 153:12 156:10,19 168:18 194:2,5,16 195:8,11,17 222:25 223:7 227:12 241:1 245:6 bottom [1] 52:19 break [10] 19:18 23:21 27:10 42:24 117:17,18 118:15 181:8 187:21 203:13 breaker [126] 11:16 13:17 35:17 36:8,14,18 36:19,23 37:2,5,8,12,14 37:17,20,24 38:25 39:4 39:12 40:2,6,10,15,25 41:6,19 42:4 43:2,7,9,10 43:13,15,21,23 44:8,10 44:11,14,17,25 45:2,7 45:20,23,24 46:1,3,9,11 46:13,16,23,24 47:2,17 47:22 48:1,2,4,24 49:15 49:22 50:12,15,19 51:7 51:12,16,18,21 52:3,5,6 52:9,17,17,24 53:2,11 54:8,22 69:21 96:20,21 106:1 119:5,13,15 138:11 150:5 152:16 186:8 187:13,20,22 189:25 197:20,22 198:15,25 199:8,14 200:11,13,16</p>	<p>200:18,22 201:2,3 202:14 204:25 205:1,3,10,11,19 207:6 210:2 211:25 212:25 213:1,7,10 214:15 214:16 breakers [54] 11:14,23 12:1,5,6,14 13:1,6 19:11 22:12 23:17 36:4 38:1,8 38:13,15 40:13 41:4,8 46:19 53:7 66:5 70:1 75:25 92:9 93:4 94:7 118:17,20,24 121:4 122:4 122:12 123:18 124:6 134:21 154:8 186:10,11 186:13,19 187:25 188:3 189:22 190:9,19,23 194:22,23 205:9 214:19 215:7 217:22 218:1 breaking [9] 77:22 85:6 129:16 131:10,11 137:14 137:15 151:16 152:10 breathing [1] 179:6 bring [17] 9:7,10 84:10 84:14 102:8 142:15 154:20 155:4 157:21 194:9 205:22 207:5 223:6 226:9 231:13 233:15 238:11 bringing [3] 38:22 202:23 210:6 brings [1] 31:2 broke [1] 190:5 broken [1] 186:21 Brook [1] 177:14 brought [11] 5:7 37:16 84:22 100:5 159:21 173:10,12 202:13 206:23 215:14 235:21 brown [1] 9:21 buckets [1] 158:24 budget [25] 15:5,9 16:7 16:11 17:2 20:9,23 21:4 21:7,8,11 24:13,19 108:25 125:11,25 126:2 126:8,12 132:19 139:25 157:3 162:20 163:6 193:10 budgets [1] 25:7 build [2] 122:2 125:1 built [11] 65:20,23 119:4 119:10 120:18 192:4 216:22 218:7,20 219:20 234:3 bullets [4] 50:9,23 206:25 207:9 bunch [1] 190:21 bus [2] 10:10 119:10 bushing [7] 45:12 48:14 51:2,24 177:21 178:2,2 busy [3] 50:16 58:6,9</p>	<p>calculations [2] 54:24 56:16 calendar [1] 34:23 calls [1] 63:16 Canada [1] 66:17 cancelled [1] 34:20 capability [3] 3:1 4:12 5:2 capable [1] 154:23 capacity [6] 54:2,11,17 55:24 56:3 57:20 capital [30] 14:19 17:2,7 17:9,24 18:1 19:18 20:1 21:21 28:12 29:13 42:9 81:4,13 108:21 109:12 109:14,14 137:14 159:5 159:11,13,14,22 162:20 163:6 165:10 184:22 227:10,14 captured [1] 91:3 care [1] 216:19 carried [5] 4:15 8:3 216:13 217:8,9 carry [1] 1:24 case [12] 8:10 49:4 86:4 88:19 161:18 164:19 182:1 194:6 210:18,19 218:7 243:6 catch [15] 71:9 87:2 92:6 101:6,25 105:2,8,20,23 129:5 131:4 135:6 195:16 204:20 219:13 catch-up [4] 87:8 130:7 134:1 153:19 catching [2] 25:2 218:24 caught [1] 170:5 caused [4] 36:14 43:4 44:6 53:11 causes [1] 135:12 causing [2] 127:8 135:15 CBC [1] 189:8 Celsius [1] 56:9 central [2] 34:14 68:7 centre [1] 225:23 centred [1] 65:7 centres [1] 86:9 CEO [4] 79:25 80:9,11 196:4 certain [4] 127:3,11 166:8 233:7 certainly [25] 26:11 30:23 33:9 49:2 62:11 63:1 64:10 74:1,20 97:15 108:24 113:13 116:10 125:24 139:8 157:15 166:16 167:4 181:13 192:18 210:5,10 211:11 215:12 224:15 certainty [3] 212:23 213:16,24 CERTIFICATE [1] 245:1 certify [1] 245:2 Chair [5] 1:9 59:14 117:14,23 243:21</p>	<p>CHAIRMAN [6] 1:3 59:9 117:15,20,24 243:23 challenging [4] 57:18 58:12,14,16 chance [2] 163:8 189:8 change [11] 32:11,24 70:10 71:11 79:6 89:20 100:1 101:22 104:23 105:1 219:25 changed [19] 33:4,17 35:3 78:22 79:20 84:5 98:24 101:21 121:8 131:17 172:9 185:15 204:22 218:17 219:25 220:5,9,17 240:14 changer [11] 35:13,14 35:23,24 36:15 39:2 176:1,17,25 198:3,7 changes [6] 33:9 61:7,8 202:22 217:15 241:4 changing [2] 103:1 217:21 chaotic [4] 57:9,23,25 58:4 characterize [2] 103:22 139:20 characterized [1] 57:9 check [9] 52:22 56:5,7 56:12 147:8 180:9 187:19 223:7 232:2 checks [2] 124:10 201:1 choice [2] 6:19 9:1 choose [1] 6:19 Christmas [1] 2:8 Churchill [1] 140:7 circuit [40] 11:14,23 12:5 12:13 13:1,6,17 19:10 23:16 36:4,19,22 37:19 38:7,13 40:1 46:18 53:7 66:5 70:1 75:25 93:4 94:6 118:20 119:5,13,15 121:4 124:6 138:10 150:5 154:7 186:8,18 189:22 190:9,19 198:15 205:9 212:25 clarification [3] 4:23 205:23 207:9 clarify [8] 2:2 11:5 101:14,19 102:6,20 107:9 179:13 classes [1] 129:12 clean [6] 46:22 47:4 48:23 52:3,10 198:3 cleaned [1] 35:16 cleansing [1] 198:8 clear [4] 100:18 101:11 126:9 212:15 clearly [7] 21:5 25:25 26:13 69:1,3 100:4 101:1 close [3] 38:25 157:20 171:8 closed [2] 36:7 197:22 closer [1] 234:25 closing [3] 36:8,14 197:23</p>
-C-				
<p>C [2] 47:12,12 calculate [2] 54:16 55:5 calculating [1] 69:25 calculation [1] 58:21</p>				

<p>coast [2] 153:6 162:14 coating [14] 44:23,24 45:1,6,16,21 46:12 49:11 150:5 161:21 206:14,20 211:11,17 cold [3] 38:6 48:9 58:8 collected [1] 239:24 columns [1] 206:9 combination [2] 48:8 66:25 combined [1] 86:5 combustion [8] 222:12 227:9,12 228:12,14 231:17 232:10 241:16 comfort [1] 173:25 coming [12] 6:4,6 7:24 11:13 14:2 56:16 165:7 172:22 173:3,11,19 184:14 commentary [1] 71:4 comments [1] 170:8 commissioned [1] 231:19 Commissioners [3] 1:9 54:14 245:6 commissioning [2] 159:10 203:19 commitment [1] 231:20 committed [13] 15:13 16:15,17 21:10,17 24:22 28:4 40:21 42:19 43:1 49:3,20 74:20 common [1] 11:12 communicate [2] 65:2 95:8 communicated [6] 78:15 92:14 94:19,22 96:22 97:25 communicating [1] 95:22 communication [6] 94:25 95:5,9,12,18 191:15 community [1] 231:1 compare [1] 65:4 compared [1] 64:21 comparison [1] 66:15 compartment [5] 35:25 176:17,18,25 177:1 compiled [1] 85:8 complete [20] 25:24 41:5 45:24 47:1 95:16 108:15 110:25 151:5 156:24 158:22 166:20 173:10 175:1,10 198:7 207:2 220:3 228:19 239:9 241:22 completed [22] 5:14 20:15 34:16 40:2,10 68:10 107:19 110:2,3 132:1 133:10 135:1 143:12 150:21 171:2 174:7 196:23 204:5 206:13,14 207:10,18 completely [3] 48:22</p>	<p>52:6,9 completing [12] 22:15 35:7 42:17 43:1 50:4 126:13 130:14 134:6 168:10 175:16 196:8 221:14 completion [11] 2:11 35:2 40:21 74:12,21 78:7 79:2 100:24 105:9,14 194:10 compliant [2] 88:12 89:17 component [2] 162:17 235:3 components [3] 48:1 49:21 150:5 comprehensive [2] 62:6 62:12 compressed [9] 37:23 46:19,21,23 47:4,8,14 48:19 52:20 computer [5] 91:3 92:7 93:19 182:22 239:19 computerized [16] 33:2 71:21 74:6 76:12 90:14 90:21 91:8 92:20 93:11 93:15 107:16,20 122:17 128:8 183:3 184:10 concern [6] 101:5,9,18 101:24 173:17 218:19 concerns [1] 228:18 concerted [2] 195:3,19 concluded [2] 38:21 64:18 concludes [1] 59:8 conclusion [6] 11:3 133:14 229:14 231:7 232:6 243:25 conclusive [6] 37:25 51:20 53:1 200:17,24 213:7 condenser [1] 3:1 condition [8] 4:22 12:6 28:7 29:15 32:4 49:15 66:18 197:7 confident [1] 176:23 configuration [5] 119:6 119:10,13 120:19 199:11 configurations [1] 212:6 confirm [4] 14:17 46:16 59:22 62:2 confirmed [3] 4:17 217:13 221:3 confused [1] 227:19 confusion [2] 135:12,16 connected [1] 118:9 connection [1] 150:3 consequences [2] 62:22 63:4 consider [16] 4:25 7:1 19:13 20:21 55:8 64:11 129:2,3 150:15 151:9 154:17,18 180:22 186:2 193:2 228:11</p>	<p>considerable [1] 227:8 consideration [16] 5:20 6:3,14,17,20 7:15,20,21 8:20,25 42:14 93:3 185:20,25 197:1 216:7 considerations [1] 231:1 considered [25] 4:10 5:8 7:17 13:15 25:11,22 26:20 29:24 30:15 31:9 32:1,7 49:3 69:11 73:3 88:9 89:9 110:3,13 112:21 129:6,9 142:9 195:15 196:9 considering [2] 2:18,21 consistent [3] 86:17 177:3 240:9 consistently [1] 86:13 construction [5] 155:3 221:6 234:7,11,16 consult [1] 65:2 consultant [1] 36:9 consultation [2] 107:24 212:9 consultative [1] 27:13 consulted [5] 65:12 169:4 176:20 177:6,23 Consulting [1] 205:18 consumptions [1] 239:12 contains [1] 52:3 contamination [3] 44:8 44:13 138:9 contemplated [1] 226:22 contemplating [1] 172:2 continual [2] 52:11 102:3 continue [4] 1:6 32:16 115:3 240:23 continuous [2] 95:9 177:5 contract [8] 101:21 103:8 105:13,21 129:4 150:15 156:1 226:8 contracted [2] 150:25 159:14 contractor [1] 109:12 contractors [2] 159:17 159:21 contracts [9] 78:10,19 79:9 100:17 101:2,13,17 103:16 131:20 contributed [1] 240:3 contribution [1] 240:15 controls [1] 235:4 conversation [1] 174:9 conversations [1] 191:16 coordination [1] 184:17 copy [1] 211:19 core [1] 159:22 corporate [2] 23:24</p>	<p>204:13 corporately [2] 77:9,18 corporation [3] 21:9,15 79:1 correct [87] 2:9 5:23 9:24 11:9,20,22 12:9,21,23 13:2,4,10 15:12 16:15 17:7,16 18:16 24:20,22 27:7 30:9 33:19,22 34:8 34:10 35:4,6,19 36:20 36:22 38:19 39:6,8,13 39:15,21 40:19 42:6,8 43:11,13,18,20 47:19 49:8 51:3,5 53:13,15 55:16,18 58:22,24 61:20 64:4 66:1 76:25 80:6,16 86:23 91:20 92:2 106:9 111:12 143:6,17 144:8 146:20 164:7 174:19 177:15,17 183:24 197:13 198:6 201:16 205:3 207:13 221:8,10 222:4 223:17 224:9 229:17 236:17 237:22 245:3 corrected [1] 110:22 corrective [31] 16:25 17:15,18,19 18:10 19:19 19:25 21:21 27:21 28:12 29:1,12 74:9 77:21 81:3 81:12 108:11,16 109:7 109:19 110:18 111:3 114:13 121:20 137:15 138:1 147:3 149:9,13 184:21 185:6 correlate [1] 237:9 corrosion [3] 47:25 48:8 51:17 cost [26] 7:23 8:8,25 9:2 16:18 21:2 24:24 25:7,8 30:25 54:4 55:6 126:3 132:20 168:18 214:11,12 215:21,23 216:19 218:8 218:16,24 219:6,9 227:14 costs [6] 53:24 216:8,24 216:25 217:22 229:8 council [1] 86:10 couple [10] 2:1,2 7:25 125:12 165:24 170:8 199:18 203:1 205:13 231:10 course [4] 26:2 30:4 155:16 221:11 cover [15] 46:4,9 49:21 51:3 176:14 187:25 210:2 211:21,24 212:3,10 213:2 213:21 228:13 236:10 coverage [1] 189:15 covered [4] 48:15 69:13 189:11 236:9 coverings [1] 211:17 covers [3] 205:20 211:2 211:4 cracking [1] 162:23 created [1] 234:10 crew [65] 68:4,6 114:17 114:24,25 115:1,1,16 117:1,10 141:24 145:4,6 145:12 146:11 147:20,22</p>	<p>148:3,10,17 149:15,18 149:22,24 150:8,9,16 151:11 152:12,17,20,22 157:7,12 158:10 160:15 160:19,24 161:11,20 164:4,16 166:1,5,16 168:14 169:8,10 171:7 175:4,5,12 191:5 200:9 201:20 203:10,22 207:2 208:3,4,8 209:5,7 210:6 211:7 crews [35] 49:17 50:10 50:16,21 51:6 52:21 114:23 117:8,9 152:5 153:1 158:6,15,16,16,17 158:18,22 159:1,4,12,20 163:8 166:7 167:4 168:6 168:9,12,22 171:11 174:12 182:10 208:9,23 210:1 criteria [28] 93:12,13,18 94:20 95:6 106:18,21 113:10,14 116:10 118:6 119:21 120:1 123:24 142:1 183:16 199:1,5 200:10 201:5 204:2 236:6 236:12,14,19,21,23 237:10 critical [24] 40:13 90:16 104:10 108:2,13 109:3 109:18 111:15,16,20 112:1,22 113:14 117:12 120:17 135:25 136:4,8 163:12 172:22 173:3,17 186:10,12 criticality [14] 40:24 41:2 93:3,13,18 94:6,21 113:5 116:8,11,13 122:9 181:4 183:17 criticalization [1] 119:23 cross-examination [3] 1:7,23 59:12 CT [12] 2:7 6:4,16,22 7:24 59:18 220:25 221:4 223:15 230:8,10 232:16 culmination [1] 219:13 current [3] 6:10 13:1 240:9 customer [8] 30:24 50:13 180:25 182:12,15 185:3 194:13 195:21 customers [34] 17:23 20:3 21:23,24 24:24 25:8 28:15,19 30:1 31:5 42:21 50:23 58:18 63:7,13 119:16 128:6 153:4 156:25 157:15 165:11 175:18 181:6,19,24 182:4 182:8,9 185:13 186:3,5 193:14 208:24 234:18 cutoff [1] 70:15 cycle [49] 11:20,25 12:8 13:15 19:9 38:14,14 39:20 64:1,14,19 66:4 68:11,15 70:23 77:13,14 77:15 120:13,24 121:2,3 121:20 130:8,10 131:4,5 132:9 133:15,17,20 141:13 153:18 198:13,16</p>
---	---	--	---	--

