Yukon Utilities Board

Yukon Electrical Company Limited

2013-2015 General Rate Application

P R O C E E D I N G S

Volume 3

November 6, 2013

Whitehorse, Yukon

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Ms. A. Middler	Yukon Conservation Society
Ms. K. Kellgren	City of Whitehorse
Adele Jones, CSR(A)	Official Court Reporter
S.J. Lea Dormer, CSR(A)	Official Court Reporter

(Proceedings reconvened at 9:00 a.m.)

THE CHAIR: Please be seated. Good morning. Are there any preliminary matters?

J. MASSIE, J. GRATTAN, D. REDDEN, K. KOENIG (For YECL), previously sworn

UNDERTAKING RESPONSES

MS. SEARS: Yes, sir. We do have a few preliminary matters. First of all, Mr. Grattan advises me that he wishes to make a correction to his testimony from yesterday that was drawn to his attention by Mr. Maissan.

So, Mr. Grattan...?

MR. GRATTAN: Good morning, everyone.

And thank you, Mr. Maissan. Apparently I can't read at the end of a long day on the stand, so I'll correct what I said back on page 352 of the transcript where we were -- where I was talking about forecasted and actual capital expenditures in 2008 and 2009.

To correct the record -- and this is the record that we included in our application -- I should have said the following: In 2008, the forecasted total capital expenditures for Yukon Electrical was 9.3 million, and the actual capital expenditure was 9.9 million; in 2009, the forecasted capital expenditure was 7.7 million, and the actual was 6.3. If you add up all of those numbers over those two years, the difference between forecasted and actual capital expenditure, Yukon Electrical was $800,000 lower on an actual basis as compared to forecast, or 4.7 percent lower than forecast.

Now, that's -- on a gross basis, that's capital expenditures, and it doesn't include the issue of contributions. So I would just also like to draw your attention to our response UCG-YECL 39(a) -- I'll let you pull that up -- where, from a rate base perspective, Yukon Electrical's actual rate base was $144,000 lower than forecast or .3 percent lower than forecast in 2008, and 362 or .7 percent lower in 2009 as compared to what was approved in the 2008-2009 GRA.

And if you take a look at part (b) of that response, the net impact on return on those two years was $11,000 and $25,000. Thank you.

MS. SEARS: Thank you, Mr. Grattan.

The next matter we wanted to address is Mr. Massie took a "subject to check" from Ms. Kellgren with respect to AMR assets, and he has checked it and has some further information to give.

So, Mr. Massie.

MR. MASSIE: Thank you, Ms. Sears.

So the first day's transcript, Volume 1, there was a subject to check on page 30, line 25 to page 31, lines 1 to the 7. Starting on page 30, I was asked in the assets -- and we're talking about AMR assets -- to be installed between 2014 and 2015 amount to 3,638,579. And I -- would you accept that subject to check? So I'll confirm

the years, year 0 and year 1, which is 2014 and 2015. So I accepted that subject to check.

Ms. Kellgren's 3,638,579 is actually the total 2014-2015 capital investment for meters only. It does not include the necessary substation equipment required for the project. So the total AMR assets to be installed in 2014 and 2015 is actually 3,862,830.

MS. SEARS: Thank you, Mr. Massie. Finally, Mr. Chairman, we have a response to Undertaking 13 ready at this time. I've provided copies to the Board secretary and I just asked her to circulate those now.

THE CHAIR: Thank you very much.

MS. SEARS: I've also made copies available at the back of the room.

THE CHAIR: Thank you. So I assume we need to give this one an exhibit number?

MS. SEARS: Yes, sir. If you'd like to do that now, I believe we're at Exhibit B-15.

THE CHAIR: That's confirmed. So marked.

EXHIBIT B-15 - RESPONSE TO UNDERTAKING NUMBER 13 BY MR. JANIGAN TO MR. MASSIE

MS. SEARS: I'll just turn it over to Mr. Massie to take us through that response.

A. MR. MASSIE: Response to Undertaking No. 13, undertaking by Mr. Janigan to Mr. Massie, page 220, lines 22

to 25 and page 221, lines 1 to 4. And it was to provide an update to the table by adding a column for 2009 allowed and adding a row showing the percentages increase in non-fuel operating and maintenance costs per customer versus the 2009 actual through to 2015 forecast.

If you refer to the Attachment 1, we have done that.

MS. SEARS: Thank you, Mr. Massie.

With those preliminary matters out of the way, I think we're ready to turn it over to Mr. Maissan.

THE CHAIR: Mr. Maissan, if you're ready, I'll give you the floor.

MR. MAISSAN: Thank you, Mr. Chair. I am ready to proceed.

Just by way of explanation, I have three groups of interrogatories or cross-examination areas. First is a couple of questions that Mr. Janigan forgot to ask yesterday. I'll ask those on his behalf.

I have three matters arising out of the hearing on day one that I would like to follow up on. And then I have my previously prepared interrogatory -- well, interrogatories, cross-examination areas on the complete application.

THE CHAIR: Perfect. I hope Mr. Janigan is going to appropriately compensate you.

MR. MAISSAN: Yes, we have a deal worked out.

THE CHAIR: You have worked that deal out? Perfect.

MR. MAISSAN: Yes, we have.

I should also mention two other things: One is that I do have a couple of questions on -- follow-up questions on IRs that relate to the demand side management program. If it's not appropriate for this panel to respond to them, I would appreciate an indication and I will save those, then, for the DSM panel.

THE CHAIR: Thank you.

MR. MAISSAN: And the other thing, just to keep my own references short and not to get tripped up, when I'm referring to interrogatories on the record, where, for instance, a question is labelled -- and I'll give one example here for Mr. Janigan's question -- YUB-YECL-61, for my convenience, I would just like to refer that -- refer to that as YUB 61.

THE CHAIR: That's appropriate. That actually, I think, would be simpler.

MR. MAISSAN: Yes, thank you.

MR. MAISSAN CROSS-EXAMINES THE PANEL:

Q. So to begin then, I have a question which relates to YUB-YECL 61, and the reference is page 9-50 of the YECL application. This is to do with the automatic meter readers.

If YECL is replacing 12,903 residential and 1,579 commercial conventional meters with AMR meters, the budget for 2013, which is labelled as 600,000, seems not to jibe with that. So perhaps someone could explain that budget number versus the meter replacements.

THE CHAIR: Was that Attachment 1?

MR. MAISSAN: I don't have an attachment on that interrogatory, but it is page 9-50 of the application, Tab 9, page 9-50 of the application.

THE CHAIR: Okay.

A. MR. MASSIE: Yeah, I think I'm there. So we're speaking of $600,000. That's 2013. Is that correct? Is that for the --

Q. Correct, yes.

A. MR. MASSIE: So the AMR project really is to start in 2014. The first stage of it or the first phase of it starts in 2014 for the next line item just above at 1580 or 1 million 580 and then continues into 2015 or completes in 2015.

Q. So then the 600,000 does not contain any amounts for the AMR project; is that correct? These are routine meter replacements?

A. MR. MASSIE: For 2013, these are meter replacements that were -- that are required by Measurement Canada to replace meters. And we did start -- there was

-- we did start to replace some of those meters with AMR meters in 2013, in this year. And basically the decision was made, we looked at our -- the upcoming meter changes that were going to be required by Measurement Canada and it has significantly increased in the last year in preparation, I guess, for the new regulations, federal government regulations that come into effect this January 1st of 2014.

So they're requiring us to change out and test a lot more meters. This year we had over 2800 meters to change out throughout or service areas, which was significantly more than our historical amounts of meters that we've ever had to change out.

