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Thursday, November 1, 2012
Upon commencing at 1:00 p.m.
THE CHAIRMAN: Good afternoon. We've had various technological problems, in the end, all of them relatively minor, or at least solvable, and they appear to be solved for now. So we will reconvene. We are continuing with where we left off yesterday, which was cross-examination of the panel on caribou and moose.
And Mr. Williams, it's over to you. And we hope, as we noted yesterday, that your questions are succinct, direct and to the point, and that responses will be the same.
MR. WILLIAMS: Were you making an observation, Mr. Chairman, or a hope?
THE CHAIRMAN: Probably the latter.
MR. WILLIAMS: Thank you, Mr. Chairman. Ms. Desorcey is here this afternoon, and she recognizes that the CEC staff have been putting in a lot of extra hours, so she has asked me to extend, on behalf of CAC Manitoba their appreciation to Ms. Mueller and Ms. Johnson for the late nights and the assistance that they have provided to all participants, which is

appreciated.

THE CHAIRMAN: Thank you. I can assure you that if they weren't doing that, we wouldn't be here.

MR. WILLIAMS: Yes, we have received many late night e-mails, and certainly our clients are appreciative.

Good afternoon, Mr. Chair and members of the panel, and good afternoon Dr. Rettie and Mr. Schindler.

Dr. Rettie, if I could just ask you to pull out the CAC document, Exhibit 4, and go to the page numbered 53 in the top right-hand corner?

MR. RETTIE: I have got it.

MR. WILLIAMS: Okay. And Mr. Chair, I may have neglected to give one of these to my client, so I'll be right back.

And, Dr. Rettie, this is an excerpt, we can agree that this is an excerpt from your supplemental caribou technical report of August?

MR. RETTIE: Yes.

MR. WILLIAMS: Okay. And towards the bottom of that page, we see a case study before and after Wuskwatim transmission line construction results; is that right, sir?

MR. RETTIE: That's what I see here, yes.

MR. WILLIAMS: And this was essentially, in table 29 you are presenting information related to the number of animals involved in the point density analysis for the case study; agreed?

MR. RETTIE: Yes, that's what it appears to show.

MR. WILLIAMS: Is there any doubt, sir, you were the primary author of this report?

MR. RETTIE: I wasn't the primary author of this section at all, no.

MR. WILLIAMS: Who was?

MR. RETTIE: Mr. Schindler.

MR. WILLIAMS: Okay. You did the regression models, we'll come to those in a second.

So, Mr. Schindler, if you want to answer these questions, please feel free.

Just in terms of the animals involved in the summer pre-construction point density analysis, I would be correct in suggesting that the total was two?

MR SCHINDLER: Yes.

MR. WILLIAMS: And if we're going to jump to the winter pre-construction point density analysis, there was a total of three; agreed?

MR. SCHINDLER: Agreed.

MR. WILLIAMS: And with a sample of that size, we can agree that the samples would have very high standard errors because of their size; agreed?

MR. RETTIE: No, I wouldn't think so. A smaller sample should have a fairly tight confidence interval. When you're down to two or three it's --

MR. WILLIAMS: Sir, you wouldn't agree then that you would have very large confidence intervals?

MR. RETTIE: Not intuitively, I would have to see the data. But with only two samples, if they were similar, they'd be very small. Normally, with an increasing sample size you would see a smaller confidence interval, but when you're down to two, it could be huge, it could be tiny.

MR. WILLIAMS: Just following that along, sir, am I to take it from your answer that you would recommend only using a sample size this small?

MR. RETTIE: No, I wouldn't.

MR. WILLIAMS: And why not, sir?

MR. RETTIE: Because you may find that you have biased data. If there is a large confidence interval, then the imprecision of the data would be captured by that large confidence interval. But if you have only two individuals, if they were doing something similar, it may completely obscure any variation. So, you know, if it was six or eight, I think you would be getting a more representative confidence interval. When you're down to two, you have almost skipped to the point where you don't have a sample anymore.

MR. WILLIAMS: Okay. You would not be inclined to rely upon a sample of this size, sir?

MR. RETTIE: I would consider a sample of two almost anecdotal information.

MR. WILLIAMS: Thank you for that.

Now, back to page 47 in this same document, CAC exhibit number 4. And Dr. Rettie this is more your work here, is that agreed?

MR. RETTIE: Yes, it is.

MR. WILLIAMS: And we don't need to go through these pages in burdensome detail, but in

this section you are presenting the logistic regression models employed to predict calving and winter habitat selection; agreed?

MR. RETTIE: Yes, agreed.

MR. WILLIAMS: And just for continuity, if we flip over a couple of pages for a second, page 51 in the top right-hand corner, there you are presenting your linear feature effects analysis; agreed?

MR. RETTIE: Sorry, yes, where it begins at section 3.5?

MR. WILLIAMS: Yes, sir?

MR. RETTIE: Yes, that's correct, that's linear feature analysis.

MR. WILLIAMS: Okay. Now back to the logistic regression model, can you identify for my client where in your August 2012 report you present the measure of within sample forecasting accuracy?

MR. RETTIE: Sorry, the measure of within sample?

MR. WILLIAMS: Forecasting accuracy?

MR. RETTIE: I don't present that.

MR. WILLIAMS: Was it conducted, sir?

MR. RETTIE: No. Sorry, that

terminology doesn't ring a bell with me.

MR. WILLIAMS: Okay. Well, let me try it in a different way. For approaches like logistic regression, can we agree that a measure of in sample forecasting accuracy might be a pseudo R squared? Are we in better grounding now, sir?

MR. RETTIE: Sorry, could you repeat your question, please?

MR. WILLIAMS: Sir, when I am using the term within sample forecasting accuracy, I am referring to methodologies to test how well your models can be expected to perform. And I'm suggesting to you that in the context of logistic regression, one measure of in sample forecasting accuracy would be a pseudo R squared measure?

MR. RETTIE: You may be correct. These are log likelihood models, and resource selection functions where their fit is assessed not in an absolute sense, but rather it is in a relative sense. So of all of the candidate models that are put forth, this presents the one that is the best fit, but there is not an evaluation of whether or not that is an excellent fit, or how close that fit is. It's, of all the candidate

models presented, the ones that come out at the top are the ones that fit the data best.

MR. WILLIAMS: And the limitation of this approach is that it's not an evaluation of the absolute fit?

MR. RETTIE: That's correct. This is a standardized approach for a wildlife habitat selection analyses in this day and age.

MR. WILLIAMS: And am I correct in suggesting that what you are attempting to do with the logistic regressions for calving and habitat selection, you are suggesting that the characteristics that affect where the caribou calves, the caribou's calf will choose their habitat are not the characteristics where the transmission line are located; is that what you're trying to do?

MR. RETTIE: I'm sorry, can you repeat your question? There seems to be a double negative in there and I got lost.

MR. WILLIAMS: In terms of what you are attempting to do with this analysis, the logistic regressions for calving and habitat selection, is the conclusion you are drawing that the characteristics that affect where caribou's

calf will choose their habitats are not the characteristics where the transmission lines are located?

MR. RETTIE: No, that's not the objective of this.

MR. WILLIAMS: Okay. Sir, in front of you is slide 60, on the screen for the benefit of the panel is slide 60, roughly, from your presentation yesterday; agreed?

MR. RETTIE: Yes.

MR. WILLIAMS: And in our discussion yesterday, we agreed that your lambda estimates of caribou evaluation range annual growth were based on survival and recruitment estimates; agreed?

MR. RETTIE: The lambda rates based on survival and recruitment, yes.

MR. WILLIAMS: And when we look at the annual recruitment information presented in this table, am I correct in suggesting to you, sir, that this is drawn from table 31 of your August 2012 report?

MR. RETTIE: Give me a moment and I'll look that up.

MR. WILLIAMS: Just for the panel, it's not in the materials.

MR. RETTIE: Yes. This is table 31 from the August 2012 supplemental report, I agree.

MR. WILLIAMS: And focusing on the September headlines for the columns versus the winter headlines, am I correct in suggesting to you, sir, that in essence the September 2010 and September 2011 data is from your aerial survey of radio collared female caribou with calves divided by the number of adult females with collars at that time, is that right, sir?

MR. RETTIE: Yes, all of the animals that were observed, all of the radio collared animals that were observed, this is the proportion of them that had calves with them, correct.

MR. WILLIAMS: And that's the September column.

MR. RETTIE: Those are the September columns, correct.

MR. WILLIAMS: And when we look at the winter data, we can agree that that is from the winter range surveys of random portions of certain selected evaluation ranges; agreed?

MR. RETTIE: I don't know the -- yes, agreed.

MR. WILLIAMS: And so when we look at

the evaluation ranges set out on the left-hand side of that table, we have agreed previously there is no data related to the annual recruitment presented with regard to Reed Lake; agreed?

MR. RETTIE: That's correct.

MR. WILLIAMS: And then in your discussion yesterday you identified Charron Lake, C-H-A-R-R-O-N Lake, as your control range; agreed?

MR. RETTIE: Agreed.

MR. WILLIAMS: And am I correct in suggesting to you, sir, that with regard to the control range, you had no data for three of the four time periods?

MR. RETTIE: Correct.

MR. WILLIAMS: And for Harding Lake, of course, we're missing, we can agree, the winter survey data; agreed?

MR. RETTIE: Yes, that's what the table shows.

MR. WILLIAMS: Okay. Now, directing your attention in terms of evaluation ranges, and I'm going to brutalize this pronunciation for which I hope people will forgive me, the Wimapedi-Wapisu evaluation range, if we focus on that line, sir, for the September 2011 versus the

winter 2011-2012, we can see some numerical differences between the results from your radio collared survey and from the random survey from the winter of 2011-12; agreed?

MR. RETTIE: Yes, agreed.

MR. WILLIAMS: Would I be correct in assuming that you have undertaken statistical tests of difference between your results for radio collared animals and the random winter range surveys, and just simply not presented them?

MR. RETTIE: No, I didn't do those calculations.

MR. WILLIAMS: Sir, by way of undertaking, could you provide the sample sizes underlying table 31?

MR. RETTIE: Yes, I can. Which cells would you like me to provide sample sizes for?

MR. WILLIAMS: We'll take them all, sir?

MR. RETTIE: You will take them all? Yes, absolutely.

MR. WILLIAMS: Now, sir, in terms of radio collaring, and certainly my clients aren't familiar with the technique, is there some mechanism used to reasonably assure oneself that

there is a random selection of animals?

MR. RETTIE: It's usually random contact. When you're conducting a survey, it's by encounter. So you are flying, you observe a group of animals, you find one that you can cut out of the group to capture. That's how you get your random sample.

MR. WILLIAMS: Okay. Now, on your annual recruitment slide, you cite an Alberta study towards the bottom?

MR. RETTIE: Yes.

MR. WILLIAMS: Can you tell me how many years that survey was conducted for in Alberta?

MR. RETTIE: Not off the top of my head, I can get that to you very quickly, though.

MR. WILLIAMS: Sir, I don't require it today, sir, but if you could just do that by undertaking?

MR. RETTIE: Sure. If you can give me just a moment I can ask and have that for you in a couple of minutes.

MR. WILLIAMS: And sir, I don't need it verbally, but the citations for both the Alberta and Saskatchewan surveys you presented,

could you provide those as well by way of undertaking?

MR. RETTIE: Absolutely.

MR. WILLIAMS: I just want to turn to calculated survival rates, and I don't have a particular reference, but am I correct in suggesting that within the Bipole III study area, there was roughly 143 collars initially deployed? It's probably page 24 of your report, sir, if you're looking?

MR. RETTIE: Yes, that's what the table shows.

MR. WILLIAMS: And of that total, 31 have failed?

MR. RETTIE: Apparently so, yes.

MR. WILLIAMS: And then 18 have stopped working as a result of caribou mortality?

MR. RETTIE: Well, the animals died. It doesn't necessarily mean the collars stopped working. The data stopped being meaningful at that point.

MR. WILLIAMS: I shouldn't laugh, this is a species at risk. We're not criticizing your collars, sir.

And then 22 collars were removed?

That's not that important sir, let's move on. Strike that question.

Now, as I understand it for your August 2012 caribou supplemental report, the assumption you have made is that all failed collars represent live animals; agreed?

MR. RETTIE: Yes, I believe that is the assumption I made, yes.

MR. WILLIAMS: And so we can agree that the consequence of assuming that all failed collars represent live animals is that the calculated survival rates are maximum values?

MR. RETTIE: Agreed.

MR. WILLIAMS: And so if any collars failed at the time of death, then the associated survival rates will be overestimated?

MR. RETTIE: That's what it says in the report, yes.

MR. WILLIAMS: Mr. Schindler, you don't need to turn here, and I'm only going to talk about moose for a second. But in terms of your -- in your moose slide show yesterday, and in your description of habitat loss with regard to moose -- if you're looking for reference, it was about slide 52 -- you made the point that habitat

is not lost, but altered and kept at an early state of development. Do you remember that point, sir?

MR. SCHINDLER: Yes, I do.

MR. WILLIAMS: Now in terms of woodland caribou, going back to the caribou, leaving the moose, I did not see a similar discussion yesterday, but would you make that same observation, namely, that the habitat will be kept at an early stage of development?

MR. SCHINDLER: That would depend on the type of habitat that is being traversed. If we were going through bogs and lowlands and fens, there would be little change to the environment. However, in more upland coniferous sites, that would be the case, yes. And I would note that it's quite variable across caribou ranges, but there is a lot of bog and wetland habitats that the environment doesn't change. Those are late successional fen type environments.

MR. WILLIAMS: Fair enough, sir, but there is also a significant amount of upland coniferous?

MR. SCHINDLER: That would be correct.

MR. WILLIAMS: And so as I understand

your answer, sir, with regard to the woodland caribou, when we leave aside the bogs and we get to the upland coniferous, then it would be your expectation that that habitat would be kept at an early stage of development?

MR. SCHINDLER: That would be correct.

MR. WILLIAMS: Now, are we in agreement that currently the most extensively used tree control method on northern transmission line right-of-ways is the winter shearing method, sir? I see some shrugs.

MR SCHINDLER: I didn't quite -- the clearing? I didn't quite understand what you said there, I'm sorry.

MR. WILLIAMS: Leaving aside the initial clearing, sir, when we're talking about maintaining --

MR. SCHINDLER: Oh, the initial clearing?

MR. WILLIAMS: No. Leaving aside the initial clearing, when we're talking about maintaining that upland coniferous in early stages of development, would it be your understanding that the most extensively used tree control method on northern transmission line right-of-ways is the

winter shearing method?

MR. SCHINDLER: That would not be my understanding. I think there's a whole variety of types of clearing that occurs in different types of habitats. We might refer to that new information that was just provided. I'm not sure of the monitoring and the long-term maintenance, they are different activities. Some of it is selective clearing of trees. It's quite variable, and I would not have that complete sweep of information with me, in terms of the types of sites that they are perhaps sheared, or perhaps sites that maybe danger trees are removed occasionally.

MR. WILLIAMS: Sir, I'm focusing on maintenance.

MR. SCHINDLER: Yes.

MR. WILLIAMS: And you're not aware whether or not winter shearing is the predominant method of maintenance?

MR. SCHINDLER: Honestly, I wouldn't be able to tell you what the dominant technique is on each and every one of those types, but I can tell you from experience, looking at the types of lines like Wuskwatim and other transmission lines,

that as you go into the north, the frequency of clearing and maintenance is much, much less than you would find in the south in areas where there is a lot of hardwood and so on. So the frequency of those types of activities is much, much less than you would find in the southern portions.

MR. WILLIAMS: For the purposes of your report, would you have had occasion to examine the frequency of those activities, sir?

MR. SCHINDLER: We did specifically examine the frequencies of those prescriptions.

MR. WILLIAMS: We'll probably get into that with the Hydro panel. But just while I have you, sir, in terms of winter shearing, are you familiar with that technique, sir?

MR. SCHINDLER: Yes, I am.

MR. WILLIAMS: And as I understand it, part of it involves wide track crawler tractors traversing back and forth along right-of-way sections to shear off the woody growth at the frozen ground surface. Is that an apt description, sir?

MR. SCHINDLER: That sounds like a description, yes.

MR. WILLIAMS: Now, with regard to CAC

Exhibit 4, Mr. Schindler, if I could ask you to turn to page 17?

MR. SCHINDLER: Okay.

MR. WILLIAMS: And this is your report from the boreal woodland caribou workshop; agreed?

MR. SCHINDLER: Agreed.

MR. WILLIAMS: And in the bottom left-hand corner beside the star, you'll see that one of the outcomes from the consensus workshop was that a proposal that mitigation strategy should be investigated for assessing modes of access for vegetation management to minimize potential increased use by predators as a result of snowpack. Timing of maintenance during the frost free period would also be considered.

Do you see that, sir?

MR. SCHINDLER: Yes.

MR. WILLIAMS: Now, in terms of your work for Manitoba Hydro have you undertaken any research in that regard?

MR SCHINDLER: I think in terms of this particular recommendation in this report, I mean, it's based on our understanding of the types of activities that could create issues for boreal caribou. And what this recommendation is to, is

minimization of snowpack, for example, and trying to maintain those vegetation communities, less suitable for other species that may attract wolves or predators. And these are very well-known facts that you can mitigate through timing. For example, conducting maintenance patrols in late, late winter, after the winter, at the very end of the winter season, to eliminate any snowpack during the core winter period. So specific research on the effects of trying to determine whether or not snowpack versus un-snowpack, that type of research has not been conducted.

MR. WILLIAMS: Okay. Thank you. Would I be correct in assuming that in your cumulative effects assessment report, as produced in August of 2012, that you did not scenario test or stress test different mechanisms of vegetative management as it related to the caribou?

MR. SCHINDLER: That was not the intent of the cumulative effects analysis, no.

MR. WILLIAMS: Okay, thank you.

MR. SCHINDLER: But I would add that the 500 metre disturbance regime that is assessed or used by Environment Canada is a 500 metre disturbance range associated for linear

development, which would likely include the effects of all kinds of disturbance. And that's the 500 metre threshold for all linear disturbance. So I think any effects of maintenance or the type of activity would be included within that cumulative effects assessment.

MR. WILLIAMS: Thank you for that answer. Now, this goes back -- and Mr. Chairman, I don't have many more questions, I do have a few. This goes back to the route selection, Mr. Schindler, so I assume it's you rather than Dr. Rettie, but Dr. Rettie, you are always welcome to chime in.

Mr. Schindler, in terms of the preliminary preferred route, I am correct in suggesting to you that that was considered to be the optimal route from a caribou perspective for all three ranges; agreed?

MR. SCHINDLER: You would be correct in that.

MR. WILLIAMS: And so the final preferred route through Wabowden was not your preferred alternative. We can agree on that as well?

MR. SCHINDLER: We can agree on that, yes.

MR. WILLIAMS: And now we have the revised Wabowden route which you commented upon yesterday; agreed?

MR SCHINDLER: Yes.

MR. WILLIAMS: Now, yesterday you presented a comparison between the revised Wabowden route and the final preferred route; agreed?

MR. SCHINDLER: Yes.

MR. WILLIAMS: Have you prepared a similar analysis between the revised Wabowden route and the preliminary preferred route?

MR. SCHINDLER: We had done a preliminary assessment, but the final version of a cumulative effects analysis is in progress. But we can say that -- I don't have the precise number, but the net effect of the revised FPR is much less than the FPR.

MR. WILLIAMS: I've got that point, sir. I'm taking you back now to your preliminary preferred route, which you described as optimal for all three ranges. Have you done a comparison between the revised Wabowden route and the

preliminary preferred route through Wabowden?

MR. SCHINDLER: That would be part of our assessment to look at both the preliminary preferred route and the revised route, as well as the FPR, and do a comparison. That has not been done yet, we are in that process.

MR. WILLIAMS: When will those results be available, sir?

MR. SCHINDLER: They will be, I suspect by Monday.

MR. WILLIAMS: Okay. At this point in time, sir, and you may wish to hold off until Monday, but are you in a position to comment in terms of whether the revised Wabowden route is now the optimal route?