<p>198:19 201:10 214:14,19 214:21 215:1,5,9 217:7 217:13,19 218:1,13,22 cycles [8] 17:14 23:1 63:17 64:7 65:6,10,21 65:22</p>	<p>210:5 decisions [14] 27:17 31:13,24 32:8,12,23 61:14 96:15 122:11 139:9 157:9 184:9 186:4 210:9</p>	<p>88:23 92:23 95:19 107:21 108:8 109:9 111:24 115:22 127:9 132:17 148:5,7 155:6,25 194:4 developed [15] 13:23 15:3,24 17:4,20 20:24 31:11 74:23 79:10 90:15 93:2,14 95:6 148:17 198:22</p>	<p>60:14 72:19 127:2,3,9 158:15 182:6 diverted [1] 157:13 division [1] 140:14 divisions [1] 141:4 document [4] 32:12 90:8 90:11 101:1 documentation [5] 29:9 33:1 78:11 94:14 128:13 documented [24] 23:20 32:18 44:21 71:20 79:3 79:8,15 90:12,19,24 91:8 91:10 94:5 107:20 113:11 120:2 122:16 128:7 131:8 131:19 152:25 187:14 196:24 203:13</p>	<p>drop [1] 240:12 dry [5] 46:22 47:4 48:23 52:3,10 due [16] 14:12 43:3 44:8 44:12 48:9 50:20 51:16 91:16 108:5 110:5 114:11 122:16 134:7 135:2 138:14 141:10 dug [2] 72:24 74:22 duration [2] 65:3 126:23 during [11] 4:19 52:5 53:20 78:8 137:3,6 173:22 213:20 219:7 224:14 227:7</p>
-D-				
<p>d’Espoir [18] 112:12 113:2,15,25 114:5,6 144:11 145:5,17 152:16 157:23 173:15 187:2,10 190:21 240:1,6,12</p>	<p>defect [1] 177:21 defer [7] 13:20 27:1,20 28:25 29:5 168:15 182:19 deferral [3] 26:24 195:25 205:15 deferred [10] 28:2 41:22 42:1,23 95:25 110:8,10 157:10 185:16 219:14</p>	<p>developing [9] 61:4 74:11 78:19 87:25 94:2 96:15 126:10 201:3 222:7 development [2] 74:18 95:11 dew [1] 47:11 diesel [10] 5:1,16,17 6:7 6:11 9:22 10:9,12 15:18 60:16 diesels [8] 4:11,19 5:6 6:16 7:2 9:11,17 10:25</p>	<p>documents [1] 224:5 doesn’t [4] 52:15 169:19 190:22 215:12 dollar [1] 195:6 dollars [1] 214:2 done [147] 4:5 39:11 40:7 40:7 41:9,15,25 42:11 43:18 45:15 52:10,14 60:8 67:22 68:8 71:14 71:15 73:13,18,21,22 75:21,24 76:1,2,3 77:4 81:4 90:23 93:10 94:25 95:23,25,25 104:12,13 108:14 111:9,17 112:3 114:6 115:20 123:4,11 132:10 135:8 136:22 137:9 139:3 142:11 143:1 144:5,16,18 145:6,12,16 146:5,6,12,17,18 147:16 147:19 148:2 149:2,15 149:18,21 150:16 158:8 158:9 160:6 162:25 163:10 165:21,23,24 167:14,20 169:6 170:11 170:12,21 171:1,16 172:3 172:5,12,24 176:11,12 178:23 179:22 180:4,14 180:15 182:21 184:2,13 186:22 187:7,8 190:5 190:6,7,8,9,23,25 193:25 194:1,22,24 195:7 199:13 200:15 201:7 202:5,5,12 202:20 203:1,6 214:18 215:13 217:16 218:12 219:3,5,5,17,19 223:13 223:19,21 224:2 227:8 229:7,14 231:11 233:25 235:14 238:23 241:24 243:17</p>	<p>documentation [5] 29:9 33:1 78:11 94:14 128:13 documented [24] 23:20 32:18 44:21 71:20 79:3 79:8,15 90:12,19,24 91:8 91:10 94:5 107:20 113:11 120:2 122:16 128:7 131:8 131:19 152:25 187:14 196:24 203:13 documents [1] 224:5 doesn’t [4] 52:15 169:19 190:22 215:12 dollar [1] 195:6 dollars [1] 214:2 done [147] 4:5 39:11 40:7 40:7 41:9,15,25 42:11 43:18 45:15 52:10,14 60:8 67:22 68:8 71:14 71:15 73:13,18,21,22 75:21,24 76:1,2,3 77:4 81:4 90:23 93:10 94:25 95:23,25,25 104:12,13 108:14 111:9,17 112:3 114:6 115:20 123:4,11 132:10 135:8 136:22 137:9 139:3 142:11 143:1 144:5,16,18 145:6,12,16 146:5,6,12,17,18 147:16 147:19 148:2 149:2,15 149:18,21 150:16 158:8 158:9 160:6 162:25 163:10 165:21,23,24 167:14,20 169:6 170:11 170:12,21 171:1,16 172:3 172:5,12,24 176:11,12 178:23 179:22 180:4,14 180:15 182:21 184:2,13 186:22 187:7,8 190:5 190:6,7,8,9,23,25 193:25 194:1,22,24 195:7 199:13 200:15 201:7 202:5,5,12 202:20 203:1,6 214:18 215:13 217:16 218:12 219:3,5,5,17,19 223:13 223:19,21 224:2 227:8 229:7,14 231:11 233:25 235:14 238:23 241:24 243:17</p>
-E-				
<p>daily [5] 56:2 95:8 209:24 210:10,13 damage [4] 11:1 38:18 63:5,12 damaged [2] 35:13,14 Darren [9] 1:19 41:13 42:2 85:17 103:14 171:23 173:15 217:11 220:18</p>	<p>deferring [2] 180:22 196:19 deficit [5] 21:14 125:13 125:17 126:5,7 definitely [5] 31:5 131:12 186:2 199:4,12 definition [1] 85:6 definitions [1] 86:17 degrees [3] 47:12,12 56:9 delay [4] 26:4 206:9,11 212:17 deliberate [2] 15:22 51:7 delivery [2] 14:18 234:17</p>	<p>different [19] 29:12 30:19,20 31:2 84:4 90:4 108:9 124:15,15 148:3 204:25 205:3,10 212:3,5 215:7 217:17 218:17 234:5 differently [1] 83:24 difficult [1] 199:9 difficulty [2] 164:17 182:10 digging [1] 78:4 diligence [2] 37:11 53:3 direct [6] 61:3 89:1,13 96:5 172:4 174:21 direction [1] 107:23 directly [5] 1:6 60:21 112:20 171:13,24 disagree [1] 219:16 disagreement [2] 62:16 63:7 disassembled [1] 49:7 discovered [2] 47:21 162:15 discussed [2] 158:11 223:22 discussion [29] 81:10 84:10 95:5,18 98:19 102:17 103:1,14,25 104:9 104:20 105:6,10 172:3 173:9 181:2,14,18,22 182:6,17 185:14,21 196:22 228:2 232:13 236:3,12 239:15 discussions [9] 4:18 8:13 96:5 97:21 103:20 104:12 175:14 182:12 208:21 dismantle [2] 45:19 211:25 dismantled [1] 213:1 dismantling [2] 211:4 212:1 dispersed [1] 86:9 disruption [1] 63:6 distributed [1] 21:9 distribution [8] 15:18</p>	<p>document [4] 32:12 90:8 90:11 101:1 documentation [5] 29:9 33:1 78:11 94:14 128:13 documented [24] 23:20 32:18 44:21 71:20 79:3 79:8,15 90:12,19,24 91:8 91:10 94:5 107:20 113:11 120:2 122:16 128:7 131:8 131:19 152:25 187:14 196:24 203:13 documents [1] 224:5 doesn’t [4] 52:15 169:19 190:22 215:12 dollar [1] 195:6 dollars [1] 214:2 done [147] 4:5 39:11 40:7 40:7 41:9,15,25 42:11 43:18 45:15 52:10,14 60:8 67:22 68:8 71:14 71:15 73:13,18,21,22 75:21,24 76:1,2,3 77:4 81:4 90:23 93:10 94:25 95:23,25,25 104:12,13 108:14 111:9,17 112:3 114:6 115:20 123:4,11 132:10 135:8 136:22 137:9 139:3 142:11 143:1 144:5,16,18 145:6,12,16 146:5,6,12,17,18 147:16 147:19 148:2 149:2,15 149:18,21 150:16 158:8 158:9 160:6 162:25 163:10 165:21,23,24 167:14,20 169:6 170:11 170:12,21 171:1,16 172:3 172:5,12,24 176:11,12 178:23 179:22 180:4,14 180:15 182:21 184:2,13 186:22 187:7,8 190:5 190:6,7,8,9,23,25 193:25 194:1,22,24 195:7 199:13 200:15 201:7 202:5,5,12 202:20 203:1,6 214:18 215:13 217:16 218:12 219:3,5,5,17,19 223:13 223:19,21 224:2 227:8 229:7,14 231:11 233:25 235:14 238:23 241:24 243:17</p>	<p>early [9] 6:9 23:4 103:16 104:24 178:25 179:16 180:13 233:18 234:22 east [1] 153:6 eastern [1] 115:17 Edwards [2] 91:12 92:22 effect [4] 33:20 181:5 185:10 214:17 effective [1] 21:12 effectively [1] 241:17 effort [5] 25:18 48:20 195:3,19 235:11 efforts [2] 159:17 194:8 eight [1] 65:14 eight-year [1] 64:17 either [5] 7:16 40:8 63:5 113:22 155:5 electric [1] 222:13 electricians [1] 49:18 electricity [3] 119:12,17 159:8 element [3] 171:5 216:8 220:2 elements [3] 210:4 211:13 212:12 emails [2] 8:21 224:18 embarked [1] 73:5 emergency [2] 9:16 234:9 emissions [1] 235:4 employee [1] 226:8 employees [8] 30:17 46:6,6 48:25 58:17 66:20 155:10 212:8 enact [1] 10:9 end [42] 14:20 20:10,14 20:15 21:24 22:5 24:14 24:14 25:12,15 26:22 40:2,22 59:19 69:3,18 73:13 78:16 89:12 95:16 96:18,23 97:1 100:2 132:2,24 133:11 135:25 150:21 151:6 155:19 157:20,20 168:21 170:5 172:5 174:17 198:2 214:13 234:21,24,25 ended [6] 41:25 131:7 140:19 152:17 163:23</p>

<p>198:6 energize [2] 10:10 197:17 energizing [1] 197:24 energy [1] 112:14 engage [1] 155:7 engaged [1] 175:16 engineering [1] 227:13 engineers [1] 66:21 enhance [1] 100:24 enhanced [1] 78:6 ensure [38] 21:13 25:7 28:6 30:25 42:20 45:25 46:2,9,20 48:15,21 49:4 49:12 52:3,8,14 62:13 63:11 74:19 75:5 89:16 95:15 103:11 104:14 115:25 126:7 127:12 128:5,9,24 129:24 157:25 171:1 195:21 196:7,10 211:12 212:9 ensuring [3] 32:18 104:13 125:20 enter [3] 54:1 182:5 236:25 entered [1] 195:18 environment [2] 45:17 45:21 environmental [2] 228:18 230:25 equal [3] 9:13 118:25 169:12 equation [1] 236:25 equipment [20] 1:25 14:6 15:23 16:4 29:18 30:5 41:1,5 58:8 59:17 62:19 63:6,12 64:25 106:5,7 123:21 162:14 217:7 235:3 Essentially [1] 122:1 establish [2] 116:13 228:16 established [2] 74:16 133:18 establishing [1] 216:7 estimate [2] 18:12 227:14 estimates [2] 4:4 227:8 estimating [1] 55:7 evaluate [3] 8:7 209:6 222:11 evaluation [1] 20:4 event [6] 37:7 44:4,6,17 44:19 45:8 events [5] 38:6 45:3 150:11 156:7,10 everybody [4] 86:12 126:4,9 229:4 everybody's [2] 165:8 193:12 evidence [20] 7:1 8:23 8:24 17:5 20:12 21:6 29:2 33:20 37:13,25 47:25 51:15,16,20 54:15 78:2 196:16,17 197:9</p>	<p>200:17 evolution [2] 83:20 172:8 evolve [1] 84:1 evolved [4] 58:3 83:10 87:17 133:9 exact [7] 36:2 44:22 96:25 97:24 142:4 162:18 218:13 exactly [5] 26:13 112:8 155:14 199:21 220:20 example [29] 16:2 17:25 34:13,20 55:24 68:5 107:8 109:8 113:2,16 114:17 123:17,24 124:13 126:6,22,25 127:2,15 136:21 137:23 138:5,6 138:24 146:20 152:12,15 155:3 182:7 examples [1] 18:8 except [1] 149:5 exception [1] 54:5 exceptional [5] 34:3,4 99:21 131:7 140:19 exceptions [1] 99:16 Excuse [1] 235:18 execute [3] 14:14 168:19 209:25 executed [5] 27:16 85:20 91:14 183:14 184:15 executing [1] 226:16 execution [23] 14:9 15:14 16:18 24:23 25:9 27:4 61:17 72:3 75:7,8 77:7 95:3,10 107:24 119:19 140:3 158:14 171:25 182:13 209:22 210:11 221:13 232:8 exemplary [1] 243:24 exercise [1] 30:6 exhaustive [2] 37:21 66:6 exist [6] 52:15,16 72:7 168:23 170:2 180:7 existing [5] 7:13 12:14 16:10 24:20 169:24 expansion [1] 242:23 expect [2] 189:23 220:19 expectation [2] 126:1 236:13 expectations [3] 101:14 101:19 102:7 expected [3] 100:19,20 183:14 experience [2] 99:20 193:8 experienced [10] 27:8 27:12 30:16 46:5 48:10 48:25 58:15 66:20 193:7 212:7 experiencing [2] 12:7 151:16 expertise [1] 154:25 explain [6] 36:3 45:12 55:3 83:13 94:21 189:17</p>	<p>explained [9] 17:12 21:5 35:23 42:2,25 61:10 123:7 162:20 185:8 explains [1] 57:12 exposed [1] 205:21 exposure [2] 8:1 179:7 extensive [8] 31:9 46:20 66:3,7 71:19 116:12 124:7 126:18 extensively [1] 128:7 external [1] 155:7 extra [11] 37:11 53:3 134:19,20,21 136:15 151:22 154:20 156:3 191:10 204:19 extraordinary [2] 215:21 216:2 extreme [1] 57:9</p> <hr/> <p style="text-align: center;">-F-</p> <hr/> <p>faced [4] 17:24 18:1,21 19:20 facilities [5] 93:6 94:4 94:16 119:8 199:7 facility [6] 85:18 118:21 120:17 234:3,4,8 facing [1] 66:17 fact [13] 7:24 25:2 32:21 42:11 43:2 51:14 56:24 89:3 138:15 145:9 187:10 215:12 223:19 factor [2] 25:1,5 factors [2] 29:4 231:2 fail [1] 54:12 failed [6] 43:13,25 44:1 44:10 51:19 178:25 failure [31] 9:6 11:13 35:22 36:1,3,11,16 38:23 39:1,12 44:12 51:12 52:13 53:1,11 54:8,17 66:7 138:7 141:9 146:25 150:2 152:18 163:4 177:24 178:1,2,2 181:25 185:11 197:21 failures [4] 57:21 62:21 66:4 165:9 fair [16] 63:21 69:5,7 95:17 100:8,10 103:18 103:21 124:22 202:20 229:12 231:8 232:19 236:11 241:8 242:8 fall [21] 4:9 60:5 120:10 161:11 170:17,18,19 171:3,15,18 172:8,15 173:13 174:5,16,25 175:6 175:6 188:3 214:20 215:8 falls [7] 68:6 113:12 115:1 145:3,7,9 152:17 familiar [6] 29:14,15,17 29:23 133:6 239:1 far [8] 22:1 24:9 129:19 130:3,5 168:3 199:19,22 fashion [5] 49:4 156:5 177:8 216:5 241:24 fashion.GREENE [1]</p>	<p>51:8 fault [4] 138:15,16,19,22 February [9] 50:5 206:12,22 207:10,15,21 234:21 235:1,1 feed [1] 182:8 feeder [5] 127:4,9,15 182:6,7 feeder's [1] 127:11 feeders [1] 127:3 fell [1] 141:23 felt [8] 20:12 100:14,23 101:15 102:6 132:23 138:19 140:1 few [10] 34:4 54:25 62:3 130:25 165:24 175:23 206:17 214:18,25 236:5 field [1] 154:25 figure [1] 67:11 figures [2] 240:8 242:12 figuring [1] 237:18 filed [4] 4:24 7:10 20:20 192:8 filled [1] 223:2 final [3] 8:14 60:25 222:18 finalize [4] 14:16,19 20:9 103:15 finalized [5] 2:6 14:10 14:22 103:9,20 finally [1] 103:10 finance [1] 21:9 finding [1] 125:3 findings [1] 177:20 fine [2] 19:6 235:25 finished [1] 174:17 first [33] 14:8,15,21 55:12 56:5 57:8,16,22 62:3,5 69:24 75:23 89:25 93:1 94:4 112:1 119:8 120:12 123:8 135:6,25 144:11 158:21 159:3 161:7 184:12 188:13 214:11 234:24 238:22,23 239:15 240:17 fit [3] 70:22 125:10 126:15 five [10] 5:16 115:7,24 116:3,14 123:17,18,22 190:7 214:3 flag [1] 183:14 flashover [1] 45:4 flashovers [1] 44:7 flavour [1] 104:7 fleet [1] 60:18 flow [2] 119:12 196:3 flows [1] 234:6 focus [25] 23:24 72:7,23 74:14 75:15,20 94:3 100:7,15,16 104:16 127:25 128:23 132:21 136:3,7 158:21 165:10 168:13 182:15 190:18 200:9 208:22 210:24</p>	<p>229:10 focused [11] 71:24 83:16 140:20 152:8 161:15 165:9 168:13 181:17 182:12 193:12 196:8 focuses [1] 102:4 focusing [2] 163:10 172:20 focussed [3] 208:9 224:21 229:5 folks [3] 33:7 47:9 225:22 follow [9] 4:22 28:24 37:9 101:25 178:23 179:22,25 180:13,16 followed [7] 36:9 77:4 89:23 97:4 128:14,17 211:16 following [9] 6:11 13:9 40:14 45:9 125:11 172:14 172:17,25 239:8 force [2] 192:9,19 forced [11] 236:24 237:25 238:4 239:25 240:10,13,20 241:14,16 242:17 243:12 forecast [3] 237:6 240:3 242:11 forecasting [1] 239:12 forecasts [1] 237:24 forefront [4] 125:14 127:17,25 193:18 foregoing [1] 245:2 foremost [1] 158:21 form [7] 31:16 32:11 33:11 84:3,5 196:18,24 format [3] 94:5 163:24 223:2 formalized [1] 119:21 formally [1] 24:12 forward [44] 5:7,24 12:15 20:7 22:4 23:14 23:23 24:4,11 25:13 26:17 32:19 52:14 87:1 88:11 95:14 98:8 101:17 102:22 111:25 127:21 129:22 132:2,7 133:9 136:13 151:2 153:9,10 153:19 155:20 156:18 163:6,24 168:17 191:19 192:2,22 194:5 215:23 216:13 217:8,9 219:8 found [4] 47:25 51:16 53:25 176:2 foundational [1] 194:13 four [31] 12:8,18 13:14 19:21 20:4 21:25 24:7 38:14 43:3 50:23 55:13 55:13 56:5 57:8,13,16 57:23 65:14 66:5 114:23 121:8 129:18,20 130:3 144:25 145:15 154:5,12 157:20 163:19 190:6 four-year [9] 64:17 121:10 214:6,10,14,18 214:21 215:1,5 fourth [2] 25:18,21</p>
--	---	---	--	---

frame [1] 12:17
free [1] 179:6
freeze [1] 48:6
freezing [3] 48:9 51:18 212:19
frequencies [1] 124:15
frequency [1] 126:24
frequent [1] 99:7
Friday [1] 47:6
front [3] 130:12 142:4 194:1
frontline [2] 47:7 75:7
full [18] 20:13 26:21 37:4 37:7,18 45:24 46:14 48:22 52:4 81:21 91:18 113:23 153:5 167:11 187:18 200:15 219:9 239:15
fuller [1] 119:21
fully [40] 21:17 22:5 31:3 40:20 43:1 69:13,17 72:2 73:3,7 88:12,12 89:15 96:12 117:25 126:4,10 132:25 136:9 137:1 150:21 152:8 153:8,13 154:2,23 155:1,18 157:15 157:17 158:3 161:14 166:19 168:19 169:7 175:16 182:3 194:4 209:23 210:1
function [1] 52:5
functions [1] 72:11
future [3] 49:14 216:14 237:20

-G-

gas [19] 3:23 18:5 54:3 152:14 162:13 171:17 172:9 175:25 176:2,3,8 176:20,24 178:4,20,24 179:15 190:13 191:14
gathered [1] 22:21
general [3] 97:21 222:12 245:4
generate [1] 92:8
generating [26] 16:4 40:25 41:5 93:5 94:4,16 94:21 107:2 112:2,6,7 112:12,17 114:1 116:8 118:9,21 119:8 120:17 120:25 122:10 123:20 186:12 190:13 199:7 241:10
generation [19] 107:3 112:21 150:4 160:23 161:2 222:8 236:6 237:6 237:8,19 238:19,20 239:10,25 240:10,13,19 241:5 242:23
generator [8] 18:5 138:18 150:7 152:13 162:13,17 163:13 170:15 183:18
generators [2] 134:20 183:18
gentleman [1] 88:20
gentlemen [1] 59:14

given [20] 7:16 12:4,6 21:1 24:1 29:1 42:11 77:20 92:18,22 93:12 98:9 107:23 113:24 117:4 122:7 128:10 136:14 139:23 190:8
giving [1] 31:12
Glynn [1] 235:19
goal [7] 14:8 46:17 63:10 67:21 77:17 101:7 120:20
goals [2] 63:1 72:20
goes [6] 32:15 52:4,17 53:22 79:25 237:8
gone [9] 80:15 83:2 98:9 113:8 176:15 184:1 198:19 243:9,13
good [23] 1:4,9,10,12,14 1:16,18 62:5,19 63:2,15 64:6 70:18 88:7 129:13 132:13 137:23 157:24 173:19,25 211:12 229:1 243:22
GRA [12] 20:7,11,19 78:8 129:22 142:18 192:4 192:9,16,22 216:21,22
gray [8] 3:5 4:1 9:7 57:6 142:17,22 206:4 235:20
Greene [97] 1:6,8,23 2:12,17 3:2,9,14 4:6 5:10 5:21 6:23 7:9 8:11,18 9:4 10:15,21 11:4,10 12:2 12:19,24 13:7,18 14:24 16:8,19 17:11 18:6,17 18:25 19:5 20:17 22:6 22:25 24:16,25 25:16 26:1,8,23 27:18 28:20 30:3,10,18 31:6 32:20 33:14 34:6 35:1,10 36:17 36:24 38:10 39:3,9,17 40:4,12 41:7 42:3,10 43:6,16,24 44:15 45:10 47:15 48:5,11 49:5,24 50:14,25 51:9,22 53:10 53:16 55:19 56:20 58:10 58:19,25 59:5,16 125:9 129:1 175:22 198:11 212:16 224:17 235:17 236:2,4 238:14
grey [1] 232:12
grounds [1] 63:25
group [36] 27:3,15 71:12 72:12 73:23 74:4,16 75:4 75:7,22 76:5,8,11 81:22 85:20,25 86:5,6 88:2 91:24 92:19 93:7 94:20 107:13,14,15,15 108:7 122:2,8,18 136:14,18 145:17 205:18 227:13
groups [5] 61:13 86:8,11 87:23 167:19
guess [65] 33:4 35:25 38:11 45:2 46:15,17 47:1 54:9 58:5 59:6,10 61:12 62:2 63:24 69:22 71:9 75:12 81:9 91:22 99:24 102:5 107:7 118:5,11 119:24 120:6 122:20 123:8,16 125:10,23 126:18 127:23 131:21

