

1 we need it.

2 MS. WHEELER: Okay.

3 MR. G. BENNETT: So that door is
4 there. They have an obligation to provide the
5 service, and we expect to get that.

6 MS. WHEELER: So now -- this is a
7 really broad question now. If this does go through
8 -- if everything proceeds to regulatory approval
9 and a decision is being made now by Nalcor and the
10 Province as to whether you're going to actually
11 move forward with this project, how -- economics
12 aside -- like, we all know the business case, but
13 economics aside, is there any other factors that
14 you're going to be considering if this -- like to
15 sanction this project, are any of these
16 considerations that are coming through on this
17 panel going to be considered?

18 MR. G. BENNETT: Well certainly
19 the outcome of the environmental assessment process
20 recommendations that are made by the panel,
21 conditions that are applied by the appropriate
22 regulators at the federal and provincial level, I
23 mean, those are -- those have to be considered in
24 our planning and they'll be an important part of
25 our planning moving forward, no question about

1 that.

2 And the other issues around us
3 that unfold, you mentioned the potential for some
4 other demands, those will all have to be factored
5 into our thinking. I mean, it's an important --
6 those are definitely important considerations. And
7 certainly any obligations for continued monitoring
8 and adaptive management are fundamentally part of
9 our planning.

10 The other thing I can add there is
11 that our consultation efforts will continue. As we
12 move to a different phase of the project we will
13 continue to be in the community, we will be
14 continuing to with community groups, with
15 individuals, with stakeholders, with Aboriginal
16 groups and continuing our planning.

17 So if we look at sort of the
18 consultation continuum that is ongoing through this
19 process, into our further detailed planning, into
20 construction and into operation.

21 So on the multiple work plans and
22 work phases that we have for the project, be it
23 environmental or Aboriginal consultation, our
24 engineering, procurement, construction activities,
25 those are all important reasons for us to continue

1 to work with the community, and also our commercial
2 work with other developers as they advance their
3 plans in the region.

4 So, yeah, I think we'll be here
5 for a long time.

6 CHAIRPERSON GRIFFITHS: Thank you
7 very much, Ms. Wheeler.

8 Now, we're going to -- I'm sorry,
9 I know it's one o'clock and you've been sitting a
10 long time, but we do need to just finish off by
11 allowing the panel to ask a few more questions to
12 wrap up.

13 CHAIRPERSON CLARKE: There's two
14 areas of questions that maybe you could help me
15 better understand. That would be my question; can
16 you better help me understand those two areas.

17 One is that I understand that the
18 utility and the way you're looking at this is that
19 in terms of satisfying the island you need to have
20 the least-cost alternative. And I have difficulty
21 understanding in any least-cost alternative that
22 doesn't include the really cheap power from
23 Churchill Falls after 2041 being factored into the
24 system, like it's two or three mills or something
25 like that.

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1 So maybe you could -- can you help
2 me better understand that one?

3 And the second one is related to
4 one of the questions that was asked earlier, and
5 this has to do with the access through Quebec,
6 because, as I understand it, the Gull Island
7 project on a per unit basis is hands down a cheaper
8 generating source than the Muskrat Falls one.

9 And if you were sure about having
10 the export through -- export access through Quebec
11 for Gull Island, then obviously Gull Island would
12 be a much cheaper alternative for the province than
13 Muskrat Falls.

14 So it has to be related to the
15 timing and the confidence that one has with respect
16 to the access through the west.

17 That's my understanding, so if you
18 -- again, if you can help me better understand that
19 dilemma, that would help, too.

20 MR. G. BENNETT: All right.
21 Thanks for those.

22 I'll try to put some context
23 around the 2041 situation.

24 I guess if we look at the energy
25 that's being sold from Churchill Falls today and if

1 we look at sort of the total portfolio, it's under
2 contract right now. In 2041, we could pull it
3 back. We could continue to sell it to Hydro
4 Quebec. There could be a different price.

5 But I guess where I'm going with
6 that is that the 30 terawatt hours that are
7 currently exported from Churchill Falls are
8 committed to a market. And whether, you know, you
9 switch -- you know, you switch production from
10 Churchill Falls to domestic and you export Muskrat
11 Falls, because you'd still look at the demand in
12 the marketplace and say yes, at that point in time,
13 given the importance of that Churchill Falls
14 facility as an export opportunity, yeah, you might
15 in the context of redistributing benefits -- you
16 may say, okay, well, I'll take some Churchill Falls
17 power back and use that domestically.

18 But then you've created an
19 opportunity to sell Muskrat or Gull Island into the
20 other market. So I think maybe it's not a question
21 of reducing the size of the pie, but just putting
22 different pieces in different places.

23 The value proposition from the
24 total portfolio would still be the same.

25 CHAIRPERSON CLARKE: Yes. But

1 that was exactly my point, that in terms of having
2 the least cost for the Newfoundland consumer, which
3 was the ---

4 MR. G. BENNETT: Right.

5 CHAIRPERSON CLARKE: --- outcome
6 we've been talking about, it would seem to be a lot
7 better to sell relatively expensive Muskrat Falls
8 power somewhere else and have relatively cheaper
9 power from Gull Island.