MR. SCHINDLER: It appears to be a much better selection in terms of the routing along existing linear features. And in discussion with Manitoba Conservation, there seems to be some consensus that this is a good route. And the precise assessment relative to calving habitat is very -- intuitively, without having the numbers, I'll be honest with you, that there could be some hair splitting, but they would likely be very close with, you know, I don't want to say that

one's going to be absolutely better than the other. Based on the parameters that we have assessed looking at the intersection of calving habitat as identified through the RSF modeling, intersection of corridor area, those types of things, both routes do a very good job. The preliminary preferred route and the revised route go a long way to avoid some of those particular issues that I had identified in the EIS and within the revised technical report. So...

MR. WILLIAMS: We will await your final analysis on Monday.

MR. SCHINDLER: Yeah.

MR. WILLIAMS: Now, in terms of a couple of short snappers, to steal the language of Mr. Dawson or Mr. Madden, the lifespan of a caribou, what's the average lifespan of a caribou, sir?

MR. RETTIE: Average is -- that's a difficult thing to put my finger on. Going from birth, most animals are dead before they reach a year. So I would say an animal that reaches adult age on average probably makes it to six or eight, but they routinely live beyond ten, into their mid teens.

MR. WILLIAMS: Just so I understand you, post recruitment, you're suggesting that the average age that caribou live is six to eight years?

MR. RETTIE: That's about right.

MR. WILLIAMS: Okay. And in terms of moose, what are we talking about in terms of a lifespan?

MR. RETTIE: For female moose, maybe a little bit older, and for male moose -- actually for male caribou, it's a little bit different as well. Their lifespan won't be as long.

THE CHAIRMAN: Will not be as long?

MR. RETTIE: Will not be as long. Males mature later and they have a short life after that.

MR. WILLIAMS: Are you suggesting it's in that same six to eight years time span?

MR. RETTIE: For moose it might be a year longer, a little bit longer.

MR. WILLIAMS: Thank you. Dr. Rettie, we're going to come to in just one second, I apologize. One last question for Mr. Schindler, then over to you, Dr. Rettie. Dr. Rettie while you're looking, you can pull up page 54 of your

August report. That's not in the materials.

But for you, Mr. Schindler, if I could direct you to the CAC Exhibit 4, page 17 in the top right-hand corner, which is again, we can agree, an excerpt from your report from the workshop; agreed?

MR. SCHINDLER: Yes.

MR. WILLIAMS: And under conclusions on the right-hand side, you can see it's kind of squared, you will see that one of the conclusions of the report was:

"Due to the multiple vectors of decline and the time lag response of boreal caribou populations to disturbance, it is essential that long-term monitoring of populations through recruitment and mortality studies be undertaken to understand the cumulative effects of linear development on boreal caribou recruitment and mortality."

I have presented that accurately, sir?

MR. SCHINDLER: That was the result of the workshop, the collective views of the experts, yes.

MR. WILLIAMS: Now, Dr. Rettie, turning over to you, just at a high level, without asking for elaboration, your cumulative effects assessment, your approach to it in your report, involve both determining the existing disturbance regime and the potential disturbance regime in what you call the foreseeable future; agreed?

MR. RETTIE: I'm going to pass that over to Mr. Schindler.

MR. WILLIAMS: Mr. Schindler, my apologies.

MR. SCHINDLER: That's okay. I hate to say this, but I think the answer is yes. I was reading this while you were talking to Mr. Rettie, so you kind of tricked me there.

MR. WILLIAMS: And for the purposes of the August 2012 study, am I correct in suggesting that the foreseeable future, and I'm quoting directly here,

"...was deemed five years by Manitoba Hydro."

MR. SCHINDLER: That is right.

MR. WILLIAMS: Now, going through your report from the workshop with your experts, would I be correct in suggesting that your panel of

experts, including persons like Dr. Schaefer, did not recommend that the appropriate time frame for evaluating the potential disturbance regime was five years?

MR. SCHINDLER: I think the two are in slightly different context. However, I think the long-term monitoring is required, as opposed to assessing over a five-year period. The two are not linked in my opinion. I would suggest that the long-term monitoring is something that you can assess cumulative effects over a long period of time. The assessment of cumulative effects in the context of the analysis that we did was based on habitat change within a foreseeable future that we could predict. So I see the type of link that you're making, but the two are quite different.

MR. WILLIAMS: Let's go back to the words, when you say deemed five years by Manitoba Hydro, was that Hydro's choice or your choice, sir?

MR. SCHINDLER: That was a decision that was made collectively among a number of specialists on the Hydro team, and five years was the number that was deemed to be reasonable in terms of looking forward. The one thing that I

can suggest to you, that some of the data that was used for the cumulative effects analysis was based on things like 20-year management plans for forestry, for example. And we used the maximum size of those areas within those 20-year plans, for example, and other predictions. But it could have gone further, but in essence, it was conducted for that time period.

MR. WILLIAMS: It could have gone further, sir, and you wouldn't disagree that other specialists might indeed recommend considerably further than five years, given the nature of this species?

MR. SCHINDLER: I think if you had the data that you could forecast out into many, many years, but those data were not available. And the reasonable data that was there was for that five-year period. And it likely wouldn't have changed very much had we gone out to 10 or 15 years. The footprint, particularly the major footprint in those areas is forestry, and they tend to be quite concentrated and located within areas that are defined within their long-term planning horizons, plus we buffered all of the trails and all of the infrastructure in those

areas that would likely include disturbance well into the future. So...

MR. WILLIAMS: Now, just remind me, fire was not part of your potential disturbance regime looking forward?

MR. SCHINDLER: That is correct.

MR. WILLIAMS: And recognizing your observations in terms of data, it certainly would have been possible to scenario test or stress test beyond that five-year period using some plausible assumptions?

MR. SCHINDLER: Well, we certainly considered looking at modeling fire, but modeling a fire is a very complex undertaking. But having said that, we did evaluate the fire regimes within the various eco districts within each of the evaluation ranges. And the predictability of fire is, I mean, you cannot predict. There's fire suppression. That is also a factor in terms of the size of fires. We could have a really bad fire here and, for example, there are some large fires in the Naosap range that that essentially, you know, pretty much burnt a huge part of the Naosap range. I can't remember exactly which year, but it was around the summer of '11. I can

get you the date of that fire. But, I mean, there are occasions where fire can consume almost a total caribou range. I don't know, Jim, if you know of any other examples?

MR. RETTIE: I am familiar with fires within hundreds of thousands of hectares.

MR. WILLIAMS: And so recognizing that risk, you chose not to model it moving forward?

MR. SCHINDLER: Again, modeling fire and predicting is an undertaking that we did not do, in the context of human development and caribou persistence using the cumulative effects approach that we undertook.

MR. WILLIAMS: Okay. Now, sir, in preparation for your cumulative effects assessment, did you review the work of Dr. Dunkers in terms of the MacKenzie Valley Pipeline?

MR. SCHINDLER: No, I did not.

MR. WILLIAMS: Okay. Now let's just talk about Reed Lake for a second. Am I correct in suggesting that after your CEA, or cumulative effects assessment, the Reed Lake evaluation regime remains the most disturbed with the largest cumulative disturbance increasing from 42 percent to 44 percent?

MR. SCHINDLER: That is correct.

MR. WILLIAMS: And based on the thresholds identified in the draft national recovery strategy of Environment Canada, would I be correct in describing the populations in the Reed Lake range based upon your CEA as likely as not to be self-sustaining?

MR. SCHINDLER: Are you referring to the draft national strategy ranking for --

MR. WILLIAMS: Yes.

MR. SCHINDLER: I believe you are correct.

MR. WILLIAMS: And that's without taking into account prospective fires, sir, for Reed Lake?

MR. SCHINDLER: Their assessment would not have included recent fires, correct.

MR. WILLIAMS: Okay. Now, this is going to probably be a tortured analogy, not my first, Mr. Schindler, but if we were to draw an analogy between the tolerable level of habitat disturbance on this range and a water bucket, does this not suggest that the bucket is almost full?

MR. SCHINDLER: Again, I think we explained the thresholds as described, and it's

not a draft strategy, it's actually an approved strategy that has been published by Environment Canada. It's a guideline. The 35 percent is sort of seen as a threshold, where uncertainty increases as you move beyond that 35 percent into higher degrees of disturbance. It's not just a blanket disturbance relative to sustainability, there are other factors that include the population size, for example. And those thresholds are understood even in the strategy that they provide a guideline, but they are not -- it is not a critical solid threshold that is the determinant factor in whether a population is sustainable. It starts to raise some questions as to whether the population will be under stress.

And the strategy also puts back to Manitoba Conservation to develop action plans for those particular ranges. And Manitoba, the Province of Manitoba will have the responsibility for developing those action plans, and I believe they are doing it now, and working with all the various stakeholders and land users in those areas, to look at management plans and strategies that do reflect caribou conservation, minimizing effect on core winter areas. There's a lot of

things they can do. For example, disturbance within core areas is much different than disturbance in areas that are not being used.

MR. WILLIAMS: Mr. Schindler, just mindful of the time, and I always hate to interrupt, but I am going to. You didn't like my water bucket analogy? I was suggesting to you it's almost full. You don't want to walk down that path with me, sir?

MR. SCHINDLER: I would suggest that the sustainability of the Reed Lake range, there has been some -- I would put this to Conservation -- there are overlapping, and we talked yet about the lumping and splitting of ranges. And there's also another dynamic that caribou populations are not static, so that line on the map is not there forever.

MR. WILLIAMS: Sir --

MR. SCHINDLER: And this can get moved around, and depending on where you draw your boundary, you can really change those threshold values.

MR. WILLIAMS: I'm going to try and be respectful and not interrupt, but I would ask you to respond. In terms of other indicia, we have

already agreed that we don't have the lambda data for this herd?

MR. SCHINDLER: Yeah, that's correct.

MR. WILLIAMS: Just one last question, sir. And we're leaving woodland caribou and we're moving to Pen Islands. And you'll recall it's roughly around slide 12, I don't think you need to turn there, but it's near the front of your presentation, sir. You presented population estimates for Pen Islands, and the second last estimate you presented, you presented a figure for 1994 of 11,000; agreed?

MR. SCHINDLER: Yes.

MR. WILLIAMS: And then for 2010, you don't provide a figure, you just say lower. Do you have that figure, sir?

MR. SCHINDLER: No.

MR. WILLIAMS: Could you undertake to provide it?

MR. SCHINDLER: That comes from a report, Abraham 2012, I'd be very happy to provide you with the report. And it discusses the population decline of calving areas, and it talks about calving population estimates. It's a different type of estimate. But they are

indicating that there's lower use of calving areas, the calving counts on the coast are lower. So it's not necessarily -- but they suggest that the population is maybe declining.

MR. WILLIAMS: Fair enough, sir. You are undertaking to provide me with the actual study; agreed?

MR. SCHINDLER: Yeah.

MR. WILLIAMS: And, Mr. Chairman, I skipped a couple questions but I think I came in pretty close to schedule.

THE CHAIRMAN: Not bad at all, Mr. Williams. Thank you very much.

Mr. Meronek?

MR. MERONEK: Gentlemen, this isn't a sign that it will be a long time.

Good afternoon, my name is Brian Meronek, and I'm here on behalf of the Bipole III coalition. And I can assure you that I'm nicer than either Mr. Madden or Mr. Williams.

THE CHAIRMAN: Will we have a vote after?

MR. MERONEK: We'll get some preliminary matters out of the way. Do you mind if I call you Mr. Rettie?

MR. RETTIE: I don't mind at all.

MR. MERONEK: It's not to diminish my respect for your experience, it's just that unless you can diagnose me or operate on me, I just don't want to refer to you as a doctor. And likewise, if it was equal opportunity, I'd have to call Mr. Schindler Master Schindler, and I don't want to do that either.

MR. RETTIE: So you're not a jurist doctor then, I take it?

MR. MERONEK: Levity aside, could you just put up on the screen, I think it's under the caribou exhibit, Manitoba Hydro 73, the evaluation of alternative routes?

Before we get into that, just a segue on a question that was asked by Mr. Williams latterly, he asked you, Mr. Schindler, whether you had completed your cumulative effects analysis on the revised route for Wabowden. And you indicated that it would probably be ready sometime early next week?

MR. SCHINDLER: Yes, I believe so.

MR. MERONEK: But yesterday you indicated, when you were going through the revised route, you made the comment that it represented a

tremendous opportunity, and I think it was in reference to the fact you were following existing linear disturbances. Do you recall that?

MR. SCHINDLER: Yes, I do.

MR. MERONEK: Can you tell me why, sir, you were discovering this tremendous opportunity so late in the day, and certainly predicated on the instructions or the directions of Conservation?

MR. SCHINDLER: Well, I think Mr. Williams discussed it and described it quite well. The process of the preliminary preferred route, and then the revisions that were made due to other concerns, and within the area that the final preferred route ended up being moved more into caribou habitat than the preliminary preferred route was, and as a result of the evaluation and the letter from Manitoba Conservation to come up with a revised route that provides really good opportunities to mitigate those effects that were being predicted, and some of the uncertainties of the final preferred route. So from a caribou perspective, it is certainly a better alternative. And his question was relative to -- I'm sorry for going on -- comparing the

preliminary route to the revised route.

MR. MERONEK: But it's not something that was contemplated before a direction was given to look at it again?

MR. SCHINDLER: That I contemplated the revise the route?

MR. MERONEK: Yes, as a tremendous opportunity?

MR. SCHINDLER: Well, we certainly liked the preliminary preferred route over the final preferred route, yeah.

MR. MERONEK: Just looking at, it's probably trite to suggest that both you gentlemen have a deep and abiding admiration and respect for moose and caribou?

MR. SCHINDLER: I would say yes here.

MR. RETTIE: I have a respect for most of the natural world.

MR. MERONEK: They are majestic animals.

MR. RETTIE: Is that a question?

MR. MERONEK: Yes, it is.

MR. RETTIE: Majestic animals, yes.

MR. MERONEK: And in looking at the alternative routes, would I be correct to suggest

that the final route, aside from the revised route, or including it, it doesn't really matter, was much preferable than the other two routes that are shown on that screen?

MR. SCHINDLER: From the moose and caribou perspective?

MR. MERONEK: Yeah?

MR. SCHINDLER: I believe, given all of the consideration, that the length of following existing linear features, that I would have to agree that in totality it's -- there are good alternatives for moose and caribou.

MR. MERONEK: Maybe I'm not hearing you correctly. Am I correct to assume that the final route chosen for moose and caribou is preferable than the other two alternative routes that are shown on that screen?

MR. SCHINDLER: That would be difficult to assess, because they would be assessed against all other species. We also looked at mammals and birds and all of those things were incorporated into the routing matrix. So without getting into quite a significant comparison, there may be sections that were more preferable to some species than others. So that

would be a tough question to really definitively answer.

MR. MERONEK: So you're not in a position to say to this Commission that you would recommend one or the other, or all three over -- all three to this Commission as it relates to moose or caribou? And that's what we're talking about today.

MR. SCHINDLER: Well, we've done that in our evaluation. But, again, the actual routing process included all of those 27 factors.

MR. MERONEK: I'm talking about from your biological and scientific expertise and experience, are you in a position to say to this Commission whether the route chosen is better, from a perspective of caribou and moose, than the other two routes that were not chosen?

MR. SCHINDLER: We have evaluated everything, and we have described the residual effects and so on. And I think from a caribou perspective, it's clear that this would be the recommended route. From a moose perspective, it's a little bit -- because there are certain areas that, you know, because moose are distributed more evenly across the landscape, it's hard to just say

that, yes, it's the best for moose for the whole entire area. In some areas very good, but looking at it collectively, I think it's from a caribou perspective, yes, and from a moose perspective, it might be a little bit more area specific.

MR. MERONEK: Now we're getting somewhere. Thank you.

MR. SCHINDLER: Yeah.

MR. MERONEK: Again, it's probably trite to say that from a scientific biological perspective, no route would be preferable, correct?

MR. SCHINDLER: If you had your druthers.

MR. RETTIE: Yes, I think that no disturbance is best for the natural world, absolutely.

MR. MERONEK: In terms of other alternatives, there's a huge white area, and I take it that area is not doable for a number of reasons; one being if it went down the east side, that's off the table. And two, if it went across Lake Winnipeg, it would be encroaching upon and crossing Bipoles I and II; is that correct?

MR. SCHINDLER: I'm not sure we

understood the question?

MR. MERONEK: We've got three alternative routes on this map, but I'm saying those probably represent the only ones that can be accepted by virtue of the fact that in that whole white area, there are other impediments, including having to cross over Bipole I and II?

MR SCHINDLER: We only did work within the study area, so I am not aware of the technical constraints relative to coming in those areas that you described.

MR. MERONEK: Now, Mr. Schindler, I want to talk a bit, most of my few minutes is going to be spent on cumulative effects. And I'm going to summarize for you what I understand to be the principles you engaged in or adopted in terms of doing a cumulative effects assessment.

One is -- and this is in your mammals technical report at pages 29 and 30 -- one is that you indicated that an important step, a cumulative effects assessment is an important step in determining the impact of various anthropogenic and environmental factors on the long-term viability of the environment. Does that sound familiar?

MR. SCHINDLER: Page 29 of the caribou technical report, or the mammals?

MR. MERONEK: Mammals technical report, sir.

MR. SCHINDLER: Page 29 of mine appears to be different than yours, but I can certainly -- oh, here we go. Okay, sorry about that, I'm here with you.

MR. MERONEK: Is that statement something you can concur with?

MR. SCHINDLER: It's a citation that we included in the report, yes.

MR. MERONEK: Do you agree with it?

MR. SCHINDLER: It's a broad statement that I would have to agree with the context of that particular citation.

MR. MERONEK: The second comment that I'd like to make is the suggestion that past, present and future projects or activities are studied to determine whether in combination they can have positive or negative effect on the environment. Would you agree with that?

MR. SCHINDLER: Yes.

MR. MERONEK: And that these multiple activities can be difficult to interpret. Would

you agree with that, sir?

MR. SCHINDLER: Yeah, that would be a fair statement.

MR. MERONEK: And that this particular cumulative effects assessment on mammals, including moose, was conducted to determine both the positive and negative effects on the viability of moose, and I would expect caribou as well?

MR. SCHINDLER: The cumulative effects analysis was much more robust in terms of using the criteria set forth by Environment Canada. For mammals, the CEAs were based on an understanding of the activities that were occurring in and around the FPR.

MR. MERONEK: But that statement would at least be applicable, from your perspective and your preparation, it would incorporate moose, correct?

MR. SCHINDLER: Yes.

MR. MERONEK: So that I don't get this statement wrong, over on page 30 you say that potential and cumulative effects were considered for those projects and activities anticipated to occur within the next 10 to 20 years. Do you see that, sir?

MR. SCHINDLER: Yes, that was in the context for mammals, excluding caribou.

MR. MERONEK: Correct. And is that what you did?

MR. SCHINDLER: I think the team, we in conducting the residual effects analysis did consider those activities into those time frames for -- I think all study specialists utilized that particular time frame.

MR. MERONEK: And you didn't use the criteria that we'll come to later that related to caribou, the deemed five years?

MR. SCHINDLER: That is correct.

MR. MERONEK: Now, when you did your cumulative effects assessment, you identified Wuskwatim as a future project that you thought pertinent enough to consider?

MR. SCHINDLER: Wuskwatim as a future project?

MR. MERONEK: I am referring to future projects now, sir.

MR. SCHINDLER: Are you referring to the Wuskwatim transmission line or --

MR. MERONEK: Did you consider Wuskwatim in your cumulative effects assessment?

MR SCHINDLER: I believe existing infrastructure that was associated, the Wuskwatim transmission line was in place during the time, so it would be sort of a current disturbance or current activity.

MR. MERONEK: Just to move this along, if you could turn to page 118 of the mammals technical report? It would appear from that particular narrative that you reflected a Wuskwatim transmission project 2003 to indicate that there were -- it would have a residual negative effect, but expected to be minimal. Do you see that?

MR. SCHINDLER: Yes, I do.

MR. MERONEK: Did you update that analysis?

MR. SCHINDLER: No.

MR. MERONEK: Now, you also in that same area talk about Louisiana Pacific Canada Ltd. And based on a project and an analysis in 2010, you identified that there were going to be negative to uncertain impacts as a result of whatever project or projects Louisiana Pacific were undertaking. And more particularly, on page 117 at the bottom it's stated:

"Another uncertain effect identified in LP's EIS is the extent of impacts on woodland caribou."