135:10,12 136:12 137:13 138:5 139:16 145:15 152:19 175:24,25 180:1 192:3 193:16 195:24 199:16 202:12 206:7,25 207:8 209:11 210:19 214:3,10 217:25 218:19 219:18 225:19 229:7 231:4 237:17 241:7
guided [1] 225:25
guidelines [7] 21:8 24:17 29:3 31:11 32:22 139:3 139:6

-H-

half [9] 9:15 39:19 165:5 194:23 198:12,16 200:4 225:21 226:20
handle [1] 159:20
hands [1] 75:3
hang [1] 22:18
happening [17] 45:8 83:20 84:18 99:4,18 104:22,23 127:6 152:11 152:25 153:1 161:3 167:3 176:16 177:12 190:12 209:19
Harbour [1] 203:17
Hardwoods [33] 2:24 6:15,21 8:16 18:5 150:7 161:24 162:19,21,24 163:3,7,11 164:11 170:15 170:22 171:1,17 172:3 172:20,21 173:2 174:24 175:5 180:6 188:22 190:6 190:7,8,13 191:14 228:17 228:20
Haynes [14] 80:15 81:5 81:10 84:23 85:12 88:23 89:2,13,21 95:21 96:3 96:23 97:18 224:19
head [2] 113:12 225:23
heading [1] 61:25
heads [2] 206:10,10
health [2] 133:4 197:7
hear [1] 3:10
heard [2] 10:12 245:5
hearing [1] 245:3
held [1] 225:22
help [9] 37:18 45:3 84:12 104:2 117:8 125:5 158:10 160:23 234:14
helpful [1] 99:1
Henderson [101] 1:13 1:20 3:18 5:5,12,25 7:7 7:18 8:15,22 33:19,23 41:12 55:16,17 56:18 57:24 58:13,23 59:3,7 59:24 60:1 82:14,16,22 83:1,7,14 84:8,15 86:25 87:4 98:3,5,12,18,23 99:2,14 102:18,24 103:3 103:7,21,23 104:8 105:4 105:17 170:7 171:21,22 172:16 173:7 174:8 202:11,18 203:15 214:4 214:8,24 215:6,17,22

216:6,12,17 217:3 218:3 218:10 219:1,22 220:14 221:3,9 222:20,21 223:3 223:9,16,20,25 224:8,13 224:19,23 227:1,6,22 228:9,25 229:6,16 232:20 233:1,6,16,22 234:23 235:10,15
hereby [1] 245:2
high [14] 42:24 44:8,9 67:13 99:15 104:16 118:24 119:2,14 132:20 157:14,23 168:7 175:18
higher [21] 17:19,21 19:25 21:23 28:13,18 29:25 30:7 31:24 50:10 50:20 97:4 120:20 140:20 182:14 210:8 211:7 213:5 218:16 237:14 243:7
highest [10] 16:2 28:2 30:24 94:17 112:3,22 119:7 122:14 128:9 152:19
highlight [1] 105:12
highlights [1] 60:19
highly [4] 103:12 154:25 182:12,16
himself [1] 89:5
Hinds [1] 146:4
hindsight [1] 230:3
hire [1] 155:8
historic [1] 238:4
historical [1] 240:6
history [2] 29:16 66:19
hit [1] 47:12
hold [2] 61:3 148:1
holders [1] 159:9
holding [1] 203:9
Holyrood [45] 2:4 4:11 4:12 5:1 7:23 43:9,10 44:5 47:5 84:17 85:18 138:7,12 140:21 146:16 147:1 149:5 150:2 160:2 161:20 188:13,15 190:23 204:25 205:10 206:23 210:7 224:21 225:22 228:10,20 229:5,9,15 231:7,19 232:5 234:14 234:15 240:1,8,14 241:14 243:7,9
hoped [1] 213:4
hours [11] 18:13,23 19:18 131:9,9,11 180:4 236:13 240:4,13,16
HRD [1] 188:17
huge [2] 48:20 149:23
Hughie [2] 88:20 89:14
Humphries [46] 1:17 1:22 2:5,10,15,20 3:6,11 3:16 221:16,20 222:3,10 225:2,3,7 228:4,8 229:20 229:22 230:11,17 231:22 232:1,7 236:4,16,20 237:3,21 238:3,8 239:1 239:2,7,20 240:22 241:11 241:21,25 242:5,13,20 243:2,11,16

hundred [2] 212:23 213:8
HWD [1] 188:22
hydro [63] 2:6 3:4 4:10 4:23 5:14,23 6:2,25 7:16 12:5,7,20,25 15:13 16:15 20:21 22:19 26:17 27:20 27:25 29:3 42:14 45:11 47:18 50:4 51:23 53:24 54:1,4,11,16 55:2,10 56:6 57:18 58:12 64:18 71:23 72:5 75:20 81:18 81:21 82:19 89:6 102:5 112:12 132:22 133:13 140:23 212:16 215:11,20 216:21 218:21,23 219:20 222:12 231:16 232:5 237:17,25 238:24 240:18
Hydro's [7] 8:20 11:18 51:1 60:13 236:14 243:5 245:4

-I-

idea [13] 46:14 64:6,13 87:12 92:5 97:3 103:19 104:5 130:7 186:19 192:1 216:23 229:1
ideally [1] 49:6
identification [1] 63:16
identifies [1] 62:17
illustrate [1] 138:6
immediate [8] 10:24 11:6 17:22 20:2 28:14 50:12 193:13,24
immediately [2] 9:14 9:22
impact [11] 17:1,2 170:17 171:18 180:24 181:18,23 185:3,12 186:2 234:17
implement [3] 95:14 154:1 191:19
implemented [3] 12:20 87:22 90:13
implementing [4] 83:16 89:4 136:13 161:1
implications [1] 241:4
import [1] 1:5
important [4] 21:15 22:20 41:4 104:1
impossible [1] 171:9
improve [1] 127:21
improved [2] 240:7,11
improvement [5] 52:12 52:24 53:5 101:12 102:4
imprudent [1] 54:13
inadequate [1] 10:5
incident [1] 227:17
incidents [1] 45:4
include [10] 14:10 63:5 92:24 101:22 102:11 122:14 125:6 151:4 194:17 241:3
included [15] 16:21,23 23:15 24:4 28:3 40:14

<p>42:22 101:13 108:10 120:15 122:4,12 202:21 219:10 242:25</p> <p>incorporated [1] 127:20</p> <p>incorporating [1] 243:18</p> <p>increase [4] 176:3,7 237:11 240:15</p> <p>increased [1] 241:14</p> <p>increasing [1] 237:12</p> <p>incurred [1] 53:24</p> <p>indeed [1] 58:16</p> <p>indicate [8] 34:1,21 39:16 47:22 48:2 50:8 50:24 171:4</p> <p>indicated [36] 2:6 8:12 11:18 15:17,24 19:19 21:11,18 23:9 24:18 38:5 40:10,13,19 42:18,21 46:14 50:5 51:1 52:1 60:22 66:1 67:9 69:8 72:17 73:12 79:21 80:12 168:3 186:11 193:17 199:2 200:7,20 206:22 222:6</p> <p>indicates [3] 10:23 53:20 240:5</p> <p>indicating [2] 34:18 199:23</p> <p>indicative [1] 216:9</p> <p>individual [2] 226:6,15</p> <p>individuals [4] 28:23 30:19 94:23 95:23</p> <p>information [7] 8:2,19 55:5 83:6 235:23 238:16 238:17</p> <p>informed [2] 164:16 165:12</p> <p>infrastructure [2] 161:1 161:13</p> <p>initial [3] 61:23 223:12 228:14</p> <p>initiated [3] 173:9,22 239:8</p> <p>initiative [1] 226:17</p> <p>injection [1] 235:5</p> <p>input [1] 240:19</p> <p>inquire [1] 167:18</p> <p>inquiries [3] 165:19 166:4,25</p> <p>inquiry [1] 208:13</p> <p>inside [2] 45:17 226:6</p> <p>inspection [11] 37:8 62:18 124:12,13,22 138:21 176:15 177:8 180:2 200:15,21</p> <p>inspections [4] 11:25 124:10 125:4 200:19</p> <p>installation [3] 150:6 161:12 234:1</p> <p>installed [3] 39:5 210:1 231:18</p> <p>installing [1] 161:1</p> <p>instead [1] 148:11</p> <p>instruction [4] 88:23</p>	<p>89:2,13 101:11</p> <p>instructions [3] 92:18 92:23 122:7</p> <p>insulator [1] 161:21</p> <p>insulators [9] 44:7,13 44:25 45:7,19,20 49:10 49:13 50:11</p> <p>integrity [1] 49:13</p> <p>intended [1] 184:15</p> <p>intention [1] 44:25</p> <p>Interconnected [1] 114:22</p> <p>interested [2] 143:19 173:1</p> <p>interim [6] 6:5,15,21 8:9 8:17 9:3</p> <p>internal [3] 109:13 158:22 180:2</p> <p>internally [1] 159:20</p> <p>interpretation [1] 9:24</p> <p>interpreting [1] 206:9</p> <p>interrupting [1] 206:10</p> <p>intervals [1] 28:17</p> <p>intimately [1] 133:5</p> <p>introduced [1] 99:8</p> <p>intrusive [1] 176:12</p> <p>investigate [1] 10:7</p> <p>investigating [1] 199:20</p> <p>investigation [3] 36:11 37:4,21</p> <p>investigations [1] 199:19</p> <p>involved [24] 4:18 8:12 32:13 46:11 49:6,18 74:17 86:25 95:21 96:4 98:4,6 102:15,25 121:21 124:25 150:8 160:25 170:14 171:25 210:5 221:17 225:1,10</p> <p>involvement [2] 60:8 231:2</p> <p>Ireland [1] 88:20</p> <p>island [2] 114:22 117:8</p> <p>isolated [3] 60:15 179:21 180:15</p> <p>isolates [1] 159:7</p> <p>isolating [1] 159:6</p> <p>isolation [1] 220:7</p> <p>issue [35] 9:5 23:10 37:15 54:14 62:7,22 63:18 87:5 99:5 100:5 111:3,3,15 111:21 129:3 137:25 138:23 147:4 154:9 161:19,23 162:22,25 163:4 164:4,11 175:24 196:20 197:18 205:14 209:3,12 215:12 228:11 228:18</p> <p>issued [1] 29:3</p> <p>issues [14] 2:1 32:5 36:12 58:8 133:3 139:9 149:25 160:1 164:23 165:7 166:17 179:23 193:8 195:25</p>	<p>item [6] 105:12 110:14 137:8,17 176:10 238:16</p> <p>items [7] 14:2 23:20 34:3 34:5 99:21 156:1 210:8</p> <p>iteration [1] 184:18</p> <p>itself [10] 32:15 36:1 48:24 71:23,24 87:12 152:9,15 198:25 232:16</p> <hr/> <p style="text-align: center;">-J-</p> <hr/> <p>January [36] 5:15 11:17 26:3 35:14 39:19 43:8,9 47:16 53:12,12,21,24 54:6,20 55:9,11,12,14 55:14 56:10,13,23 57:2 57:8,22 150:2 159:25 160:2,8,10,12,14,20 164:3 227:17 234:25</p> <p>JD [2] 91:12 92:22</p> <p>Jim [1] 85:12</p> <p>job [7] 18:1 50:21 129:13 209:5,5,18,23</p> <p>jobs [1] 104:11</p> <p>John's [3] 229:2 245:7 245:10</p> <p>journeyperson [1] 212:8</p> <p>journeypersons [2] 46:8 49:18</p> <p>judgment [4] 30:6,11 93:25 139:4</p> <p>judgments [1] 30:20</p> <p>Judy [2] 245:2,12</p> <p>July [3] 53:19,19 201:7</p> <p>June [11] 113:7 120:2 155:21 156:20 184:13,14 184:16 195:8,13,16 233:18</p> <p>jurisdictions [1] 64:16</p> <hr/> <p style="text-align: center;">-K-</p> <hr/> <p>keep [7] 21:14 33:9 62:19 115:9 125:17 166:10 172:25</p> <p>keeping [2] 107:17 116:1</p> <p>kept [3] 32:23 128:17 209:2</p> <p>key [7] 28:6 74:15 78:11 79:24 104:24 123:20 126:7</p> <p>kicked [1] 10:25</p> <p>kind [11] 44:23 65:15,23 98:19 106:25 176:12 183:17,19 220:15 225:18 227:23</p> <p>knew [8] 26:13 138:16 153:25 160:1,18 161:8 162:22 197:6</p> <p>knowing [8] 164:23 173:2,20 185:4,18,23 208:19 227:10</p> <p>knowledge [10] 5:4 27:11 29:22 32:5 66:18 124:25 125:2 133:1 165:5 209:12</p>	<p>knowledgeable [9] 29:11 30:5,15,16 32:2 126:4 139:7 184:8 197:6</p> <p>known [7] 5:19 32:4 133:3 165:14 169:9 208:16 210:21</p> <p>kV [1] 118:23</p> <hr/> <p style="text-align: center;">-L-</p> <hr/> <p>labour [1] 180:4</p> <p>Labrador [7] 60:13 212:13 238:24 240:18 245:4,7,10</p> <p>lack [5] 48:23 57:19 90:13 185:9 199:9</p> <p>laid [1] 109:15</p> <p>Lake [1] 146:5</p> <p>land [1] 71:10</p> <p>large [3] 129:15 181:2 182:11</p> <p>largely [1] 64:24</p> <p>larger [1] 150:11</p> <p>last [24] 22:21 39:11 47:5 47:6 55:13 57:13 90:22 93:10 106:24 107:18 115:19 120:8 122:16 123:3 143:1,10 144:5,18 187:8 216:21,22 235:3 236:11 237:4</p> <p>late [15] 6:8 14:7 19:16 20:3 78:18 131:23 156:16 156:20 157:17 166:18 191:18 192:1,25 193:5,6</p> <p>lay [1] 71:10</p> <p>lead [3] 88:6 225:24 226:17</p> <p>leader [1] 89:6</p> <p>leadership [1] 29:20</p> <p>leakage [1] 176:16</p> <p>leaking [1] 175:25</p> <p>learned [1] 231:16</p> <p>learning [1] 53:3</p> <p>least [14] 8:8 9:2 24:24 25:7,7 30:25 49:16 77:19 126:3 132:20 143:8 167:18,20 172:11</p> <p>leave [3] 41:24 210:14 210:25</p> <p>led [4] 67:1 69:17 88:4 111:3</p> <p>LeDrew [38] 1:15,21 4:8 4:16 5:3 9:9 10:1,19 11:2 11:8 84:11,24 85:3,11 85:16 86:1,7,16 91:11 160:3,11 183:8,12,21 184:11 189:24 225:10,12 225:20 226:5,14 227:20 229:25 230:2,19,23 231:9 234:2</p> <p>LeDrew's [1] 6:25</p> <p>left [6] 11:14 49:22 96:21 118:6 172:19 222:19</p> <p>less [3] 70:7 165:22 235:8</p> <p>level [12] 37:11 79:25 81:15 97:4 99:15 165:3</p>	<p>166:12 168:2 173:24 177:2 204:5 237:10</p> <p>levels [4] 178:3,20,24 196:12</p> <p>LIAM [1] 59:12</p> <p>Liberty [9] 11:12 12:3 53:25 55:2,8 57:11 61:23 68:24 205:17</p> <p>Liberty's [6] 12:11 53:18,23 57:4,6 196:16</p> <p>lies [1] 59:24</p> <p>life [1] 62:20</p> <p>liked [5] 22:2 24:9 50:20 129:20 154:13</p> <p>likelihood [1] 209:17</p> <p>likely [3] 2:22 171:13 213:19</p> <p>limited [2] 7:6 20:22</p> <p>line [18] 9:10 57:11 68:17 144:12 158:15 182:23 186:13 202:15,20 214:5 214:6,7,9,13 215:14 220:23 222:24 239:16</p> <p>lines [10] 9:9 10:17,22 15:1,18,18 31:7 50:2 57:7 72:18</p> <p>list [13] 18:12 113:13 119:23 123:22 124:8 145:16 188:9,21 189:9 189:13,18 190:4 200:11</p> <p>listed [1] 18:10</p> <p>listened [1] 60:5</p> <p>lists [3] 18:20,22 19:4</p> <p>load [9] 54:7 56:3 57:10 113:23 236:13 237:1,6 239:12 242:11</p> <p>locally [1] 85:21</p> <p>located [1] 233:9</p> <p>location [1] 187:2</p> <p>LOLH [8] 237:9,13,24 240:3,12,15 241:5 242:12</p> <p>longer [8] 28:16 50:4,15 50:19 203:20 211:5 213:3 217:17</p> <p>look [82] 10:22 14:1,3 15:15 23:3 41:17 52:11 53:4,17 54:19 55:10,13 55:20,21 56:5,6,9,22,23 56:24,25 57:1 58:4 68:7 69:9 71:12 83:8 84:23 87:6 88:2 93:10 108:1 109:2 111:22,22 112:10 113:20 114:16 115:15,15 115:16,19 118:19 119:7 122:8,9 123:22 124:4,5 124:7 126:24 127:1 134:24 135:13,20,23 144:21 145:25 148:6 153:9 154:18 155:17,25 156:3 157:22 159:16 168:18 173:14,18 181:25 182:13 185:8,14 188:3 190:4 193:24 201:10,24 203:5 228:2 231:4 243:3</p> <p>looked [23] 6:2 8:21 12:3 12:13 14:3 15:25 19:20 23:11 41:1 42:17 43:20</p>
---	---	--	--	---