So the decision was made that within Whitehorse and the Southern Lakes, so Tagish, Carcross and Teslin, that we would -- the residential meters only that we would have to change out irregardless with a new meter, we would put in an AMR meter.

Q. Right. So is any part of this budget of 600,000 formally part of the AMR project, or is this all within the ordinary -- let's call it ordinary meter replacement budget?

A. MR. MASSIE: I'm not clear on that question.

Q. So the $600,000 for 2013 includes some AMR meters for the residential class plus -- in the southern Whitehorse and Southern Lakes area.

Is that portion -- cost portion of the 600,000

part of the overall AMR project budget, or is that captured or retained within your ordinary meter replacement budget?

A. MR. MASSIE: So I guess the cost for the AMR meters are within the meter appropriation which, really, the AMR is part of. So I guess if you're asking the meters that we have exchanged, the AMR meters that we have put in place are part of the overall project, that's really what you're asking; right?

Q. Correct.

A. MR. MASSIE: Yeah, absolutely. The meters that we have exchanged, which is a little over 2,000 this year, would be in part of that -- the AMR business case or project. It was part of that rolled-up cost.

Q. Right. So this is where I stray to a personal question. This is not one from Mr. Janigan, but there would have been a cost to replacing those existing meters, mechanical meters, with AMR meters.

Is the portion of the cost that would have been incurred had you been replacing the AMR meters with conventional mechanical meters still captured within the regular meter replacement budget or is that also -- sorry, or is there no credit, as it were, to the AMR project for that?

I.e., what I'm thinking is if the AMR project captures all of the new meters going in, if some part of that cost would have been incurred replacing conventional meters

with new conventional meters, then, you know, in one sense it may not be part of -- or it may be appropriate to not consider that part of an AMR project but a cost that would have been incurred anyway and not an additional cost. So I just wondered whether --

A. MR. MASSIE: Absolutely. So what we looked at was the incremental cost between the new digital meter, non-AMR meter that would have to be plugged into -- in exchange, irregardless.

So we looked at that incremental cost from the cost from that meter to an AMR meter and the fact that we had to -- we had over 2,000 of these meters in the location that we had to change out this year.

So rather than changing those meters out this year, putting these new digital non-AMR meters in this year, then going back to that same location next year, the same customer's premise the next year to exchange that same meter with an AMR meter, we decided to look at that incremental cost and compare it to the cost of the labour that it would take to go to install that meter this year, come back, go and install it next year.

And it was -- it was just reasonable and prudent for us to look at it. The costs were very close for us to install that meter now, and we figured this would definitely jump start us, get us ahead. And as part of the

AMR project, yes, it would bring down the cost of what we have put in for the amount of meters that we need to exchange, because we've already done 2,000 of them.

Q. Right.

A. MR. MASSIE: So the overall cost, again, being -- yeah, trying to be prudent and a little ahead of the ball game to get out there and change these meters out just once instead of twice in the span of a year, that's really what we looked at doing there and bringing -- so overall, that AMR project would decrease by the amount of meters that we had to change out this year.

Q. Thank you. The sec -- sorry?

A. MR. GRATTAN: Mr. Maissan, I just wanted to clarify one thing because I think I know where you were going with your questioning, and I just want to be clear on the record that if you go -- the economics that supported the decision to move to AMR, as opposed to the status quo option of changing out all of the meters to just electronic non-AMR meters -- if you go to Business Case 27, Attachment 1 -- are you able to pull that up?

Q. I have it in hard copy.

A. MR. GRATTAN: That's okay.

Q. I have it, yes.

A. MR. GRATTAN: Okay. So if you go to the first page of the economic analysis, top left-hand corner,

you can see total number of AMR meters, there's a number there of 14,482 under (h) for Howard.

Q. I'm sorry. I'm not seeing that, Attachment 1, page 1 of 11?

MS. SEARS: Page 2.

A. MR. GRATTAN: Yes, page 2.

Q. MR. MAISSAN: Page 2.

A. MR. GRATTAN: Page 2.

Q. Top left-hand corner?

A. MR. GRATTAN: Under item (h).

Q. (h), total meters to be replaced, 14,482.

A. MR. GRATTAN: Yes.

Q. Yes, I have that.

A. MR. GRATTAN: So the economic analysis performed by Yukon Electrical took a look at all of the meters that needed to be changed out to AMR versus all the meters that would be status quo and performed the economic analysis.

As Mr. Massie has pointed out, in 2013, because we had -- we were going to have to change out a large amount of meters regardless of moving forward or not moving forward on AMR, a decision was made to install an AMR-compatible meter so that we wouldn't have to go back out, rip it out and redo it should the Board be in agreement with approving the AMR project.

So I just wanted to make clear that the project economics reflect all of what is going on. It's just in 2013, given the fact that we had to changed 2,000 and some meters, a decision was made to put those AMR -- put those meters as AMR-compatible.

Q. So if I -- again, personal comment. If I interpret correctly, if some of those meters were, in fact, replaced at no additional incremental cost or very little additional incremental this year because they needed -- the meters needed to be replaced anyway, then in fact, the overall economics of the AMR project is probably better than represented here in which you took the total number of meters that needed to be replaced?

A. MR. GRATTAN: I'd love to agree with you, but I think I would be lying if I agreed with you. Regardless of whether we did the meter exchange in 2013 or 2014, the economics wouldn't change --

Q. They wouldn't change. Okay.

A. MR. GRATTAN: -- because of the circumstance, we did what we did.

Q. Fair enough. That makes sense. Thank you.

A. MR. GRATTAN: Okay.

Q. The next question is in regards to Tab 13, Business Case 12, and this is the Carcross standby generator, and as an attachment to that business case, there was a redacted

petition attached, i.e., there were no signatures there, and we're wondering if YECL has a copy with the signatures on it, and, if so is, could that be provided?

A. MR. REDDEN: Mr. Maissan, that copy of the petition that was forwarded or provided to Yukon Electrical, that is the exact copy of it, so we don't have the one with signatures. We just included in the business case exactly what we received as a copy that was submitted.

Q. Thank you. All right. I will proceed to my questions, and starting with a follow-up: In regards to the YECL update, which is Exhibit B-11 on page 2 of 9, we see that the revenue requirement being applied for is reduced, but in fact, the rate change being calculated is higher despite that reduction in revenue requirement, and I was wondering if you could explain that, please.

A. MR. GRATTAN: Sure. So it's just the math of the update reflecting the decreases in O&M expenses as we reflect it in the update, but also, a decrease in forecasted sales that, when you do the math, the impact of the decrease in forecasted sales is larger than the impact of the decrease in O&M resulting in the rate increase changing as detailed in the update.

Q. Okay. So the -- in fact, the decrease in sales sort of outweighed the decrease in costs.

A. MR. GRATTAN: Correct.

Q. Thank you. I have an aid to cross for my next question, which is in regards to the discussion on time-of-use rates, and this is found on the transcript, page 131 and 132.

Are people ready to proceed?

Right. Do you recall that discussion? I think it was you, Mr. Grattan, that was discussing time-of-use rates. And if I understood the discussion correctly, you were saying that they don't make sense in Yukon because either Yukon was on diesel or it was not.

A. MR. GRATTAN: I do recollect that.

Q. Yes. Before you, you have from Yukon Energy's website a printout from December the 20th, a year ago, and this was when we were at or near system peak, and I guess I can take it, subject to check, that if these Yukon Energy figures are correct, in fact, we were generating with diesel in the daytime, but not at night. At night, the system was being served with hydro.