Do you see that, sir?

MR. SCHINDLER: Yes, I see that.

MR. MERONEK: And the report suggests that monitoring of caribou populations must be conducted in order to further understand these potential effects. Do you see that, sir?

MR SCHINDLER: Yes I do.

MR. MERONEK: And you subscribe to that?

MR. SCHINDLER: I do.

MR. MERONEK: You also make reference to Tolko Industries Ltd. over on page 117, and indicate with respect to their activities that cumulative effects of this project may not have been considered. Do you see that, sir?

MR. SCHINDLER: Cumulative effects, I think that's in reference to Tolko, as far as management plan, their assessment of cumulative effects may have not been considered. I think that's correct.

MR. MERONEK: And then in terms of mining, the report states at page 118 that mining

related activities -- well, first of all, it talks about Hudson Bay minerals in a project that is expected to be in production in 2012, full production 2014. And there's an indication in one of the pieces of literature that references that:

"Mining related activities also create high level of disturbance causing avoidance of terrestrial and avian species in the area."

Do you see that?

MR. SCHINDLER: Yes.

MR. MERONEK: So in terms of whatever analysis has been conducted, you have identified certain negative and uncertain cumulative effects from other projects that may impact upon Bipole III. Would that be fair?

MR SCHINDLER: I think they are discussed in the context of the other projects and some of the uncertainty is certainly expressed in this report, yes.

MR. MERONEK: Did you assess those particular projects in relationship to Bipole III, or were you just itemizing them?

MR. SCHINDLER: I think there is a table we can refer to in the technical report.

There is that table 9.2.1 of the chapter nine, cumulative effects might be worth looking at.

So there are some descriptions on that table. I don't know if you've got it handy or not?

MR. MERONEK: Could you just point out the page to me, please?

MR SCHINDLER: And this is chapter nine.

MR. MERONEK: I'm looking at the mammals technical report. Is there any analysis or conclusion, summary, anything in that report to reflect a conclusion as a result of the other projects that we have just discussed and that were identified?

MR SCHINDLER: I don't think there is any specific analysis, but I believe that these were incorporated into the EIS chapter nine, and it may be worth discussing with Cam Osler on this particular --

MR. MERONEK: Now, in terms of the mammals technical report, did you have any discussions with Manitoba Hydro with respect to potential future Hydro projects in that area?

MR SCHINDLER: In which area specific?

MR. MERONEK: The one we're all looking at.

MR SCHINDLER: Well, we certainly included, for the caribou assessment we looked at all of the Hydro infrastructure that is proposed or could be developed into the future, including Keeyask transmission, Keeyask generation, and Conawapa.

MR. MERONEK: I'm talking about for the mammals technical report?

MR. SCHINDLER: For the mammals technical report -- we believe not.

MR. MERONEK: Did you have any discussions with Manitoba Hydro, or were you advised by Manitoba Hydro, and bearing in mind the 10 to 20 years, that in 2025 Bipole III will not be sufficient from a reliability perspective and further transmission lines may or will be required?

MR. SCHINDLER: No. Maybe some general understanding of future transmission, but nothing specific in terms of imminent projects.

MR. MERONEK: And that's something that you would want to know in order to do a compete and fulsome cumulative effects assessment;

would you agree with that?

MR. SCHINDLER: I think any specialist would like to know the extent of activity or industrial activity that is being proposed within or in the proximity of the project being assessed.

MR. MERONEK: Now, just moving over to caribou, and this is again a follow-up of some brief discussions you had with Mr. Williams. Five years in terms of future projects was deemed to be the appropriate length of time for caribou; is that correct?

MR. SCHINDLER: That was the identified time frame that we had collectively, I guess, looked at in terms of Hydro's understanding of knowledge of future projects, five years.

MR. MERONEK: Would it be fair to suggest, sir, that that was a limit that Manitoba Hydro placed upon you gentlemen in terms of making a cumulative effects assessment with respect to caribou?

MR. SCHINDLER: I believe it was an agreed to, but recognizing, and I would suggest that perhaps it achieves the objective of the cumulative effects of knowing what will be happening, and in relation to the forestry

activities, those 20-year plans, and just knowing what's happening beyond 25 years. And we don't know, you know, where fires are going to happen and how that might change forestry operations, what linear development is being developed in 20, 30 years. We did not have that information so...

MR. MERONEK: But from a scientific perspective, it would have been preferable to do an analysis that went out beyond five years?

MR. SCHINDLER: I believe it would be, you know, from a scientific perspective I would say that, yes, I mean it would be nice to go a little bit further. But I think in the context of the planning horizons for this particular project, there might be some extra explanation that Hydro and maybe Mr. Cam Osler could help with later in terms of this.

MR. MERONEK: And again, from a caribou perspective, it would have been helpful to assess or be made aware of future Hydro transmission lines in that area. Would you agree with that?

MR. SCHINDLER: Yeah, any type of development that would be within those caribou ranges assessed would provide valuable

information. I would add that the effects of linear development appear to have -- or don't appear, but have limited effect on those disturbance calculations. But having said that, any information beyond those horizons would be valuable.

MR. MERONEK: All right. We'll get into some short zingers, if I can find them.

THE CHAIRMAN: You realize, Mr. Meronek, that zingers will have a higher expectation than snappers.

MR. MERONEK: What was that old TV program?

THE CHAIRMAN: Front Page Challenge?

MR. MERONEK: Front Page --

THE CHAIRMAN: Reach For The Top.

MR. MERONEK: These are five point questions.

You mentioned yesterday, in terms of predation, the impact of black bears potentially on moose and caribou. Do you recall that?

MR. RETTIE: Yes.

MR. MERONEK: Have you done any studies or assessment as to the potential impact of migration of polar bears from Hudson's Bay?

MR. RETTIE: No.

MR. MERONEK: Do you accept that there are some environmental concerns about the polar bears migrating south due to the shrinkage of the ice?

MR. RETTIE: I have no knowledge of how far inland polar bears might come or what their abilities are in preying on terrestrial wildlife. They are marine predators.

MR. MERONEK: Did you take into account the potential of climate change in terms of assessing whether the summers would be drier, therefore, having the potential of invasion of pine beetles?

MR. SCHINDLER: I believe climate change was assessed in a different component of the EIS. We did not include specific climate change within our assessments, to be frank. I think it was dealt with at a higher level.

MR. MERONEK: Thank you very much, gentlemen. Those are my questions.

THE CHAIRMAN: Thank you, Mr. Meronek. Ms. Whelan Enns, do you have any questions?

MR. BEDDOME: Is it all right, if we make a switch?

THE CHAIRMAN: Certainly, Mr. Beddome you can come forward.

MR. BEDDOME: While I get myself organized, I'm going to firstly say, James Beddome, Green Party of Manitoba, for the record. I want to just echo the sentiments made by Mr. Williams earlier this morning to thank the assistance of both the Commission and their secretaries and other administrative staff, but also I think it's worth acknowledging the people that are in the hot seat today, who I'm sure have also been putting in late nights to prepare themselves. I just wanted to, in the spirit of comradery, open with that. And also conveniently stall as my computer loads, which seems to be having trouble today.

THE CHAIRMAN: You're just trying to butter them up.

MR. BEDDOME: Well, of course, why not? I don't know if you had enough sugar last night or not.

There we go. Finally my documents are loading. I had some computer problems this morning, so I apologize for that.

Thank you very much for being here

today, Dr. Rettie and Mr. Schindler. I may ask some questions that you already explained, and just hope you'll bear with me, just trying to make sure that I understand everything as well as possible.

I wanted to start -- and I see the slides aren't numbered, but it is the slide called Historical Caribou Research Data. The one thing I just found interesting on that slide, I think you had it up -- anyways, I notice there you are using data from the Naosap herd that predates the 2010 fire, correct?

MR. RETTIE: Yes.

MR. BEDDOME: So I'm just kind of wondering about what the value of that data might be. And to give you some background of that, my understanding, and correct me if I'm wrong, is there is certainly some uncertainty, and some people think, given the damage to the habitat, they may end up joining with an adjoining herd, I would suppose likely the Reed Lake herd. Is that a correct -- I know that certainly there's not a degree of certainty, but is that a correct theory that people are curious about and wondering if that might be the long-term effect of the fire?

MR. SCHINDLER: Actually, that's a very good question. And I can tell you that, although not part of the Bipole studies, I'm aware that Manitoba Hydro is working with Manitoba Conservation. They actually have collared individuals in that particular area. And I think one of the objectives, and I'm speaking from my memory on this particular project that I'm not involved with, but they are looking at the effects of caribou movements during post fire in the Naosap area. There's also some ranges to the north there as well, there is Imperial range as well as the Kississing range that come very close. So I believe the Northwest Region Caribou Committee is embarking on partnerships to look at monitoring that particular population and looking at the response.

The one thing that has happened up there which is very interesting is the fire has a very patchy configuration. There's a lot of green areas, and there's a lot of burnt, and there seems to be a fair bit of use in that area during the summer where it's been burned. But I think Dr. Rettie would agree with me, you know, that some of these five year post fire seems to be --

will be kind of the telltale sign where they disperse or where they might end up going.

MR. BEDDOME: Go ahead, Dr. Rettie.

MR. RETTIE: I agree, I'll be interested to see where they go as well.

MR. BEDDOME: So it would be fair to say that there's a certain degree of uncertainty to what might happen with that herd?

MR. RETTIE: Yes.

MR. BEDDOME: And to go to some of your earlier comments that these ranges are -- I guess maybe it's too strong to say they are arbitrary lines, but to a certain extent they are lines and ranges that we draw, but they change over time. And if we look over historical caribou studies dating back in the Province of Manitoba to 2001, and then to 2005, same with the Federal reports, the ranges change over time. That would be correct to say, right?

MR. RETTIE: Yeah, if I can just bring up a slide here. I think this shows the historic ranges as outlined by Manitoba Conservation in those solid blobs. And then lines are the evaluation ranges that we determined from the animals via radio telemetry. That's not to say

those earlier range delineations are wrong. So, you know, it could be in response to disturbance events, or for succession, that these populations are changing where they are. They may have sort of a central area they have in common, but over decades, it wouldn't surprise me to see them move at all.

MR. BEDDOME: I think you're helping answer my next question, but I'll just ask it, since you may be able to add more. This changing range, is it a result of changing scientific understanding, a result of changing herd patterns, or a bit of both?

MR. RETTIE: I would think probably a bit of both.

MR. BEDDOME: That's essentially what I had assumed, but I appreciate you for clarifying that.

MR. RETTIE: If I can clarify, I think into the future, given the quality of the information we have presently with all of the animals that we have radio marked, we actually have a very good understanding of where animals are distributing themselves now. And so 10, 15 years from now, when we see a difference in where

animals in an area are spending their time, that that won't be a technological issue, that won't be a scientific understanding question anymore, that will instead be because the populations have actually shifted where they are residing.

MR. BEDDOME: So we'll have a much better idea, it's not necessarily a lack of knowledge, but now it's actual range changes, we'll be better able to measure that?

MR. RETTIE: That's right.

MR. BEDDOME: And so that goes to the point that, you know, you made a comment, I can't remember which one of you it was. I think if you could have all the data to forecast 10 to 20 years out, that would certainly be greater -- I think that was in response to Mr. Meronek about the five-year cumulative effects. But it would be fair to say there is a lack of data then, in terms of truly trying to be able to understand this, you know, threatened species?

MR. RETTIE: I would say that there's a lack of ability to predict some things. I mean, wild fire is a huge one in terms of the extent and the frequency of fire events on the landscape. You know, you can drop something in there that's

completely unexpected or of a size that we could not foresee at this point in time, and it could change a lot. So I don't know that that's a lack of scientific information. Some of that's, if you go ten years down the road, that's -- it's a very difficult thing to predict.

MR. BEDDOME: And in terms of predicting, is there a threshold or percentage in terms of percentage of a total population of an ecological unit, being a herd of caribou, that you attempt to capture for radio collaring data in terms of statistical significance?

MR. RETTIE: Yeah, I think that probably we'd be looking at a minimum of 20 individuals. The number of animals that you seek to include depends specifically on the question that you're trying to answer. And so the number of individuals and the duration over which you are monitoring those individuals will allow you to answer different questions. You know, 20 is I think probably at the minimum end of the sample size that you'd want to be looking at. And following them for three to five years is probably an appropriate period of time.

MR. BEDDOME: Okay. But then -- so

you're saying 20 individuals is a minimum, almost regardless of population size? Like you'd obviously want a larger size if you had a larger caribou herd, or not necessarily?

MR. RETTIE: You would want a larger size, but it doesn't increase proportionally to the size of the population. I mean, if you were up to 40 to 50 individuals, even if you had a population of a thousand animals, that would be a good sample size.

MR. BEDDOME: Okay. Even if you had a small population of 80, you would still want hopefully 20?

MR. RETTIE: That's right.

MR. BEDDOME: I just sort of noticed you were saying you'd want 20 animals and three to five years, but in this case you didn't have 20 animals per herd and you weren't in fact monitoring them for three to five years. That would be correct, right?

MR. RETTIE: Not to date, but monitoring is undergoing still, it's underway at the moment.

MR. BEDDOME: How many years further do you anticipate monitoring for?

MR. SCHINDLER: I believe the monitoring plan is still being developed, but from what I know there are commitments to carry on with the monitoring of the ranges that are affected by the Bipole III project.

MR. BEDDOME: But you're not sure how many further years?

MR. SCHINDLER: I couldn't tell you exactly how long that is planned.

MR. RETTIE: We are in year three already for most of the herds, or beyond.

MR. BEDDOME: Okay. I think that will actually help me to move to, I think it is just three slides up from where we are -- oh, we moved -- three slides from the last slide we were at. So I think it would be 30. I could be wrong. It's the one entitled Pre-project Collaring Telemetry Studies. I guess it isn't necessarily fully relevant, given some of the information you have given me, but if you could just sort of give me a sense of the herd size of each of the Reed Lake, The Bog, Wabowden, Wheadon, Wimapedi-Wapisu?

MR. SCHINDLER: We have a table with that. We can get you those actual counts, but I can give you the --

MR. BEDDOME: If you'd like to do that by way of undertaking, I'm fine with that.

MR. SCHINDLER: We'll get you the right numbers.

MR. BEDDOME: I just noticed that we don't have 20 animals per herd in this data. I guess we do for Wheadon, and we are fairly close for The Bog by 2010, but I notice that doesn't quite meet the 20 animals.

MR. RETTIE: One thing I should note here is this is cumulative, so these were the radio collars that were deployed, so those collars are still active year after year. So in the Wabowden area, for example, in 2009, ten collars were put out, ten more were put out in 2010. But for the ones from 2009, other than the animals that may have died in that intervening year, are still active. So by the end of 2010, we were looking at, at the bottom four ranges there anyway, having -- well, no, in all of them we would have had 20 collars deployed in all of those.

MR. BEDDOME: With the exception of Reed, I guess?

MR. RETTIE: That's correct.

MR. SCHINDLER: If I could just clarify? On the Reed Lake it was almost like -- what had happened during the initial collaring when we were working with Manitoba Conservation to target the herds, it was actually a newly discovered group of caribou that were near the Wuskwatim transmission line on one of the routes, and those animals were subsequently collared later on in the project, as earlier on it was not known that that was a particular important area for the Reed Lake animal. So it was kind of like new information. So the collaring on that area was a little bit delayed compared to some of the other areas, so...

MR. BEDDOME: And I think you have answered this, but just for clarification, the collars last roughly three years is sort of the battery life of them?

MR. SCHINDLER: Um-hum.

MR. BEDDOME: So those 2009 collars will be depleting off, and are you planning to collar again this winter?

MR SCHINDLER: I believe that there is plans for continued monitoring, and I don't have the specifics of that as it's beyond the licensing

and everything here. So I know Manitoba Hydro has plans to carry on and continue monitoring.

MR. BEDDOME: On page 29 of your August supplemental caribou report, I was just sort of curious, you talk about calving sites on that page. I don't know if it is fully necessary for you to review it, but I just want to give you the pinpoint where I was referencing. Do calving sites move from years to years, similar to as we were talking about the range herds changing, do preferred calving sites move from years to years?

MR. RETTIE: Individuals will use different sites each year, yes.

MR. BEDDOME: And on page 28 there there's only two years of calving site data, I believe?

MR. SCHINDLER: You're referring for Reed Lake, correct, Reed Lake, two sites?

MR. BEDDOME: Yes, I think so, yes. Although for the other herds did you have more than two years data?

MR. RETTIE: Yes, in table 16 on that page you'll find there's a listing of the number of calving sites per evaluation range by year. So some -- for the Wimapedi-Wapisu range, for

example, there's data from five different years.

MR. BEDDOME: From five different years, and each year -- so an animal doesn't necessarily come back to the same calving site, in fact, each year it changes?

MR. RETTIE: Yes, I would think it would be more likely for it to change than for it to return to the same site.

MR. BEDDOME: So you've got anywhere from two to five years data there for the calving sites. In terms of changing, is it not possible that over a decade or more that that could change substantially?

MR. RETTIE: Yes, it is possible.

MR. BEDDOME: And with only having two to five years data, is it not somewhat difficult to forecast that?

MR. RETTIE: In terms of --

MR. BEDDOME: Calving sites in particular?

MR. RETTIE: Well, I can describe to you how these data were used to identify potential calving sites in the future. What happens is, for each one of the areas where an animal is observed to use a site for calving, we looked at the

attributes associated with that site. So regardless of the year, for a given evaluation range, we looked at all of the attributes, the habitat attributes, the distance to different features, the configuration of the habitat patches. And from those we extracted the variables that best explain what the characteristics are of those sites. So it could be the same animal in two different years, it could be ten different animals in one year, eight different animals in the next year. But collectively for that range, we looked at what habitat characteristics best explained what made that site different than any other site in the evaluation range. And so then we took that information and we then projected, we went out and said, okay, where are the other sites that have these valuable habitat attributes and how are they distributed across the landscape? And so that's what we used to then create those calving potential. That coloured diagram that I had that had the little hexagons on it, that's a result of projecting out, based on known information.

MR. BEDDOME: Okay. I think that makes sense. Just to really simplify it, it was

almost sort of to a certain extent where your habitat model met with some of your collaring data and you were then able to further sort of extrapolate from that?

MR. RETTIE: It is not just where it met with collaring data, but also how it differed from sites where animals were not -- or rather more properly than a random assortment of sites from within that range, a large number of random points, what made the sites used by animals special?

MR. BEDDOME: Okay, thank you. That handles that area.

Correct me if I'm wrong, sort of as I was reviewing some of the reports last night, when you guys analyzed -- and once getting your August report, the Wuskwatim as a case study, there was really only one year of collaring, I guess you might have got three years of data out of it, but collaring in 2007 and 2008, and then collaring again in 2011, right, in terms of analyzing the pre and post. Am I correct on that?

MR. SCHINDLER: Yeah, there's a table 29 on that page 38.

MR. BEDDOME: Thank you. And so given

that, is it not fair to say that that's sort of a bit of a small sample size, and that certainly it would have been preferable to have, you know, three to five years of monitoring pre-construction, and three to five years monitoring post construction?

MR. SCHINDLER: I would agree in an ideal situation the study design would have those types of attributes. I believe Jim hit on a really good point in terms of the number of collars relative to your objective of your study. And obviously it would have, you know, increased the results considerably. You'd have more animals collared. You know, perhaps the one winter prior to construction, maybe you didn't need three or four years, but just to get some relative information, it would be nice to have the variability. But that initial collaring was part of an initiative by Manitoba Conservation that requested Manitoba Hydro's assistance. So I think they were just trying to get some distribution. And during winter you can have one collared animal that can actually represent the movements of many other individuals within the groups or bands or small herds that they are associated with. So a

smaller number of collars can be used to give you general distribution, but definitely for looking at discrete movements, you know, a higher sample would certainly help.

MR. BEDDOME: Correct me once again if I am wrong, but your general conclusion on that was because the animals seemed to be utilizing the areas close to the corridor, sort of your general argument seemed to be that that seemed to show that the impact was minimal maybe would be the word to use?