<p>55:9 68:18,25 69:14 78:1 116:14 130:20 133:7 198:23 230:25 231:5 242:22</p> <p>looking [36] 3:21 18:20 19:3,7 22:14 24:18 55:6 68:17 70:20 71:8 72:10 74:7,9 83:2,17 84:16 90:16 103:15 107:16 132:18 136:7 142:9 145:23 151:18 174:25 188:1 198:21 199:6,17 219:6 226:24 227:18 230:10 232:9,10 234:21</p> <p>looks [7] 28:1 68:5 165:2 199:2 237:5,6,7</p> <p>loop [1] 209:2</p> <p>loss [3] 10:7 236:12 237:1</p> <p>lots [2] 158:16 234:12</p> <p>low [1] 56:19</p> <p>lower [3] 57:2 140:6 243:6</p>	<p>120:9 121:21 122:17 124:8,18,23 125:16 126:13 128:1,5,8,16,24 129:14 133:23 134:7 135:18,22 136:2 137:7 138:21 139:15,16 141:7 141:10,14,19 142:10 143:11 145:1 147:4,8 149:9,13,17 152:6 154:3 157:9 158:22 159:2,23 161:5,9,15,17 163:9,15 164:10,18,24 166:6 170:18,20 171:16 172:5 172:6,18 174:6,23 175:2 175:11 176:5,10,13 180:9 180:22 182:19,21 183:3 183:5 184:10 185:6,16 187:19 191:21 193:18,25 195:18,20 196:1,19 199:13 200:8,15 201:1 203:11,23 204:1 205:16 205:18 217:1,12 220:4</p> <p>major [7] 11:24 86:9 129:12 164:4 171:18 190:11 234:16</p> <p>makes [1] 60:7</p> <p>manage [6] 27:24 57:19 58:2 92:20 95:19 122:18</p> <p>manageable [1] 21:14</p> <p>managed [3] 90:20 126:8 128:7</p> <p>management [37] 32:11 33:3 60:12,17,23 61:9 63:2,11 71:21,25 72:7 72:23 74:6,15,18 76:13 78:23 83:17 90:14,21 91:9 92:21 93:11,15 96:6 97:20 102:5 107:17,21 122:17 127:8,11,13 128:8 173:19 183:3 184:10</p> <p>manager [21] 4:17 20:25 21:4 24:3 34:14 76:18 85:15 88:5,16 89:3 92:16 95:1 97:13 107:25 108:1 171:25 210:11,15,20,21 212:9</p> <p>managers [36] 21:13 27:4,8 30:22 33:25 34:12 60:21 66:20 75:8 76:21 77:2 78:11 79:24 95:3,4 97:15,23 100:18 102:21 104:11,16 107:24 125:19 131:22 169:5,17,23 172:19 174:22 175:9,15 191:17 208:22 209:13,20 209:21</p> <p>managers' [1] 103:13</p> <p>manages [1] 174:12</p> <p>managing [13] 15:6 21:4 25:6 34:5 58:7 74:4 76:11 86:12 90:25 126:12 139:8 156:1 172:19</p> <p>mandate [2] 30:25 31:4</p> <p>manner [1] 217:17</p> <p>manual [1] 57:10</p> <p>manufacture [1] 3:5</p> <p>manufacturer [12] 3:4 32:6 37:18 47:24 52:8 65:1 162:15 163:1 176:21</p>	<p>177:6,11,23</p> <p>manufacturer's [1] 65:22</p> <p>manufacturers [2] 29:19 66:11</p> <p>mapped [1] 136:24</p> <p>March [9] 38:4 206:24 207:11 224:11 226:21,23 227:16 234:22 238:21</p> <p>mark [2] 235:22 236:1</p> <p>marked [1] 238:16</p> <p>market [4] 3:5 4:1 232:12,12</p> <p>Martin [5] 98:10,20 222:6,17,22</p> <p>Martin's [1] 221:2</p> <p>material [1] 62:21</p> <p>materials [1] 14:18</p> <p>math [4] 68:11,22 114:19 115:3</p> <p>matter [2] 58:4 245:3</p> <p>mattered [1] 230:14</p> <p>matters [1] 1:4</p> <p>may [49] 27:11 30:19 31:1 34:19 38:6,16 48:8 52:16 59:1 61:5,6 77:22 84:3 93:5 97:24 108:17 108:19 111:24 112:1 119:3,5,6,14 120:18,20 123:21,22 127:20 133:3 133:4 135:2 137:13,15 137:21 155:2 157:8 159:12 181:5 184:16 186:3 199:2,9 217:16 219:25 220:9 223:7 228:1 231:15 242:9</p> <p>mean [9] 7:20 80:25 83:15 110:21 153:15 154:24 155:10 180:12 225:16</p> <p>means [2] 126:2 245:8</p> <p>measure [3] 83:18 104:1 126:23</p> <p>measurement [2] 83:9 83:10</p> <p>measures [1] 103:8</p> <p>measuring [2] 83:23 84:1</p> <p>mechanisms [1] 81:14</p> <p>meet [9] 76:5 77:14 82:19 101:6 126:2 204:1,3,6 237:10</p> <p>meeting [7] 83:22 88:4 89:9 127:5 129:13 133:21 164:17</p> <p>meetings [1] 225:23</p> <p>megawatt [10] 2:14,16 3:23 5:16 112:12 220:25 230:8,8,10 231:18</p> <p>memory [1] 209:17</p> <p>mentioned [19] 19:22 26:3 78:2 82:1 87:21 106:22 107:1 118:8 125:8 125:12,13 141:8 149:6 174:25 191:25 203:15 217:11 220:19 224:4</p>	<p>met [3] 4:2 81:18 233:8</p> <p>method [1] 211:20</p> <p>methodologies [1] 239:11</p> <p>methodology [1] 239:12</p> <p>mid-2011 [3] 78:3 82:2 86:20</p> <p>middle [1] 87:8</p> <p>midst [1] 165:6</p> <p>might [10] 4:1 17:2 54:25 59:6 98:8 106:23 117:4 199:23 229:20 242:12</p> <p>migrating [1] 176:24</p> <p>milestones [1] 233:8</p> <p>million [2] 176:8 214:2</p> <p>mind [4] 116:6 133:1 165:22 172:11</p> <p>minds [2] 125:15,19</p> <p>minimize [1] 186:4</p> <p>minor [1] 137:25</p> <p>minutes [1] 9:15</p> <p>misoperated [2] 187:13 187:20</p> <p>misoperation [1] 187:22</p> <p>mitigate [1] 157:25</p> <p>mix [1] 60:5</p> <p>mobile [3] 150:4 160:23 161:2</p> <p>mode [1] 11:13</p> <p>model [4] 237:17 239:18 239:19 240:21</p> <p>moisture [17] 46:22 47:13 48:3,13,24 51:10 51:15,21,23 52:16,23 53:2 212:24 213:6,9,12 213:19</p> <p>moment [2] 214:11 235:18</p> <p>monitor [1] 240:23</p> <p>monitoring [3] 33:15 177:1,5</p> <p>month [5] 50:6 57:17 183:9,14 184:12</p> <p>month's [1] 34:3</p> <p>monthly [14] 33:18,25 80:12 81:1,7,8 89:22 90:2 96:7 124:9 169:18 169:22 172:14 174:20</p> <p>months [4] 231:20 235:9 235:14 241:3</p> <p>Moore [365] 1:11,19 11:15,21 12:10,22 13:3 13:11,24 15:11 16:14 17:6,17 18:15,19 19:2 19:15 21:3 22:23 23:8 24:21 25:4,20 26:5,10 27:6,23 29:7 30:8,12,21 31:22 32:25 33:21 34:9 35:5,19,20 36:21 37:1 38:20 39:7,14,22 40:9 40:18 41:10 42:7,16 43:12,19 44:3,18 45:14 47:20 48:7,17 49:9 50:7 50:18 51:4,13,25 53:14 60:4,10 61:19 62:9,25</p>	<p>63:9,20 64:3,8,20 65:25 66:13,24 67:4,12,25 68:20 69:6 70:2,6,11,17 70:24 71:3,16 73:11,24 75:2,17 76:7,16,24 77:5 77:16,25 78:17,24 79:7 79:14,19 80:5,10,17,21 81:6,20,25 82:5,10 86:20 86:22 87:14,20 88:18,25 89:24 90:5,10 91:6,19 92:1,13 93:21 94:1,10 94:15,24 96:2,11,24 97:5 97:10,14 98:14 100:6,9 101:8 102:2,13 103:19 106:3,8,13 107:6,12 109:21,25 110:12,17 111:4,10,19 112:9 113:1 113:6,19 114:8,15 115:1,4 116:18 117:3,7 118:2,5 118:13,18 119:1,25 120:14 121:1,7,12,25 122:23 123:5,15 124:3 125:18 126:17 128:3,18 128:22 129:7 130:11,22 131:1,6,18 132:12 133:16 133:22 134:3,13,23 135:9 136:17 137:11,20 138:4 139:5,19 140:8,13,17,24 141:3,12,21 143:5,9,16 143:22 144:1,7,13,20,24 145:10,18,22 146:1,8,13 146:19,24 147:6,18,23 148:4,15,23 149:4,10,14 149:20 150:18 151:1,13 152:1,7,23 153:20,24 154:10,19 156:9,15 157:11 158:12 160:7,17 162:2,7,11 164:2,6,12 164:21 166:11 167:1,24 169:3,16 174:4,5,10,11 174:14,18 176:9 177:16 177:22 178:9,13,22 179:4 179:18,24 180:17 181:1 181:12,21 183:1,10,23 184:3,7,23 185:7,19 186:1,14,23 187:4,12,17 188:2,7,12,16,20,25 189:4,12,16,21 190:1,10 190:17 191:2,7,12 192:5 192:11,15,20 193:4,19 194:3,25 195:5,14 196:5 196:21 197:5,12,19 198:5 198:14,20 199:25 200:5 201:9,15,21 202:1,6 203:3,12 204:4,11,16,21 205:2,8,24 206:19 207:12 207:19,25 208:7,15 209:4 209:16 210:23 211:3,18 212:4,21 213:14,22</p> <p>Moore's [2] 99:25 117:25</p> <p>morning [7] 1:4,9,10,12 1:14,16,18</p> <p>Moss [2] 245:2,12</p> <p>most [45] 2:21 14:13 15:15,25 21:12 23:15 24:4 36:15 40:13,23 41:3 87:7 90:16,16 92:25 106:25 108:2 109:3 111:25 115:21 116:5,14 117:11,12 122:9 123:8,9 123:18 131:7 135:20,24</p>
<p>-M-</p>				
<p>machine [1] 10:6</p> <p>MacIsaac [4] 221:5,12 233:3,15</p> <p>Madam [1] 1:6</p> <p>main [7] 35:25 127:25 128:4,15 149:22,25 196:6</p> <p>maintain [1] 115:5</p> <p>maintained [2] 214:25 215:4</p> <p>maintaining [1] 217:22</p> <p>maintenance [270] 11:19,22,24 12:14 13:15 13:20 14:2,11,13 15:14 16:1,16,21,24,25 17:14 17:15,18,19 18:3,10 19:9 19:24 20:1 21:18,21 22:20 23:15 24:5,6 25:3 25:10 26:25 27:21,22 28:2,5,10,12,25 29:1,6 29:13,13,17 32:7 33:3,5 33:10 37:7 39:11,15,20 42:12,15,18,19 43:2,5 43:18,21,23 46:25 47:3 48:21 53:8 54:13 59:23 60:7 62:1,7,12 63:11,18 63:22 64:1,9,14,22,23 65:4,8,8 66:10 67:22 69:13,22 71:12,19,21 72:13,16,20 73:4,18 74:3 74:5,6,8,10,10 75:4,5,21 76:10,12 77:10,21 78:9 78:12 79:2,22 81:2,3,12 81:12 82:20 84:21 85:7 87:3 88:1,13 89:4,8,18 90:14,17,21,23,24 91:8 91:13 92:20,25 93:10,11 93:15 95:24 96:21 97:22 99:22 100:3,8,14,21,25 102:7,19 105:10 106:2 106:25 107:13,17,20 108:4,10,12,16,18 109:4 109:5,7,19,20 110:1,5 110:14,18,20 111:2,8,23 114:13 115:6,8,18 117:16</p>	<p>major [7] 11:24 86:9 129:12 164:4 171:18 190:11 234:16</p> <p>makes [1] 60:7</p> <p>manage [6] 27:24 57:19 58:2 92:20 95:19 122:18</p> <p>manageable [1] 21:14</p> <p>managed [3] 90:20 126:8 128:7</p> <p>management [37] 32:11 33:3 60:12,17,23 61:9 63:2,11 71:21,25 72:7 72:23 74:6,15,18 76:13 78:23 83:17 90:14,21 91:9 92:21 93:11,15 96:6 97:20 102:5 107:17,21 122:17 127:8,11,13 128:8 173:19 183:3 184:10</p> <p>manager [21] 4:17 20:25 21:4 24:3 34:14 76:18 85:15 88:5,16 89:3 92:16 95:1 97:13 107:25 108:1 171:25 210:11,15,20,21 212:9</p> <p>managers [36] 21:13 27:4,8 30:22 33:25 34:12 60:21 66:20 75:8 76:21 77:2 78:11 79:24 95:3,4 97:15,23 100:18 102:21 104:11,16 107:24 125:19 131:22 169:5,17,23 172:19 174:22 175:9,15 191:17 208:22 209:13,20 209:21</p> <p>managers' [1] 103:13</p> <p>manages [1] 174:12</p> <p>managing [13] 15:6 21:4 25:6 34:5 58:7 74:4 76:11 86:12 90:25 126:12 139:8 156:1 172:19</p> <p>mandate [2] 30:25 31:4</p> <p>manner [1] 217:17</p> <p>manual [1] 57:10</p> <p>manufacture [1] 3:5</p> <p>manufacturer [12] 3:4 32:6 37:18 47:24 52:8 65:1 162:15 163:1 176:21</p>	<p>mean [9] 7:20 80:25 83:15 110:21 153:15 154:24 155:10 180:12 225:16</p> <p>means [2] 126:2 245:8</p> <p>measure [3] 83:18 104:1 126:23</p> <p>measurement [2] 83:9 83:10</p> <p>measures [1] 103:8</p> <p>measuring [2] 83:23 84:1</p> <p>mechanisms [1] 81:14</p> <p>meet [9] 76:5 77:14 82:19 101:6 126:2 204:1,3,6 237:10</p> <p>meeting [7] 83:22 88:4 89:9 127:5 129:13 133:21 164:17</p> <p>meetings [1] 225:23</p> <p>megawatt [10] 2:14,16 3:23 5:16 112:12 220:25 230:8,8,10 231:18</p> <p>memory [1] 209:17</p> <p>mentioned [19] 19:22 26:3 78:2 82:1 87:21 106:22 107:1 118:8 125:8 125:12,13 141:8 149:6 174:25 191:25 203:15 217:11 220:19 224:4</p>	<p>met [3] 4:2 81:18 233:8</p> <p>method [1] 211:20</p> <p>methodologies [1] 239:11</p> <p>methodology [1] 239:12</p> <p>mid-2011 [3] 78:3 82:2 86:20</p> <p>middle [1] 87:8</p> <p>midst [1] 165:6</p> <p>might [10] 4:1 17:2 54:25 59:6 98:8 106:23 117:4 199:23 229:20 242:12</p> <p>migrating [1] 176:24</p> <p>milestones [1] 233:8</p> <p>million [2] 176:8 214:2</p> <p>mind [4] 116:6 133:1 165:22 172:11</p> <p>minds [2] 125:15,19</p> <p>minimize [1] 186:4</p> <p>minor [1] 137:25</p> <p>minutes [1] 9:15</p> <p>misoperated [2] 187:13 187:20</p> <p>misoperation [1] 187:22</p> <p>mitigate [1] 157:25</p> <p>mix [1] 60:5</p> <p>mobile [3] 150:4 160:23 161:2</p> <p>mode [1] 11:13</p> <p>model [4] 237:17 239:18 239:19 240:21</p> <p>moisture [17] 46:22 47:13 48:3,13,24 51:10 51:15,21,23 52:16,23 53:2 212:24 213:6,9,12 213:19</p> <p>moment [2] 214:11 235:18</p> <p>monitor [1] 240:23</p> <p>monitoring [3] 33:15 177:1,5</p> <p>month [5] 50:6 57:17 183:9,14 184:12</p> <p>month's [1] 34:3</p> <p>monthly [14] 33:18,25 80:12 81:1,7,8 89:22 90:2 96:7 124:9 169:18 169:22 172:14 174:20</p> <p>months [4] 231:20 235:9 235:14 241:3</p> <p>Moore [365] 1:11,19 11:15,21 12:10,22 13:3 13:11,24 15:11 16:14 17:6,17 18:15,19 19:2 19:15 21:3 22:23 23:8 24:21 25:4,20 26:5,10 27:6,23 29:7 30:8,12,21 31:22 32:25 33:21 34:9 35:5,19,20 36:21 37:1 38:20 39:7,14,22 40:9 40:18 41:10 42:7,16 43:12,19 44:3,18 45:14 47:20 48:7,17 49:9 50:7 50:18 51:4,13,25 53:14 60:4,10 61:19 62:9,25</p>	<p>63:9,20 64:3,8,20 65:25 66:13,24 67:4,12,25 68:20 69:6 70:2,6,11,17 70:24 71:3,16 73:11,24 75:2,17 76:7,16,24 77:5 77:16,25 78:17,24 79:7 79:14,19 80:5,10,17,21 81:6,20,25 82:5,10 86:20 86:22 87:14,20 88:18,25 89:24 90:5,10 91:6,19 92:1,13 93:21 94:1,10 94:15,24 96:2,11,24 97:5 97:10,14 98:14 100:6,9 101:8 102:2,13 103:19 106:3,8,13 107:6,12 109:21,25 110:12,17 111:4,10,19 112:9 113:1 113:6,19 114:8,15 115:1,4 116:18 117:3,7 118:2,5 118:13,18 119:1,25 120:14 121:1,7,12,25 122:23 123:5,15 124:3 125:18 126:17 128:3,18 128:22 129:7 130:11,22 131:1,6,18 132:12 133:16 133:22 134:3,13,23 135:9 136:17 137:11,20 138:4 139:5,19 140:8,13,17,24 141:3,12,21 143:5,9,16 143:22 144:1,7,13,20,24 145:10,18,22 146:1,8,13 146:19,24 147:6,18,23 148:4,15,23 149:4,10,14 149:20 150:18 151:1,13 152:1,7,23 153:20,24 154:10,19 156:9,15 157:11 158:12 160:7,17 162:2,7,11 164:2,6,12 164:21 166:11 167:1,24 169:3,16 174:4,5,10,11 174:14,18 176:9 177:16 177:22 178:9,13,22 179:4 179:18,24 180:17 181:1 181:12,21 183:1,10,23 184:3,7,23 185:7,19 186:1,14,23 187:4,12,17 188:2,7,12,16,20,25 189:4,12,16,21 190:1,10 190:17 191:2,7,12 192:5 192:11,15,20 193:4,19 194:3,25 195:5,14 196:5 196:21 197:5,12,19 198:5 198:14,20 199:25 200:5 201:9,15,21 202:1,6 203:3,12 204:4,11,16,21 205:2,</p>

135:24 136:4,4,7,8
140:19 142:2 148:6 150:9
159:13 177:25 198:23
199:6 200:8

mostly [1] 159:18

motor [1] 10:11

move [22] 35:11 117:8
121:16,18,23 122:5 138:1
138:2 158:17 168:12
169:10 170:1 178:19
184:18 185:1,2,4 188:8
192:2 206:2 209:5 220:23

moved [7] 123:2 137:10
137:19 183:19 184:6
185:24 196:1

moving [12] 52:14 101:2
101:17 102:21 133:8
155:13 156:4,16,21
157:25 165:15 170:3

Ms [16] 9:7 57:5 59:16
125:9 129:1 142:17,22
175:22 198:11 206:4
212:15 224:17 235:19,20
236:2,4

multiple [1] 137:12

must [3] 51:17 57:17
67:24

-N-

Nalcor [1] 140:6

named [1] 88:20

names [1] 142:4

nature [5] 20:2 28:13,18
31:25 50:22

near [3] 166:13 186:12
229:2

nearing [1] 73:14

nearly [1] 2:11

necessarily [1] 102:18

necessary [3] 61:4 167:6
207:23

necessity [1] 172:25

need [41] 7:22 18:7 19:6
22:18 26:18 61:6 75:23
75:25 76:1,2 92:24 99:6
108:14 110:22 122:11,12
127:20 131:25 136:15
137:15 140:1 154:18
157:3 158:8,9 163:2
165:14 166:21 182:15
191:20 192:1 193:1,6
194:1 199:8 211:5 215:4
231:15 235:22,25 238:15

needed [17] 15:21 40:2
69:11 100:15 104:1
137:25 153:3 157:9 158:2
160:6 165:10,13 168:15
171:1 191:18 219:19
237:19

needing [1] 100:7

needs [10] 28:3 29:24
50:12 95:23 108:13
193:13 211:22 215:13,13
219:17

network [1] 60:14

never [5] 37:13,25 58:15

111:9 200:16

new [15] 2:7 3:7,12 6:3
6:16,22 7:24 12:20 150:6
184:2 203:16 215:7 227:9
234:10,11

Newfoundland [12]
34:14 38:12 59:10 60:12
150:4 160:22 212:13
238:24 240:18 245:4,7
245:10

next [18] 14:3 40:7 43:7
54:24 57:11 59:2 63:15
137:9 138:2 144:5 147:14
151:22 185:2,5 189:6,6
206:2 234:3

nickel [1] 203:17

NLH [1] 240:4

NLH-174 [1] 179:11

no-no [1] 48:13

none [1] 5:22

normal [5] 33:10 92:10
139:21 234:8,9

normally [8] 16:22
40:14 110:24 148:8,18
159:13 161:9 179:2

Northern [6] 115:2
145:5 147:19,22,24
148:10

noted [1] 224:6

nothing [2] 102:1 213:7

November [2] 180:14
192:8

now [84] 10:4,4 11:13
12:3,20 19:3 22:8,18
26:3 31:11,16,18 32:9
32:11,18 33:12 34:7,10
35:11 38:1 39:4 40:13
43:17 46:1 52:18 53:6
53:11,17 57:5 61:1 73:13
73:22 75:23 78:10,22
79:21 80:1 81:15 82:4
84:25 86:4,11 90:4 100:2
101:22 102:24 104:4
105:1 106:18 114:11,21
116:11 121:10 130:13,23
133:15 137:23 141:7
142:5 145:23 154:18
163:22 164:17 165:1,3
169:21 184:1 189:17
194:1 198:21 209:18
214:5 215:20 218:24
220:12 221:1 223:12
226:23 230:7 237:24
240:19 241:2,9 243:17

number [19] 19:3 23:19
36:2 44:22 69:2,9,15,15
70:3,18 123:19,21,22
136:14 143:14 182:9
200:19 225:22 238:17

numbers [25] 23:18
54:23 56:15 69:8 81:21
81:22 82:6,11 97:1,24
98:1 124:19 126:21,25
127:1 130:12,17,20
136:24 142:4 144:21
145:23 154:11 163:17
204:2