So could you explain how there is not or would not be a benefit to ratepayers if time-of-use rates discouraged daytime consumption and encouraged nighttime consumption.

A. MR. GRATTAN: I'm going to let my peers answer this.

A. MR. REDDEN: Yes, Mr. Maissan, this snapshot is one period of time where we're showing a load, you know,

through the daytime -- businesses, residential. And we've previously talked about sort of the residential nature with respect to peaks. And I think what you're presenting here is to see could you move some of that daytime and fill in that valley in the evening.

I think it's worth in context to look at what happens before and after this snapshot in time. Typically when diesel is on, it is staying on. And we've looked at, for our market, the viability and complexity, then, of getting involved with development of a time-of-use system and a way to change behaviours to be able to start utilizing some of that load during the day in the middle of the night; for example, doing your laundry in the hours from 1 in the morning to 6 in the morning to shift some of that load. So it's very complicated.

We haven't found that it's a good fit for our system. And I think that some years into the future, if there's enough evolution in rate design and behavioural patterns and technology capabilities that would be affordable to incorporate into our system, then it could work.

Q. Yes. My concern is -- and Mr. Grattan, I think, explained that where you've got stacking orders and you can go to a decreased level of cost, then there are benefits.

Well, in this case, diesel on the margin is in the order of 30 cents a kilowatt hour. Hydro on the margin

is in the order of half a cent per kilowatt hour. So there's an enormous step benefit in being able to reduce diesel and use more hydro.

And I was rather puzzled to hear that there wouldn't be a benefit. It seems to me that there is a potential huge benefit whenever diesel is on the margin and exceeding our hydro capacity.

A. MR. GRATTAN: I'll respond to that. First of all, I agree if you can eliminate diesel, that's a huge benefit. If you can come up, as Mr. Redden has said, with a structure that encourages customers to significantly alter their behaviours so that they're doing things in the middle of the night as opposed to between the hours of 7 a.m. and midnight, I will grant you that, yes, there is the possibility.

But I also would point out that the eventual, should there ever be a decision to go to time-of-use rates in the Yukon, is years away.

We are going to continue to grow in the Yukon, just as we have in the past. And that little 'U' that you've pointed out in the middle of the night on December 20th of 2012 is going to become a smaller and smaller 'U.' And I'm not sure whether this is indicative of a larger sample. But it's going to become a smaller and smaller 'U' in the years to come should we ever go to AMR -- sorry, to time of use.

I think I stick with my comments that when we're burning diesel for at least, as you're pointing out, 17 or 18 hours of the day, that is diesel on throughout the day, regardless of your shifting load from 7 a.m. to 9 a.m. or from 6 p.m. to 9 p.m. But I do grant you that there is a 'U' in the middle of the night.

Q. And would you also accept, then, that if and when load grows and new renewable energy sources are brought on, that 'U' could, in fact, be larger and there could be an increased period of time during which daytime peaks can be displaced into non-peak times?

A. MR. GRATTAN: I'll grant you that there's lots of ifs, that if this or if that may happen. There's always those possibilities, sir.

Q. Yes, sir. My concern was that you didn't qualify your comments with the appropriate ifs, and there are potential benefits that I feel were underrepresented in your comments on the record.

MS. SEARS: Is there a question there, Mr. Maissan, or are you just putting evidence on the record or trying to put evidence on the record?

MR. MAISSAN: I'm not putting evidence on the record. I'm just trying to correct the record because I believe the witnesses were to tell the truth, the whole truth, and nothing but the truth and I'm not sure we got the

entire whole truth because there are different perspectives that were not presented.

MS. SEARS: Again, there's no question in what you've just put on the record.

This is your opportunity to ask questions, Mr. Maissan.

MR. MAISSAN: Yes, and I believe I've asked them and there's nothing further to discuss here.

A. MR. MASSIE: I think it would be important, you know, when I look at your exhibit and your graph the one thing that we haven't mentioned -- I haven't heard at all when we talked about we looked at our loads and our system and the continuing trend of electric heat, it really has pushed our system -- the load on our system up.

Now, you'd see the heat -- like, this graph from 8 a.m. or 7 a.m. all through the day to midnight. And the dip in the midnight to 7 in the morning, I would submit there's probably not a whole lot of heating going on at that time.

So, it's just that we looked at the type of load that we have and we struggle to see the benefits, was our point, of time of use, the benefits to ratepayers for the significant cost. That was our -- what we were trying to get across at that point.

Q. Your concern. Would you agree with me that if Yukon

Electric undertook a program to encourage something called electric thermal storage, i.e. storing electric heat when surplus is available or the lower load is available through the night and so no electric heating -- direct electric heating is required during the day would help reduce those peaks and fill the valleys?

A. MR. MASSIE: Sorry, I'm not that familiar with that technology to be certain, Mr. Maissan. But I just -- you know, I struggle to see how in some of our -- how that would be retrofitted into customers' premises. And I guess how we get involved in the customer side I guess would be what I would -- I'm struggling to see on that.

A. MR. REDDEN: Maybe I can comment there. So we're talking about potentially with this heating system sort of a proliferation, then, of electric heat, not just adoption through new customers but going back through our existing customers and our existing system and then adding that electric heat load, then, that would be typically displacing heating sources such as fuel oil. And the impact, then, on the distribution system feeders and transformers that customers are connected with would certainly be an area to be looked at with this substantial additional load through areas where there is currently not as much electric heat as you'd say the percentage would be in new areas.

It's also an area that we looked at on

generation by customers as part of the new micro generation policy that Yukon Electrical and Yukon Energy will be looking at case by case as customers are proposing to, then, push electricity into the system, what those constraints are on the system and if there's changes required of that.

So I think with electric thermal storage proliferating back through our system, that there could be significant impacts in the load-carrying capability of the system to accommodate.

Q. If I were to refer to existing electric heating customers, which have heat coming on and off right through the day, electric baseboard heating, if you had a program to convert those existing heating customers, electric heating customers, to a system with electric thermal storage which just took nighttime electricity when other loads in the areas are down, but just essentially removed the daytime electric heating loads and concentrated them at night when our system loads are substantially lower, do you not see that as potential benefit, then, to the system?

A. MR. REDDEN: With respect to being able to do that through the complexities that would be involved, the technologies that it would require and the economies of scale I think that would be needed to show it as cost beneficial would be challenging.

Q. Right. That's a discussion for another day.

MR. MAISSAN: We're getting past this application, Mr. Chair.

THE CHAIR: So, Mr. Maissan, would you like to give this an exhibit number? Are you finished with this or do you have other questions?

MR. MAISSAN: Yes, I would like to give this an exhibit number. I do not have the number at my fingertips.

THE CHAIR: My records show, and I'll confirm, that it's C-4-6.

MS. HENRY: That's correct.

THE CHAIR: And that has been confirmed, so that is so marked.

MR. MAISSAN: Thank you, Mr. Chair.

EXHIBIT C-4-6 - AID TO CROSS

Q. MR. MAISSAN: My next question is in regard to the IFRS -- I think it's international financial reporting system -- and I was wondering if someone could tell me what the cost is of maintaining two sets of financial records? I understand from the application and responses to IRs that essentially two sets of records need to be kept.

A. MR. GRATTAN: I'll deal with that. Okay. So we'll come at this from two perspectives. Number one, Yukon Electrical is a subsidiary of a publicly-traded company. That company is A rated, and there's tremendous benefits with

regards to Yukon Electrical having access to capital as a result of that relationship.