MR SCHINDLER: Well, I was not around when those initial collars were placed. But from my understanding and looking, it was a joint project between Manitoba Conservation and Manitoba Hydro to look at pre-project distribution and looking at using whatever information they could to look at the effects of the construction. And this analysis kind of provides that particular analyses.

MR. BEDDOME: Is it not possible the animals are using it more as a corridor, though, rather than actually utilizing the space by utilizing the transmission line as a transportation corridor?

MR SCHINDLER: I don't think our data really demonstrates that. I think it illustrates that some of the core use areas are in proximity to the transmission line. Actually, a lot of them are.

MR. BEDDOME: This is a total side question but just, you know, I note Bipoles I and II go through several caribou herds almost intersecting them directly. Are either of you aware of any studies that were done, pre or post Bipoles I and II, and even studies that have been done post that tried to look at the impact or model or quantify that impact in some way?

MR. SCHINDLER: I guess you'd be referring to ranges like William Lake, the Interlake?

MR. BEDDOME: I think it's the Interlake herd, the William Lake, Harding, is it?

MR. SCHINDLER: Harding Lake is a long ways off from Bipole.

I'm not really aware of any particular studies. I know Conservation has done some monitoring in those areas, but I don't think it is specific research relative to linear development in the north Interlake, for example, looking at

the effects of transmission. So I'm not aware of any.

MR. BEDDOME: I was just hoping there might be a study to get you to take an undertaking to provide, but if there's none you are aware of, that answers the question there.

Because in many cases you were paralleling existing linear developments, be that Wuskwatim transmission, or in some cases highways or other provincial roads, logging roads, that you felt that that mitigated the impact to a certain extent, correct?

MR SCHINDLER: Well, it certainly provides an opportunity to minimize the effect as opposed to going through areas that have no disturbance in them.

MR. BEDDOME: But couldn't having a second or even a third linear disturbance, couldn't that be -- how should I put it -- the straw that broke the caribou's back, so to speak, that at a certain point, you know, the first linear development it will cross, but after so many linear developments, it becomes too much for it to cross?

MR. SCHINDLER: Part of our analyses

has looked at various barrier types, and I think we described it in our presentation there. For example, like the number 6 highway with Bipole III, which is a fairly significant disturbance if you look at an actual paved highway, relative to the Wuskwatim transmission line, which is a double line currently, like north of highway 39, which in effect would be similar to Bipole III paralleling the Wuskwatim line south of 39, which is going -- so it would be a very similar case study in terms of the width of the transmission line. So the actual Wuskwatim case study provides us an example of a -- it's basically a double wide transmission facility right now. So it's like it is 120 metres. Where it parallels the Wuskwatim line south of 39 towards The Pas, that area, those existing transmission lines are 60 metres. So it would, in essence, be a similar infrastructure to what you'd see in the area north of Snow Lake.

MR. BEDDOME: Moving on -- did you have something to say, Dr. Rettie?

MR. RETTIE: No.

MR. BEDDOME: Okay. In one of your slides, and I'm not going to reference which one, I don't think it's that relevant, but you made a

comment that your study also tried to incorporate aboriginal traditional knowledge, which I'll refer to as ATK. Is that correct?

MR. SCHINDLER: That is correct.

MR. BEDDOME: How did you attempt to incorporate that knowledge into the study? Would you give a brief outline of the methodology of that?

MR. SCHINDLER: I think it was an undertaking yesterday that we will be providing in terms of all of the reports and the timing and so on, that has been incorporated into the final assessment of the routes. The reference to caribou was mainly associated up in the Fox Lake area, in the northern part of the project component where, you know, much of the description of the caribou that utilize the area up in the Gillam area were very consistent with what we found in the collaring results. So that information was incorporated and included.

ATK information on boreal caribou, there wasn't a great deal of discussion relative to caribou in many of the reports and interview questions that we had. But where it was available, it corroborated some of our knowledge

of known caribou locations, et cetera.

MR. BEDDOME: So in general you found the ATK corroborated what you found in your studies?

MR. SCHINDLER: Yeah, and I don't recollect any real contradictory issues relative to caribou and ATK in terms of location or known occurrence or use.

MR. BEDDOME: The reason I ask is just that I have noticed in some of the ATK reports that I'm sure were probably done separately by a separate part of Hydro, but there were numerous comments that caribou weren't crossing roads and Hydro transmission lines. And I think we've talked that there's not a great amount of data going back 50, 60 years or beyond to look at, and to me I was sort of wondering. So if ATK doesn't corroborate your scientific modeling, what knowledge base prevails? I mean, you are hearing one thing on the ATK side, but then your studies are leading you to a different conclusion. How do you put the two together, or does one prevail over the other, or how do you deal with that?

MR. SCHINDLER: Are you referring specifically to caribou crossing the road?

MR. BEDDOME: More just that -- I was referring to there was a number of self-directed, as well some Aboriginal traditional knowledge reports. I am not sure if you have reviewed them, I am not sure if they were done by someone separate from yourself. But I noticed that there were a lot of comments that, from my perspective, seemed to be stronger than perhaps the findings of your caribou technical report. And I guess I'm wanting to know if those two don't meet and corroborate each other, but somehow you find a split, or a schism, or a difference of opinion, or maybe I am not using perfect words for it, but you find they are at odds with each other, how do you determine which knowledge base prevails? How do you try to mend the two together I suppose?

MR. SCHINDLER: Well, like something like caribou hesitance to cross the road and so on, I mean, we have demonstrated in our data that there is some effects. So in that case I would say they tend to corroborate each other.

MR. BEDDOME: If they don't corroborate each other -- so you're saying the impacts will be minimal and not significant, and the findings on the opposite -- and I think this

can be as true for caribou as it could be for moose, but the findings from the traditional knowledge holders is different. You know, what do you do at that point when they are at odds, when they don't corroborate? I mean, it's certainly easy when they corroborate, but what if they don't corroborate?

MR SCHINDLER: Well, the ATK reports were wide and varied across the entire study area. I mean, there were statements and opinions, and even with the ATK reports themselves, sometimes there's variable differences in opinions, you know, trappers or other people. And so I think essentially we utilized it, and if there were, you know -- and it would have been incorporated just to corroborate. And areas where there were significant differences, I mean, there were -- they might be relative to a different situation in a different area. But, I mean, we used our best judgment in terms of incorporating where we felt it corroborated and it supported. And then the areas, we assessed those effects based on our professional judgment, including the ATK, you know, that we do take to heart and look at very seriously. And again, it was at various levels

throughout the area, the ATK.

MR. BEDDOME: So it essentially becomes a decision of professional judgment?

THE CHAIRMAN: Mr. Beddome, I think that's a very good question. I think you should probably hold it until next week when the ATK panel is back on the stand.

MR. BEDDOME: Sure. But I was posing this to the scientific people in terms of how they -- I mean, I think I've got the answer so I'm moving on anyway. It was just a clarifying question. I think you more or less said that.

MR. SCHINDLER: Yeah, and I think that the ATK component into the EIS, like those things were discussed later.

MR. BEDDOME: And my last question just sort of related to the risk of parasites and, I will take a little bit of a preamble. But I just noticed The Bog herd seemed to be the southernmost herd that you focused in on. Is it not possible that interactions with white-tailed deer would be heightened for The Bog herd, particularly if we saw more agricultural development in terms of clearing land so that it created habitats that were more conducive to

white-tailed deer? So would it be fair to say that, although you didn't find that the parasite risk was very large, and given that The Bog herd is a somewhat isolated herd so it's a somewhat fixed genetic pool, would it not be fair to say they have a slightly increased risk of a parasite infection versus the other herds that were studied?

MR. RETTIE: I mean, there are deer in the area, very few of them, but if there was an agricultural development that's altering landscape at a large scale into a type of habitat that's more appropriate for deer, then, yes, I would think that you would find a greater deer population. And consequently, any interactions that they might have with adjacent areas where there are caribou, yes, I would think the possibility would go up. But we didn't address what might happen with agricultural development.

MR. BEDDOME: You didn't look at all, in your cumulative effects assessment, as to any sort of land developments in that region?

MR. SCHINDLER: We know, and I think the Carrot River Valley, The Pas area, as you know it's been diked and so on, and the availability of

land for agriculture between Red Deer Lake and The Pas would be confined. And there's been deer in The Pas for 60 years, and our discussions with the wildlife managers and people in The Pas, and there are sustained populations of deer within The Pas per se, but the persistence of deer as a result of disturbance within that habitat between Red Deer Lake and The Pas area -- I mean, it's not agricultural land, it's predominated -- and I think you saw Jim's maps in terms of the types of habitats, it's very boggy, it's extremely -- a lot of peatland, it is not good deer habitat. And even with some limited forestry operations that even the forest productivity is very low, that the disturbance level from forestry and linear is not enough to accommodate, you know, long-term persistence of deer at the populations that would be required to transmit brainworm. That, in combination with the fact that brainworm is not prevalent in Western Manitoba, also adds to our reduced concern for brainworm in that particular area.

MR. BEDDOME: So you don't have a very high concern because of the reasons you just gave, basically that you think it's not an issue in the

Western area, but would it still be, just as a yes or no question, would it still be fair to say that The Bog herd is at a heightened -- in comparison to the other herds -- heightened risk of disease and parasites?

MR. SCHINDLER: Yes.

MR. BEDDOME: Thank you. That concludes my questions. I really do appreciate it, gentlemen. I know it's probably not easy being in the hot seat, so...

THE CHAIRMAN: Thank you, Mr. Beddome. We'll take a break now and come back just before quarter after. At that time, Ms. Whelan Enns, if she is still here, will have an opportunity to cross-examine, followed by the panel.

(Proceedings recessed at 2:57 p.m. and reconvened at 3:15 p.m)

THE CHAIRMAN: We have the last cross-examination today is Ms. Whelan Enns and that will be followed by a few questions from panel members.

MS. WHELAN-ENNS: Thank you, Mr. Chair. I just want to be specific in terms of starting, that these questions are from Manitoba Wildlands, and that the transcript needs to

reflect that as in one voice or one organization at a time.

Mr. Schindler and Dr. Rettie, I have some questions in relation to moose and some questions in relation to woodland caribou. I'll try to keep them separate or indicate when the questions are moving back and forth. Thank you.

If I may, as I arrived today I believe it was the Consumers Association cross-examination.

Mr. Schindler, you referred to relying on 20 year forest management plans as one of the sets of information in terms of your work regarding these two species. Would you just tell us which plans, which companies?

MR SCHINDLER: Actually that works for the cumulative effects component of the caribou, and it was Tolko's long-term harvesting plans data that we used in the cumulative effects for caribou.

MS. WHELAN-ENNS: Thank you very much. In the moose slides, again we are all coping with being a little black and without numbers, but I will do my best to make sure I am clear. This is the moose, as the VEC. Have you, in your analysis

and your assessment work, applied what -- and this is a non scientist asking a scientific question -- applied the law of the minimum at all? Have you assessed any effects if we have moose disappear from any of the ranges that we know about now? You do make a reference to 80 percent of boreal forest wildlife in the same habitats, that is more the question?

MR. SCHINDLER: I think the comment was relative to the habitat requirements of moose represent a broad range or a spectrum of species that occur in the boreal forest. And this rule of the minimum, you're going to have to clarify for me a little bit. What are you asking specific of, I'm sorry?

MS. WHELAN-ENNS: Again, it is a lay person's question. The law of the minimum has generally got to do with when the primary or umbrella species in an ecosystem is gone from that ecosystem, then basically it puts a species that are usually in that habitat, in that ecosystem, with that umbrella species, puts them at risk. So my question is whether you have included any of that kind of perspective in your assessment?

MR. SCHINDLER: I think the abundance

of moose within areas is a factor of a number of other things, not specifically related to habitat quality. The abundance of moose is strongly a factor of hunting and harvest levels clearly. The availability of moose habitat, there are certainly areas of high quality moose habitat that would still produce areas that are acceptable to that whole suite of other species that would utilize those habitats, birds, mammals, all types of creatures that would still occupy those habitats in the absence of moose.

MS. WHELAN-ENNS: Thank you. Just a small comment in terms of turning pages, there are sections in some of these slides, because they are reverse on black that are not readable. The first one that hit me is the second lower page one headed "moose" in a series that have the same header.

MR. SCHINDLER: Would you like me to go to the slides?

MS. WHELAN-ENNS: I think it would take -- I mean, we might have the occasional one we need to look at, but I think it would take more time than the panel wants to use, so let's just see how we do. I have been through the EIS, our

summary of it, and also certain of the technical reports, focusing though mostly on the presentation in front of us. Could you give us just a -- and I know there's been questions in this -- associated with this asked already. Do you in fact see moose predators and predation increasing once the corridor is in place?

MR. SCHINDLER: I think we have looked at and acknowledged the fact that linear disturbance or linear development can be a conduit for increased predation. I mean, it's that notion. What is unclear, and there is not definitive literature to state that specifically a corridor such as Bipole III as a transmission line corridor will definitively result in X number of extra predation events, et cetera. There is various types of evidence in the literature regarding the effects of linear development. There are studies that say that wolves avoid roads. There are studies that say wolves use roads and trails. There are, you know, for example, caribou avoidance of roads, and wolf use of roads is documented in the literature as well. So it's not the type of topic -- and I think we discussed it the other day in terms of the effects

of predation is not necessarily crystal clear in the literature, but we did include that in our evaluation, definitely.

MS. WHELAN-ENNS: Thank you very much. I am now on the slide that is the second one with the header MCWS moose management, and it has to do with the closure. I was somewhat surprised to see a reference under enforcement to the addition of two new natural resources officers, and the reason for the surprise, of course, is the Government of Manitoba information, the jobs bulletined, the positions filled are for a new biologist position in each of the regions of the province where the moose hunt has been closed. Are you comfortable with that correction?

MR. SCHINDLER: I'm aware of that, and that was information that came from Manitoba Conservation and we did not want to change it, but that's a very good point.

MS. WHELAN-ENNS: Thank you. In the slide, the top of the page, historical data Duck Mountain Provincial Park, and the sequence of slides then in your presentation, my comment or request of you would be would you tell us, please, the sources of the data? And again, I know

there's other technical work, and that the EIS is thorough, perhaps thorough with more content about woodland caribou than moose. Is all of the data from the Province of Manitoba on these slides?

MR. SCHINDLER: Yes, it is.

MS. WHELAN-ENNS: And so when there's a variable in terms of start year and end year, is that because you have selected start year and end year, or because there's data only for those years?

MR SCHINDLER: Only data for those years.

MS. WHELAN-ENNS: So if we have historic data for the Duck Mountain provincial park in terms of calves from the 1960's until now, then we'd only have from the 1990's until now in terms of estimates from the total population?

MR. SCHINDLER: From the data that we had available to us that is what we ascertained. That is the data that we had.

MS. WHELAN-ENNS: Interesting. Thank you very much. I won't repeat the question, but that sort of jumped off the page a little bit in terms of the stop and start years, and these population in calve graphs. It is a little bit

surprising -- I am going to, if I may, indicate why the question and that is, of course, the Government of Manitoba since late 1940's, early 1950's has been tracking all data from trapping, and yet the same dynamic in terms of the collection of the data, which they had to pay to track and pay for fur, they were also then including any of the significant -- any significant ungulates or large mammals that were being hunted. So that data, it exists. So this means then your answer is this is the data we were given.

MR. SCHINDLER: It terms of population census and data on cow/calf ratios, actually some of the data we went to the library, the Natural Resources library and acquired. But it's all sourced from Manitoba Conservation.

MS. WHELAN-ENNS: Thank you. What I was basically indicating is that since the 1950's at the very least, moose data is in the data that all the precursors of Manitoba Conservation and Water Stewardship department have been called, where they have collected that information at the same time as trapline information. So I won't repeat the question again in terms of the other

data and other charts, but it's a lot of stop and start dates, and I accept what you're saying in terms of the information as you were given it.

Moving rapidly, it's a challenge for a lay person to understand the relationship between the results in your studies and assessment regarding moose and the direct relationship to the project area, study area, the local study area and the corridor. One of the reasons that's a challenge in our office is because we routinely map these things. And the most recent data received from Manitoba Hydro, and this is about a week ago in our office, is a 4.5 kilometre wide impact zone. So that's varying from the information here from, you know, 3.8 to 4 to maybe 4.5, if we looked in the transcripts.

The reason why the introduction and comment on that is because it is hard to understand as a lay person the relationship between the number of moose in the study area and the local project area, of the size of their ranges, and what appear to be in your answers yesterday, that when you hit the edge of the study area you stopped, even if the range area for moose or caribou went farther.

Now am I understanding correctly that that's what happened in your assessment, is that you stayed in the boundaries of what you were studying, even if the herd area or range area went wider?

MR. SCHINDLER: I think what I described yesterday was the fact that the local study area was that 4.5 kilometre band in association with the 66 metre right-of-way. Habitat was assessed within those areas. And what I described yesterday was the relationship of the right-of-way in relation to the moose habitat requirements, and the range requirements of moose across a broader landscape, and understanding that there are many different components of habitat for moose, and that the FPR represented a relatively minute proportion for any particular moose or groups of moose, or range of moose throughout that area.

MS. WHELAN-ENNS: Thank you. The slide I'm looking at now is evaluation of alternative routes, which is after evaluation of alternative routes with a right-hand map on it. Would you tell us, historically, how far south on the west side of Manitoba we had moose? So go

back 50, 60, or 75 years, and tell us generally, if you will, the historic range for moose?

MR. RETTIE: My understanding is that moose were all the way down to the U.S. border in the Turtle Mountain areas.

MS. WHELAN-ENNS: Thank you. The slide here is evaluation of the FPR, and it's the fourth one in the sequence with that header. I think there is six in total. There's some reference here to the Wuskwatim transmission line and the rail line. And again this may be a layperson's question, or difficulty in understanding, but I think that your slide says there's already one transmission line, so adding another transmission line will have little increase in impact on moose?

MR. SCHINDLER: The principle of following existing linear development relative to moose, and the predicted affect of increased harvest and mortality by predators, is based on, if you've got an existing linear feature, you already have that access, so that effect is already in place. So by sticking close to an existing effect, you're not creating an additional effect in an area away, or through an unfragmented

habitat. So it takes opportunity of existing disturbance to minimize the impacts beyond the area.

MS. WHELAN-ENNS: Thank you. The slide I'm looking at now is the incorporation of ATK, it's about two pages later. I'd like to know whether you were asked or included in your assessment the value of the subsistence economy with respect to hunting moose, and whether there was going to be any impact in that regard, or effect in that regard? I understand what you said overall in terms of insignificant effects, but this struck me as perhaps something that's missing.

MR. SCHINDLER: It's probably dealt with in the socioeconomic component in terms of that particular use. I would probably defer that to those that looked at that particular issue. But I can tell that you that we did, you know, we looked at the effects on moose, the ecological, and the significance of those effects were based on moose per se, so...

MS. WHELAN-ENNS: Thank you. And I'll take that as direction in terms of double checking in the socioeconomic analysis.

The slide below that in terms of mitigation, I know that an EIS is a theoretical advanced set of assessments, as are hearings. What I wanted to ask you, given that this slide is pretty much about the planning and routing exercise, and in advance, therefore, theoretical. Are you comfortable and are you certain that these statements in terms of mitigation will continue to be effective and true once construction and then long-term operation is going on?

MR. SCHINDLER: Our effects assessment was based on the mitigation that we presumed to be in the EIS, and I would expect Hydro, and I think they are going to be talking about mitigation and monitoring, that all I can tell you is that our assessment of residual effects is based on the description of these mitigation, and the successful application of these mitigation measures.

MS. WHELAN-ENNS: Thank you. I switched PowerPoint presentations and documents, I have switched to caribou, there will be a few crossover questions at the end. The slide I'm looking at is barren ground caribou. I was struck by the reference to habitat that is occasionally

occupied. Tell me if I'm correct, if you would, that we are talking about wintering grounds?

MR. SCHINDLER: That would be correct.

MS. WHELAN-ENNS: Okay. So wintering grounds each year?

MR. SCHINDLER: The Qamanirjuaq caribou, I think occasionally would be one way to determine that they are not known to enter into the study area on a regular basis.

MS. WHELAN-ENNS: Is that also true then for the Beverly herd?

MR. SCHINDLER: The Beverly herd, less.