10 MR. G. BENNETT: Okay. But ---

11 CHAIRPERSON CLARKE: From
12 Churchill Falls.

13 MR. G. BENNETT: From Churchill.
14 That might happen, but the market values in both
15 places probably end up with the same margin.

16 The other point, I guess, is that
17 Muskrat Falls would be close to being -- you know,
18 its financing would be close to being paid off at
19 that point in time as well. So we look at a 30-
20 year financing period, you're getting to the point
21 where Muskrat Falls is almost paid down as well.

22 So it -- you know, again, we get
23 back to that distribution of benefits. Does the
24 province want to say well, you know, we like that
25 return on equity and we're going to continue that

1 to provide a conservation signal or do you say,
2 okay, well, you know, we're going to take it right
3 back down to, you know, the fully-recovered cost.

4 So I think where I'm going is that
5 the benefits are still there. It's just a question
6 of how they're distributed between ratepayers and
7 taxpayers.

8 And I guess the -- you know, sort
9 of the question on Muskrat versus Gull, yeah, I
10 mean, I think it's fair to say that if the
11 transmission access for -- you know, through Hydro
12 Quebec were there right now and you could see that
13 path today, we'd say, yes, you know, probably Gull
14 has attractive unit costs and we may want to go in
15 that direction.

16 But it's a trade-off between, you
17 know, the continuing to plan and having certainty.
18 And Muskrat -- you know, Muskrat is a good project.
19 There's no question about that.

20 Its costs, its unit costs, are not
21 far off Gull Island. I'd characterize Gull as a
22 great project from a cost perspective.

23 But you know, on the other hand,
24 Muskrat Falls is a shorter construction period,
25 requires a smaller capital expenditure at this

1 point in time compared to Gull, and there's a
2 school of thought that says it's okay to, you know,
3 take the smaller piece and then take the larger
4 project a little bit later.

5 But it is a bit of a trade-off
6 between having, you know, certainty and being in a
7 position where we actually have the -- all the
8 requisite conditions for Muskrat comparing to
9 continue to advance our planning activity, you
10 know, in light of the bigger Gull Island one.

11 If you defer -- you know, as you
12 continue to defer the project, though, you may find
13 that the economic advantage that Gull has begins to
14 get diminished because you're -- you know, you're
15 still continuing to spend on fuel for Holyrood and
16 you're -- you'll be later, you know, replacing that
17 cost on the other side.

18 CHAIRPERSON CLARKE: Okay, thank
19 you.

20 MEMBER JONG: I've got one last
21 question, and this is -- really, it's for me to
22 help me figure out something that I suspect is very
23 straightforward, so -- and it's not really tied to
24 what we've been talking about today, but it's been
25 bothering me all the length of this.

1 It's the change in the
2 transmission lines from the original plan to the
3 new plan. They're bigger and there are of more
4 them, and I don't understand why.

5 MR. HUMPHRIES: Okay. When we
6 look at the transmission configuration between --
7 with the 3,000 megawatt development, which would be
8 Muskrat and Gull, there's no question we need a 735
9 transmission link to get that amount of power to
10 move it west.

11 As we look at the smaller 824
12 megawatt Muskrat, we still need a connection
13 between Churchill Falls and Muskrat Falls, but the
14 amount of power that we will be moving will be
15 less.

16 So we do not require the 735, but
17 we do require two circuits to cover off the event
18 when we lose one circuit. We have to maintain a
19 link between Churchill Falls and Muskrat for system
20 stability reasons to ensure that we don't have a
21 contingency shutdown on the system.

22 So when we look at the economics
23 of two 345-kV lines as opposed to two 735-kV lines,
24 it's cheaper to pre-build the -- at 345 and upgrade
25 to 735 in the future if needed or add additional

1 345 kV circuits.

2 MEMBER JONG: I guess I had --
3 originally it was -- there was one 231 for Muskrat
4 to Gull Island and one 735 one from Gull Island to
5 Churchill Falls.

6 MR. HUMPHRIES: Yeah, well, that
7 was when -- yes, to move Muskrat Falls up to Gull
8 Island. At that stage, the converter station and
9 all coming to the island would be at Gull Island as
10 opposed to Muskrat Falls. And for that short
11 distance, you could move that amount of power over
12 230 kV lines.

13 But when we look at the connection
14 all the way back to Churchill Falls, 230 kV is not
15 an option.

16 MEMBER JONG: All right.

17 Thank you.

18 CHAIRPERSON GRIFFITHS: Okay.
19 I've just got a couple of I think very quick
20 questions, and I think Mr. Clarke has a question on
21 a totally different issue, but a quick one.

22 So my two questions are -- my
23 first one is about tidal. Mr. Bennett, you've
24 dismissed it rather out of hand, I thought.