-O-

O'Brien [41] 59:11,12
59:13 60:3 61:11,21
62:14 63:3,14,23 64:5
64:12 65:18 66:9,22 67:2
67:7,15 68:13,23 69:19
70:4,8,14,19 71:1,6 73:9
73:15 74:25 75:11,19
76:14,19 77:1,12,23
78:14,20 79:5,12,17 80:3
80:7,14,19,23 81:17,23
82:3,8,13,18,24 83:4,12
84:6,13,19 85:1,9,13,23
86:3,14,18,24 87:10,18
88:15,21 89:19 90:3,7
91:2,17,21 92:3 93:17
93:24 94:8,13,18 95:20
96:9,17 97:2,7,12 98:2,7
98:16,21,25 99:11,23
101:4,20 102:10,23 103:5
103:17 104:6,17 105:15
105:22 106:6,10,16
107:10 109:17,23 110:9
110:15 111:1,6,13 112:4
112:24 113:3,17 114:2
114:10 115:11 116:16,22
117:5,13,21,22 118:4,16
118:22 119:22 120:4,22
121:5,9,14 122:19,25
123:13 124:1 125:7
126:14 127:22 128:12,20
128:25 130:2,19,24 131:3
131:16 132:5 133:12,19
133:25 134:11,16 135:4
136:11 137:2,18,24
138:25 139:12 140:4,10
140:15,22 141:1,5,16
142:14,19,24 143:7,13
143:18,24 144:3,9,15,22
145:8,13,20,24 146:3,10
146:15,22 147:2,13,21
147:25 148:13,20 149:1
149:7,12,16 150:13,23
151:7,23 152:3,21 153:14
153:22 154:4,16 156:6
156:12 157:5 158:4
159:24 160:5,9,13 161:25
162:5,9 164:1,8,14
165:18 166:23 167:12
168:25 169:13 170:9
171:19 172:13 173:5
174:3,13 175:20 177:13
177:18 178:6,11,16 179:1
179:12,20 180:11,21
181:10,15 182:18 183:6
183:15,25 184:5,20,25
185:17,22 186:7,16,25
187:6,15,23 188:5,10,14
188:18,23 189:2,10,14
189:19 190:3,15,20 191:4
191:9,23 192:7,13,17,24
193:15,21 194:20 195:2
195:12,23 196:15 197:3
197:8,14 198:1,10,17
199:15 200:2 201:6,12
201:17,23 202:3,8,16,25
203:8,25 204:8,14,18,24
205:5,12 206:1,6 207:7
207:14,22 208:2,12 209:1
209:9 210:17 211:1,14
212:2,14 213:11,17,25

214:22 215:3,10,19 216:4
216:10,15,20 217:24
218:5,18 219:15 220:11
220:22 221:15,23 222:5
222:16,23 223:5,11,18
223:23 224:3,10,16,25
225:5,9,14 226:2,11,19
227:4 228:6,23 229:11
229:18,24 230:5,13,21
231:3,12,24 232:3,15,22
233:4,12,19,24 234:19
235:6,13,18,24 236:18
236:22 237:15,23 238:6
238:10,15,18 239:4,13
239:22 241:6,19,23 242:3
242:7,16,24 243:8,14,20

O66 [1] 206:5

objective [6] 73:7 155:18
163:22 165:16 168:20
194:15

objectives [3] 72:21 73:2
88:4

obvious [2] 8:9,24

obviously [12] 6:18 31:1
33:12 65:2 97:8 119:2
132:14 151:11 160:18
169:19 205:14 233:21

occasions [2] 38:5
197:22

occurred [2] 203:14
206:20

occurring [1] 209:13

October [4] 1:1 4:25
245:5,11

OEMs [1] 10:12

off [25] 11:15 18:10 21:19
31:25 32:8,14 61:5
103:10 113:12 117:10
118:6 149:24 150:1 153:2
155:11 166:8,18 167:7
169:11,25 175:5 176:14
209:5 228:13 242:12

offer [1] 38:2

office [2] 95:8 225:24

often [2] 97:25 110:22

oil [8] 9:19 10:11 124:14
125:3 176:14 178:24
179:5 198:7

old [3] 39:6 178:8,14

once [2] 46:25 229:7

one [103] 4:23 5:6 6:9
7:17 10:20 17:12 21:12
24:17 36:3,7,25 38:24
39:23 42:22 43:14 46:15
47:23,25 54:6,12,12,18
55:7 56:11 57:1 61:24
62:5 68:15 70:20 72:10
84:3,4 89:11 99:24 102:4
103:10 112:13 113:22
120:7,9 121:16,24 123:1
123:9,10 129:1 130:25
134:12,17,18 137:8
138:11 143:21 144:12,12
146:17 148:2,11,11,21
149:2,9 158:10 159:1
160:1 166:2 169:11
170:13 174:10 177:14
178:14 179:2,16,16

181:19 182:23 185:24
187:7,14 189:25 190:23
190:24 196:2 197:24
198:12 202:5,9,10,12
203:4,14 205:13,14,16
209:5 211:20 212:22
220:2 221:4 224:18
230:14,20 233:8

one's [1] 120:12

one-sixth [3] 67:23 68:9
154:7

one-time [1] 216:11

ones [11] 112:20 116:23
116:24 117:2 122:13
143:19 188:15 189:11,20
190:4 205:6

onward [2] 101:3 196:7

OPD [1] 189:1

open [1] 52:21

operate [15] 35:18 37:2
37:14,24 38:1 43:13
46:19 47:18,22 51:19
200:13,18,23,25 234:15

operated [1] 200:22

operates [2] 46:16 47:10

operating [22] 15:5 16:6
20:9 21:4,7,8,11 28:11
29:14 32:5 96:14 108:21
108:25 125:11,25 126:2
126:8 139:8,25 216:24
234:4 240:4

operation [6] 29:22 37:5
38:7 139:10 159:22
163:12

operational [5] 27:8
29:16 45:25 66:19 85:22

operations [7] 21:13
27:14 55:1 56:22 57:15
61:17 72:3

opinion [4] 38:2 51:1
176:22 177:10

opportunities [3] 53:4
158:19 232:11

opportunity [29] 12:16
32:13 52:11 79:11,16
101:12,14,19 102:6,20
151:21 152:4 153:2,7
156:3 157:1 168:12,16
168:20,21 169:10,24
175:13 176:6 177:7 180:7
180:19 194:4 207:5

opposed [4] 45:18 76:21
136:5 159:22

option [6] 5:18,18 6:7
6:17 228:12 229:10

options [8] 5:6,15,22,24
6:3 7:15,17 231:1

order [9] 4:20 7:3 62:20
70:22 76:5 110:23 136:16
143:23 170:25

organization [3] 53:4
87:24 196:13

original [7] 29:18 30:2
52:7 64:22,25 162:14
203:21

ourselves [1] 173:24

outage [13] 12:17 14:20

<p>34:20 61:7 199:10 236:25 237:25 239:9 240:11,13 241:14 242:17 243:12</p> <p>outages [28] 12:12 13:9 13:12 26:2,7 27:15 55:15 56:25 57:4,19 66:2,8 67:6 108:15 109:8 110:24 110:25 126:23,24 127:8 160:20 184:17 186:5 194:7 238:4 239:25 240:20,20</p> <p>outlined [1] 179:10</p> <p>outside [7] 45:18 121:20 184:1,12 198:12,16,19</p> <p>outstanding [1] 96:20</p> <p>overall [7] 105:7,8,14 106:14,17 204:5,7</p> <p>overdue [48] 14:13 15:15 16:1,23 23:15 24:5 40:1 40:23 41:2 69:2,16,21 90:16 92:25 96:20,21 106:1,25 108:2 109:5 115:21 116:6,15,24 117:12 122:9 123:8,9,18 130:18,20 132:18 133:7 135:14,20,24 136:2,4,5 136:6,8 142:2 148:6,10 198:23 199:6 200:8 203:5</p> <p>overhaul [4] 37:10,12 200:16 201:2</p> <p>oversee [2] 77:3,7</p> <p>oversight [4] 48:21 74:18,20 86:11</p> <p>overtime [2] 18:13 131:11</p> <p>overview [1] 239:5</p> <p>own [5] 12:11 65:5 85:21 85:24 158:21</p> <p>owner [1] 85:4</p> <p>owners [2] 83:21 232:13</p> <p>Oxen [1] 189:1</p> <hr/> <p style="text-align: center;">-P-</p> <hr/> <p>p.m [6] 147:5 164:20 178:15 213:13 228:22 243:25</p> <p>package [1] 221:6</p> <p>page [26] 4:14,15,16 9:8 10:16 15:1 18:9,11 28:22 31:7 49:25 53:18 57:6 61:23,25 68:25 144:5,11 147:14 189:5,6,7 206:2 206:7 238:23 239:14</p> <p>paid [1] 54:16</p> <p>panel [6] 1:10 54:10,24 58:22 59:2 62:2</p> <p>paragraph [2] 62:3 239:15</p> <p>parallel [1] 173:8</p> <p>parameters [1] 21:1</p> <p>parking [1] 234:11</p> <p>part [48] 5:8,19 6:14 8:4 37:10 42:8 67:5 77:6 83:17 93:19 104:25 105:11 106:14,17 107:3 110:3 111:11,14 148:24</p>	<p>150:20 151:3,20 157:10 158:7 161:7 167:8 170:9 171:4,12 179:8 181:2,13 185:13,21 186:5 192:16 192:18,22 194:18 195:9 203:6 222:22 224:1 227:15 228:1 236:21,23 238:21</p> <p>particular [19] 15:16 58:5 103:11 121:21 133:23 141:18,19 172:20 176:4 178:8 189:18 194:7 205:19 208:10 209:3,12 210:20 217:6 219:24</p> <p>particularly [1] 57:9</p> <p>parts [14] 45:22 46:2,12 46:13 49:23 152:11 167:6 176:7 207:2,5,20 208:19 210:3,7</p> <p>party [2] 38:22 157:22</p> <p>pass [1] 226:25</p> <p>past [5] 32:21 111:17 114:12 120:13 200:23</p> <p>PAUL [1] 1:22</p> <p>pay [1] 54:11</p> <p>payment [1] 233:10</p> <p>payments [1] 233:7</p> <p>peak [1] 56:1</p> <p>Peninsula [6] 68:5 115:2 145:5 147:24 157:24 173:16</p> <p>people [27] 8:6 27:4,7 29:4,10,21 31:12,23 32:2 33:6 55:1 72:1 94:2 95:7 124:25 125:15,22 132:16 132:22 139:7 159:8 171:24 174:11 181:3 183:4 184:8 197:6</p> <p>per [5] 68:18 114:21 115:7 176:7 242:17</p> <p>percent [32] 24:1 35:3,3 35:8 51:20 77:11,15,18 77:19 78:22,22,25 79:8 79:15,21 81:19 82:19 100:13 204:6,9,9,12,15 204:23 212:23 213:9 240:1,2,7,8 241:15,18</p> <p>percentage [1] 243:12</p> <p>perform [2] 37:20 127:19</p> <p>performance [25] 62:18 63:17 78:10,19 79:9 83:18 84:1 85:21 97:19 99:16 100:17 101:2,13 101:17,21 103:8,15 105:13,20 127:4 131:20 238:5 240:6,10,23</p> <p>performed [1] 218:21</p> <p>performing [6] 127:17 133:2,7 153:16,23 206:11</p> <p>perhaps [2] 22:8 238:11</p> <p>period [36] 4:19 6:5 7:25 48:10 49:6 50:5 53:17 53:20,25 54:5,21 55:8,9 55:11,14,15 56:9,10,13 56:23 84:2 135:3,8,17 136:9 166:1 202:4 213:20</p>	<p>215:24 216:2,18 217:10 217:12 218:21 220:9 229:19</p> <p>periods [3] 56:17 217:17 237:11</p> <p>permit [2] 158:19 159:9</p> <p>person [7] 18:23 31:2 32:13 88:6 131:9 174:12 180:4</p> <p>person's [1] 169:6</p> <p>personally [1] 60:9</p> <p>perspective [4] 56:22 57:16 115:8 241:5</p> <p>Peter's [1] 147:15</p> <p>PETS [2] 226:7,16</p> <p>phase [9] 38:24 43:14,15 47:23 48:2 51:15 52:20 87:9 197:24</p> <p>phases [4] 36:8,13 48:1 197:25</p> <p>philosophy [1] 102:5</p> <p>physical [2] 124:12 230:24</p> <p>picked [1] 208:5</p> <p>picture [1] 86:19</p> <p>piece [8] 123:20 159:3 159:11 169:11,11,25 170:22 173:3</p> <p>pieces [1] 207:1</p> <p>place [44] 4:20 7:2 14:5 26:22 32:9 33:11,12 64:23 65:16,19 69:11 72:1 81:14 88:11 89:11 89:17,25 90:17 96:13 106:19 124:15,23 125:21 129:11 130:7 150:21 165:1 166:13 167:5 168:4 169:21 196:7,10 197:1 203:16 205:20 211:8,9 211:22 212:11 213:2,3 225:16,17</p> <p>placed [2] 100:16 110:23</p> <p>placing [1] 4:10</p> <p>plan [271] 12:25 13:4,8 13:22,22,25 14:4,7,9,10 14:12,16,20,22 15:2,13 15:20,22,24 16:5,9 17:4 17:21 18:24 19:22 20:5 20:10,14,24 21:16,25 22:3,4,15,16 23:13,13 23:14,19,22,23 24:4,8 24:10 25:11,19,22,23,24 26:13,21 27:9,19 28:1,4 28:16 30:2,14 32:1,9,24 33:8,16 34:2,10,15,24 39:25 40:15,16,20,22 41:5,15,17,18,20,21 42:23 60:22 61:2,5,15 64:9 67:19,20 69:11,17 71:8,13,14 73:3,6,19,22 74:2,11,12,23 75:10,13 75:14,16,20 76:6 77:3,8 77:18 78:5 79:23 80:9 87:11 88:3,10,24 89:10 89:17,23,25 90:9,19 91:4 92:5,6,17,24 93:2,9,14 95:7,10,16 97:17 98:11 99:10 100:22 101:10,25</p>	<p>102:1 104:19 105:1 106:19 107:22 108:4,8 108:14 109:6,10,15 114:14 115:23,25 116:2 116:5,21 117:9 118:7 119:20 120:16 122:3,5 122:13,14 124:21 125:1 125:6,21,24 126:11 127:10,20 128:11 129:11 129:25 130:6,6,15 131:14 132:6,8,17,23,24 133:10 134:2,4,18,19 136:7,13 136:19,24 137:5,16,17 138:13 140:3 141:22,25 142:5,8 148:6,7,16 149:24 150:1 151:2,20 153:3 154:1,6,12 155:20 156:18,22 157:19 158:2 158:7,20 159:1,25 161:14 163:24 165:2,14 166:10 166:14,16,18,22 167:8 167:10,11,13 168:17,19 175:3,6,13,17 179:17 180:7,10 182:14 191:19 191:19 192:2 195:15 196:9,11 198:22,24 199:3 199:5 200:7,10,12 201:3 203:21 205:15 208:19 214:4,5,6,7,10,11 215:11 215:15 217:2,5</p> <p>planing [1] 242:18</p> <p>planned [12] 17:9 34:17 42:5 74:21 110:25 111:8 147:10 156:5 177:8 199:12 204:6,12</p> <p>planners [1] 90:25</p> <p>planning [49] 27:15 33:6 33:10 61:15,16 72:3,4 72:10,11 74:3,3,16 75:4 76:10,11 85:20,24 86:5 86:5,8 87:23 88:5 92:15 92:16,19 93:6 95:1,2 107:13,14,25 122:2,8 125:15 134:6 136:23 140:2 158:14 159:17 163:21 236:6,12 237:17 238:20,25 239:10,18,19 242:21</p> <p>plans [13] 15:7 16:20 61:4 71:18 74:19 90:15 95:11,15,19 96:16,16 111:25 196:10</p> <p>plant [6] 4:13,17 5:2,2 10:3 203:18</p> <p>plants [1] 15:19</p> <p>plate [5] 167:11 168:9,14 169:6 174:24</p> <p>play [1] 220:8</p> <p>Plum [1] 147:15</p> <p>plus [9] 24:5 48:9 108:4 134:7 135:2 178:14,17 204:19 225:23</p> <p>PM [17] 14:12 24:1 40:11 103:11 105:9,14 106:2 106:12,14 124:21 153:6 155:15 170:11 172:24 183:13 202:21 217:15</p> <p>PMs [17] 35:2 72:25 77:20 78:7 85:19 88:8 104:12 105:7 107:19</p>	<p>125:6 129:10 153:8 154:14 156:25 165:17 169:24 194:12</p> <p>point [48] 2:13 4:9 22:11 24:7 47:11 48:3 59:7 64:16 81:19 82:21,23 84:4 98:4 100:4 104:19 129:8 130:16 136:9,16 137:1,3,6 142:12 147:15 153:7,23 159:19 164:15 170:4,16 171:7,9 172:7 172:10 178:21 185:1 187:1 192:25 195:4 196:23 207:24 212:24 213:9 214:14 219:18 230:20 231:4 236:1</p> <p>pointing [1] 31:13</p> <p>Pond [1] 189:1</p> <p>portion [7] 24:5 34:12 134:8,25 135:5 175:3 229:23</p> <p>portions [1] 225:8</p> <p>position [12] 23:10 76:23 78:3 82:1 83:19 87:16 100:11 103:9 131:13 132:14 136:1 196:17</p> <p>positioned [1] 173:11</p> <p>positioning [1] 104:14</p> <p>positions [2] 29:20 96:13</p> <p>possession [2] 232:24 233:11</p> <p>possibility [1] 52:15</p> <p>possible [10] 4:1 49:8,16 77:21 104:15 163:4 177:20 178:18 179:21 208:8</p> <p>possibly [1] 242:14</p> <p>power [45] 23:17 52:18 58:17 59:11 67:13,13,16 68:3,8 94:7 108:19 110:6 112:19,19,22 113:9 114:18,22 115:7,24 116:3 119:4 120:19 124:5,13 126:22 135:13 139:8,11 143:3 145:2 147:10 150:4 160:22,24 167:6 181:5 181:23 185:9 193:9,13 199:11 219:7 234:18,24</p> <p>PR [1] 142:20</p> <p>PR-PUB-126 [1] 10:16</p> <p>PR-PUB-167 [2] 22:9 22:10</p> <p>PR-PUB-NLH [2] 40:5 186:17</p> <p>PR-PUB-NLH-066 [1] 48:12</p> <p>PR-PUB-NLH-132 [1] 55:20</p> <p>practice [5] 27:20 62:5 63:15 64:7 211:12</p> <p>practices [1] 62:1</p> <p>precedence [1] 119:5</p> <p>preferred [1] 222:14</p> <p>preparation [1] 227:9</p> <p>preparations [1] 233:13</p> <p>prepare [2] 15:7 34:17</p>
---	---	---	--	---