MS. WHELAN-ENNS: Thank you. I am not up to date in terms of the Beverly Qamanirjuaq herd management methods and so on, but we all generally know its multiple jurisdiction has been in place for, I want to say 25 years, it might be longer than that in terms of data collection and monitoring these two huge herds, including their wintering grounds in Manitoba. The duets -- I call it a duet system in terms of how there's two people also on that board for each and every community in Saskatchewan, Manitoba, north of 60 and so on -- is a model. It's considered a model,

I believe probably internationally.

One of the things I'd like to ask you then is, how do you view their standards in terms of, for instance, when they assess survival rates, when they assess calving rates? Do you agree with their standards? They have 25 years plus data.

MR. SCHINDLER: Yeah, dealing with barren ground caribou, they do a number of different types of surveys. They do calving counts on the calving grounds, for example. The productivity or the calving success can be much, much higher in migratory populations. They use a lot of photographic counts doing their, you know -- the scientists there are obviously doing good work.

MS. WHELAN-ENNS: It's a while since I've seen the reports, but I've already been impressed by the fact that they, on survival rates, for instance, or calving, that they definitely use multiple years.

MR. SCHINDLER: Um-hum.

MS. WHELAN-ENNS: And they share data obviously in terms of the multiple jurisdictions, because it's four or five, depending on how you count the Federal Government in. And I wanted to

ask you about that a little bit, because the common sense, of course, is the best way to handle the data to get answers from assessment and management of herds is to use longer time gaps, time periods, and comparative periods. Would you agree?

MR. SCHINDLER: I would agree.

MS. WHELAN-ENNS: Thank you. I am on the slide that's under Cape Churchill, it says Pen Island. And I wanted to -- it's sort of a little bit like the occasionally inhabited question. And that is, would you agree with my description that the Pen Island herd is from Hudson's Bay, Ontario, and it comes down through Ontario into Manitoba?

MR. SCHINDLER: Yeah, it includes a number of calving areas from the Pen Islands up through in Ontario and into Manitoba, definitely.

MS. WHELAN-ENNS: Thank you. The slide I'm looking at is the Aboriginal traditional knowledge slide. There is a chart on the bottom of the previous page that's range size comparisons. In the cross-examination and questions from the Manitoba Metis Federation counsel yesterday, I believe you were asked what Aboriginal traditional knowledge you had

accessible to your team to do the assessment that you were undertaking. And I believe your answer was that you had the same ATK information as the other specialists did.

MR SCHINDLER: Yeah, that's correct. I believe there is an undertaking on that, so we're putting that information together.

MS. WHELAN-ENNS: I was glad to hear that. It is a little bit difficult to understand because there were sort of about three tracks in terms of how the ATK was acquired, because there is historic independent community core projects, and the workshops and independent interviews. So that's been going on for quite a while. And I'd appreciate if you could tell us what the cut-off point in time was for your work and your team's assessment in relation to the ATK information and data you had? Did you have it as of, you know, March 11, November, 2010, more recently?

MR. SCHINDLER: I believe that's part of that undertaking, so we just wanted -- there was a number of reports that were available at different times and in draft form, and final form, so we want to make sure we get that to you.

MS. WHELAN-ENNS: Thank you very much.

And sorry for the repetition, but that was what struck me, is it can't have all been at one point in time for all of the specialists and external experts. There are some references then in this slide and following slides to the National Recovery Strategy, 2012?

MR. RETTIE: Yes.

MS. WHELAN-ENNS: So is the National Recovery Strategy 2012 incorporated into your assessment and your technical reports?

MR. SCHINDLER: The final version came out after the formation of our reports, so any subtle changes, and there are some differences, they were not incorporated just because they came out very recently.

MS. WHELAN-ENNS: Thank you. I think that's worth establishing, because the 2012 recovery strategy is quite recent.

MR. SCHINDLER: Yes.

MS. WHELAN-ENNS: And there are then some, it's my understanding, directives in terms of certain of the woodland caribou herds that are potentially affected by Bipole III. That is this strategy is specific about certain Manitoba herds, is that correct?

MR. SCHINDLER: Yes.

MS. WHELAN-ENNS: Okay. The slide below refers to woodland caribou management in Manitoba and to Manitoba strategy. Could you tell us then whether this is the 2001 strategy or the 2005 strategy?

MR. SCHINDLER: That would be the 2005/6, with the wrong date on it.

MS. WHELAN-ENNS: Yes. And we would agree in this room then that the 2011 woodland caribou strategy released by Manitoba Conservation, with a title page, as it's province wide, only pertain to the herds, four of them on the east side?

MR. SCHINDLER: That is correct.

MS. WHELAN-ENNS: Thank you. Flipping to the next page in terms of the Manitoba Hydro process to evaluate threats to boreal woodland caribou; could you tell us then whether the participants in your formal process or your experts' workshops, or workshop, whether there were any First Nation or Aboriginal experts involved?

MR. SCHINDLER: There were no Aboriginal or First Nation experts involved.

MS. WHELAN-ENNS: To ask the question again slightly differently, did you have then any advisers or any elders assisting you in this two-pronged approach?

MR. SCHINDLER: No.

MS. WHELAN-ENNS: Thank you. I am on the expert workshop key recommendations. I know you have had a variety of questions in terms of that expert workshop to date. I was struck by sort of where it stops again. Layperson's question, and that is, were there key recommendations from the workshop, or maybe second tier recommendations from the workshop in terms of what to do after the monitoring, based on the results of monitoring?

MR. SCHINDLER: There was actually a publication that we could get to that really describes the detail, you know, you can't get it all onto the slide.

MS. WHELAN-ENNS: I recognize the PowerPoint presentation and what's in front of us in the room here can be limiting. But it struck me that, I mean, sometimes it maybe needs another slide, but I'm aware of that other publication and thank you.

MR. SCHINDLER: Yeah, you're welcome.

MS. WHELAN-ENNS: The slide below that makes another reference in terms of your assessment of historic and known provincial distributions for woodland caribou. It's the same as my question in terms of moose. And I accept what you're saying in terms of the data you were provided with versus what I believe is in fact out there, though it would be stronger and more thorough regarding moose because of the subsistence economy, the same people who were trapping or hunting moose, and that data has been collected for, as I say, about six decades.

Okay. Turning rapidly, honest. I'm on the slide that is the first Wuskwatim slide. Wuskwatim case study summer, pre and post. You are showing more woodland caribou activity after construction in this snapshot?

MR SCHINDLER: Yes.

MS. WHELAN-ENNS: And you're referring to the case study. So correct me, but basically I don't think the case study is EIS, maybe it is, and I don't know that?

MR. SCHINDLER: It's in the supplemental technical report.

MS. WHELAN-ENNS: Fair enough. I'll take a look at our summary again. I'm somewhat obligated then to ask you, based on these two snapshots, whether you expect further increase in woodland caribou activity after the construction of Bipole III?

MR. SCHINDLER: I think the purpose of the before and after case study for Wuskwatim was to attempt to illustrate some of the pre use and post use. And I think what we also explained on this particular slide, that the collaring effort was much greater post construction, therefore, there is a lot more density of locations within those areas. So I would suggest that it lead in and assisted with the assessment with the effects of linear development on boreal caribou, core range.

MS. WHELAN-ENNS: Thank you. So it is as much a reflection of the intent and activity of monitoring, more collaring?

MR. SCHINDLER: The intent is to learn from the Wuskwatim case, and that was one of the reasons that Manitoba Conservation initiated some of the initial collaring studies in 2007 in those areas. And it provided a good opportunity to look

at the movement patterns and location of wintering areas and calving areas during, or after construction.

MS. WHELAN-ENNS: Thank you very much. I am looking at the bottom statistical slide on annual survival. I asked my question earlier, so this is just to basically indicate that we are looking at two years only. Basically you can see --

MR. RETTIE: For the annual survival?

MS. WHELAN-ENNS: Yes.

MR. RETTIE: Yes, correct.

MS. WHELAN-ENNS: Thank you. I have already asked in terms of whether or not the 2012 Environment Canada Recovery Strategy was part of your work. I'm commenting on that again because in your note slides, you made another reference to the 2012 strategy, which is only just out. Do you anticipate any further advice to Manitoba Hydro or to the panel in terms of any adjustments in your assessment and your technical work, based on what's been prioritized in the 2012 strategy for Manitoba herds?

MR. SCHINDLER: I believe the fundamental elements relative to disturbance

thresholds are the same between the draft version and final version, and that the affects assessment that was conducted for boreal caribou would stand in terms of that particular revised document being released in its final format.

MS. WHELAN-ENNS: Thank you. There are certain herds though now, as of three weeks ago, in the National Recovery Strategy specific to this project that have specific directives. Again, layperson's interpretation, the cumulative effects charts I believe are on five years data. There's black left-hand and maps on each of these snapshots. Are they five years data?

MR. SCHINDLER: Yes.

MS. WHELAN-ENNS: Thank you. It's an obvious statement, but it's evident from your assessment and technical reports and participation here that you have essentially concluded that the threat to boreal woodland caribou from this project is low?

MR. SCHINDLER: I'm not so sure we used the term threat, but the residual effects were not significant would be more appropriate.

MS. WHELAN-ENNS: On the threat summary slide, you are right, it's overall level

of concern is low in terms of how you billed that in threat categories. Thank you.

I'm fairly close, Mr. Chair, in terms of use of time today.

I think the only other thing that I'd appreciate a couple of minutes to do is to, for the benefit of everyone in our relative -- our various roles and responsibilities in these proceedings, and then also who have been working and/or are concerned about woodland caribou, I'd like to, if I may, I can do this by asking questions and I know the two of you know all of this, but I think it's relevant to talk about the rather -- I think perhaps high risk to woodland caribou, delays overall in terms of the national strategy. So under the Act, the SARA recovery strategy was due June 6th, 2007. There was in 2008, a Federal Government report issued, and a commitment in terms of the strategy would be available. That date passed in 2010. And then in August --

THE CHAIRMAN: Are you asking questions or are you making a statement?

MS. WHELAN-ENNS: I sort of asked the question how best to do this. Point taken,

Mr. Chair.

THE CHAIRMAN: If you are making a statement, you'll have an opportunity to do that in a couple of weeks.

MS. WHELAN-ENNS: Okay. I'm going to frame a question or two and stop. Thank you.

So what I'd like to ask you, Mr. Schindler, given that we have been at this for a very long time, including, of course, it was almost a 15-year period in terms of the technical reports before that, which I do actually remember reading, I wanted to ask you whether or not this dramatic length of time in terms of a decision, and then the recovery strategy for woodland caribou, in your opinion, increases the risk to woodland caribou, both in that time, specifically in that long delay time period? It's a general question, not specific to Bipole III.

MR SCHINDLER: I would suggest that the Province of Manitoba has been, within their various regions, have been conducting boreal woodland caribou management in a spirit and intent that is very consistent with what the intention of the National Recovery Strategy is looking towards maintaining those populations and their ranges.

And I think that's an ongoing process. I think there's a number of particular examples in the province on the east side of Lake Winnipeg, the Owl Lake integrated forestry strategy, for example. There's other integrated projects on the go. I don't think that caribou have suffered as a result of the delay of this particular report and strategy. However, it does provide direction moving into the future for these caribou ranges.

MS. WHELAN-ENNS: Thank you. Two quick questions then. You are aware, of course, that in the period of time that we're talking about, that there were literally judicial orders for a Federal recovery strategy that were missed and so on. May I take from your comments about Manitoba's approach to woodland caribou management that you would agree that we have a need for a woodland caribou plan or strategy for Manitoba again since 2005?

THE CHAIRMAN: This is not relevant to this hearing. It's a very relevant question, but it's not relevant to our hearing.

MS. WHELAN-ENNS: I hear you Mr. Chair, and thank you.

THE CHAIRMAN: Thank you, Ms. Whelan

Enns.

Panel members have a few questions. Ms. MacKay?

MS. MacKAY: I have a few questions around bears, particularly as it relates to caribou. You have both indicated that bears, as a predator of caribou young, are just a big question that we don't know anything about. Is that correct?

MR. RETTIE: Yes. Well, there's been some recent information, recent paper I believe, it was from Quebec, where they had chronicled the level of predation by bears on woodland caribou. It's a very difficult thing to study, and I don't think their conclusions were definitive either. But they did note that there was a considerable level of predation. I can find that publication for you, if you'd like, and provide that to you.

MS. MacKAY: I guess that would be useful, thank you. Yes. So it was a considerable level. I guess the details of that don't really matter. How would you go about trying to pin that down?

MR. RETTIE: The studies that I have seen that have related to bear predation on

recruitment levels, they have taken a variety of approaches. It's very difficult to actually study what happens with individual neonatal caribou. First of all, you have to be able to find them at the time at which they are born or very shortly thereafter. And then you'll have to be able to mark them in a manner that doesn't increase their probability of mortality. And then you have to be able to track them essentially on a daily basis. And they are so small, that I remember studies having been done on caribou in the past for barren ground animals, where they would go out everyday, having marked a bunch of calves, and there would be -- they would have a visual observation one day, and the next day all they would find is a collar. They are so small that they can be consumed in a manner of an hour or two and then gone, so you don't actually know what has happened to them.

So the studies that have been conducted, I know the ones conducted in Alaska on moose, what they have done is they have essentially provided supplemental feeding for bears during the calving period, and then they have looked at how that affects an increase in

recruitment. So they have essentially baited the bears away from predation. They have provided them with an easier food source and they have noted there's been an increase in recruitment.

MS. MacKAY: Is there any reason why you couldn't be checking bear feces for caribou protein or DNA?

MR. RETTIE: No, that's a possibility. But whether or not that -- it can be difficult to determine what the effect of that is, how many individuals have been consumed and what the effect of that is on the population. So, yes, you can determine, if you can detect bear skat in the spring, and I know there are people who have attempted to do that using detector dogs, you can determine if caribou have been consumed. But the relative levels of predation are difficult to determine from that. It's a very difficult subject to get at, to get sample sizes that are adequate, and our knowledge of population sizes and the number of offspring that were born in the first place, and then try to quantify loss, it's a challenge.

MS. MacKAY: We're collaring wolves to try and figure out how they are interacting with

caribou. Is there any reason not to be collaring bears to figure out how they are, as part of the answer to how they are interfering or interacting with caribou?

MR. RETTIE: No, I think that's a possibility, but I do think that in terms of actually quantifying predation, it's -- following wolves when they are preying on larger animals, you have typically got a kill site that they are occupying for a day or more and there are remains left behind. But when you're looking at predation on calves, there's virtually nothing left, and I don't even know if you'd be able to determine if a bear had remained in an area long enough to have picked up on that area as a mortality site for where it killed something and consumed it. The calf, there would be nothing left, it would be gone.

MS. MacKAY: But in terms of our concern over caribou, is this something that we should be pressing for more research on?

MR. RETTIE: It's worth considering, yes. I don't know if we should be pressing for more research on it or not. I think, as I outlined yesterday, in terms of a threat of

predation to caribou, there are two things that we would need that I would think would be precursors to our concern. One of them would be evidence that there is population decline, or as I outlined yesterday, there is poor recruitment, and there has been for a couple of years, if that persists then that's evidence that there may be a problem. And then we should perhaps be looking at what the cause of that poor recruitment is, knowing that we have got high pregnancy rates and likely high birth rates, we should be then investigating, if it persists for more than two or three years. And the other thing is to try to determine if there's a likely connection with, if we can come up with a line of reasoning that would connect the low degree of habitat loss, or increase in access that may be provided by a transmission line, and whether or not it would be possible to make a logical link with that as a cause for predation, for those low recruitment rates. And if we can make that link logically, then I would suggest that the impetus for a study would be increased.

MS. MacKAY: And in relation to the right-of-way, is the potential increase in fodder for bears, as in berry crop along the

right-of-way, liable to be any sort of a problem for increased bear numbers in the area?

MR. SCHINDLER: That was actually a very good point that was brought up by our expert panel at the beginning of the studies that we had indicated in terms of our -- the experts, what they predicted, that perhaps this is something that could require some further evaluation and research, relative to creating succulents in a vegetation right-of-way, just as you indicated, in and near calving areas in particular. If you are attracting bears into those areas, it was thought to be an issue that should be investigated.

There is probably a number of ways that you could assess this in terms of looking at locations of female caribou in relation to transmission lines and so on, and then following the success of their recruitment through the summer period, knowing whether or not they are losing their calves in proximity to some of these disturbances as opposed to other areas. So there's ways that we could probably look at, or recommend that maybe analysis of calf survival in and near linear features could be assessed.

Ontario is also -- I wasn't able to

get to the last caribou conference, but apparently they are using camera collars to get that exact information, to find out why these calves are not making it through the summer period. And they are looking at the possible use of -- it's a pretty unique piece of electronic innovation, but it's able to look at, you know, particularly during that period.

The one thing that I should mention is that there is a lot of studies that have indicated that bears do predate on ungulate calves. And it's an interesting time frame, when those calves are actually at their most vulnerable stage. And it almost relates to the timing of green up, and bear forging behaviour is really related to that critical period of time when they come out of their dens, particularly large bears that are craving protein would perhaps maybe be those cohorts that key in on calves. But as the summer starts to green up and they have got other opportunities to forage, that risk seems to dissipate.

So what Jim was mentioning about diversionary feeding, it has really worked in areas on a short period of time as sort of an

opportunity to increase recruitment rates.

MS. MacKAY: Just on the topic of berries and the right-of-way, in your slide on mitigation for moose, you suggest that natural regeneration providing forage in the right-of-way for moose is one of the mitigation factors. Are the bears and berries an alternative negative around that for predation on young moose?

MR. SCHINDLER: That's a very good question. I think the mitigation for natural predation would be one to not degrade the habitat within, you know, particularly important moose areas. I think the production of berries, particularly blueberries kind of favour perhaps more arid, dry sites, that a lot of those areas would regenerate to sort of almost to what was there before.

MR. RETTIE: I think as an addition to what Doug was mentioning earlier about the timing is also a critical factor. So berry output is going to be late July and into August, and at that point the vulnerability period for moose calves is passed.

MS. MacKAY: I have one more question that's totally unrelated, if I could, before I

yield the microphone. When you look at your evaluation ranges, many of them butt right up against one another. And I'm wondering, if we're really talking about separate herds here, caribou herds that will actually have a social structure within them, or if this is perhaps as the moose, more general population. Are these individual identifiable herds, and if so, how much interbreeding is there between the different herds in general?

MR. SCHINDLER: There is just recently been some genetic research, I'm not sure it's published yet, but Dr. Paul Galpren looked at some of the genetic distribution, particularly in the areas north of The Pas, that includes all of the evaluation ranges. And I don't have the information right in front of me, but I can tell you that there is evidence that those populations are genetically similar, so that they are connected genetically. So they do interbreed, if you wish.

The determination of evaluation ranges is a function of their calving areas and their wintering areas. So it's almost like conglomerations of animals that are, you know,

unique characteristics of utilizing that same patch of land, as we have defined by our evaluation ranges.

You make a very good point that some of them do overlap. And as I indicated in the presentation, going across Canada there are sort of different philosophies by different jurisdictions in terms of lumping populations or splitting populations. And even in Manitoba, if you look at the range maps there's some overlap in certain parts of the province, and in other parts of the province there are probably separate sub ranges that are included in one larger range.

So we did not want to -- we used kind of a similar kind of thinking that the wildlife folks at Conservation, and we didn't lump, and we tended to split it out, which would create a more precautionary approach in terms of evaluation. If we would have lumped some of those populations, it would have lessened the degree of effect, so we wanted to be precautionary and tighten it up as much as we could.

MS. MacKAY: Thanks very much.

THE CHAIRMAN: Mr. Gibbons.

MR. GIBBONS: Yes, thank you. I do

have several questions, in some cases for Dr. Rettie and in some cases for Mr. Schindler, in others, perhaps either one could answer.

First, though, I think goes to Dr. Schindler, and it's actually a point of clarification regarding a table. And I'm wondering whether or not I'm misreading the table or not. It's in regards to what, by my count, is slide 27 on the moose presentation. It's the reference -- let me see if I can find the exact title for you. No, sorry, slide 42. I will come to slide 27, but slide 42 first.