On the cost side, because our parent is reporting under IFRS in accordance with the standards in Canada now -- or at least as originally planned in the late 2009-2010 period -- we have had to increase our financial resources as a result of that.

The quantification of having to maintain two separate sets of books is detailed in UCG-YECL 7(b), and we have quantified the impact with regards to the need for staffing to deal with that -- is approximately 5 percent of their workload, and the dollar impact is $44,500 in 2013, $46,000 in 2014, and $47,500 in 2015.

Q. Thank you. Do you see -- do you foresee a time when YECL would not have to maintain two sets of books -- two sets of records?

A. MR. GRATTAN: I would love to be able to foresee that because I know what our staff has to go through. At this point, for purposes of the test period, I do not see a time. How the world unfolds in the years to come I can't speculate.

Q. What would be required -- or what needs to change to enable YECL to just maintain one set of books as opposed to two?

A. MR. GRATTAN: The international financial

reporting standards would need to change.

Q. As opposed to the set of regulatory requirements under the different set of books --

A. MR. GRATTAN: Correct.

Q. -- could it be the other way around?

A. MR. GRATTAN: Yeah. The other way around is, is that the regulator could choose to adopt IFRS as the method.

Now, to be clear, that hasn't happened in Canada. That would be -- that would be trend setting, precedent setting and all that kind of good stuff should this Board choose to go down that path. But, yes, to answer your question, that's certainly the other option.

Q. Thank you. I'm getting to some of my regular questions. My first question is in -- and I'll reference a couple of IRs. You don't necessarily need to turn them up, but if you feel you need to do so, then I will certainly give you time before I ask my question. It's in regards to Leading Edge 2 and 5, Watson Lake 5 and UCG 20(c), and this question is a fairly general one.

Starting with YECL's previous GRA in 2008 and going through the 2015 forecast period in the present GRA, we have a situation in which it appears that the more customers we bring on and the higher the sales, the greater the unit cost of serving these customers, whether you look at numbers

of customers or megawatt hours in sales, and instinctively, one expects economies of scale to be building up, and we're see the reverse in the numbers; and I was wondering if you could explain why we are seeing what we are.

A. MR. REDDEN: Maybe general, just from the macro level of what is driving the growth in the system, meeting customer needs, delivering safe and reliable power to our customers; as is outlined in our General Rate Application, there is a significant amount of capital work to be undertaken as well as, with the growing system, there is the increased operations and maintain requirements that go hand in hand with making sure that the system is ready to meet the needs now and going forward.

What we're seeing with respect to doing what it takes to operate and maintain the system in respect to operating costs, we know it takes more to do things than it used to do. The levels of complexity in getting programs and projects in place -- example, with respect to the Fish Lake Hydro system and the relicensing of that facility for another 25 years was, you know, at least a four-year exercise of good work and involvement and diligence from stakeholders and all interested parties to do that.

You know, and as we pursue ways in meeting the growing energy needs within the Yukon, and ways of providing alternatives or renewables, there's a significant amount of

work to be done in investigating the whole basket of potential solutions with respect to providing that.

So, in general, yes, I see, Mr. Maissan, that you think there's strength in numbers, and the larger you get, the incremental costs should go down, and they could go down; but I think we've outlined what the cost pressures are, and they are certainly details, say, within the production side of costs that we could look at to see what's driving that trend.

Q. Yes. One of the things I've noted is that, you know, over a period of many years now we see that wage rates and settlements are well in excess of inflation. And, you know, don't know whether you know whether that's going to continue indefinitely into the future. Do you see a point in the future when those economies of scale will again be realized by YECL and its customers?

A. MR. REDDEN: Yeah, I think looking at the labour cost and, as you said, those increases being ahead of inflation. And, you know, the key driver behind labour is to make sure that we are attracting and retaining the qualified skills and people that we need to operate and maintain and develop our system.

We've provided information in response to interrogatories and some that you asked about, Mr. Maissan, on what we look at, what we benchmark against. We've looked

at other utilities in the markets that we compete for resources within, and find that we're very in line with what those increases are. Those other utilities, such as in Alberta and areas within North America that are experiencing significant challenges in getting the skilled people to do electric utility and infrastructure work, as we've mentioned earlier, they're having to go even offshore to bring in that ability.

So, I mean, that's core to our business, and we do benchmark and surveys and comparators and have visibility into up to 2015 where we had shown our increases in relation to those competing companies, and we're right within that path.

So that's the reality for now. You know, there is a lot of aged infrastructure throughout North America that is -- has been able to stay that way through distributed generation and other methods that haven't necessitated or triggered major infrastructure redevelopment projects, but those are now undertaking. So it's quite a time for the electric industry in North America.

Q. Do you find then, or based on your knowledge, are other utilities in Canada seeing the same sort of reverse economies of scale where the cost per customer and the cost per megawatt hour of sales is actually trending higher rather than lower with increased activity as one would otherwise

expect?

A. MR. MASSIE: If we're talking about the O&M -- the operating costs, really -- I'd like to point everyone to Exhibit B-15 which we just filed this morning. And really, that breaks down our non-fuel operating and maintenance costs per customer, and I really think that's what you're asking about, Mr. Maissan, is it?

Q. Well, it's --

A. MR. MASSIE: The operating costs per customer and the trend?

Q. It's all costs, yeah.

A. MR. MASSIE: Yeah, so, you know, just at the bottom, the year-over-year percent increase -- so I see an 8 percent increase from the 2009 approved to the 2009 actual. So, you know, that's -- from the approved, we're higher, so you know, that's a hit to us, but that was absolutely -- a decision was made at that time. That was what was need to keep a safe and reliable power system up and running.

So we made that decision back in 2009. 2010 is 0 percent, '11 is minus 1 percent. So we're trending along for those three years, then we increase in 2012 by 10 percent.

And if I could take you to Schedule 5.1 of our application, it breaks down by account, each separate account, from 2011 to 2012, and between this schedule in 5.1,

and our application -- the schedule in 5.2, really we discuss every single increase in those accounts. And they're prudently incurred costs. We explain why they're happening and why they increase from '11 to '12. And thereafter '12, I think we're at 4, 3, and then 0 percent to 2015. Other than those -- actually the one year of 2012, that increase, we remain pretty constant that I see.

Q. Just to note, my concerns are not just O&M but all costs that get passed on in rates to customers, and O&M is one component, but return on capital and so on.

So the concern is all costs. Thank you for complaining the O&M portion.

A. MR. MASSIE: Okay.

A. MR. GRATTAN: Mr. Chair, Mr. Koenig has leaned over to me and requested an opportunity for a five-minute break. Would that be --

THE CHAIR: Sure, that's fine.

A. MR. GRATTAN: Would that be okay?

THE CHAIR: We can do that, yes.

(ADJOURNMENT)

THE CHAIR: Thank you. Just before we start, I'm going to suggest that we dispense with the 10:30 break unless there is a need. If it's all right, we'll just let Mr. Maissan proceed and go through that. I think people probably had a chance to get a coffee or whatever they wanted

to do.

MR. MAISSAN: I'm happy with that, Mr. Chair.

THE CHAIR: Perfect. And if you need a break, just tell me. So thanks very much.

A. MR. GRATTAN: Mr. Maissan, just to close off on your overall high-level concerns with regards to increasing costs.

And I just wanted to make sure that we reiterated on the record that as part of this application, Yukon Electrical does have a number of significant projects that we're trying to reduce costs to Yukon ratepayers on a go-forward basis.

They include the AMR project with offer $2 million worth of savings over its life, liquid natural gas, the bi-fuel project, where there will be fuel savings in the years to come. So yes, we take your concerns, as well as other ratepayers' concerns very seriously, and this application does propose a number of what we believe are important projects to address those concerns that you have raised.