<p>prepared [8] 36:10 60:25 156:13,14,19 161:22 213:18 221:22 prepares [1] 222:1 preparing [1] 221:21 present [1] 52:23 presented [5] 5:14,17 6:7,13 218:7 president [1] 221:13 presume [3] 67:23 166:3 218:6 prevailing [2] 25:1,5 prevent [4] 45:1,3,8 63:12 preventative [125] 11:19 11:24 13:14,20 14:2 15:14 16:16,21,23 17:14 18:3 19:9,24 21:17 22:20 25:3,10 26:4,25 27:21 28:5,9,25 29:6,13 33:5 39:11,20 42:12 43:1,5 43:17,22 59:23 67:22 69:13 72:12,16,20 73:4 74:5,8,10 77:9 78:9,12 79:2,22 81:2,11 82:20 84:21 85:7 87:3 88:1,13 89:4,7,18 90:22 91:12 95:24 100:3,7,14,20,25 102:7,19 108:10,17 109:4 109:20 110:1,4,13,20 111:2,8,23 115:5,8 117:16 120:8 125:16 128:1,5,16,23 129:14 137:7 138:20,21 139:15 143:10,11 147:8 149:17 152:6 154:3 157:8 161:5 161:9,15 164:18,24 166:6 174:6,23 175:2,11 176:5 176:10 180:8 185:16 187:19 191:21 193:18,25 195:20 196:1 201:1 203:10,23 204:1 prevented [1] 50:3 previous [8] 14:1,7 16:24 21:5 23:25 33:16 47:17 110:6 previously [1] 146:6 principle [2] 218:23 219:2 printout [1] 93:19 priorities [5] 167:4 168:5,13 169:9 220:5 prioritize [7] 40:23 76:4 114:14 118:7 119:19 125:5 167:19 prioritized [6] 141:18 141:20 148:17 169:2 181:8 200:8 prioritizing [7] 27:12 112:5 118:19 120:7,11 182:24 185:15 priority [56] 16:2 17:19 17:22 19:25 21:23 28:2 28:13,18 29:11,25 30:7 30:24 31:24 50:10,20 94:17 106:22 112:3 118:11,25,25 119:2,8,14 120:20 121:18 122:6,14</p>	<p>126:12 128:10 140:20 144:17 148:1,6 157:14 159:3 165:23 167:14 168:8,22,23 169:12 170:1 171:10 175:18 182:14,23 187:9 198:24 202:9 208:10,23 209:6 210:8 211:7 213:5 probabilistic [1] 237:5 probability [1] 237:11 probable [2] 36:15 177:25 problem [6] 9:23 11:7 11:13 162:15 212:18,18 problems [3] 7:4 12:7 57:20 procedural [1] 1:5 procedure [3] 50:4 54:13 205:19 proceed [5] 1:5 95:14 194:11,14,21 process [24] 27:14 28:23 31:10 33:11 42:1 69:16 73:16 81:8 83:16,17 95:22 116:12 140:2 182:24 186:6 193:16,23 225:1,4 226:1,10,13 227:16 238:25 processing [1] 203:18 procurement [2] 221:7 232:9 produced [2] 112:14 234:24 produces [1] 91:15 product [1] 60:25 professional [1] 46:8 program [79] 11:23 12:14 13:5,17 15:15 16:16 21:18 25:10 28:5 37:10 42:9,19 43:5,23 46:20 60:12,17,24 61:9 62:12 63:2,11 64:22,23 65:4,8 68:2 70:13 71:20 72:16 73:5 74:5 81:13 88:1,13 89:5,18 91:3,7 97:22 106:4,11,14 108:11 109:13 110:20 115:10 126:13 128:1,7,16,24 129:19 131:25 134:5,9 134:10 135:22 139:15,16 151:6 152:9 154:3 155:15 158:23 159:2 163:9,20 168:7,11 170:5 172:18 174:23 182:13 191:21 194:10 195:16 203:7 220:3 programs [6] 14:19 29:17 63:22 159:5,13 194:12 progress [5] 20:6 61:2 99:9 151:18 208:18 progressed [2] 19:16 210:14 progressing [7] 88:3 96:8 97:16,22 98:11 100:12 174:22 project [14] 1:25 2:3,5 3:20 35:12 108:21 140:7</p>	<p>190:12 221:11,13,14 232:8 234:14,16 projects [1] 17:3 prolong [1] 62:20 prompted [1] 227:2 proof [1] 51:7 properly [12] 11:17 35:18 37:6,9 39:18 43:8 43:11 46:1 47:18,23 48:15 51:2 proposal [3] 7:16 163:7 216:14 proposals [3] 155:7,25 165:10 protect [3] 62:20 210:3 212:11 protected [1] 211:13 protection [2] 159:7 202:22 protective [1] 45:6 proven [1] 235:3 provide [9] 28:8 34:14 44:23 63:12 82:25 83:5 83:8 173:18 231:17 provided [3] 96:7 169:22 176:23 provides [2] 62:17 86:11 providing [2] 126:3 159:9 province [1] 158:18 prudence [1] 53:19 prudent [5] 45:16 54:3 101:15 102:9 138:19 PUB [2] 126:19 179:10 PUB-NLH-067 [1] 205:22 PUB-NLH-170 [1] 142:15 PUB-NLH-174 [1] 124:7 Public [6] 151:2 153:11 194:16 195:11 227:11 245:6 publicly [1] 3:20 pull [2] 68:24 186:17 pump [5] 9:18,19 10:3 11:1,7 purchase [1] 221:1 purchased [2] 222:19 232:19 purged [2] 47:1 52:9 purposes [3] 7:6 242:19 242:21 pursued [1] 54:10 put [55] 5:24 7:2 14:5 20:7 22:3 23:13,22 24:4 24:11 25:13 26:17,18 45:22 46:12 53:7 59:19 69:11 71:13 72:1 73:22 89:25 101:15,16 106:19 108:3 109:24 111:7 124:20 125:21 129:22 131:12 132:2,23 150:10 151:2 153:10,18 154:5 155:20 158:25 163:24</p>	<p>166:13 168:17 171:11 185:10 191:19 192:21 193:9 194:1,5 196:7 213:2 223:14 227:11 243:18 putting [11] 8:25 51:23 125:23 129:3 159:6 160:25 203:16,18 215:23 219:8 228:12 <hr/>-Q-<hr/>Q.C [88] 1:8,23 2:12,17 3:2,9,14 4:6 5:10,21 6:23 7:9 8:11,18 9:4 10:15,21 11:4,10 12:2,19,24 13:7 13:18 14:24 16:8,19 17:11 18:6,17,25 19:5 20:17 22:6,25 24:16,25 25:16 26:1,8,23 27:18 28:20 30:3,10,18 31:6 32:20 33:14 34:6 35:1 35:10 36:17,24 38:10 39:3,9,17 40:4,12 41:7 42:3,10 43:6,16,24 44:15 45:10 47:15 48:5,11 49:5 49:24 50:14,25 51:8,9 51:22 53:10,16 55:19 56:20 58:10,19,25 59:5 235:17 238:14 qualified [1] 3:21 qualify [1] 4:2 quarter [4] 14:8,15,21 75:23 quarterly [4] 124:10 126:19 142:12 241:1 questioning [1] 220:24 questions [13] 54:23,25 58:20 59:8,18 129:1 141:7 170:10,19 175:8 175:23 205:13 236:5 quickly [4] 10:7,8 73:14 160:18 quite [2] 34:4 58:6 quote [1] 231:15 quoted [1] 243:6 <hr/>-R-<hr/>radar [3] 41:25 182:16 191:11 radial [1] 182:7 raise [1] 131:20 raised [1] 205:17 range [6] 68:19 69:25 70:16 231:18 243:5,19 ranked [1] 113:8 ranking [2] 94:6 113:14 rate [2] 218:7 245:4 rates [5] 216:7 219:20 236:25 241:15 242:17 rather [2] 99:21 119:16 re [3] 167:18 181:7 185:14 re-insulated [1] 207:3 re-prioritize [5] 19:23 21:20 28:9 167:21 182:15</p>	<p>reach [1] 80:25 reached [1] 123:10 read [4] 15:9 50:17 207:15,16 readily [1] 155:11 readiness [1] 34:24 ready [3] 14:22 171:2 234:1 real [2] 88:7 151:21 realized [11] 22:1 24:8 26:17 69:10 129:9,17 155:14 163:17 175:7,9 191:18 realizing [3] 151:19 194:12 211:6 really [16] 23:24 66:25 74:17 109:22 114:23 131:12 136:3 148:17 158:24 163:8 164:3 167:7 174:24 175:5 212:18 224:20 realm [2] 60:20 116:19 reason [27] 19:23 27:1 28:8,15 38:16 51:5 57:12 104:18 128:4,15 141:17 149:22 151:14 153:18 165:19 167:17 189:13,23 192:21 198:18 199:21 200:3,6,24 208:3 213:5 213:23 reasonable [3] 132:24 134:14 174:1 reasons [9] 17:13 34:21 49:12 61:7 99:24 110:7 127:4 155:23 180:5 reassigned [1] 226:17 reassured [1] 170:12 receive [1] 61:1 received [2] 8:2 223:6 receiving [1] 191:15 recent [4] 240:4,19 242:9 243:1 recoated [2] 49:23 207:20 recoating [1] 50:11 recognize [1] 109:5 recognized [4] 15:21 73:1 101:11 156:20 recognizing [6] 7:22 104:10 109:11 158:1 195:20 219:11 recollection [2] 229:20 230:1 recommendation [5] 12:4 65:21 163:1 221:10 222:8 recommendations [1] 64:25 recommended [4] 29:18 32:6 65:22 66:10 reconsidered [1] 137:8 record [9] 8:19 31:16 32:19,22 39:5,10 56:2 59:21 132:3 recording [1] 31:14</p>
---	--	--	---	--

<p>records [2] 39:16 43:21 recover [6] 10:11 54:4 153:13 158:3 163:25 218:24 recovered [14] 9:18 10:2 22:5 69:18 73:4,7 88:12 118:1 132:25 136:10 137:1 153:8 155:19 165:16 recovering [1] 154:14 recovery [52] 14:4,12 15:22 19:22 20:5,10,14 21:16 22:3 23:13 24:8 26:21 39:25 40:22 61:4 73:6 74:23 75:13,14,15 77:17 78:5 88:10 95:16 116:2 129:11,18,25 131:14,25 132:7,17,23 151:6 152:9 153:3 155:15 156:22 163:19 167:9,10 167:11,13 168:7,10 175:3 194:10,11 196:9 200:7 203:6 214:4 recruitment [1] 139:22 recurring [1] 63:17 reduced [2] 12:8 38:13 redundancy [5] 113:24 114:1,3 119:3 120:18 redundant [3] 119:6 182:1,2 reference [1] 19:4 reflected [4] 20:19 25:25 33:2 100:2 reflecting [1] 7:23 reflective [1] 108:25 refocused [1] 72:22 refueling [1] 231:1 refurbish [1] 7:12 refurbished [1] 7:14 regard [3] 8:7 15:19 174:9 regarding [1] 233:10 region [3] 96:14 108:24 109:1 regional [16] 34:13 76:17 76:21 77:2 95:4 97:15 97:23 100:17 104:11 108:1 131:22 169:23 174:21 175:15 191:17 208:22 regions [1] 85:22 register [1] 85:19 regular [18] 27:10 62:17 126:20 130:6,9 131:4,5 131:9,10 139:16 169:18 175:8,14,14 191:15,16 208:18 210:12 regularly [1] 83:22 regulatory [1] 218:23 reinstall [1] 207:6 reinstalled [2] 206:17 208:6 reinstalling [1] 206:9 related [5] 54:17 61:8 138:23 177:21 229:8</p>	<p>relates [1] 214:3 relating [2] 2:3 58:20 relatively [1] 240:9 release [1] 232:17 relevant [1] 55:8 reliability [24] 17:22 20:3 21:24 24:23 28:14 32:3 65:7 126:15,18,25 127:1,12,14,16,19,21,24 128:15,24 181:6,17 193:17 194:14 195:22 reliable [8] 28:8 31:1 42:20 62:13 63:13 104:15 128:5 234:17 rely [1] 212:6 remain [2] 205:20 220:20 remainder [1] 151:5 remained [2] 122:15 207:4 remains [1] 47:3 remedy [1] 195:24 remember [1] 113:11 remote [1] 182:9 remove [2] 45:19 49:10 removed [3] 46:2,12 210:3 reorganization [1] 85:4 repair [6] 44:2 45:13 49:7 50:15,19 62:18 repaired [1] 47:17 repeating [1] 22:7 replace [4] 12:25 54:12 198:2,6 replaced [10] 42:5,13,15 43:3 47:2,3 52:6 163:13 214:20 215:1 replacement [7] 1:25 13:5,16 18:4 59:17,20 70:13 replacements [2] 214:15,16 replacing [1] 38:15 reply [3] 57:4,6 196:16 report [32] 5:14 6:24 7:10 34:7,17 36:10 38:3 38:5 53:19 55:4 60:21 61:17,23 68:24 76:15 80:13 91:10,16,18,25 113:11 122:20 126:19 153:11 156:10 173:23 195:10,17 238:12,23 239:1 240:25 reported [3] 76:17 99:18 241:1 reporting [18] 79:24 81:8,14 89:21 90:1 98:24 98:24 99:8,9 165:3 166:12 168:3 169:18,20 175:14 196:2,11 208:21 reports [7] 61:1,3 113:7 120:3 169:22 174:11,21 repositioned [1] 71:23 representative [3] 55:11 57:14 243:4</p>	<p>reprioritization [1] 219:4 reprioritize [1] 137:21 request [1] 155:6 requested [1] 24:12 requests [1] 155:25 require [2] 20:8 110:24 required [34] 14:18 20:13 25:23 37:24 48:21 68:10 73:3 89:10 90:17 92:17 108:3 109:3 123:18 134:8 135:10 136:20,25 160:19,23 161:2 170:21 172:6 180:3 195:7 198:4 207:2 211:15 216:1 219:3 219:7,9 221:18 222:9 235:5 requirement [5] 49:2 129:23 215:16 216:1,23 requirements [2] 132:20 158:19 requires [2] 62:5 64:7 rescheduled [2] 34:22 61:6 reserve [3] 237:10 238:20 241:5 residential [1] 228:17 resources [72] 14:14 15:4,8 16:5,11 17:2,3,8 18:2 19:14 20:8,13,23 21:2 22:18 23:4 24:13 24:20 30:13 108:23,24 109:2,10,13 123:12 125:8 125:10 126:11 129:2,3 129:23 132:4,19 133:8 134:15 139:13,18,21,24 140:1,5,19 150:15,25 151:5,9,10,15,22 153:10 154:18,20,22 155:1,5,8 155:22,24 156:1,4 157:3 159:15 166:9 167:21 168:19 169:25 170:4 180:19 191:10 192:3 193:11 194:9 respect [31] 4:18 8:13,20 9:5 17:7 21:2 28:24 29:8 30:6 33:15 34:1 63:22 65:3,10 72:15,25 88:8 89:7 92:8 95:10 131:24 138:8 150:1 154:14 155:23 176:19 180:6 181:6 191:14 217:22 236:7 respectively [1] 240:2 respond [1] 160:20 response [3] 147:9 199:16 212:15 responsibilities [1] 235:20 responsible [5] 28:23 201:18 221:5,14 222:7 rest [2] 59:4 166:6 restart [2] 10:11 182:24 restate [1] 10:20 restricted [1] 20:25 restructured [3] 71:24 72:22 87:22</p>	<p>result [7] 13:8 54:21 112:17 137:16 212:19 217:16 219:3 resulted [3] 39:1 212:17 213:6 RESUME [1] 117:19 retained [4] 226:3,12 239:6,9 retaining [2] 162:16,23 retention [1] 139:23 revenue [1] 216:23 review [18] 5:9 12:11 23:3 53:23 64:15 65:11 157:25 173:13 196:25 214:16 217:11 218:14 220:18 238:25 239:8,10 241:3 242:2 reviewed [1] 242:22 revised [2] 26:16,19 Revision [2] 142:16,25 rewind [2] 152:13 162:12 rewound [1] 35:15 RFI [14] 18:20 19:3,19 23:18,25 36:2 44:21 49:25 50:8,24 152:15 154:11 163:18 207:1 RFIs [6] 23:20 130:17 152:25 187:14 211:20 232:16 right [149] 10:16 25:17 25:21 26:9 33:1 36:25 39:23 44:1 45:24 47:21 50:8 59:25 61:18 62:15 64:2,9,21 65:24 67:10 68:1,8,12,21 70:18,25 71:7 75:18 76:23 78:18 79:25 80:18,22 97:11 111:5,18 114:3,9,11 118:12 120:1 122:24 128:2,4,19 130:12 133:17 133:20 136:18 139:2 140:25 141:6,11,17 142:13 143:4 144:6,10 144:14,16,18 145:19,21 146:2,9,16 147:3,12,22 148:24 149:9,11 150:10 153:21,25 157:23 160:2 164:9,13 178:19 181:11 183:7,20 184:4,8,24 186:15 187:5,16 188:24 189:3,17 190:2,16 191:3 191:8 192:6 193:20 196:3 196:4 197:18 198:2,13 198:15 201:8,11,14 203:4 204:10,22 209:8 210:16 218:2,4 220:12 221:1,19 222:2 223:1,8,10,15 224:7,12,22,24 226:4 228:2,9 229:4,12,15 230:7,10 231:7,21 234:7 234:22 235:7,14 236:15 236:23 237:16,24 238:2 238:7 241:7,20 243:10 243:15 rigor [3] 31:17 32:14 169:20 rigorous [2] 113:10 116:11</p>	<p>rigour [2] 83:9 85:6 ring [1] 119:10 rings [2] 162:16,23 risk [7] 157:25 180:23 186:4 224:4 225:19 226:7 226:18 risks [2] 196:19 229:8 Rob [5] 1:20 33:22 42:21 80:12 174:25 role [5] 89:14,16 102:24 125:22 208:5 roles [2] 29:20 104:25 roll [1] 85:12 root [20] 12:11 13:12 35:21 36:6 37:18 38:2 38:21,23 47:24 52:12,25 53:5 66:3,7,12,14 67:5 127:6,18 197:21 rotating [5] 55:15 56:25 57:3,19 162:17 rotor [1] 162:16 rough [4] 68:11,21 114:19 115:3 route [2] 234:8,10 RTV [5] 44:23 49:11 150:4 206:20 211:11 rubberized [1] 44:24 run [2] 45:24 224:6 running [1] 132:21 rural [5] 21:14 125:13 125:17 126:5,7</p> <hr/> <p style="text-align: center;">-S-</p> <hr/> <p>safely [3] 46:8 159:6,7 SAIDI/SAIFI [1] 126:21 salt [2] 44:8 138:8 sample [1] 179:5 sampling [2] 124:14 178:24 sat [1] 75:22 satisfied [1] 212:17 saw [4] 23:1 64:16 193:1 193:6 scenario [4] 9:19 57:1 171:13 211:16 schedule [11] 72:13 75:6 94:2 108:5 115:6 137:7 161:6 164:11,17 199:10 233:7 scheduled [9] 35:8 91:14 109:8 171:10 183:13 184:13 201:4,13 203:23 schedulers [1] 27:5 schedules [2] 33:8 74:7 scheduling [13] 33:6 61:15 72:4 74:4 76:10 92:19 93:7 95:2 107:15 122:2,8,18 123:22 scheme [1] 92:10 schemes [1] 10:9 screen [2] 50:1 235:21 scroll [4] 61:24 69:20</p>
--	--	---	--	--