For slide 42, there is a key used in this map indicating high quality moose survey results ranging, with shadings indicating levels of 10 percent up to 90 percent, where 10 percent is the darkest concentration and 90 percent the lightest. And I'm wondering, just for my own information, from my understanding of the map, if the key has been reversed? In other words, is that a typographical error or am I missing something? Typically the dark areas would indicate the highest rather than the lowest, I would think.

MR SCHINDLER: Those are probability

kernels. And the outer ring would be like, there is a 90 percent probability of a point falling within that larger area. And as you move closer, there is darker areas, 10 percent of your observations would be within those areas. So it's a term used in terms of the distribution, density, the technical term is utilization distribution. So it's a function of probability of a moose. So out of the broader area, you've got a 90 percent chance of having a moose. And as you go into closer -- so if we picked, for example, like the 50 percent kernel, we would, you know, it would represent 50 percent of the probability of having moose.

MR. GIBBONS: So what you're not trying to do necessarily is to avoid the darkest areas? I guess I am trying to figure out the implication of the map and I am having some trouble. The implication in terms of routing the line, the dark areas are not areas that you would necessarily avoid because there's only a 10 percent chance of that being high quality habitat?

MR. RETTIE: I'll try to explain it. What happens is if you have got concentrations of

points, the highest concentration of points are those darkest areas, so 10 percent of your points are found in those very tight areas. So there's a very high concentration of observations there. So as you go out, you are including more and more of your points, but they are spread out more. So the density gets lower and lower.

MR. GIBBONS: So the density gets lower as you go out?

MR. RETTIE: So the darkest points are the ones you're most concerned about.

MR. GIBBONS: They are?

MR. RETTIE: Yes.

MR. GIBBONS: Because when you see the 10 percent and the 90 percent, it seems almost counterintuitive that there are -- that you would want to avoid the 90 percent. But what you're trying to do is avoid the 10 percent, because that's the area where they are the closest together?

MR. RETTIE: That's right.

MR. GIBBONS: That helps me understand the map thing.

Staying with Dr. Rettie, with the same study, the moose study, and here again referring

to your slide, what by my count is slide number 27. And I think it might well apply to a couple of the other slides. But in comparing, as one might, the historical data for the GHA 14, sorry, for Porcupine Mountains, Duck Mountain, et cetera, in the case of, I think it's Duck Mountain, the Duck Mountains, you have indicated where there was a decline on the table itself with the word access, presumably the idea that increased access is what is likely the cause of that precipitous decline in the moose population in the period from roughly 1998 to about 2007, went from an estimate of around 3000 down to about 2000. Sorry, that would be -- so these are slides 21, 24 and 27, I guess. For Porcupine Mountains Provincial Forest, however, and for GHA 14, and GHA 14 had a massive decline in terms of the numbers that were -- the population estimates. For those two we don't see any indication as to what might have been the cause, I'm assuming that we might not know exactly, but what might have been the cause for what is the 30 percent decline in the case of the Porcupine Mountains, and then a massive decline from about 2400 down to about 140 in GHA 14. Is it strictly a hunting issue? Was there increased

predation? Was there disease? Can I get a better sense of what the estimated cause of those declines might have been, particularly for GHA 14?

MR. RETTIE: Sure. Just in reference to the one on game hunting area -- sorry, for Duck Mountain Provincial Park where you have that access noted in there. If I understand it correctly, and Mr. Schindler put these together, that was a period where there was increased forest harvesting, so the number of roads that went in for forest operations increased considerably at that period of time.

For game hunting area 14, when I look at the numbers that are here, the key figure to me is the one that doesn't show the population decline, but the one, even though there are only data points in there, where we look at calves per hundred cows, where that gives us measure of recruitment. It's the bottom slide on that page. So there's a top slide that says historical data, GHA 14 --

MR. GIBBONS: That's the one I'm referring to, there is a precipitous decline.

MR. RETTIE: Yeah. When I see a population where I've got 50 or 60 calves per

hundred cows being produced, then I see a population that has no issues for habitat. There is a very clear relationship in population responses to stresses brought about either by a high population density, one that's exceeding the capacity of the habitat to sustain it, or even stochastic events like very severe winter or something like that, what happens is the first thing that goes is recruitment. That's the first place you should see an effect. And although there are only years worth of data here, those recruitment rates are really high. So that points to a population that should be in a habitat that's well able to sustain not only the population that's there, but well able to provide growth.

And so when I see a population decline, as shown in the top slide, I automatically think of hunting as the most likely cause, particularly when we see a loss of 80 percent of a population over a ten-year period up to 2002, and then we lose another two-thirds of the population in the ten years that follow.

MR. GIBBONS: Do we know that there was anything specific to that area that we should be aware of? Was there increased hunting during

that time?

MR. SCHINDLER: In the context of our EIS, the amount of hunting and the statistics available to us are very limited. And I don't believe that Manitoba Conservation has the data that would, you know, provide hunting statistics on a year-by-year basis, or by community, or First Nation, or Metis Federation, et cetera. There's very little information on who's shooting moose.

MR. GIBBONS: So we're pretty much in the dark about what happened there I guess?

MR. SCHINDLER: (Witness nodding).

MR. RETTIE: (Witness nodding)

MR. GIBBONS: I think that's it for the moose question. On the caribou question, this is just from my own following of the documentation, both in its presentation form, but also in the technical reports. There are times, there are reasons for this I'm sure and I guess that's the question, where in some cases, for example, on the screen right now we have five ranges included in -- so five ranges had deployed collars out of a total of seven. But at various times the charts, maps, et cetera, refer -- well, the maps normally refer to six or seven ranges.

The tables and charts, sometimes anywhere from three to seven and something in between. For example, in some cases Harding Lake is included, other cases not. Reed Lake is included in some cases, other cases not. Can I get a better understanding of why there is a variation in what is or is not included in the data in the individual tables?

MR. SCHINDLER: I think what has happened, that some of these, there's been some collaring going on, for example, in the Harding Lake area earlier on is included, and actually should be on that particular slide. Our apologies there, we can update that particular piece of information. But there's a difference between the evaluation ranges that were used in the assessment of the recruitment and mortality work as opposed to some of the pre-project monitoring that was done relative to defining the ranges across the project area. So there would have been some collaring in Harding Lake, for example. And there would have been collaring in the Wheadon area as well, which is separate from the Wimapedi-Wapisu group. So some of the analyses have not been conducted on all of the ranges that have been

collared, but have been used in the evaluation of alternative routes, but may not have been used in some of the research on recruitment and mortality.

MR. RETTIE: I think, though, the one obvious omission is on this very slide where the Harding Lake collar deployments are noted. Otherwise the collar deployment slide would contain those ranges, exclusive of Charron Lake, which was not really part of the assessment of the study area, but was rather used in reference for the -- for population dynamics. So perhaps Charron Lake should be on here as well. Other than that, I noticed for all of the three tables that we have for population dynamics, the one on adult survival, the one on recruitment, and the one on lambda, they include all of those populations. And then later on when we got into the assessment of habitat selection, at that point we were looking only at The Bog and Wabowden because those were the only two that were intersected by the final preferred route. So that's why our analysis narrowed for that portion of the analysis.

MR. GIBBONS: Last question might have a couple parts to it, but I think they are

connected, so perhaps it would be easier for one or both of you to speak to this in a more composite fashion. It has to do with what I suspect is going to be on the part of most people listening to the caribou reports and reading the caribou reports and so on, and that is that there is obviously some concern about the low recruitment figures. They are, in essence, out of whack with what we see elsewhere. They are about, if I compare with the data that you have, they are about, they are less than half, if you average them out as I have done -- sorry, I am one of those number crunchers so I do that -- they average out to be less than half of the rate in Alberta that we saw, and less than one-third of the rate that we saw in Saskatchewan. And when you look at data from other areas other than those, they seem to be quite -- well, statistically speaking, they are outliers, they are really quite low compared to what we might have expected. As a result of that, I'm wondering, seeing those kinds of recruitment data, whether a couple of things might be thought as, if not necessary, at least useful.

One is what kind of monitoring must be

done and how comprehensive should it be in order to understand what the effects of Bipole might be on the caribou population? That includes potential for cumulative, a stronger cumulative effects analysis given that we have such a fragile, what seems to be a fragile population. And if I'm using the term fragile here in an inappropriate way, do correct me on that.

I suppose the other element of that is over what time period? Dr. Rettie, I heard you mention, and if I'm putting words in your mouth, please correct me if I am, but I thought I heard you say a person might prefer more than a two or three year study. Now, not necessarily in this context, but I'm wondering in general, is two or three years enough for the kind of study that would seem to be required to fully understand the situation? And I'm speaking now not only two to three years in the future, but also in terms of some of the data that we have going back. Because in some cases, you can see here we have data for -- we have collars for 2009, 2010, 2011. We can't go back and put collars on historically, but I'm wondering if we can reach back historically in terms of data and try to get a better sense of

what the patterns have been over time. It seems to me that two to three years is a fairly short period when we're trying to deal with animals, for example, that might display some form of adaptive behaviour and so forth. So I'm wondering if you can speak to that kind of question. What kind of -- how comprehensive should the study be, what time period, to what extent do we need to incorporate cumulative analysis because of these low recruitment rates?

MR. RETTIE: I would say that two to three years is probably too short, particularly to assess recruitment. I would like to look at a five-year period. One of the things that I would note, though, is that for recruitment you don't actually require the radio collared animals, you can go out and do surveys in those areas, and age and sex the animals that are there, which makes it a more affordable thing to do. Because the purchase of collars and capturing of animals can get quite expensive. Aerial survey work will give you a good assessment of recruitment. And if the data that we have right now, that suggests that adult mortality is reasonably high, particularly as this study continues on for another year or

two, or however long it's supposed to go for, we'll have I think probably a fairly solid data set that shows us that adult survival is sound and it is, you know, it's approaching 90 percent. And that that's likely stable. That's what we would expect, is that you wouldn't see a lot of variation in adult survival. I mentioned earlier that recruitment is the first thing to go, adult survival very last thing to go. So if we can go out and monitor recruitment by aerial surveys in affected areas, that's probably an affordable thing to do over the long-term. And you know, I would say a five-year period is appropriate to get a reasonable assessment.

MR. GIBBONS: Thank you.

THE CHAIRMAN: Thank you. I have a few questions about white-tail deer, and then following that about the worm, the brainworm, and also I think one or two questions about your cumulative affects assessment. But on the white-tailed deer, in your presentation you said that very few deer were observed on the trail cameras. But there had been sightings of deer in The Bog area on the trail cameras, is that not so?

MR SCHINDLER: Yeah, there has been

very low densities, but they do occur, yes.

THE CHAIRMAN: And you also state that the habitat north of Red Deer Lake is limiting for white-tail deer?

MR. SCHINDLER: Yeah, it's a very boggy and open environment, it's a lot of moss and lichen. It's not what you would typify as good white-tail deer habitat.

THE CHAIRMAN: But a hundred years ago there were almost no white-tail deer anywhere in Manitoba. Nowadays, any of us who might have property in rural Manitoba, or even live near the Assiniboine Forest in Winnipeg know that white-tail deer seem to be extremely adaptive and extremely prolific. We know that in, from a 2011 study in Northern Alberta, or in Alberta in boreal caribou habitat, over a period from '94 to 2009, the number of white-tail deer increased 17 fold. I realize it's differ terrain. There are white-tail deer further north in Saskatchewan, again, different terrain, but they are moving north. And then there is always the very real presence of climate change.

So can we say with certainty that white-tail deer are not going to move further

north? And before we go there -- or that they are not going to go north through the Interlake?

MR. SCHINDLER: I have had several discussions with the regional wildlife manager up there. And you know, white-tail deer have been prevalent in the Carrot River Valley and in The Pas area for 50, 60 years, there's been a core population. And in some of our discussions, you know, relative to, you know, why are we not seeing these populations expand, even with some forestry operations that have occurred south of The Pas? And it just seems to be that, you know, through time if there would have been some establishment, you've got sort of that satellite population of viable deer, but they stick to the valley, the agricultural areas, the different terrain that's associated with the Delta at The Pas. We would have assumed that, you know, within the last 50 years maybe they would have established themselves through that area. But for some reason, you know -- and then flying over the area, and I've been over it a lot, and it's a very open coniferous peatland area with very poor soils. And I mean, with climate change, I mean, anything is possible. But we have not seen any type of

maintenance of populations outside of The Pas or south of Red Deer Lake in terms of white-tail. They don't seem to be able to persist. I mean, you can move in there, and you need white-tail deer in fairly significant concentrations in proximity to caribou for them to order to pass on the parasites as well. The parasite would be transmitted during their feces and feeding during summer period.

THE CHAIRMAN: How about in proximity to moose, because it also affects moose, if I'm correct?

MR. RETTIE: Yes, it does affect moose as well.

THE CHAIRMAN: Is there any -- the moose are further south in that area. Is there any intermingling of moose and white-tail deer in any of the study area?

MR SCHINDLER: Yeah. I mean, the overlap of white-tail deer and moose, it would be very significant as you move south through the Porcupine Mountains, game hunting area 14, the Ducks, significant overlap of white-tail deer and moose. They would be occupying much the same types of habitat. The information provided to us

in discussion with Manitoba Conservation, you know, they never had a case of brainworm that has been reported within that western region of Manitoba, it has not occurred there. You would expect that if there was a prevalence of brainworm within the white-tail, it would show up within the moose population. And from my experience, when I used to work in the southeast part of the province there, that brainworm infected moose made themselves quite obvious in terms of their getting into open areas, and just their behaviour, they can be detected. But you know, there hasn't been any reported cases.

THE CHAIRMAN: I find that interesting. We have been made aware of a study done in 2003 by a person named Wassel et al, who looked at almost 2000 deer heads from Saskatchewan, Manitoba, and North Dakota. And for the area around The Bog, he shows an existence of the parasite. This was in 1989 and '90. And shows it at a pretty high rate, at 40 to 60 percent of the sample. Now, I don't know how big the sample from that area was, it might have been quite small, but he does indicate there was a presence of this parasite over 20 years ago.

MR. SCHINDLER: Yeah, that's very true. And it's interesting that parasite shows up in white-tail deer close to the border of Saskatchewan, and I don't argue with the results of that. The presence of -- the occurrence of the actual -- the reports of actually infected moose have not occurred. But you raise a good point that there is that particular little bit of risk there. But based on our information and the distribution of deer within the area, that is how we have come up with our conclusions. But you know, we did investigate those particular papers.

THE CHAIRMAN: Has there been any evidence of white-tail deer moving up through the Interlake into the study area?

MR. SCHINDLER: Well, white-tail deer are very prevalent in the Chitek Lake area up into Easterville. There is not a lot of -- I don't think we had any population or deer density information. They don't tend to survey those areas very often. And the distribution of deer in relation to that Chitek Lake, I forget the game hunting area number, but I don't believe there's a lot of deer surveys that had been done up in that neck of the woods basically, so there's not a lot

of deer survey data for that area where The Bog is or in that area through the Interlake.

THE CHAIRMAN: Do you think that there should be monitoring for brainworm in that area? Do you know the last time anybody did any monitoring for brainworm anywhere across that mid northern part of the province?

MR. SCHINDLER: I know there's been some done in Southeastern Manitoba. And actually you can monitor, I know that Manitoba Conservation is monitoring for chronic wasting disease up through that area. It's not that difficult of a program to look at monitoring, you know, if hunters turn in deer heads, that it's a fairly simple monitoring program that could be undertaken. You can also look at surveying the snails within the soil, because those parasites show up in the snail populations. So there are some relatively inexpensive ways to monitor the prevalence of P. tenuis or brainworm in those areas.

THE CHAIRMAN: Do you think it's worth doing?

MR. RETTIE: I'm not sure. I know, as Doug had mentioned, when animals other than

white-tail deer are infected, they do make themselves -- it affects their behaviour, they wind up on the roads, they wind up in fields, and they are wandering around in an erratic manner. Most of the places I'm familiar with where they -- what I've heard people specifically studying P. tenuis, typically it's after an observation has been made. So they make conservation officers or people out on the land aware of what the characteristics are of animals that are infected, and they wait for an observation to come in. At that point they start monitoring, rather than going out and doing a proactive monitoring program. But if there are already programs in place where hunters are turning in deer heads, as there are in Western Manitoba, it is relatively straightforward to be sampling for P. tenuis at the same time.

THE CHAIRMAN: Thank you. I did have one question about your cumulative effects assessment. And it strikes me that it's fairly simple, and all you really looked at was how much the line would add to the disruption in an area. Am I correct, is that really all you looked at?

MR. SCHINDLER: Well, that was part of

it, and to assess -- we wanted to use the approach that was utilized in the National Strategy in terms of looking at the percent disturbance within the range, the contribution of the FPR to that, as well as looking at the cumulative effects of other activities as we described, the mining activities, the forestry activities. So are we getting close to that threshold, or what were the effects. But it does give you a picture of all of the disturbance, plus the amount of natural disturbance versus the human caused disturbance as well. So, you know, we wanted to test the footprint of the FPR obviously against the standards that Environment Canada has laid out, but, yeah.

THE CHAIRMAN: Thank you. Mr. Kaplan?

MR. KAPLAN: If I could, just continuing along with the brainworm issue, and only because it was one of the first things I read when all the volumes were sent of the EIS to my house. Dealing with brainworm, and assuming for the moment that it was in fact detected as far as caribou and/or moose population, how long, if that were detected, would it take you to correct the situation do you think?

MR. RETTIE: I think a typical response would be to try to eradicate deer in the area, to the best of your ability. It's unlikely you're going to clean it up any other way than removing the definitive host. So if you can effect hunting opportunities in a manner that encourages people to take additional deer and reduce the deer population, reduce the deer density, you should reduce the prevalence of the disease.

THE CHAIRMAN: Are there any members of the public who have questions on this specific issue of the Hydro officials? Mr. Williams?

MR. WILSON: I don't have a question, just -- I'm not usually asking for undertakings from the Commission and I'm certainly not asking for one now. But I note there was a reference to a Wassel report in terms of parasites. And if it's not on the record, certainly my client would appreciate a reference to it so that they can -- perhaps we could ask Ms. Johnson to distribute it?

THE CHAIRMAN: We'll have to consult with our consultant who references it in a report, but I don't believe provided us the report, but I'm sure we can get it.

MR. WILSON: That would be appreciated, Mr. Chairman.

THE CHAIRMAN: Okay. Well, thank you. You guys have had a couple of big days. Mr. Mills?

MR. MILLS: Just a process question.

THE CHAIRMAN: Oh, certainly, I was going to excuse these gentlemen.

MR. MILLS: And you could, this is just some housekeeping.

THE CHAIRMAN: Okay.

MR. MILLS: A brief history, on October 11th Hydro made a Pine Creek First Nation watershed study available in the community. We requested that on October 27th -- pardon me, on October 22nd in Dauphin, as you may remember. We received it on October 25th with an indication that it's to be presented at or near the end of Hydro's presentation. We will take information from that and need a bit of time to put that together for our subsequent presentation. And I fear I'm going to be outside of your seven, 14-day hard and fast. So I'm asking you in advance, we'll be able to submit most of our presentation prior, but I'm asking for you to confirm that

we'll have some leeway in order to incorporate that tight schedule? We can make it work if you'll allow us to make it work, but I don't want to be told no.

THE CHAIRMAN: You don't want to be told no.

MR. MILLS: I don't like that. It happens all the time.

THE CHAIRMAN: Let's work this out off the record. But I would think as long as you can submit the bulk of your submission within the time frames that had been prescribed, and you can work with Ms. Johnson just in respect of that piece that will relate to the Hydro document that you obtained, and as long as it's not the night before your presentation.

MR. MILLS: We would ask for some breathing time between Hydro giving us that information and us putting it into our position.

THE CHAIRMAN: You've had it for four or five days already. So talk with Ms. Johnson, and we'll work out something reasonable, but you will submit the bulk of your presentation within the seven days, is that what you said?

MR. MILLS: We will. But all we've

had, to be clear, Mr. Chairman, is the PowerPoint presentation. And there's going to be a lot of questions asked and there is going to be a lot of information received. And I just want to make sure I've got the elbow room to carry that information forward.

THE CHAIRMAN: We'll be reasonable. You'll be reasonable, I'm sure.

MR. MILLS: We always are.

THE CHAIRMAN: Okay.

MR. MILLS: Well, thank you, I'll hold you to being reasonable.