Q. Thank you. My next question is in regards to Fish Lake No. 1 which is Business Case No. 2, and I was wondering if you could confirm for me that Board Order 2009-2, issued February 19th, 2009, preceded the catastrophic failure of Fish Lake No. 1.

MR. GRATTAN: Confirmed.

Q. Thank you. I was wondering what part of that Order gives YECL the view that it should apply to situations of catastrophic failure as well as of those planned capital upgrades.

A. MR. GRATTAN: The underlying substance-over-form of the situation was that Fish Lake was down as a result of a planned overhaul in 2008, and as a result of Decision 2009-0 2, the additional purchase power that was required due to that planned overhaul in 2008 was ordered by this Board to be capitalized as part of that overhaul.

The substance of the situation with regards to the catastrophic failure in 2010 is that the Fish Lake is down for being rebuilt; substance-over-form, the additional purchase power associated with Fish Lake being down has been capitalized.

So it's, from our perspective, the exact same situation in both of those instances.

Q. So had there been a planned project to upgrade Fish Lake No. 1, as has been done or about to be completed, would the down time have been just as long as it has been now, i.e., March 2010 to pretty much the end of 2013?

A. MR. MASSIE: That's very hard to quantify because, really, how would we -- if we were to upgrade it to

the current condition where we're ending up, it would be a lot different situation from where we started back in March of 2010 from a sudden, unexpected event where we lost a hydro unit and then wheels were set in motion to get that hydro unit back up and running, as opposed to a planned event which would be a lot easier to do if you do things in a planned process like that as opposed to the sudden, unexpected loss of the unit.

Q. Did YECL have insurance for this plant?

A. MR. MASSIE: Yes, we did.

Q. Can you explain why, then, insurance should not have covered all or part of that cost related to purchased power during the downtime?

A. MR. GRATTAN: That would cover -- that would be relating -- so Mr. Massie talked about insurance relating to property insurance. Yes, we had property insurance. What you're referring to is extra expense insurance, and that insurance was not in place for Fish Lake.

Q. Does YECL carry a reserve for injuries and damages, uninsured losses?

A. MR. GRATTAN: Yes, it does.

Q. And why would this amount not have come from that account then as opposed to being capitalized?

A. MR. GRATTAN: That is a fair question, and certainly an option to be considered. It wasn't the choice

that we made for purposes of accounting for the additional purchased power. We made the decision to capitalize the additional purchased power as part of -- or, add the purchased power as part of the overall cost to rebuild Fish Lake 1. And that will be recovered from customers over the next 30 to 35 or 40 years, however the period of time is that we amortize hydro assets.

The choice to put it into a reserve for injuries and damages, you would treat it similar. It would be added to rate base. It would just potentially be amortized over a different period of time. You could amortize it over a shorter period of time, you could amortize it over a larger period of time. The effect would be the same.

Q. Thank you. In Leading Edge-YECL 16(f), Leading Edge 16(f), and also referencing YEC 16(a) Attachment 1, YECL refers to a table which contains costs for Fish Lake 1 that totals 12.25 million, but in YUB 37, YECL only considers capital cost of 9.65 in the economic analysis.

And I was wondering if you could explain that difference between the 12.25 million that's in the YEC IR versus the 9.65 that's used in the economic analysis attached to the YUB 37 interrogatory.

A. MR. MASSIE: Which YUB 37? Was it (b)?

Q. In the main response, page -- sorry, just a minute.

A. MR. MASSIE: I'm having a tough time flipping to it.

Q. It's YUB 37, Attachment 1, and I'm looking at -- I'm looking at page 13 of 15. So the YEC 16(a) Attachment 1, page 1 shows 12.25 million and the economic analysis in YUB 37 Attachment 1, page 13 of 15 shows 9.65. And I just wondered if you could explain the difference.

A. MR. MASSIE: In YUB 37(b), the 9.653 million, that -- we were just looking at or asked to looked at, that's the five business cases that we put forward in our application with regard to Fish Lake. In the YEC reference, it is a -- they ask for a longer snapshot. So it wasn't just for our test years; it was back into the -- I believe it was right back to 2008.

Q. All right. I'm a bit confused then. Can you explain to me what the actual cost was then for all of the capital work that was completed in the rebuild of Fish Lake 1 that will be -- you know, amortized over whatever the period is?

A. MR. MASSIE: For Fish Lake 1, for the rebuild and the business case that is Fish Lake 1, turbine building and replacement, the total cost was 3.9 -- well, $3,908,000.

Q. This just adds to my confusion. That is one component. There were a number of components and business cases put forward. As a whole, it's the Fish Lake 1 or the Fish Lake

project; right, the hydro system. And I see a number of components, but I'm wondering about the economic analysis on the whole, because really it's one whole system and you can't operate with one component without the other.

A. MR. MASSIE: No, absolutely, Mr. Maissan. So what we tried to do was break it down in the business cases because it's a big system with -- you know, we have two plants, two hydro systems. We have multiple civil structures, a dike.

One of the business cases was for the Fish Lake water license. So there's a lot of components absolutely. So that really was the snapshot that we gave with the YEC attachment.

For each of the business cases, those five business cases that we provided in our application, we did an economic analysis, as seen in YUB 37, for each of the business cases and then rolled them all together for a final levelized cost of energy.

Q. So that sum does not include all of the capital cost incurred on the overall Fish Lake system; right? That's closer to the number in the YEC IR, the 12.25 million? I'm wondering if the economic analysis shouldn't have been done on a number other than 9.6; i.e., a higher number like 12.25?

A. MR. MASSIE: The problem with that -- like if we look at, again, back to the YEC 16 Attachment 1, items

like the Fish Lake Unit 1 spillway capital project started in 2010. That was the number one ditch or number one head pond at the top. The spillway had degraded -- the emergency spillway to prevent overtopping of that head pond had degraded and it had to be done. So it had to be replaced, the whole overflow spillway. So that was that project there.

So though economic analysis wasn't done for each one of these projects within the Fish Lake system, again, like any other capital project, these are prudent items that need -- where we have to re-invest in that system and all those moving parts up there.

Like you said, it is a large system and each one of those parts of that system we need to re-invest in.

A. MR. GRATTAN: Mr. Maissan, we're going to just take a second here to dig up -- I think what you're -- you're getting at a reasonable question that what is the big picture overall from 2008 to 2015 -- pick a timeframe -- that we would have looked at to get an assessment of how much is it costing for Yukon Electrical, what's the total levelized cost of electricity for the whole full meal deal.

Q. Yes.

A. MR. GRATTAN: We're just going to grab that because we did answer that question. I just need to find it, sir.

Q. Thank you.

A. MR. MASSIE: So I found it.

A. MR. GRATTAN: Mr. Maissan, if we could take you to YEC-YECL 17, Attachment 1.

Q. YEC-YECL -- can you repeat that?

A. MR. GRATTAN: 17.

Q. My computer has gone to sleep. Let me get that.

A. MR. GRATTAN: It's going to be specifically -- the attachment is relating to Part (g) of that particular interrogatory.

Q. See the written portion, page 3 of 3. Now I need to go to an attachment? Is that right?

A. MR. GRATTAN: Sure, although the written portion you can --

Q. The 12.1 cents?

A. MR. GRATTAN: Yes. So what we were asked to do is, okay, throw everything into a lifecycle analysis of the Fish Lake generating system for the period 2008 through to 2052. So all of your capital, all of your O&M, put it into one model and tell us what it kicks can out.