<p>206:24 238:22 sealed [1] 179:9 season [4] 161:10,17 163:16 195:18 seasons [1] 49:14 second [11] 10:14 100:11 123:9,10 144:12 159:3 182:8 206:7 228:16 229:1 239:16 seconded [1] 140:5 seconds [1] 10:5 secure [4] 46:8 49:21 51:8 211:10 secured [4] 46:3 51:2,6 212:11 see [26] 9:10 47:13 50:1,2 54:19 59:1 60:25 62:4 65:9 68:22 79:18 81:15 83:2,8,20 139:22 143:14 155:2 165:20 167:19 169:2 176:15 192:18 194:22 212:12 215:25 seeing [3] 22:14 69:23 178:4 seeking [5] 2:7,25 54:4 170:4 215:20 seem [2] 190:22 229:2 segregate [1] 234:5 senior [4] 29:20 60:21 89:6,14 sense [7] 68:14 121:15 169:1 190:7,18 206:15 240:17 sensitivity [3] 241:13 241:22 243:18 sentence [3] 62:8,23 63:15 sentences [2] 62:3,4 separate [10] 76:21 84:20 86:5,8 91:10 105:12 106:11 120:23 193:2 194:2 September [9] 57:4,6 141:10,14 144:6 175:24 176:11 232:18 240:24 serious [3] 7:15,20,21 service [25] 6:8 10:10 25:8 28:8 31:1 45:12 51:24 52:4,18 53:8 62:21 63:6,13 112:17,18 126:3 163:14 182:4 185:12 198:9 202:13,24 203:19 234:21 235:9 services [1] 60:18 services/communications [1] 60:15 session [1] 225:21 set [7] 72:12 73:20 77:19 156:25 182:20 183:5 185:4 sets [1] 86:12 setting [1] 87:25 seven [3] 120:13 121:19 121:24 several [1] 22:8</p>	<p>severe [4] 44:6,12 45:3 48:9 shaded [1] 54:20 shall [3] 156:18 198:8 211:24 shape [2] 173:25 174:1 sharing [1] 234:13 shedding [1] 57:11 shift [2] 171:11 172:11 shifted [2] 170:25 171:4 shop [28] 45:17,21 68:3 93:1 116:2,19 123:7,12 123:19 135:21 136:22,25 145:3,4,4 148:8,12 155:3 155:4 168:11 206:21 207:3,4,17,20,24 208:19 222:1 shops [2] 115:4 145:1 short [12] 27:5 33:6 49:8 61:15 72:3 92:19 93:6 95:2 107:14 122:1,7 229:19 shortage [2] 139:17,20 shortages [1] 57:10 shorten [1] 12:16 shorter [1] 135:8 shortly [1] 161:19 show [3] 55:24 130:17 154:11 showed [1] 19:8 shown [2] 154:11 163:18 sign [1] 32:14 signed [1] 103:10 significant [3] 124:17 180:3 196:18 silicone [1] 44:24 similar [7] 2:23 3:3 45:8 73:21 163:3 176:22 177:9 simplistic [1] 61:12 single [1] 119:15 site [20] 4:11 47:25 72:5 72:6 206:13 223:13 224:21 225:6,16 226:24 229:1,9 230:6,8,15 231:19 233:10,11,13 234:11 sites [1] 228:21 sits [1] 181:23 sitting [1] 155:1 situation [4] 58:2,7,14 147:9 six [60] 11:20,22,25 12:18 13:14 15:22 18:3 19:21 19:24 20:5,10 21:20,25 22:3 23:12 24:8,10 25:11 25:19,21,24 39:24 40:21 42:19 43:22 65:20,23 66:6 68:14 114:11,12 115:24 116:3,14,25 120:10,12 121:19,24 123:19,21 132:9 133:14 134:5 135:11,16 136:5 165:25 170:5 175:3 176:10 180:8 184:14 190:25 198:13 200:7</p>	<p>201:10 205:15 217:1 218:12 six-year [69] 64:1,13,18 67:20 68:2,11 69:17 73:6 74:23 76:6 77:13,14,15 77:17 88:10 92:17 100:22 101:6,10 106:4 109:6 115:10 120:18 121:2,3 124:20,21 125:5 129:10 129:18,25 130:6,8,9 131:4,5,14 132:6,9,17 132:23 133:10,17,20 134:4,9,17 135:3,18 136:8 138:20 141:13,14 143:11 153:17 154:12 157:19 214:7 215:8,11 215:15 217:7,13,19 218:1 218:8,20,22 220:7 sixth [2] 68:16 70:21 slightly [1] 243:7 snow [2] 44:9 46:10 solution [7] 6:6,15 8:9 8:17 9:1,2,3 sometime [1] 223:19 sometimes [1] 209:6 somewhat [1] 70:7 sorry [16] 3:10 61:25 84:10 105:25 134:20 142:20,23,25 160:10,14 190:24 206:10 211:17 227:18 232:5 242:11 sort [13] 63:25 80:25 91:4 118:23 121:16 122:21 186:9 214:20 221:7 225:15 230:1 232:24 237:20 sound [6] 223:1,8 224:12 224:22 231:21 245:8 sounds [5] 39:8 42:8 63:21 104:20 223:10 source [1] 51:20 sources [3] 116:9 119:12 119:16 space [2] 230:24 234:5 speak [5] 72:17 81:21 87:11,15 98:13 speaking [1] 171:20 specialized [2] 154:25 155:24 specific [6] 55:4,5 105:9 139:6 141:6 180:24 specification [1] 211:23 specifications [1] 4:2 specified [1] 110:2 specifying [1] 3:22 spit [1] 122:21 spoke [3] 85:18 172:1 174:4 spoken [2] 171:23 174:5 spot [1] 231:7 spray [1] 138:8 spring [3] 6:9 161:10,16 square [1] 89:11 SSD [1] 189:5 St [3] 229:2 245:7,10</p>	<p>stable [1] 177:3 stage [2] 89:20 153:16 stand [1] 233:3 standard [5] 11:19 12:21 211:15,23 217:5 standardized [1] 83:25 standards [1] 127:19 standby [2] 9:17 10:3 start [26] 2:3 4:12 5:2 7:8 7:23 9:12 10:3 13:25 14:7,22 19:11 59:15,18 78:21 115:21 117:10 123:6 154:23 160:16 226:13,23,24 228:1,10 229:21 233:13 started [16] 4:15 9:17,18 9:22 10:5 11:1 59:16 78:4,13 87:6 99:3 104:4 163:20 173:12 228:11 242:1 starting [5] 102:9 106:4 135:19 161:16 240:24 starts [1] 161:10 state [2] 9:14,16 statement [4] 31:21 57:7 63:21 232:4 station [36] 9:12 14:5 15:23 36:5 43:10 44:5 45:9 46:5,21 47:7,14 49:19 72:25 105:10 106:5 106:7 112:2,6 113:25 124:19 138:8,16 143:3 150:3 160:21 165:17 186:12 188:13 190:13 197:16 202:14,24 203:16 203:19 212:7 220:3 stations [34] 15:16 23:16 46:7 49:1,1 72:15 73:8 88:6,9,14,17 89:8 90:18 93:1 100:22 107:2 109:6 112:7 115:17 118:10 119:9 122:10 124:9,11 124:24 129:11,19 131:15 133:1 154:1,15,22,24 200:21 staying [1] 22:16 step [3] 53:6 167:22,25 Stephenville [10] 2:24 115:1 145:4 146:14,16 152:12,14 162:13,24 163:5 stepped [1] 215:14 stepping [1] 214:5 steps [1] 179:14 still [21] 11:6 14:12 32:16 53:1 86:8 88:19 89:22 96:19 121:10 122:15 134:6 147:7 154:6 161:8 174:16 184:15 186:11 236:19,21 241:9 243:4 Stony [1] 177:14 stop [2] 4:20 7:3 strategist [3] 239:17,23 240:20 street [1] 155:11 stretch [1] 28:16</p>	<p>strive [2] 49:10,14 strong [7] 31:18 32:16 32:17 185:20 194:6 196:22 197:1 struck [1] 196:10 structure [1] 72:6 structured [3] 62:6,11 196:18 struggling [1] 123:1 study [1] 237:11 stuff [6] 150:16,16 183:18,19 225:18 231:5 subject [6] 56:4,7,11 199:18 223:7 232:2 submit [1] 157:2 submitted [6] 38:3 155:20 156:20 194:18 195:8 196:25 subsequent [1] 123:23 subsequently [1] 160:21 success [3] 24:13 25:15 132:4 successful [2] 35:7 201:1 successfully [1] 200:22 such [12] 34:23 40:25 47:2 61:7 62:16 72:4,17 91:10 93:3 115:23 122:6 128:9 sufficient [1] 10:24 suggest [1] 184:19 suggested [3] 7:12 55:2 55:10 suggesting [1] 56:6 suitable [5] 28:7 210:2 211:4,21 212:10 summary [4] 91:22,25 93:19 122:20 summer [1] 233:18 Sunnyside [33] 1:25 11:16 37:16 41:8,19,20 57:21 59:17,20 112:25 113:4,10,21,22 114:11 141:8,22 142:11 143:20 144:2,16,18 145:11 148:2 148:9 165:25 166:3 175:22 182:2 189:5 203:1 205:7,11 supervisor [2] 47:8 212:8 supervisors [1] 75:8 supplied [3] 46:21 65:1 211:19 suppliers [1] 231:16 supplies [1] 202:14 supply [17] 9:20 10:5,8 24:24 28:14,19 30:24 42:20 50:13 53:23 54:3 54:7 57:10 62:13 113:23 128:6 182:3 supplying [1] 119:16 support [2] 159:5 160:24 suppose [2] 158:6 185:23 supposed [6] 40:6 111:17 137:9 138:2 184:2</p>
---	--	---	---	---

<p>204:3 surmising [1] 151:24 sustain [1] 58:17 switch [7] 44:12 45:23 46:4 206:23 207:6 210:7 212:13 synchronous [1] 2:25 synergies [1] 234:13 system [60] 33:3 37:23 37:24 47:5,9,14 48:4,19 48:22 52:18,23 54:7 67:14 71:21 74:6 76:13 90:14,21,24 91:9 92:7 92:21 93:12,16 97:20 104:15 107:17,21 108:19 112:19 113:21 114:22 118:24 119:4 120:19 122:17 124:9 126:22 128:9 139:9,11 147:10 152:12 157:23 159:8 160:24 167:6 181:5,23 183:3,5 184:10 185:9 193:9,13 196:1,2 199:12 219:7 221:19 systems [5] 27:14 37:22 60:16 72:19 127:2</p>	<p>72:23 87:24 92:15 95:3 125:20 148:25 149:3 teams [2] 95:12,18 tear [1] 10:6 technical [2] 3:25 86:10 technically [1] 3:21 technology [1] 222:14 temperature [8] 56:1,3 56:8,12,14,17,19,24 temperatures [2] 57:3 57:10 template [1] 225:24 temporary [8] 4:11,19 5:1 7:2 155:9 205:20 211:2 213:20 ten [1] 241:17 tend [1] 50:12 tendered [1] 3:20 term [27] 27:3,5 33:6 42:9 61:15,16 72:2,4,10 72:11 74:16 87:23 88:5 88:16 89:10 92:15,15,19 93:6 95:1,2 107:14,25 122:1,7 155:9 214:9 terminal [47] 14:5 15:16 15:23 23:16 36:5 43:10 44:5 46:5 72:15,25 73:7 88:6,9,14,16 89:8 90:18 92:25 100:22 105:10 106:5,7 109:6 115:17 119:9 124:9,11,19 129:10 129:19 131:15 132:25 138:7,15 143:3 150:3 153:25 154:15,22,24 165:16 197:16 200:21 202:14 203:16 212:7 220:3 terminals [2] 141:24 158:16 terms [76] 4:4 6:1,14 34:3 41:16 59:22 60:4,6 61:13 65:19 69:1 71:10 73:17,20 75:12 77:13 83:15,21 89:21 90:8 92:5 95:22 98:8,11 99:17 100:6 103:12 106:22,24 112:5 114:3 118:6,8,11 119:23 120:6 122:21 125:8 128:13,14 136:12 139:14,14 158:6 171:6 172:11 175:23 179:13 180:23 182:22 183:17 186:9,22 187:25 191:10 195:24 197:4,9 199:16 202:19 205:15 211:16 214:1,4 218:6 221:18 222:24 226:23 229:13 230:6,15 231:13 234:20 235:7 237:18 242:8 Terry [4] 1:21 84:9 92:21 160:8 test [34] 22:4 24:11 25:14 25:25 26:17,19 45:25,25 46:14,15,17,18,24 47:1 51:23 52:1,5,6 65:9,16 132:3 150:20 151:4 153:12 155:21 157:2 179:15 180:1,16 194:17</p>	<p>195:9 218:25 219:8,9 tested [1] 37:22 testified [1] 64:14 testimony [10] 21:6 33:16 60:6 63:24 99:25 141:9 197:10 221:2,17 228:24 testing [9] 37:8 178:19 178:20,23 179:22,22,25 180:12,14 thank [4] 59:7,14 117:23 236:2 that'll [1] 32:8 themselves [3] 45:11 85:15 150:6 theoretically [1] 220:16 there'd [3] 68:14 114:24 114:25 therefore [1] 219:8 thinking [6] 2:14 26:15 105:19 198:21 199:7 227:23 third [3] 38:22 157:22 159:11 thorough [2] 110:20 227:14 thought [8] 41:24 54:25 105:2,23 127:24 193:16 228:25 234:12 three [21] 6:6 9:15 36:7 36:8,13 38:25 43:15 76:20 100:21 101:10 104:19 114:6 120:8,19 121:17,22 123:3 147:16 158:24 179:9 197:22 three-year [5] 120:10 120:11,16 121:22 132:8 threshold [1] 79:10 through [77] 4:21 7:3,4 8:3 13:12 14:19 18:7 19:17 27:13 29:19,21 33:10 38:21 42:1 45:2,9 45:24 46:13,25 47:7 50:9 55:22 68:2 70:13 74:5 76:12 77:4 81:8 83:15 90:20 93:8 97:19 98:10 101:25 103:20 104:9 105:6 106:18 107:23 113:8 116:12 125:3 129:21 136:8 138:17,19 139:10,22 140:1 145:14 151:18,19 155:14 161:7 161:11,16 168:2 170:9 170:23 172:8 186:20 188:8 193:22 194:7,8 196:3 197:20 200:25 208:20 220:21 224:5,17 225:15,25 226:10 228:13 237:8 throughout [11] 77:3 87:23 108:18,19 139:10 152:18 158:13,17 161:3 169:7 174:19 tied [6] 16:6 151:11,11 152:13 157:7 208:4 tight [3] 46:4,9 49:21 timeframe [6] 65:11</p>	<p>71:22 72:8 87:22 229:13 232:25 timeframes [1] 69:3 timeline [2] 122:22 123:2 times [6] 22:8 36:7 39:1 125:12 158:13,17 timing [3] 26:6 227:2 243:24 title [1] 232:17 today [6] 59:15 60:6 70:9 70:12 198:11 220:21 together [7] 71:13 73:23 84:22 125:24 132:23 160:25 193:10 too [7] 15:6 124:4 149:13 154:22 210:22 222:1 236:8 took [21] 9:20 18:2 23:10 23:22 45:11 50:15,19 78:2 82:1 88:6,22 89:5 149:24 150:1 175:5 176:19 177:4 206:15 211:7 225:16 232:24 tool [7] 28:6 85:17 126:7 165:1 194:13 195:21 196:6 tools [1] 21:12 top [2] 113:12 144:11 total [1] 190:25 touch [1] 139:13 toward [1] 96:16 towards [5] 21:16 26:15 35:6 75:9 194:15 track [12] 27:9 33:9 67:19 69:12 79:21 85:21 107:18 115:9 154:2 171:15 174:16 242:17 tracked [3] 34:11 183:2 184:9 tracking [12] 14:23 15:20 26:12 79:25 80:9 81:11 102:19 130:9 138:10 161:8 165:1 166:14 traffic [3] 234:6,9,9 transcribed [1] 245:7 transcript [7] 4:14 9:7 14:25 15:25 18:9 28:21 245:3 transfer [2] 10:9 232:17 transferred [2] 138:17 232:23 transform [1] 112:13 transformer [44] 35:12 35:15,25 38:19 110:6 112:1,10,13,16 113:4 138:12,17,22 141:23 142:4,7 143:1,20 145:6 145:11 146:5 148:9 165:25 166:2 175:21,22 176:4,14,18,21,25 177:9 177:25 178:1,8,10,25 179:8 180:2,9 182:1,3 198:3,8 transformers [61] 16:3 19:10 22:13 23:17 67:8</p>	<p>67:10,13,16 68:3,9,18 69:2,15 71:5 75:24 76:2 93:4 94:7 96:19 105:11 105:24 106:1 112:6,20 112:23 113:9,21,23 114:18,21,23 115:7,17 115:20,24 116:3,6,7,15 118:9 124:5,13 134:21 135:14 136:20,21 141:25 142:3 143:3 145:2,15 149:11,18 152:6 154:7 165:21 166:3 179:6 186:21 217:23 218:2 transmission [4] 15:18 60:13 72:18 112:15 transported [1] 206:16 transporting [1] 206:12 tremendous [1] 235:11 trigger [1] 91:15 triggered [2] 91:13 230:4 triggers [1] 91:12 tripped [2] 197:17,23 TRO [5] 72:18 81:22 147:19 148:10 204:7 trouble [1] 69:24 true [1] 245:2 try [10] 45:7 67:19 76:6 105:1 107:8 129:5 155:8 158:10 166:9 236:7 trying [16] 23:2 57:18 58:17 75:15 97:3 103:24 104:3,5,7 121:15 137:22 197:17 206:15 207:8 227:5 240:16 TS [1] 201:25 TS1 [2] 187:2,3 tune [1] 209:23 turbine [13] 3:23 18:5 152:14 162:13 171:17 172:9 190:14 191:14 227:9,12 228:12,15 232:10 turbines [4] 54:3 222:12 231:17 241:17 turn [3] 61:22 147:14 239:14 turned [1] 170:15 turnover [1] 139:21 twenty [1] 241:18 two [25] 9:11 23:12 25:25 36:13 38:5 39:19 112:11 113:15,21 114:5,14 119:11,16 132:2,7 136:5 143:10 149:11,21 187:7 197:24 198:12,16 200:4 202:4 two-fold [1] 46:15 two-year [1] 156:22 type [19] 2:18,23 4:1 46:10 109:12 116:9 119:6 119:13 125:4 139:1 155:4 159:10 182:5 204:25 205:3 212:3 215:8 222:8 222:14 types [5] 29:12 64:7</p>
<p>-T-</p>				
<p>T1 [15] 41:19 113:10,15 113:22 138:12 141:8 143:21 144:2,4 146:7,17 148:22 149:5 182:2,4 T2 [1] 113:25 T4 [2] 113:22 182:3 T5 [4] 35:12,14,23 39:2 table [9] 19:8 31:2 53:18 53:20 54:19 68:25 206:8 206:22 207:16 tackle [1] 135:22 tackling [2] 135:24 136:4 tactic [7] 133:23 135:18 141:15 143:11 147:8 218:16 219:24 tactics [7] 142:11 179:10 217:12,16 218:12,14 220:1 takes [4] 30:14 106:22 124:14,23 taking [6] 32:2 40:24 50:21 56:15 77:20 196:25 talks [1] 211:21 tank [1] 52:20 tap [11] 35:13,13,22,24 36:15 39:2 175:25 176:17 176:25 198:2,7 target [27] 22:16 23:25 24:2 33:4 34:25 35:2 77:8,13,19 78:12,25 79:4 79:10,20 81:19 82:20 100:1,13 101:22,23 131:17,20,21 204:13,23 236:13 237:1 targets [8] 25:9 78:9 85:7 89:9 103:1,11 127:5 129:14 team [10] 27:9 72:9,13</p>	<p>15:23 23:16 36:5 43:10 44:5 46:5 72:15,25 73:7 88:6,9,14,16 89:8 90:18 92:25 100:22 105:10 106:5,7 109:6 115:17 119:9 124:9,11,19 129:10 129:19 131:15 132:25 138:7,15 143:3 150:3 153:25 154:15,22,24 165:16 197:16 200:21 202:14 203:16 212:7 220:3 terminals [2] 141:24 158:16 terms [76] 4:4 6:1,14 34:3 41:16 59:22 60:4,6 61:13 65:19 69:1 71:10 73:17,20 75:12 77:13 83:15,21 89:21 90:8 92:5 95:22 98:8,11 99:17 100:6 103:12 106:22,24 112:5 114:3 118:6,8,11 119:23 120:6 122:21 125:8 128:13,14 136:12 139:14,14 158:6 171:6 172:11 175:23 179:13 180:23 182:22 183:17 186:9,22 187:25 191:10 195:24 197:4,9 199:16 202:19 205:15 211:16 214:1,4 218:6 221:18 222:24 226:23 229:13 230:6,15 231:13 234:20 235:7 237:18 242:8 Terry [4] 1:21 84:9 92:21 160:8 test [34] 22:4 24:11 25:14 25:25 26:17,19 45:25,25 46:14,15,17,18,24 47:1 51:23 52:1,5,6 65:9,16 132:3 150:20 151:4 153:12 155:21 157:2 179:15 180:1,16 194:17</p>	<p>195:9 218:25 219:8,9 tested [1] 37:22 testified [1] 64:14 testimony [10] 21:6 33:16 60:6 63:24 99:25 141:9 197:10 221:2,17 228:24 testing [9] 37:8 178:19 178:20,23 179:22,22,25 180:12,14 thank [4] 59:7,14 117:23 236:2 that'll [1] 32:8 themselves [3] 45:11 85:15 150:6 theoretically [1] 220:16 there'd [3] 68:14 114:24 114:25 therefore [1] 219:8 thinking [6] 2:14 26:15 105:19 198:21 199:7 227:23 third [3] 38:22 157:22 159:11 thorough [2] 110:20 227:14 thought [8] 41:24 54:25 105:2,23 127:24 193:16 228:25 234:12 three [21] 6:6 9:15 36:7 36:8,13 38:25 43:15 76:20 100:21 101:10 104:19 114:6 120:8,19 121:17,22 123:3 147:16 158:24 179:9 197:22 three-year [5] 120:10 120:11,16 121:22 132:8 threshold [1] 79:10 through [77] 4:21 7:3,4 8:3 13:12 14:19 18:7 19:17 27:13 29:19,21 33:10 38:21 42:1 45:2,9 45:24 46:13,25 47:7 50:9 55:22 68:2 70:13 74:5 76:12 77:4 81:8 83:15 90:20 93:8 97:19 98:10 101:25 103:20 104:9 105:6 106:18 107:23 113:8 116:12 125:3 129:21 136:8 138:17,19 139:10,22 140:1 145:14 151:18,19 155:14 161:7 161:11,16 168:2 170:9 170:23 172:8 186:20 188:8 193:22 194:7,8 196:3 197:20 200:25 208:20 220:21 224:5,17 225:15,25 226:10 228:13 237:8 throughout [11] 77:3 87:23 108:18,19 139:10 152:18 158:13,17 161:3 169:7 174:19 tied [6] 16:6 151:11,11 152:13 157:7 208:4 tight [3] 46:4,9 49:21 timeframe [6] 65:11</p>	<p>71:22 72:8 87:22 229:13 232:25 timeframes [1] 69:3 timeline [2] 122:22 123:2 times [6] 22:8 36:7 39:1 125:12 158:13,17 timing [3] 26:6 227:2 243:24 title [1] 232:17 today [6] 59:15 60:6 70:9 70:12 198:11 220:21 together [7] 71:13 73:23 84:22 125:24 132:23 160:25 193:10 too [7] 15:6 124:4 149:13 154:22 210:22 222:1 236:8 took [21] 9:20 18:2 23:10 23:22 45:11 50:15,19 78:2 82:1 88:6,22 89:5 149:24 150:1 175:5 176:19 177:4 206:15 211:7 225:16 232:24 tool [7] 28:6 85:17 126:7 165:1 194:13 195:21 196:6 tools [1] 21:12 top [2] 113:12 144:11 total [1] 190:25 touch [1] 139:13 toward [1] 96:16 towards [5] 21:16 26:15 35:6 75:9 194:15 track [12] 27:9 33:9 67:19 69:12 79:21 85:21 107:18 115:9 154:2 171:15 174:16 242:17 tracked [3] 34:11 183:2 184:9 tracking [12] 14:23 15:20 26:12 79:25 80:9 81:11 102:19 130:9 138:10 161:8 165:1 166:14 traffic [3] 234:6,9,9 transcribed [1] 245:7 transcript [7] 4:14 9:7 14:25 15:25 18:9 28:21 245:3 transfer [2] 10:9 232:17 transferred [2] 138:17 232:23 transform [1] 112:13 transformer [44] 35:12 35:15,25 38:19 110:6 112:1,10,13,16 113:4 138:12,17,22 141:23 142:4,7 143:1,20 145:6 145:11 146:5 148:9 165:25 166:2 175:21,22 176:4,14,18,21,25 177:9 177:25 178:1,8,10,25 179:8 180:2,9 182:1,3 198:3,8 transformers [61] 16:3 19:10 22:13 23:17 67:8</p>	<p>67:10,13,16 68:3,9,18 69:2,15 71:5 75:24 76:2 93:4 94:7 96:19 105:11 105:24 106:1 112:6,20 112:23 113:9,21,23 114:18,21,23 115:7,17 115:20,24 116:3,6,7,15 118:9 124:5,13 134:21 135:14 136:20,21 141:25 142:3 143:3 145:2,15 149:11,18 152:6 154:7 165:21 166:3 179:6 186:21 217:23 218:2 transmission [4] 15:18 60:13 72:18 112:15 transported [1] 206:16 transporting [1] 206:12 tremendous [1] 235:11 trigger [1] 91:15 triggered [2] 91:13 230:4 triggers [1] 91:12 tripped [2] 197:17,23 TRO [5] 72:18 81:22 147:19 148:10 204:7 trouble [1] 69:24 true [1] 245:2 try [10] 45:7 67:19 76:6 105:1 107:8 129:5 155:8 158:10 166:9 236:7 trying [16] 23:2 57:18 58:17 75:15 97:3 103:24 104:3,5,7 121:15 137:22 197:17 206:15 207:8 227:5 240:16 TS [1] 201:25 TS1 [2] 187:2,3 tune [1] 209:23 turbine [13] 3:23 18:5 152:14 162:13 171:17 172:9 190:14 191:14 227:9,12 228:12,15 232:10 turbines [4] 54:3 222:12 231:17 241:17 turn [3] 61:22 147:14 239:14 turned [1] 170:15 turnover [1] 139:21 twenty [1] 241:18 two [25] 9:11 23:12 25:25 36:13 38:5 39:19 112:11 113:15,21 114:5,14 119:11,16 132:2,7 136:5 143:10 149:11,21 187:7 197:24 198:12,16 200:4 202:4 two-fold [1] 46:15 two-year [1] 156:22 type [19] 2:18,23 4:1 46:10 109:12 116:9 119:6 119:13 125:4 139:1 155:4 159:10 182:5 204:25 205:3 212:3 215:8 222:8 222:14 types [5] 29:12 64:7</p>