25 Do you want to qualify that at all

1 in terms of when you think -- whether you think at
2 some point you could have some interest in tidal?

3 Is it because you think that tidal
4 -- you believe tidal is not ready right now that
5 you're dismissing it, or -- if you could just give
6 me a little bit more sense -- know a little bit
7 about what's going on in Nova Scotia and other
8 places with regard to demonstration.

9 Clearly there have been some
10 problems, but also some successes.

11 MR. G. BENNETT: And I would agree
12 that, you know, that there are -- you know, we're
13 seeing both sides of it.

14 I guess the challenge is when we
15 look at hydro projects in general that are well
16 established as technology and I think, you know,
17 fundamentally, we look to the basic physics of the
18 hydro facilities, you know, we're interested in a
19 couple of things.

20 We're interested in flow and we're
21 interested in head of water available. And that's
22 a direct function to the power that's produced.

23 So in that light, you know, we're
24 sitting here with two excellent hydro projects.
25 And I think that in the longer term, these other --

1 and I know that there's been, you know, a
2 considerable amount of frustration expressed
3 through this proceeding in terms of our view of
4 other alternatives.

5 And when we look at it from an
6 engineering perspective from the standards of
7 reliability that are expected in the business, the
8 economic pressures, the price expectations that all
9 of our customers have and all of our markets have,
10 you know, we look at, I guess, a couple of things.

11 First of all, when we make
12 technology decisions even in respect of this
13 project, we are -- we take a very conservative view
14 to proven and reliable technologies, and that's an
15 important part of our thinking.

16 And I think that, you know, if I
17 turn to Mr. Henderson and Mr. Humphries, they would
18 say that those are important reasons why we keep
19 the lights on. Generally speaking, we take a very
20 conservative view to -- you know, to all aspects of
21 the business.

22 And you know, for example, our
23 loss of load hours in the generation expansion plan
24 is a very conservative number. It's somewhat less
25 than three hours a year, which, on its face,

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1 doesn't sound like very much, but it's sort of
2 representative of our view of the business.

3 You know, wind is frustrating
4 because it doesn't blow at the exact right times.

5 So it will be important for us to
6 see a track record. And I would agree that if you
7 look at the Strait of Belle Isle, I mean the
8 currents in the Strait of Belle Isle are fairly
9 significant. There's a good current there. But is
10 it at the point where it can displace either of
11 these projects for small hydro, I think that
12 remains to be seen.

13 Certainly look at all of those
14 renewables; they are in the energy plant. They are
15 there as opportunities. The province would
16 certainly say if those are good resources to
17 develop and they compete on an economic footing
18 with wind or small hydro, whatever else is
19 available because we have interconnection and
20 greater storage in the system. I look at those as
21 definitely opportunities.

22 But I guess we take a conservative
23 view today when we look at and we're trying to say
24 okay, how do they compare to the project that we're
25 advancing here and how do they stack up against

1 Lower Churchill, and in that light, we're not there
2 yet, and I think that was probably the message that
3 we're trying to deliver.

4 We're certainly not ruling them
5 out as opportunities. They're covered in the
6 energy plan. If you look at that energy warehouse
7 graphic that we've used in a couple of
8 presentations, they're on there and they will be
9 looked at, but just sort of in the economic
10 hierarchy and the feasibility hierarchy, technical
11 and operational, hydro, large-scale hydro with
12 access to storage is front and centre and then the
13 others, the others fit into the portfolio.

14 So hopefully that can put some
15 context around that.

16 CHAIRPERSON GRIFFITHS: Thanks.

17 My second question is line loss.
18 Mr. Hull, I think you talked about line loss when
19 you were talking about the cost of repairs and you
20 said five percent loss -- line loss that would have
21 to be factored into the cost.

22 Can you tell me, give me -- just
23 tell me a little bit about how line loss is
24 proportional to length of line? Is there a nice
25 handy little thing that you can ---

1 MR. G. BENNETT: I might start and
2 then we'll get Mr. Humphries on this one. But
3 certainly it is proportional to the distance. It
4 is also a function of the conductor size that we
5 use on the transmission line.

6 Generally speaking DC transmission
7 is more efficient than AC transmission, but you
8 incur some incremental losses in the converters
9 when you go from AC to DC and from DC back to AC.

10 So the long and the short of it is
11 that it's an aspect of the transmission system. It
12 is optimized. You look at the cost of energy, you
13 look at the value of that energy and you compare it
14 to the capital cost of increasing the capacity of
15 the system.

16 That's one of the reasons why for
17 longer distance generally you increase the voltage.
18 It's one important way to reduce the current and
19 therefore reduce the losses.

20 It's -- five percent is probably
21 not an unusual number. If we look at the Hydro
22 Quebec system, for example, that's the kind of
23 number that they see in Hydro Quebec trans-energy
24 system. So from generator to the delivery point in
25 their system, they would see about five percent

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