And that model, to answer your question, includes all capital from 2008 through looking out to 2052, and the resulting level of cost of electricity was determined to be 12.1 cents per kilowatt hour. So I think that -- that sort of gets to where you were going, if I'm not mistaken.

Q. You're correct. Thank you. That's very helpful.

My next question is in regards to Leading Edge No. 8. It's the after-hours call answering service, and which is going to ATCO Electric. And I was wondering -- you know, prices are going up -- did YECL look at competitive bids that includes perhaps local telephone answering services; and, if not, maybe explain why not?

A. MR. REDDEN: Yes, Mr. Maissan, we did investigate having that service provided by others and locally included. The challenge was to get someone with the capabilities for 24-hour coverage and to make sure that they have adequate staff on hand, depending what situations arise with respect to safety and security and customers' calls. We want to make sure that they're adequately able to deal with that volume should something arise; and we weren't able to find that capacity locally, and thus, we just stayed with our initial provider.

Q. Thank you. My next question is in regards to Leading Edge 13, capital additions; in particular, street lights. And in response to this IR, YECL indicates that they expect the YEC and YECL pilot project on the LED street lighting to be complete by the end of 2013. Is that still the case, is you still expect it to be complete at the end of this year?

A. MR. REDDEN: That's correct, Mr. Maissan.

Q. What will be or what do you anticipate the outcome of

that pilot project to be? Is it simply; are LED lights cost effective or not? Do they work or not? Or would you actually have a preferred technology, I guess, identified as part of this pilot -- as part of the outcome of this pilot project?

A. MR. REDDEN: Yeah, maybe some background then. Prior to this joint study, Yukon Electrical has installed, on four different streets, a sampling of the technologies, just so that residences and us could take a look at what are the actual lights like? Because there is a fairly wide number of offerings with respect to LED technology. We wanted to see what it looks like on an annual basis.

We went through a program where we solicited feedback, and we got a lot of comments and positive response to the light effects. We need to understand at the lumens and intensity coverage, then, is adequate and if it fits for replacement at existing spacings or if some of the technologies might drive us to then change spacing and go back and modify where our pedestals are instead of just a light-by-light comparison so we've got that background with some of the various reservoirs, the technology has been advancing key to that is that it's not only acceptable from a lumens perspective, that the longevity is there, and also to verify the actual electricity consumption of them.

So the joint study that we're doing with Yukon Energy is getting the measurement data for each of the providers and putting that as part of our results to see that, is there one chosen one that we are comfortable with? And then could go forward on that basis.

Q. All right. And given that you still expect the pilot project to end by the end of 2013, I was surprised to find that you did not in either the 2014 or 2015 test years incorporate any replacement or installation of LED street lighting in your plans. Can you explain why that would be, then?

A. MR. REDDEN: So once the technology is provided, we'll need a method under rates to account for that change. Then if, for example, there's a light that is replacing, of course, a higher wattage bulb with a lower wattage-use LED light that is in a lower wattage category that would be applicable.

That could advance it, but it depends on the results. And then we will need to set up the appropriate rates to capture the effect of these lights, essentially, is that they are more costly initially, but then the paybacks are through their energy conservation over their lifespan, say, 15 years.

So, you know, we're saying when we get the results, it's not necessarily all set up just to go ahead

with depending on what the outcome is to be able to do it that quickly.

Q. Do you expect to be able to propose, in the Phase 2 application that will be put forward in 2014, some new street light rates based LED street lighting?

A. MR. REDDEN: That's correct. That's the anticipation that we'll have the data necessary then for recommendations, and put a proposal forward for that.

Q. So then, subject to the outcome of that hearing, implementation within the test years, either late 2014 or 2015 is still a possibility, do you think?

A. MR. REDDEN: If we could find, say, the wattages that fit and it's appropriate for existing street light categories to go in, then we could do that.

Q. Thank you. I have a question about the Destruction Bay capital work. I am very pleased to see in the IR response that the new PLC will allow Yukon Electric to integrate additional energy supply sources into the system, and I was wondering; in addition to this change in PLC, are there any other changes or accommodations that were incorporated into the project that would facilitate or enable the integration of renewable energy sources into the system?

For example, might there have been a different choice in governor on diesel generators to accommodate fluctuating sources? You know, did you select diesel

generators that could operate to a lower percentage of their load without causing problems to maximize the integration of potential new renewable resources in that plant?

A. MR. MASSIE: So looking at or -- when we looked at replacing the generators in D Bay, going with the newer generators with the electronic governors on them, we were to understand that the loading -- load pickups and integrating anything on the load side would not affect them either way. Whether the wind ends up being successful or not, they were going to be able to operate...

Q. With the wind project.

A. MR. MASSIE: Yeah, just fine.

Q. That's fine.

A. MR. MASSIE: Does that answer?

Q. That does, thank you.

My next question is in regards to Business Case No. 3 which is the replacement of CUL 258 in the Watson Lake diesel plant. And if I understand correctly, this unit that's being replaced -- and I'll apologize to anybody who isn't conversant with techie talk, but is that a Caterpillar 3606 1.5 megawatt unit that's being replaced?

A. MR. MASSIE: Yes. The old one?

Q. Yes.

A. MR. MASSIE: Yes.

Q. Yes. And was this a base load unit for the Watson Lake

load, as it were?

A. MR. MASSIE: So it had operated for many years as -- the size of it has been a 1.5 for many years within the Watson Lake plant. It was able to be the only engine running for later in the day and then throughout the night. It matched the load of the town very well. So that's why it ended up with in excess of 140,000 hours.

It really was, if you look at the hours -- the operating hours of that unit, it would have been -- and I'm not sure what you mean by "base," but it was the unit that operated the most.

Q. The most, yes. And was this a relatively lower more fuel-efficient -- a lower rpm, more fuel efficient engine than some of the others in the plant?

A. MR. MASSIE: It was a lower rpm. It was a 900-rpm unit for sure. The problem with comparing it to the other units in the plant is there's no other 1.5 MVAs in there. There's 1 MVAs and 800s.

Q. And they're typically higher rpm, perhaps somewhat lower fuel efficiency?

A. MR. MASSIE: Yes, absolutely. They're all -- I can't recall how many, but there's 1200 rpm, and then -- the majority are 1800 rpm. So they're spinning a whole lot faster, yeah.

Q. Can you explain what the replacement -- proposed

replacement will be? Will it be a similar CAT unit or are there new things, like similar rpm, similar fuel efficiency or better, or that sort of thing?

A. MR. MASSIE: I just want to -- we did answer in an IR. I'm just trying to find it, so it will be handy to have.

If we turn to CW 14, the replacement for the 3606 is a 3516 and it's a 1200 rpm unit. And in the pages thereafter in our response, it talks about what kind of unit it is, but then the pages after will show the comparisons of the engine output, the fuel and, most importantly --

So the first page, page 2 of 6, is the relative fuel efficiencies between the two units. The remaining pages are all the emissions data between the two units, the differences. And we'll see the new unit does definitely have considerably less emissions.

Q. Thank you.

A. MR. GRATTAN: Just one second, sir.

A. MR. MASSIE: Sorry, go ahead.

Q. And the estimated installed cost is still $1.474 million, is it?

A. MR. MASSIE: Yes, that's correct.

Q. Yes. And that includes all of the necessary systems, the cooling, the exhaust, mechanical and electrical connections, the full install cost?