THE CHAIRMAN: Okay. Well, I'll excuse you now. As I started out saying, you have had a grueling couple of days but you've done well. So thank you to Mr. Schindler and Dr. Rettie, and to your support staff behind you there. And we'll see at least some of you next week.

Now, I'm not sure that we should begin a cross-examination right now of the main thing. It's about 20 to 5:00, we're going to break for supper shortly anyway. We do have I think four people scheduled to make presentations after supper. They are allowed 15 minutes. I suspect

that some of them may take the 15 minutes, some of them may not. So we may be ready to have some cross-examination at 8:00 o'clock.

Now, Mr. Mills, would you be prepared to begin cross-examination on the environmental assessment stuff this evening?

MR. STOCKWELL: Sorry, I'd like some understanding of how we're going to proceed, like what of the presentations we're going to have access to?

THE CHAIRMAN: We're going to be dealing with -- and let me see if I can find my notes here -- we're going to be dealing with everything that was presented by Hydro on Monday and Tuesday, which includes the environmental assessment approach, sustainability assessment, cumulative effects assessment by Mr. Osler, the biophysical elements and assessment, which was three parts, birds by Mr. Berger, vegetation by Mr. Szwaluk, aquatics and amphibians by Mr. Mazur. Then on Tuesday, socioeconomics by Ms. Hicks, heritage and archaeology by Ms. Petch, agriculture by Mr. Nielsen, and the property which I suspect won't be a big deal, Mr. McLeod.

MS. MAYOR: Sorry, Mr. Sargeant, as we

had spoke about over the noon hour or one of the breaks, we'll probably break it down into components, we would break it down into two panels. So the first one would be, the first topics leading up to I think the last presentation was mammals and birds, so kind of the biophysical plus the cumulative effects, and we will let that panel group go up. And then once they are finished their cross-examination, then we would have the cumulative effects and the socioeconomic group.

THE CHAIRMAN: So this evening, if we have cross-examination, would be on the environmental assessment piece, the Monday presentations?

MS. MAYOR: That's correct, and early into Tuesday morning.

THE CHAIRMAN: Oh, yes, the mammals was Tuesday morning.

MS. MAYOR: Yes, thank you.

THE CHAIRMAN: Does that help you, Mr. Stockwell?

MR. STOCKWELL: That helps. No, we won't be ready.

THE CHAIRMAN: Would anyone else be

ready to begin cross-examination on the environmental assessment approach this evening? Nobody is jumping up and volunteering, which just means that we may have to catch up an hour somewhere else. I can tell you right now that we're going to have to sit Monday evening. So we'll be going all day Monday, most of it, if not all of it on cross-examination. So everybody better be prepared for Monday or else you are SOL.

So we will break now then for dinner. Please come back at 7:00 o'clock. We will have, we know of four people, there perhaps will be more that may show up for presentations, or questions. So Hydro better have at least a skeleton crew here to perhaps take notification, if you can't answer the questions.

(Proceedings recessed at 4:42 p.m. and reconvened at 7:00 p.m.)

THE CHAIRMAN: Could we come to order, please? This evening, we're opening the floor for members of the public to make presentations. I'll just note that public presentations are limited to 15 minutes each. For those of you who may be making presentations, I have a couple of cards, one that says five and one that says two, and I'll

give you a flash, I'll flash the cards when you're getting close to the end of your 15 minute period. You should also know that members of the panel may have questions of those who make presentations, but you're not subject to cross-examination from any of the parties.

So we have four people who have registered to speak this evening, we'll take them in order. Mr. Tishinski, Ms. Hamilton, Paul Rempel and Shandra Rempel. And anyone else who wishes to make a presentation, after that I will invite and open the floor after that.

I should also note that our rules of procedure require that anyone making a presentation, who in other words is giving evidence, needs to affirm that the evidence they give will be true. So the Commission secretary will ask you to make that affirmation.

I don't believe we have any other business to deal with at the open, so the first person on my list Will Tishinski.

MS. JOHNSON: Could you please state your for the record?

MR. TISHINSKI: Will Tishinski.

Will Tishinski: Sworn.

THE CHAIRMAN: Go ahead, sir.

MR. TISHINSKI: My entire 36 year working career was spent with Manitoba Hydro, the last nine years as vice-president. Most of my years were involved in the planning and operating of generating stations and high voltage transmission lines. I hold Bachelor and Master degrees in Electrical Engineering from the University of Manitoba. I make this presentation as a private citizen and not on behalf of any organization.

It's a travesty that the scope of the CEC hearing has been made so restrictive that no review can be made of reliability, nor of the NFAT, which is need for and alternatives to the Bipole III project.

Manitoba Hydro spent the better part of the afternoon of the first day describing the catastrophic consequences of an outage of the existing DC transmission lines, and explaining the need for Bipole III. Reliability was advanced as the primary reason for the construction of this line. Despite all of the arguments for reliability, that topic was ruled out of scope. It is incredible that the project's most important

purpose has been eliminated from the review process.

Likewise, elimination of an NFAT review prevents any discussions of the alternative route on the east side of Lake Winnipeg. Any major project should be able to withstand the test of an NFAT review. The crucial need for having an NFAT review is best understood by reviewing the history of Bipole III.

Ever since Bipoles I and II were placed in service, Manitoba Hydro recognized that Bipole III would be required at some future date. In the early 1990s, when a sale to Ontario was in place, Hydro began planning a route for Bipole III on the east side of Lake Winnipeg. The professionals within Hydro considered all of the relevant issues involved in planning a transmission line, including technical, economic, reliability, environment and social.

Later when Hydro established a need for Bipole III for Manitoba's own needs, it stayed with the east side option. This plan initially called for a line only and no conversion equipment. Hydro had the right plan. Aboriginal consultations and route selection process

commenced and continued for several years.

In 2004, the Government of Manitoba asked Hydro to cease work on the east side. The reason given was that the province intended to apply to UNESCO for a heritage site designation of some 43,000 square kilometres of forest on the east side of Lake Winnipeg. There was also a concern over the habitat disruption for woodland caribou in the area.

Hydro professionals reviewed these reasons and deemed them insufficient to cause a costly re-routing. Their extreme concern was documented in reports written in December 2004 and January 2005. These reports were presented to Hydro's board and eventually leaked to the public.

Undaunted, the government directed Hydro to abandon all work on the east side. The east side was no longer an option. The remaining option for the line was a route on the west side of the province near the Saskatchewan border.

After an approximately two year period, engineering studies discovered a shocking engineering condition. The west side route, which was some 54 percent longer than the east side, would not work in conjunction with the existing

Bipoles. Costly conversion equipment was needed. The current conversion equipment requirement was a crucial revision to the engineering plan. This discovery figuratively threw a monkey wrench into the Bipole III plan. What started off as a perceived simple re-routing of a transmission line exploded into a costly engineering revision.

The prudent course of action would have been to put the line back to the east side. Government stubbornly refused. It reminded Hydro the east side was not an option. At this juncture, the project essentially fell off the rails.

Hydro now had to find a way to help pay for the costly conversion equipment. The electrical demand growth within Manitoba was modest, and a steep increase in costs could not be absorbed by Manitoba ratepayers. The obvious solution was to acquire new power sales to the United States to help pay for the conversion equipment.

In April 2008, a government announcement was issued that 500 megawatts of power had been contracted with Wisconsin Public Service, accompanied by a new transmission line to

the States. This announcement simultaneously triggered a spin by government that the Americans, not Manitobans, would pay for the additional costs of Bipole III. And this spin will be addressed later.

Now, facing the government's 54 percent longer west side line, plus the addition of conversion equipment, Hydro made a quick re-estimate of the project cost. A new cost of 2.247 billion for Bipole III was entered into the 2007 financial plan.

Hydro commenced to work actively on many fronts, including work to obtain more detailed costs.

For several years the cost of Bipole III remained constant in the financial plan. Then rumours surfaced that the costs had risen significantly to $4 billion. Knowledge of the new number was vehemently denied by government and Hydro's CEO as recently as December 2010. At about the same time a report was leaked from Hydro, signed off by the two most senior engineering vice-presidents within the corporation confirming the new number of $4 billion for Bipole III.

While debate was raging in public about the project cost, retired Hydro executives and university professors, using data from leaked reports, calculated the additional cost of the west side route as being $1 billion. This $1 billion pertained only to the line and had nothing to do with the converters. It was a present value calculation that took into account the cost of the additional line length, increased losses and reduced security.

Hydro was now confronted with a troublesome issue whereby the total project cost mushroomed from $1 billion to $4 billion. And sadly, but coincidentally with the astronomical cost increase, we get reduced transmission capability, reduced security, increased losses and increased environmental and agricultural impact.

Confronted by such a dramatic increase in the project cost, the CEO of Hydro rejected the estimates prepared by his own engineers and hired an outside consultant to review the estimate hoping for a lower cost. In March 2011, the consultant submitted a lower estimate of 3.288 billion, which now stands as the official estimate.

The lower estimate contributes nothing towards lowering the power rates. Rates will be determined by the true cost, which will be known when line construction is completed and work orders closed out.

I am personally convinced the Hydro engineer's estimate will be proven to be correct. They have 40 years of experience with DC transmission and more years of proven methodology for estimating costs.

There has been much political chicanery since the government directed Hydro to build the line on the west side. Initially government had claimed there would be mass deforestation of the boreal forest if the line was built on the east side. Not true. If the line were routed through the narrowest points, the cleared right-of-way in the boreal forest would be no more than 150 kilometres in length. The cleared area would be less than ten kilometres squared out of a total of 43,000 squared kilometres proposed for the UNESCO site. This is equivalent to cutting ten trees out of 43,000.

Some proponents of the east side line have called the line through the forest nothing

more than a thread on a football field, which is a good analogy. There would be no mass deforestation.

Another government representative stated that the reason the line was being built on the west side was so that we could sell power to Saskatchewan. This is nonsense. DC transmission is used for point to point transmission. And nobody would build a costly converter station for over $1 billion to sell a small amount of power for which the transmission already exists.

The next spin was that Americans would pay for the additional cost of the west line and it would not cost Manitobans a cent. Not true again. Purchases by American utilities are based on least cost alternatives, not Manitoba costs. If a cheaper line is built on the east side, the savings become pure profits for Manitobans.

Another spin was that if we damage the forest on the east side, the Americans will not buy our power. Not true again. American legislation was passed to purchase clean hydro power, but nothing is said about location of transmission lines.

An NFAT review with expert witnesses

testifying under oath would have clarified all of these points and eliminated public confusion surrounding the project. This review would have also shed light on a number of other outstanding issues. Here are some of the more notable. Since the line is being rerouted to preserve the forest on the east side of Lake Winnipeg in order to enhance UNESCO heritage designation, we need to see a business plan for the heritage site. It is claimed by the heritage site proponents that huge ecotourism benefits will flow when this forest receives it designation. No business plan has been prepared to illustrate the claimed benefits. We don't know if all the ecotourist revenue will come from a Banff style operation, or from leaving the forest in a pristine wilderness state. If tourism revenues are to be derived from an operation such as at Banff, then we must have development of roads, service stations, hotels, night clubs, sewage lagoons, et cetera. This kind of infrastructure is far more intrusive than any transmission line.

On the other hand, if we leave it as a wilderness area, then how is it possible to derive all the ecotourism benefits?

A billion dollar decision was made without back-up information.

Regarding disruption of the woodland caribou, a road with this traffic will kill more caribou than any transmission line.

Another issue that needs to be reviewed is the in-service date. When the west side line was announced, the in-service date was pegged at 2017. Since that time our economy has changed dramatically. A recession has struck North America. Hydro's load growth has decreased. The American economy has softened, as evidenced by the Wisconsin Public Service sale reduction from 500 megawatts to 100 megawatts. Natural gas prices are lower, and a host of other parameters have changed.

A project delay is not new to Hydro. In 1976, construction of the Limestone station was started and then stopped two years later, because of a reduction in the predicted electrical demand. Construction was resumed in 1985, and fortuitously the plant came in under budget concurrently with profitable American export contracts. It would be prudent to examine the Bipole III in-service date.

Hydro also seems to be paralysed in

its creativity. With the government ostensibly doing all of the planning for Bipole III, it appears as if Hydro is so intent in pleasing its political bosses, there is no attempt to minimize the west side line costs. Significant cost savings opportunities exist with a re-examination of the preferred location for the receiving end converter station, which is currently at Riel.

The Riel Station location was established with the expectation Bipole III would approach Winnipeg from the northeast side. Given that the line will now approach the city from the southwest side, it makes economic sense to consider moving the converter station to the southwest corner of Winnipeg. The line length could be shortened by 120 kilometres, leading to an immediate savings of at least $120 million. The shortened line would also give us increased security, reduced losses, and avoidance of negative environmental impact on valuable farmland south and east of Winnipeg.

The restrictions placed on this Commission by the government have prevented any investigation of these and other important aspects.

But the greatest tragedy of all is that the environmental impact of the east side line is not compared to the west side line, because any discussion of the east side has been ruled out of scope.

The severe restrictions placed on this Commission have not served the public interests at all.

The only rationalization I can offer to the process and the Bipole III saga as it has unfolded is linked to the adage, no person is totally useless, he can always serve as a bad example.

Likewise, this line, with all its inferior qualities, will also serve as a bad example. For the next hundred years, future generations will gaze at the towers and ponder how it happened that reckless politicians built this crazy west side line instead of the vastly superior east side line, as proposed by experienced, competent, professionals within Manitoba Hydro.

THE CHAIRMAN: Thank you, sir.

Could I ask you why no conversion equipment would have been needed if the line had

gone on the east side?

MR. TISHINSKI: It would not have been on the east side in the initial stages, not until new generation was built. Because this line was built for reliability purposes only, and Hydro clearly spelled it out, I think it was Mr. Tymofichuk spelled it out in the afternoon on the first day. So in the initial stages, no, there was no conversion equipment needed.

THE CHAIRMAN: So it would have gone from one of the existing converter stations in the north to Dorsey?

MR. TISHINSKI: It would have gone to Riel.

THE CHAIRMAN: But you would have needed an inverter station at Riel?

MR. TISHINSKI: No. The line was strictly there to come into service in the event one of the two Bipoles failed. No issue of conversion equipment until new generation was added.

THE CHAIRMAN: So it wasn't going to be an active line?

MR. TISHINSKI: Yes, it was. In fact it was going to save 80 megawatts of power. It

was going to be placed in service. With some switching arrangements, it would be made to work.

THE CHAIRMAN: Well, I'm not an engineer so I don't fully understand, but I'll accept your word for it. Thank you. Mr. Gibbons?

MR. GIBBONS: Two questions, if I may. The Bipole lines require conversion at Radisson and then reconversion, I know it's called rectifying, I guess at Dorsey. Why wouldn't the new line require a rectifier at Dorsey if it came down the east side?

MR. TISHINSKI: Because the switching arrangement was such that it would have been carrying some power and use some existing conversion equipment. The existing conversion would have been used. And it was there strictly to unload existing Bipoles I and II. It would have been part of the switching arrangement, it's a little complicated switching arrangements, but the switching arrangement was provided to achieve that. In fact, the reports we read, it would have been saving a loss of about 80 megawatts if this Bipole III would have come in on the east side, because it would have unloaded existing lines, Bipole I and Bipole II.

MR. GIBBONS: We may have to follow that up with someone later.

A second question of my own in this case, the $120 million savings if Bipole III went in its current way, but instead of going to Riel was located elsewhere. You indicate the possibility of shortening the line by 120 kilometres.

MR. TISHINSKI: Yes.

MR. GIBBONS: Could I get you to elaborate a little bit on that with perhaps including in that the idea as to, from a reliability perspective, how it would be far enough from Dorsey that it would not presumably be struck by the same kind of significant weather event or something of that sort?

MR. TISHINSKI: It's a good question. The converter station would then have to be moved to the southwest corner of Winnipeg, with sufficient distance from Dorsey. But in order to provide adequate reliability, the towers would have to be strengthened, as they have been within the vicinity of Winnipeg, to provide the adequate security that's required for Dorsey.

Now, this station would be

approximately five miles south, five kilometres south existing LaVerendrye station, and it would be somewhere in the southwest corner of Winnipeg. But it would save an awful lot of the line which comes around the south and east side all the way around Ste. Anne's, and it should have come directly to the southwest corner of Winnipeg. That wasn't examined. I haven't seen any plans in any of the reports that were leaked to us that showed that that was ever examined.

MR. GIBBONS: I should just point out, I don't think we were precluded from considering that in terms of the mandate, the idea that -- I don't think the Riel station is off limits, so that's why I asked the question.

MR. KAPLAN: Mr. Tishinski, referring to page 2 of your presentation, when you talk about in the first paragraph the Hydro professional's review, reasons, et cetera. And then you put, their extreme concern was documented in reports written in 2004, December, and January 2005, and those reports represented Hydro's board. Do you have copies of those reports?

MR. TISHINSKI: I've seen copies of them.

MR. KAPLAN: Do you have copies?

MR. TISHINSKI: Not with me here tonight, no. But they were leaked reports to the public, and I have seen them and I have read them.

MR. KAPLAN: Can we get copies?

MR. TISHINSKI: Hydro can give them to you.

MR. KAPLAN: So we should ask Hydro?

MR. TISHINSKI: Yes.

MR. KAPLAN: Thank you.

THE CHAIRMAN: I think that's all the questions. Thank you very much, Mr. Tishinski.

MR. TISHINSKI: Thank you, Mr. Chair.

THE CHAIRMAN: Next on our list is, Mrs. Hamilton.

MS. HAMILTON: I'm sorry, I don't have copies for you, and I had my computer stolen.

THE CHAIRMAN: That's fine.

MS. JOHNSON: Could you please state your name for the record?

MS. HAMILTON: Judith Hamilton.

Judith Hamilton: Sworn.

THE CHAIRMAN: Go ahead, Mrs. Hamilton.

MS. HAMILTON: Okay, I apologize for

not using Powerpoint and it's not typed. My computers were stolen out of the truck.

These hearings have been going on in Manitoba for some time now. It would be nice if we could look at the map and see into the future, and see the whole picture, not just through the fog that I am seeing it in. I am just following a hard act to follow, he did an excellent job.

In my opinion, we should look at the map and see the whole of Manitoba. I am a cattle farmer, my late husband was a cattle farmer and I'm continuing with my son. And these many last years I have come to know some of the facts about farming near to the hydro towers, which Bipole II is 200 feet from my front door. And some of the people around us, one of my neighboring farmers had a brain tumour and died, and another farmer, she had a brain tumour and died. My daughter has an inoperable brain tumour. And I read the studies at the medical college where I was an executive secretary in the '60s. And they did studies in Sweden, and they said that living too close to the hydro towers can cause lumps and brain tumors. And a vet noticed about, oh, when my husband was alive, about 30 years ago, that our

cattle had a higher incidence of lumps in their bodies. And he pointed it out to us. We hadn't really noticed it.

Anyway, these are some of the facts that I have come to know. We had 200 pure-breed cattle, heifers, and we have gone down to, through mad cow disease and everything, we have gone down to having 52 cows, cattle calf operation. And my son is working full time for a feed company in order to support feeding the cows, and we are still not over mad cow disease. And lately they have caused problems with the meat saying that, you know, the e. coli situation. And we -- our farm is in Warren and Woodlands, our home farm is just a half section where the hydro towers are. And then the rest of our farm is up in St. Laurent.

And the NDP government, in their wisdom, has been allowing drainage into the three small Shoal Lakes, and they are using it as a reservoir, and it's big -- all three small lakes are one big lake now. And I spent $30,000 on fences since my husband was killed 15 years ago. And the section I have, we own, and 518 and whatever the other highways are, two of them have

been out for at least seven years. And it's caused by drainage, not really flooding. But you see, it's really hard to be a poor farmer.

They were talking today about the moose and all these other animals becoming extinct. And don't get me wrong, I really love animals. I raised border collie dogs on the farm and I had 5,000 chickens at one time, and kids on a farm need a newspaper route, so chickens were the job. And I helped with the Calf Club and the 4-H and, you know, like it's really sad to see my husband's family, we're Selkirk settlers, 200 years they have been in Manitoba farming, and it's sad to see all the hard work that they put into it, and I'm losing it. Having to take a mortgage at my age is not right, I don't think.