<p>108:9 220:13,17 typically [7] 45:15 65:14 68:9 117:10 130:14 148:5 158:20</p>	<p>92:6 98:10 99:19 100:5 101:7,25 105:2,8,20,23 110:19 112:14 115:9 116:1 121:16,18,23 123:2 128:17 129:5 131:5,7 133:2 135:6 137:10 138:1 138:3 140:20 141:13 142:11,15 148:10 151:11 151:11 152:13,17 157:8 157:14 159:18 161:23 163:23 164:11 170:5 172:14,17 178:19,23 179:22,25 180:13,16 184:14,22,22 186:17 189:8,9 195:16 196:3 198:2,6 201:24 204:20 205:22 208:4,5 214:5 215:2,14 218:14,24 219:13 222:14 223:6 228:3 231:13 233:15 235:21 238:11,22</p>	<p>vintage [2] 162:18 177:10 virtue [2] 89:2,14 visibility [2] 131:21 196:12 visible [1] 103:12 visit [1] 72:5 visual [3] 124:12 125:4 200:20 volt [1] 9:11 voltage [5] 10:2 36:12 67:13 112:15 157:23 volume [9] 18:21 42:24 135:10 149:23 152:19 170:14 171:5,17 173:21</p>	<p>whole [4] 106:12 226:13 228:15 234:10 wider [1] 243:19 wind [2] 46:10 222:13 windings [2] 35:16 198:3 window [1] 10:14 winds [1] 44:9 winter [20] 6:8 34:24 45:5 49:14 156:8,17 158:1 161:3,13,22 163:12 163:14 171:3,16 172:22 173:4,11,20 174:1 200:14 winters [1] 45:9 within [10] 27:8 34:22 89:6 107:20 140:23 177:3 196:12 231:19 235:14 243:4 without [2] 36:7 114:3 wonder [6] 9:6 142:15 177:19 205:21 214:1 231:13 wondered [1] 235:22 wondering [6] 100:4 104:22 149:8 193:22 199:19 236:24 word [4] 7:20 48:23 90:13 199:10 words [1] 117:25 worked [4] 37:5 38:16 93:8 161:7 works [1] 86:6 workshop [2] 224:5 225:19 WorleyParsons [3] 224:7 225:25 226:3 worsened [1] 240:7 worth [1] 131:11 writing [2] 31:12 196:3 written [4] 29:9 34:7 90:8,11 wrong [3] 207:17 227:21 227:23</p>	<p>91:16,23 92:11,24 93:14 95:6 96:1,23 97:1,17 100:11 106:20 107:22 108:4,6,8,18,20 109:1,3 109:11,16 110:6,10 111:16 114:21 115:7,22 115:25 116:4,5 117:4,11 120:20 122:3 123:11,19 123:23 128:10 130:18,21 131:8,17 134:7 135:6,17 136:3,16,23 137:3,5,6,9 138:2,3,12,13,22 139:10 139:23,25 140:9,19 141:19,25 142:3 147:11 149:3,15,19,22,24 150:17 150:20 151:10,18,19,22 152:18 153:12 154:17 155:21 157:2,20 158:5,8 161:6,7,10,11 163:10,23 164:25 165:11 166:1,7 167:11 168:2,7,9,11 169:7 170:5,21 172:6,12 173:22 174:17,19 175:3 175:12,17 176:5,10 180:8 180:23 181:8 182:20,25 184:1,2,14,15,19 185:2 185:5,24 187:21 190:12 191:1,11 194:17 195:9 198:13,25 200:7,9 201:10 202:4,13,21,24 203:2,14 203:24 204:2,7,13 205:15 216:2 217:2 218:13,25 219:8,10,12 227:21,23 227:25 235:8 236:13 240:4,13,16,25 year's [1] 122:12 yearly [1] 93:7 years [67] 6:6 7:25 12:8 12:18,18 16:24 19:21 20:4 21:25 22:11 23:12 24:7,12 25:14,25 33:4 39:6,19 43:3 46:7 49:1 49:19 52:2 64:24 65:14 65:20,24 66:5,6 100:21 101:10 104:19 110:8 114:7,12 116:25 120:8 120:13 121:8,17,19,23 121:24 123:3 129:18,21 130:3 132:3,10 133:14 134:6 135:11 140:11 143:10 151:4 154:5,12 158:5 163:19 165:24 178:14 179:10 187:8 198:12,16 200:4 214:3 yesterday [28] 2:2,4 4:7 4:14 8:21 9:5,8 11:15 13:19 14:11,25 15:17 17:12 18:8,9 22:21 23:9 27:2 28:21 29:8 32:10 35:24 37:15 60:6 69:1 78:2 223:22 228:25 yourself [1] 76:22</p>
-U-				
<p>UFOP [1] 241:16 Uh-hm [1] 22:24 ultimate [1] 59:22 ultimately [2] 60:2,24 unable [1] 55:2 unavailability [1] 237:12 unavailable [5] 53:12 53:22 54:21 55:25 56:11 unbudgeted [2] 163:6 165:9 under [6] 60:20 62:3 116:25 141:23 188:4 238:19 underestimated [1] 171:6 undergone [1] 176:4 understand [28] 6:25 20:18 22:7 23:2 33:16 33:17 35:12,16 39:4,10 42:4 48:13 54:22 70:9 75:1,12 90:4 94:9 105:16 122:20 126:9 128:13 132:16 164:19 178:18 209:10,10 219:16 understated [1] 242:12 understood [14] 17:4 22:19 89:16 95:13 96:12 100:20 133:13 169:4,7 197:11 221:2,16 222:24 228:24 undertake [3] 82:25 83:5 180:25 undertook [1] 173:24 underwent [1] 106:24 union [1] 155:3 unit [41] 2:13,18,21,23 3:3,5,8,12 4:1 7:5,14 9:6 53:11 54:6,12,12,18,21 56:11 112:11,12,14,18 113:15 114:1,5 120:25 138:11 160:1 162:18,19 163:11 171:2 175:5 179:21 180:15 228:16 234:20,24 238:7 242:18 units [8] 2:23 5:1,16,17 7:12,13 53:21 241:10 unknown [2] 17:20 28:11 unless [2] 47:12 68:15 unlikely [1] 10:13 unplanned [3] 17:24,25 21:22 up [107] 4:23 6:24 7:14 9:7 10:6 12:16 14:3 18:12 25:2 27:19 32:3 36:9 37:9 41:25 47:16 48:10 50:3 56:16 61:24 68:24 71:9 79:25 80:9 80:11 85:12 87:2 89:23</p>	<p>upcoming [3] 13:23 16:7 91:14 update [5] 33:18,25 34:15 81:7 241:3 updates [8] 96:7,10 98:9 174:21 175:8 191:16 208:18 209:20 updating [2] 210:12,13 upset [1] 235:19 urgent [4] 20:2 27:1 28:18 50:22 used [8] 8:17 32:11 85:18 119:18 120:2 146:21 242:9,10 uses [2] 237:17,25 using [7] 7:19 57:12 65:15 113:2,9 158:6 240:18 utilities [11] 65:3,13,15 66:15,17 151:3 153:12 194:16 195:11 227:11 245:6 utility [3] 62:5,10 64:6</p>	<p>vintage [2] 162:18 177:10 virtue [2] 89:2,14 visibility [2] 131:21 196:12 visible [1] 103:12 visit [1] 72:5 visual [3] 124:12 125:4 200:20 volt [1] 9:11 voltage [5] 10:2 36:12 67:13 112:15 157:23 volume [9] 18:21 42:24 135:10 149:23 152:19 170:14 171:5,17 173:21</p>	<p>wait [1] 193:22 waiting [1] 108:14 walk [1] 47:6 walked [1] 72:6 warehousing [1] 60:18 warranted [1] 117:9 watch [1] 126:20 watching [1] 99:6 water [4] 44:9 49:21 51:7 235:5 waterproof [1] 210:2 WAV [2] 189:7 201:24 ways [1] 78:5 weary [2] 59:4,6 weather [13] 34:21 38:6 44:6 45:3 46:3,9 48:10 58:8 61:7 138:9,23 205:21 210:4 weather-proof [1] 213:2 weather-tight [1] 212:10 week [6] 22:21 34:18,19 196:2 236:11 237:4 weekly [13] 33:7 34:7,11 34:15,17 61:1 79:23 80:1 81:15 99:9 165:1,4 169:20 weeks [2] 206:17 231:10 west [2] 148:21 162:14 Western [8] 35:11 36:4 38:24 40:15 41:11 148:21 189:7 197:15 Whereas [1] 113:25 Whitbourne [52] 68:4 114:17,25 115:16 116:19 116:24 117:1 123:7 136:22 141:24 145:3,12 148:25 149:3,15,18,22 150:8,9,16 151:10 152:20 152:22 157:7,12 160:15 160:19,24 164:4,16 166:1 166:5,16 167:15,15,20 168:9,14 171:7 175:4,12 187:11,24,25 188:4 189:6 191:5 201:19 203:10,22 206:21 208:4</p>	<p>without [2] 36:7 114:3 wonder [6] 9:6 142:15 177:19 205:21 214:1 231:13 wondered [1] 235:22 wondering [6] 100:4 104:22 149:8 193:22 199:19 236:24 word [4] 7:20 48:23 90:13 199:10 words [1] 117:25 worked [4] 37:5 38:16 93:8 161:7 works [1] 86:6 workshop [2] 224:5 225:19 WorleyParsons [3] 224:7 225:25 226:3 worsened [1] 240:7 worth [1] 131:11 writing [2] 31:12 196:3 written [4] 29:9 34:7 90:8,11 wrong [3] 207:17 227:21 227:23</p>
-W-				
<p>Vale [3] 202:13,15 203:17 validate [3] 177:10,11 199:8 validation [1] 65:5 value [3] 181:11,16 185:3 valve [2] 52:19,21 various [1] 61:6 vary [1] 242:14 vegetation [4] 60:17 127:7,10,13 vendors [1] 10:12 Ventyx [5] 238:12,25 239:6,9 242:2 verbal [7] 33:18,24 80:13 80:20 81:9 208:18 209:20 versus [7] 16:18 25:1,8 30:1 34:16 35:24 187:10 vice [1] 221:12 view [3] 57:16 65:8 219:6</p>	<p>wait [1] 193:22 waiting [1] 108:14 walk [1] 47:6 walked [1] 72:6 warehousing [1] 60:18 warranted [1] 117:9 watch [1] 126:20 watching [1] 99:6 water [4] 44:9 49:21 51:7 235:5 waterproof [1] 210:2 WAV [2] 189:7 201:24 ways [1] 78:5 weary [2] 59:4,6 weather [13] 34:21 38:6 44:6 45:3 46:3,9 48:10 58:8 61:7 138:9,23 205:21 210:4 weather-proof [1] 213:2 weather-tight [1] 212:10 week [6] 22:21 34:18,19 196:2 236:11 237:4 weekly [13] 33:7 34:7,11 34:15,17 61:1 79:23 80:1 81:15 99:9 165:1,4 169:20 weeks [2] 206:17 231:10 west [2] 148:21 162:14 Western [8] 35:11 36:4 38:24 40:15 41:11 148:21 189:7 197:15 Whereas [1] 113:25 Whitbourne [52] 68:4 114:17,25 115:16 116:19 116:24 117:1 123:7 136:22 141:24 145:3,12 148:25 149:3,15,18,22 150:8,9,16 151:10 152:20 152:22 157:7,12 160:15 160:19,24 164:4,16 166:1 166:5,16 167:15,15,20 168:9,14 171:7 175:4,12 187:11,24,25 188:4 189:6 191:5 201:19 203:10,22 206:21 208:4</p>	<p>wait [1] 193:22 waiting [1] 108:14 walk [1] 47:6 walked [1] 72:6 warehousing [1] 60:18 warranted [1] 117:9 watch [1] 126:20 watching [1] 99:6 water [4] 44:9 49:21 51:7 235:5 waterproof [1] 210:2 WAV [2] 189:7 201:24 ways [1] 78:5 weary [2] 59:4,6 weather [13] 34:21 38:6 44:6 45:3 46:3,9 48:10 58:8 61:7 138:9,23 205:21 210:4 weather-proof [1] 213:2 weather-tight [1] 212:10 week [6] 22:21 34:18,19 196:2 236:11 237:4 weekly [13] 33:7 34:7,11 34:15,17 61:1 79:23 80:1 81:15 99:9 165:1,4 169:20 weeks [2] 206:17 231:10 west [2] 148:21 162:14 Western [8] 35:11 36:4 38:24 40:15 41:11 148:21 189:7 197:15 Whereas [1] 113:25 Whitbourne [52] 68:4 114:17,25 115:16 116:19 116:24 117:1 123:7 136:22 141:24 145:3,12 148:25 149:3,15,18,22 150:8,9,16 151:10 152:20 152:22 157:7,12 160:15 160:19,24 164:4,16 166:1 166:5,16 167:15,15,20 168:9,14 171:7 175:4,12 187:11,24,25 188:4 189:6 191:5 201:19 203:10,22 206:21 208:4</p>	<p>without [2] 36:7 114:3 wonder [6] 9:6 142:15 177:19 205:21 214:1 231:13 wondered [1] 235:22 wondering [6] 100:4 104:22 149:8 193:22 199:19 236:24 word [4] 7:20 48:23 90:13 199:10 words [1] 117:25 worked [4] 37:5 38:16 93:8 161:7 works [1] 86:6 workshop [2] 224:5 225:19 WorleyParsons [3] 224:7 225:25 226:3 worsened [1] 240:7 worth [1] 131:11 writing [2] 31:12 196:3 written [4] 29:9 34:7 90:8,11 wrong [3] 207:17 227:21 227:23</p>	<p>year's [1] 122:12 yearly [1] 93:7 years [67] 6:6 7:25 12:8 12:18,18 16:24 19:21 20:4 21:25 22:11 23:12 24:7,12 25:14,25 33:4 39:6,19 43:3 46:7 49:1 49:19 52:2 64:24 65:14 65:20,24 66:5,6 100:21 101:10 104:19 110:8 114:7,12 116:25 120:8 120:13 121:8,17,19,23 121:24 123:3 129:18,21 130:3 132:3,10 133:14 134:6 135:11 140:11 143:10 151:4 154:5,12 158:5 163:19 165:24 178:14 179:10 187:8 198:12,16 200:4 214:3 yesterday [28] 2:2,4 4:7 4:14 8:21 9:5,8 11:15 13:19 14:11,25 15:17 17:12 18:8,9 22:21 23:9 27:2 28:21 29:8 32:10 35:24 37:15 60:6 69:1 78:2 223:22 228:25 yourself [1] 76:22</p>
-Y-				
				<p>yard [16] 9:13 10:8 44:12 45:23 46:4 49:22 113:22 138:9 147:1 161:20 206:23 207:6 210:7 211:5 211:10 212:13 year [252] 6:9,10,11 11:20,22,25 13:4,14,14 13:22,23 14:1,3,7,9,15 14:20,21 15:22 16:7,13 16:22 17:10 18:3 19:17 19:21,24 20:5,10 21:20 21:25 22:3,4 23:12 24:2 24:7,8,10,15,19 25:11 25:15,18,19,21,22,24 26:17,19 28:1,4 34:23 34:24 35:9 38:14 39:24 40:8,14,22 42:19 43:22 47:18 60:8,23 61:1,2 68:10,15,16,18 69:3 71:2 71:7 72:21 73:21 74:11 75:10,25 76:1,2,3 77:3 77:11,20 90:19 91:4,14</p>
-Z-				
				<p>zones [1] 159:7</p>