A. MR. MASSIE: Yes, absolutely the full install cost for the new unit --

Q. Thank you.

A. MR. MASSIE: -- on track.

Q. My next question is in regards to Business Case 8, and that's the Old Crow work, the diesel plant there. And I'm just wondering whether the same accommodations have been made in the Old Crow diesel plant as we just discussed for the Destruction Bay plant? Are there similar choices?

A. MR. MASSIE: For renewables?

Q. Yes.

A. MR. MASSIE: Yes. So it's a multi-stage -- we have a few things going on in Old Crow, but, really, to integrate and work with renewables, really, is going to rely on the replacement and upgrade of the PLC which is planned to be done.

Q. Thank you. In this plant, in response to my IR, you're saying that the community was offered the same contract terms for the residual heat as was in place in Watson Lake. Can you just explain what those main terms are?

A. MR. MASSIE: Well, so we'd had meetings with the community, and, specifically, the VGFN government, when we embarked on our project up there, in planning to do a lot of work up there.

They have plans to build a rec centre, a

building that's fairly close to our plant. So they asked about the availability to use waste heat to heat that, and it makes sense to us.

There really isn't any terms -- we talked in broad terms that this is a setup that is in Watson Lake. There is some useful benefit that the Town of Watson Lake is getting out of the waste heat of our plant, so there's no reason why they can't either.

Like Watson Lake, they would be on for the full capital cost of installing that system to provide heat to their Rec-Plex if and when it goes.

Well, the plan has been going for a while, and they're still not sure when it will be done.

Q. Would there be a cost to them for the heat, to purchase the heat, or is the heat available free of charge once they install the capital infrastructure -- or pay for the capital infrastructure to recover that residual heat?

A. MR. MASSIE: Yeah, they're on -- the capital infrastructure for them to use that heat. The heat that would be used that would be otherwise lost into our radiators for the glycol as well as the exhaust of the mufflers, that heat will be produced irregardless. So it would be -- yeah, there wouldn't be a cost to using it, no.

Q. Thank you. I was going to ask do you know what the impediments are for the use of this heat? Is it just the

distance between the diesel plant and the present loads that would discourage them taking advantage of it now?

A. MR. MASSIE: Right now there really isn't a useful complex nearby from our plant. There really hasn't been an interest to take it anywhere else. There is -- and I believe it's -- well, it's an older building and I don't think anything is going on in it.

So there's no buildings nearby right now to be able to make use of the system of putting it in. But they're the Rec-Plex that they're planning on building, the building they're going to do, is going to be nearby.

Q. Thank you. In regards to the Carcross-Tagish standby generator, which is Business Case No. 12, this project is estimated at $3 million capital cost. Is that still an up-to-date estimate?

A. MR. REDDEN: That's correct.

Q. And in YUB 46(h), YECL provides a breakdown of the capital costs and it includes quite a list -- you know, transformer, grid inter-ties, synchronization, fuel tanks, SCADA, et cetera. This sounds as though this unit is -- can be operated on the grid and providing support to the grid if required, the Yukon integrated grid system; is that correct?

A. MR. MASSIE: Yeah, absolutely. We'd be setting it up very similar to the existing standby plants where they are able to synchronize on to the grid.

Q. So it could be used for grid peaking if required?
A. MR. MASSIE: Yes, just like the rest of our standby plants.
Q. My next question is in regards to Business Case 23, and that's the transmission line that's -- new 35 kV line that is labelled 5L628. I was wondering is this a new 34 1/2 kilovolt line that is going to run from the Mayo Road Alaska highway corner to the Yukon Energy switch yard at approximately Mile 5?
A. MR. MASSIE: Yes, that's what that project is, yes.
Q. And will this line, then, be able to bring power into Whitehorse, and if not, what is its purpose?
A. MR. MASSIE: No, that's absolutely its purpose.
In talking with Yukon Energy and their plans for the Takhini switching station is to put in another supply, 35 kV supply that would come into town, and, really, that's what we're doing. We're building that line out there to hook into the town to reinforce the Whitehorse distribution system.
Q. The switch yard is, then, essentially going to become a substation which feeds your line as well? There would be a step-down transformer, 138 to 34 1/2 kV to feed that line?
A. MR. MASSIE: That is our understanding of

their plans, absolutely.

Q. Do you know what the capacity of that transformer is and when you would expect to energize that line from that switch yard? Do you know?

A. MR. MASSIE: So in discussion with Yukon Energy, we see they do have a lot of work going on out there. We do plan to complete our project out to it in 2014. Their preliminary estimates for having the supply ready to go for our line is the end -- third quarter, third to fourth quarter of 2014.

The size of the transformer, no, we don't know.

Q. You don't have that? Thank you.

My next question is in regards to Business Case 26. It's the Whistle Bend street lighting, and I would like to reference Leading Edge 22. Perhaps you'll want to bring that up. And in response to this IR, at the end of the first paragraph, there's a comment that, quote: (as read)

> "This will be a decision that developer will have to make."

End quote. And I was wondering, do developers always dictate to YECL what size and type of and lights they want, or does YECL offer them a menu of standard options available and they choose from that menu? Or could you explain that, please?

A. MR. MASSIE: So, absolutely. Yukon

Electrical has in stock a certain amount of lights -- of standard lights. And we'll absolutely point a developer in the direction to use what we have in stock because, really, that's the best thing going forward if, for us to maintain and repair the lights, we have the inventory already in front of us as opposed to a brand-new light that we haven't seen before and -- it's just a lot better to use what we have, our existing options, I guess.

Q. So a developer isn't required to use them, or they have a choice to decide on another street light type altogether which you don't carry? Is that an option to a developer in Yukon?

A. MR. MASSIE: Well, there was -- in working with some developers -- and, again, we're talking about street lights that are, for us, we are going to light public roadways and trails. You know, we don't light parking lots and, you know, for big box stores or anything like that.

So we have lights in stock that are matched to the lighting standards -- I'm missing the term at the moment anyway, but they're matched to produce the lighting standards on roadways that they're supposed to. So that's really our choices.

In the past, there have been some -- again, these are public lights on roadways and trails where they're decorative lights that we work with the developer to pick the

right option and then install those.

Q. So what I'm getting at is: If in -- you know, as a result of your pilot work this year and further consideration next year, if you have LED street lighting options available and they will reduce energy consumption, would Yukon Electrical be able to require, I guess, a developer to use energy-efficient technology such as LED lighting that would be to the benefit of all customers on a go-forward basis based on reduced energy consumption, or could they still demand high-pressure sodium lights which are higher energy consumption?

A. MR. MASSIE: Well, further to what Mr. Redden was saying was that in the pilot project we're going to work to find the right LED light for the Yukon, make sure it works for the Yukon, that it provides the right amount of light. So absolutely, we'd work with the developer. We'd want them to move to LED.

However, the light that is to be installed has to work for the purpose it's intended to, and if the LED does not work to provide adequate lighting...

Q. Yes, my question was, I think, prefaced with the comment that once YECL does have LED street lighting available, could you, I guess, encourage or demand developers to use it, or could they still demand of you the less energy-efficient technology, once you have -- are satisfied that a certain

energy-efficient LED street lighting meets all the requirements?

A. MR. REDDEN: I think I get where you're coming from, Mr. Maissan. So if and when the LED technology is selected and available, then we would certainly put that on, I guess, the menu of lights that could be looked at, and I think it's in everyone's interest to look at energy conservation and -- as well as lifecycle cost of the street lights, and if they are meeting the lumens requirements and are appropriate, then we'd be able to offer that.

Q. You could offer that, but you couldn't require them to use it. Am I hearing correct -- correctly?

A. MR. REDDEN: I'm not sure that we could dictate a specific light or technology, but we would expect that the technology would speak for itself, including the lifecycle costs.