Anyway, I think that west side for the hydro tower should not be used. It shouldn't go through farmland because of the incidence of lumps in the cattle, and it's really hard to drive a big hay bind or some of the large machinery of today around these towers. And we need, in my opinion, I believe, that they should go on the east side.

And I have tried to tell the government about the trees on the east side. Now

don't misunderstand me, I love trees and I love animals. And these hearings have been going on about different species such as the moose and caribou and birds. I, on my land up in St. Laurent, I saw Piping Plovers over the years and, you know, all the water birds, because there was always a lake there. But some of the other birds can't nest there anymore, and I think that's very sad. And I think that if we put ourselves in the picture, we should realize that the deer in Riding Mountain area have TB, which has been shown to spread to the tame herds of cattle. And this is, I believe, where humans get the TB. The higher incidence in that area has been shown.

And we need to look at the future. As all we need, in Maslow's theory, we need food, clothing, shelter, fuel and clean, pure water. And that's the basic needs that we all need. And I think farming is far superior and needed more than the trees in the boreal forest. If they put the hydro towers down the east side, they could put -- have the hydro towers and put a highway up to the reserves. Because one of my kids has been a mountie and flown up to the reserves, and if climate warming is really true and Lake Winnipeg

isn't frozen in the winter, they can't get food up to those reserves up in the northeast side. And the Natives shouldn't be isolated from the rest of us, they should have a highway and the hydro towers, and it wouldn't take up that much away from the boreal forest. I mean, don't get me wrong, I plant trees on our farm and the land that's all flooded now, all the trees I have planted over the last 30 years are flooded.

So, you know, like you need to realize that what I believe and other people that I have talked to believe that it should go on the east side. And if we look at the map we can see that, you know, what I'm talking about, about it's cheaper to put it on the east side and it's closer for the Natives. And then they can be assimilated and come to Winnipeg, and not have to be flown out for medical care and food flown in, and it would cost less money. And I think the Aboriginals on the east side deserve to have a proper community with us, the rest of us in Winnipeg and down in Southern Manitoba.

And as you can see, there's no access to the reserves, and the isolation is not really a good thing for them, for education and living in

this modern world. I mean, we all need electricity, but with the Sandy cyclone, hurricane of last week, I think we need an auxiliary kind of -- besides the electricity, we need something, like people need fireplaces, and/or if gas, if gas can come. Like I have an old oil burner that was put in, in '96, and there was an oil burner before that in my house, and I would like to have electric heat. But it seems to me that, like they stated that if I got gas, it would cost $20,000 just to bring it down the road to my farm, and I can't afford that, I'm a senior citizen.

And I also think that the reserves, because they need to eat properly -- I am a diabetic and I know that a lot of the kids, I substituted the last 17 years on the reserves and up in St. Laurent, the Metis children, a lot of them have diabetes. I saw one little kid that weighed nearly 300 pounds and he was in grade three. And that's not eating proper vegetables. And I suggested to the government that they have greenhouses up there and have the people do gardening, and maybe they could have a, you know, a different type of -- if they don't want to have them buy electricity.

And I think if we put the hydro towers through the boreal forest, we'd still have the boreal forest, and there would still be moose and other animals in that forest. And like there would be maybe still -- we'd still have predators.

And I know, like if you have ever seen like cougars and bears like I have on our land, and if you have ever seen a baby calf ripped apart by a small little coyote, you'd probably agree with me that we need to have the right to shoot more coyotes and kind of exterminate a few of them, because now as a farmer -- I don't shoot guns, but if I get somebody to shoot them, I am only allowed to kill one a year. And I think that the Conservation should change their ideas a little bit.

And anyway, I think that we can foresee us all getting along with food for everyone. And farmers are number one under economics, everything else is tertiary. I hate to brag about that, but that's the way it is. You can't get along without clean water and food. And that's my point of -- I think the hydro is wonderful. I love to flick on a light switch. When I was a little kid we had a cottage and we

had oil lamps and they are kind of dangerous.

Anyways, that's sort of mainly my point. I followed a hard act. He did a really good program there. And I'm sorry I don't have a typed up copy.

One other thing, I read livestock, the parasites, for some the battle is won, others still need fighting. And deer, they shed flu eggs which are ingested by the cattle. I just read that today. And I was thinking, you know, like the bugs getting into the cattle, that's kind of an interesting thing. And like the TB worries me that the cattle around Riding Mountain, the farmers are having a hard time there with the TB.

Anyway, that's about all I have to say.

THE CHAIRMAN: Thank you, Mrs. Hamilton. Paul Rempel?

MS. JOHNSON: Could you please state your name for the record?

MR. REMPEL: Paul Rempel.

Paul Rempel: Sworn.

THE CHAIRMAN: Go ahead, sir.

MR. REMPEL: Thank you. Good evening, panel members, ladies and gentlemen. My name is

Paul Rempel, as was stated. I farm in a community that is situated 29 kilometres south of the south perimeter of Winnipeg, on provincial road 330, at a small hamlet called Osborne. We farm a variety of crops including wheat, canola, oats, soybeans, sunflowers and grasses. I would like to speak this evening as a landowner who lives along the chosen route for Bipole III, but more importantly, I speak as a citizen of this province.

The Clean Environment Commission hearings for the Bipole III project started on October 1. The transcripts of this hearing record that in the last four weeks, you have heard opening statements from the proponent, Manitoba Hydro, as well as from the nine participants in the hearing. You have heard in great detail a description of how Manitoba Hydro arrived at the final proposed route for Bipole III. You have heard testimony from experts, both from within Manitoba Hydro and from outside the Crown corporation, explaining how they arrived at certain decisions when planning for the proposed Bipole III project.

The panel has travelled across Manitoba in the past three weeks and stopped in

key rural towns and cities to give the public their chance to be heard. Your efforts to seek input are appreciated.

Some of the things that I might say tonight, I wish the Commission to not take personally, but I feel they need to be said.

Firstly, when I sat down here, you make me take an oath that I would not mislead the Commission, and you said, I don't know if you said it tonight, but you said it at Niverville when I was there, and you said that Manitoba Hydro had taken that same oath. How can Manitoba Hydro vow that they are not misleading the Commission when it was Hydro who firstly chose an east side route, because it was more cost effective and, of course, made much more sense because of the shorter distance by almost 50 percent?

At every stop along the way, the panel and the proponent have made it clear that the decision to take the far west side route for Bipole III was not their decision. It was what they called a "Policy" decision made back in September of 2007 by the government. According to the transcript, Manitoba Hydro even had the audacity to call it an "Electoral" decision.

Your mandate includes reviewing the project as it is presented in the environmental impact statement that Manitoba Hydro has prepared for the Bipole III project. It includes listening to all of the concerns you will hear during the Commission's hearing process. It includes analysing all that you hear, and coming up with a report to the Minister of Conservation and Water Stewardship that will recommend the project be granted a licence to proceed as it is presented, or perhaps it will recommend a licence be issued with certain changes the panel may recommend, or maybe it will recommend the project not proceed at all.

To the members of the panel, I say that there is a heavy onus on you to recognize that your decisions will affect all Manitobans. To be sure, it will affect landowners, not only those of us who are stewards of the land today, but also our children and our grandchildren and generations beyond. But it will also affect every Manitoban.

Governments come and governments go. Even the leadership of Manitoba Hydro changes with time. Today's leaders are not the ones directly

affected by this line, not today and not even in the future. It is the citizens of this province who will be affected either directly or indirectly.

The present routing of the line was the brainchild of former Premier Gary Doer. Where is he now? Ms. Rosanne Wowchuk was a champion of the west side decision. Where is she today? Mr. Vic Schroeder and Mr. Bob Brennan were quite happy to support and even implement the government's decision. Where are they now? Almost all of those who made the decision to accept Mr. Doer's request back in 2007 are long gone. Either that, or they are hiding behind simple statements that can no longer be defended. Mostly, they are gone, and so is the export market which Manitobans were assured would pay for the project. The current and former leaders are not impacted by this line, but the landowners who will have to live with it and all the citizens that will be forced to pay for it are.

I understand that the environmental review process must remain at arm's length from government. Still, I believe that it is not fair that the people who are forcing this decision on

all Manitobans should be isolated from the feelings of the people of this province who are so concerned with the routing of the line. Why should the Minister of Conservation and Water Stewardship, Mr. Gord Macintosh, who will make the decision whether or not to licence this project, not have to witness and experience the anger being expressed at these hearings? Why should the Minister of Manitoba Hydro, Mr. Dave Chomiak, be shielded from the tearful presentations you have heard? Why does the new CEO of Hydro, Manitoba Hydro, Mr. Scott Thompson, sit in his office a few blocks away from these hearings, never to hear the voice of First Nations Manitobans saying that they don't trust Manitoba Hydro anymore? Why should he not hear that landowners whose property will be bisected by this line tell this panel that Hydro is a corporate bully. Where is the premier of Manitoba, Mr. Greg Selinger, who announced the "Policy decision" in 2007, that is causing this line to be routed on the west side of the province? Manitobans want an explanation for this decision that makes sense. So far they have not received it.

The panel and the Commission need to

do the right thing and stop this line from trampling on the rights of landowners and the interests of all Manitobans. Do it for future generations of Manitobans. Entrusted with probably the most important decision the Commission has ever been asked to make, it is your duty as citizens of this province. I am asking you, please, stop this line from running through the places where we farm and where we live.

Thank you to the Commission. And to Manitoba Hydro, our family will not put a signature on any proposal that is presented to us until common sense starts to prevail. Thank you.

THE CHAIRMAN: Thank you, Mr. Rempel. Questions. Thank you, Mr. Rempel.

MR. REMPEL: Thank you.

MS. JOHNSON: Could you please state your name for the record?

MS. REMPEL: Shandra Rempel.

Shandra Rempel: Sworn.

MS. REMPEL: Good evening, Mr. Chair and panel members. My name is Shandra Rempel and I live in Osborne, Manitoba.

Now, I am proud to be a prairie girl who has been raised on our family farm in Southern

Manitoba. In fact, I am the daughter of Paul Rempel who has just delivered a speech on behalf of our farm and our family, asking for somebody to stand up and take responsibility for what our present government and Manitoba Hydro are about to do to many farms stretching across Southern Manitoba. I have two brothers, and together we are tomorrow's farmers. I would like to speak on behalf of tomorrow's farmers as I am concerned you have not yet heard our voice.

While my dad was preparing for his speech this evening, we were once again asking each other how this could actually be happening. How did we get to a point where we have to stand before a panel and practically beg to put a stop to this nonsense? I felt compelled to say my piece as I was very angry. So here I stand and I respectfully thank you for this opportunity, no matter how difficult it is for me to remain calm.

Now, my grandpa and his family immigrated here to escape the unspeakable depravity of the Ukraine in the 1920's. Since that point in time, my family has worked hard to build a farm that will continue on to the next generation. We are so proud of that fact. So

many farms in other areas of the province are not as lucky. And I do say lucky, because that's how I feel. I feel so incredibly blessed to have been born into the farm family in the Red River Valley.

Many farms in other less productive areas across the province may not pass on to the next generation, or some farms across Manitoba may not have children who are interested in taking over the farm. And I do respect and understand all of that. What I don't understand is that in this area of the province, where farms are prospering, they are growing, they are becoming more efficient and more productive, and where the future looks so very bright for tomorrow's farmers, how can our government and Manitoba Hydro force their way on to our land to construct Bipole III? What gives them this right, when almost everybody else is telling them that it is the wrong thing to do? Would you let the province barge into your backyard without your consent and put up a big old pole? I don't think that you'd like it either.

I grew up in a very, very small town. I know all my neighbours and I love and adore my community. We have a strong connection to the

land. It's our land, and many of us look forward to returning to the farm upon leaving for the sake of education. Some of us leave for a time to attend university or college, or just to better prepare ourselves for tomorrow's challenges that running farms may bring. Some of us are taking agriculture or agri business, or perhaps becoming engineers, or studying in other areas of interest. Whatever it is that we have chosen to do today, it has been to better prepare us for tomorrow, and for coming home to where we always knew we would end up, back home on the farm, the start of the next generation of farmers.

I know I speak for so many others that may not be able to stand here before you at these hearings. Agriculture runs deep in our veins and we are tied to the land.

Now, my generation is very cognizant of the preservation of our environment. We have an understanding of what is needed to sustain and develop our land and the environment because we work with it on a daily basis. Who better to discern the future of the land than those who are stewards of it?

What is about to happen with Bipole

III feels like a very bad dream. How can the Provincial Government and Manitoba Hydro try to convince us that this decision had to be made to preserve the environment on the east side of Lake Winnipeg? How can a line so much longer be environmentally responsible? How can they say that we need it for exporting power south when even these sales contracts have evaporated? How can making our farmers manoeuvre around huge structures, which burns more fuel, wastes more fertilizer, more pesticides, how can that be good for the environment?

Whatever efforts the next generation of farmers try to make for the good of our environment will be defeated and will all be in vain because of one awful decision that is being forced upon us and our farms. There seems to be no amount of reasoning that can stop it. I could tell you that it's nearly 500 kilometres longer to take the western route. I could tell that you the west side will cost upwards of $1 billion more. I could tell you how unfair it is to force 148-foot hydro poles onto our land and give us 100 percent continuous liability in the event of an accident. And we all know that the boreal forest you are so

protective of is all over western Manitoba as well.

But you already know all of this, because it's not a numbers game and it's not about facts either. How can it even be possible that the titled land that my grandpa owned and farmed before we did simply be taken from us against our will and changed forever?

I have friends, young professionals, just starting out making their way into their careers, working for Manitoba Hydro. A two minute conversation with any of them regarding the Bipole III project will tell you the truth behind all of this. That the government is forcing Hydro to take the wrong route. Do you know why none of them will step out with this information? Because they don't want to lose their jobs. And so nobody will speak out with this information because Manitoba Hydro is a big bully.

A decision like this will affect us forever. It is my brothers and I, all of our friends, and then some day eventually all of our children who will pay for this poorly conceived decision made today.

And so I am asking you, the Clean

Environment Commission panel, to please think about the effects it will have on this prairie girl and all the others who will be tomorrow's stewards of the land and tomorrow's producers. We only have one chance at stopping Bipole III from stomping all over our land. I want to be on record of having at least done my part to help all the others who have spoken before me and to take a stand on behalf of all of us. Please stop Bipole III from crossing my farm and all of the other farms in its path. At the very least, please make sure that those responsible for forcing this on all of us are being held accountable, and recommend that the entire Bipole III project be put on hold so that an independent review of the project can be conducted. That way my brothers and I won't have to look back once it's too late and ask each other how this ever could have ever been allowed to happen.

Thank you for your time.

THE CHAIRMAN: Thank you, Ms. Rempel.

Now, there's an opportunity for -- that's all the people who have indicated to us prior to the start of the evening that they wish to speak, but there is opportunity for anybody

else in the audience who wishes to have their say to do so. So if you would like to speak for a few minutes, please come forward now. Yes, sir?

MS. JOHNSON: Could you please state your name for the record?

MR. GRAHAM: My name is Jim Graham.

Jim Graham: Sworn.

THE CHAIRMAN: Go ahead, sir.

MR. GRAHAM: I am a civil engineer. I have taught engineering for almost 50 years, and I ended my career at the University of Manitoba. I want to talk a little bit about process.

The very first time that I saw the route for Bipole III, my immediate response was, why is it going there? It was a gut reaction saying, that doesn't make sense.

Now, the process. All major engineering projects are subject to a thing that we would call cost benefit analysis, and which nowadays is more sophisticated than simply looking at the cost and the economic benefit. And they are very much like what Will Tishinski talked about, the NFAT, needs for and alternatives to. But in my world a cost benefit analysis involves not only the technical things, but also the costs

and the social impacts and the environmental impacts. They are absolutely inherent in the whole process of reaching a decision about where a route should go, if it's a roadway or a transmission line, or how the project would be worked out to completion.

We haven't had that for Bipole III. I got into it because I was -- I thought at the time that there must be some reason for going on that western route, which struck me immediately as being so strange. But we have never heard a rational straightforward argument which supports a west side route. All we have heard is that it's better than an east side route, but no reasons are really given.

And so I would ask the Commission to seriously question the process that they have been involved in, accepting that the government has the right to make a decision for west side route, but accepting also that the government then has to take the responsibility for the future good and well-being of this province.

As an engineer that's what I have to do. I have to, I have taken, or I adhere to a code of ethics which says that my first

responsibility is to protect the interests of Manitobans.

So I will leave it there, it's very short, but I would ask you to consider process. Thank you very much.

THE CHAIRMAN: Thank you, Mr. Graham.

MR. BATEMAN: Mr. Chairman, my name is Len Bateman.

Len Bateman: Sworn.

MR. BATEMAN: Mr. Chairman, I didn't have any inclination to come and speak to you tonight, but there's been one or two things on my mind about this rather rash decision of the former Premier to route the line down the west side. And I wrote a letter to the editor about this at one time. It does violate the Manitoba Hydro Act.

The board is really charged with the responsibility of administering the Act for the benefit of all Manitobans. And making this rather rash decision of expenditures that are absolutely unnecessary is not in conformance with the Act. I think that this is one thing the Commission should point out very strongly to the government, that it's all right to do our job, your job of hearing the pros and cons, but for us to have to succumb

to a ruling by the government to violate the Act is hardly appropriate for any Manitoban to be able to stand up and hold his head high in the future. And I think that's something that the board should look at pretty seriously.

Now, I didn't tell you my experience, but I have been in the utility business for a good part of my life. I graduated from the University of Manitoba with a Bachelors degree and later a Master of Science in electrical engineering. I worked for Winnipeg Hydro until the power agreement was signed, and then I decided there was no more future of building generation there. So I was asked by the Manitoba Hydro board if I would like to organize a planning department and do some planning for Manitoba Hydro, which I undertook. And I think I was rather successful at it. And I had lots of very bright young engineers from the university, including Will Tishinski working for me.

Now, this whole idea of doing something for political reasons has never gone over very well with Manitobans. I can remember the decisions that were made back in the '50s about how to reorganize the power industry and so

on, none of which really did any good. Finally, it was the will of the people that prevailed. And I think if this was put to a vote for the will of the people, it will be an overwhelming change from the present plans to go on the west side.

I think, Mr. Chairman, that concludes the few remarks that I had to make. The main point I want to ensure you take into consideration very seriously is the provisions of the Manitoba Hydro Act, which requires the board of Manitoba Hydro to operate the utility in the best interest of the citizens of Manitoba, and this line is not doing that. Thank you.

THE CHAIRMAN: Thank you, Mr. Bateman.

MR. BATEMAN: No questions?

THE CHAIRMAN: I don't think so, sir. Thank you. Anyone else? Last chance, anyone else in the -- any other member of the public who wishes to say a few words before the Commission?

Okay. Well, I thank you all for coming out tonight. I thank the half a dozen or so people who made presentations tonight. As we have always found, they are always well thought out and well reasoned, and we will consider your points when we come to our deliberations. As I've

said in other communities, I can't guarantee that we can give you what you want, but we will seriously take into serious consideration what you have said to us.

I am sorry, I keep forgetting about document registration, Ms. Johnson.

MS. JOHNSON: WPG number 1 will be Mr. Tishinski's presentation; number 2 will be Mr. Rempel; and number 3 is Ms. Rempel. Thank you.

(EXHIBIT WPG 1: Mr. Tishinski's presentation)

(EXHIBIT WPG 2: Mr. Rempel's presentation)

(EXHIBIT WPG 3: Ms. Rempel's presentation)

THE CHAIRMAN: Thank you. So we are adjourned until Monday morning at 9:00 a.m. I believe. Oh, yes, and we will be in a different space. We're in this beautiful building behind us, the Fort Garry Place in the ballroom, which I believe is on the same level as the crosswalk which goes off of the first floor of this building. So have a good weekend everyone and we'll see many of you on Monday morning.

(Proceedings adjourned at 8:02 p.m.)

OFFICIAL EXAMINER'S CERTIFICATE

I, Debra Kot, a duly appointed Official Examiner in the Province of Manitoba, do hereby certify the foregoing pages are a true and correct transcript of my Stenotype notes as taken by me at the time and place hereinbefore stated.

Debra Kot

Official Examiner, Q.B.