Q. All right. Thank you.

The next question is in regard to Business Case 27, the AMR meters. We've already discussed them to some degree, but if I understood correctly, the discussion we had on Monday is that the proposed meters do measure time of use, but they aren't Measurement Canada-approved for time-of-use rates.

Is that a correct understanding?

A. MR. MASSIE: Yes, that's correct.

Q. Right. And if at some point in future these meters were to be certified for time-of-use rates -- or time-of-use metering and, therefore, rates -- would they still interface properly with YECL's billing system, or would there still be issues between those -- the meters you're installing and the billing system?

A. MR. MASSIE: Sorry. Are we talking about the meters we are installing?

Q. The meters you are installing. If they do get approved by Measurement Canada for time-of-use metering, which I understand that they already do, but it's not a function approved -- would there still be issues integrating with the billing system?

A. MR. MASSIE: No, there wouldn't be any issues. Again, this is a proven technology. This has been around for quite some time. And the time-of-use ability is already there. We would use it for load studies and things like that. Unfortunately, it's not Measurement Canada-approved for revenue requirements. That's the only difference with it.

And you know, just -- when we're talking about the time of use -- and I know the concern is out there that if somewhere down the road -- and we've debated if time of use is a good fit for the Yukon. And again, from where we're standing on the loading that we're looking at on our system,

we don't believe the benefit is there for the increased cost that it would take.

But the concern about if these meters are installed and time of use, something changes in the future in the Yukon and time of use is proven to be a tangible benefit to Yukoners, and would these meters be stuck out there as a sunk cost? And that's a very, very good question. It's a good concern. And really we would look at -- I would say that is one of the many benefits we have of being part of ATCO Electric. They have over 218,000 of these meters in service now.

So, again, if something was to change in the future and time of use was absolutely the right way to go, we would absolutely support it. And if these meters were unable to do that; you know, going back into the ATCO Electric, we get credit for the meters, and we'd move on with the new technology that would be proven. And, well, we'd be on a different business case at that point, I guess.

Q. Yeah. So I guess what I'm getting at is I'm wondering -- it sounded from the discussion is on Monday as though, depending on how the cards line up, these meters do have the potential in future to facilitate moving to time-of-use rates compared to selecting a different technology. And it sounded to me as though they had potential positive features for future, and I just wanted to

confirm that.

A. MR. MASSIE: Yes, absolutely.

A. MR. GRATTAN: And, Mr. Maissan, just to add to what Mr. Massie said, if I was understanding your question correctly, those time-of-use meters are capable of recording hourly data.

The billing system that Yukon Electrical currently has in Alberta at least, the version within Alberta -- because there's interval metering within Alberta -- so it is able to handle interval -- I think it's on -- I better not say what that interval is because I'm not 100 percent sure. But it's something less -- or something significantly more than once a month. The billing system is able to handle that -- at least the version in Alberta. I won't say -- I won't be able to say that the version that we've got right now would be able to handle it without enhancements.

And then the other thing that you've got to remember, though, is, is that there needs to be a massive database built in order to handle, for example, your home having on a month basis, let's go with an hourly interval, a ping going out to your home. So that's 24 reads per day over a month, and then over the year. So what is it -- 8,760 hours per year for every customer. So there would have to be these databases built in order to handle all of that

additional data coming into the billing engine, per se, that we'd have to deal with.

And then you'd have to build the rate structure within the billing system to be able to say: Okay. Between the hours of 6 p.m. and 8 p.m., you're going to pay a different rate than other times of the day. All of that functionality would have to be programmed into the system.

So that would -- that's a totally different business case. They will be -- whatever those costs should be -- they won't be small --

Q. Okay.

A. MR. GRATTAN: -- I could surmise on that.

Q. Yeah. So that was the cost that was being referred to in the earlier discussion on time-of-use rates? That is the cost?

A. MR. GRATTAN: Yeah.

Q. It's more the billing system side rather than the --

A. MR. GRATTAN: It's that billing into the database, yes, exactly.

Q. To continue the discussion, and I'm going to use the acronym here because I'm not sure I know what it fully stands for. The TWACS system, that is an option on the meters being installed, the AMR meters being installed. If that is selected, is that a capital cost in addition to what is being proposed now, or is that part of the AMR project as it is

proposed?

I didn't fully understand whether it was or was not included.

A. MR. MASSIE: No, absolutely. So if I could call it TWACS.

Q. TWACS. Let's call it TWACS.

A. MR. MASSIE: So that I don't have to rhyme that off every time and try to be helpful. It stands for two-way automated communication system.

Q. Thank you.

A. MR. MASSIE: So that is the technology that this AMR system is based on. It's a power line carrier and all it means is that it communicates with us over the power line, not radio frequency or Wi-Fi or anything like that.

So the overall technology of our AMR project is based on TWACS technology. So I don't know if that cleared anything up for you.

Q. So essentially TWACS is part of the project?

A. MR. MASSIE: Yeah, absolutely.

Q. You described that, with TWACS in place, there is the possibility I think with an add-on cost of communicating with some customer loads. Would that communication also take place over the home wiring as opposed to through another mechanism, such as radio frequency?

A. MR. MASSIE: You're talking about the load

control transponder, the information where it's able to interrupt customer load?

Q. Yes.

A. MR. MASSIE: To tell you the truth, we haven't -- we know it's an option for this technology, for this AMR project, but I am unclear if it would be over the same power line carrier technology or if it would be --

Q. Different?

A. MR. MASSIE: -- Wi-Fi, unfortunately.

Q. The final question on this topic then, if you communicate with these new AMR meters through the lines, presumably, then, you are avoiding issues with radio frequency exposure that have become an issue in some areas, such as British Columbia, where I understand there may be a class action suit underway or being considered because of exposure to radio frequency by people who might be sensitive to that. Is that correct?

So the BC hydro smart meters use a radio frequency but it sounds as though AMR proposed here avoids that?

A. MR. MASSIE: Yeah, I can tell you for sure that our -- this TWACS technology of AMR is power line carrier, stays on the wires, there is no radio frequencies at all in that regard.

My limited understanding of BC Hydro's is,

yes, theirs is more a radio frequency based and we have seen -- well, I have read a couple of articles and the concerns, but I'm not fully briefed on it, that's for sure.

A. MR. REDDEN: Mr. Maissan, there has been a lot of discussion around time of use, the potential for that in the future going to a rate structure that's different than the energy block structure that we have.

You know, important in this project, in addition to providing savings to Yukon ratepayers is getting the timely and accurate data and reads in so that we're not doing estimations, we're not reading meters not on a precise date. So you might think that you're consuming in a higher energy block and the accuracy of when you've got your read, when that data was entered, what are those calculations of the block structures to make sure that it's accurate and correct for ratepayers.

So that's what this technology allows us to do now with the rate structure that we have, you know, and in addition to not having the perceived health concerns of radio frequency technologies, and we're not going there with that.

There's also not the need to go into individual customer's premises to get the readings and drive in and drive out and through yards and all the hazards and things that go with that. That's why we're excited about this technology.

Q. So I will no longer need to shovel a pathway to my electric meter once it's changed?

A. MR. REDDEN: You won't need to tie up the dog. You won't need to do that either.

Q. Thank you. I have a couple of questions that relate to IRs on the DSM plan.

MS. MAISSAN: I will start asking the questions, Mr. Chair, and if the panel feels it's appropriate to save the question for the DSM panel, then I will defer to that panel.

Q. In response to Leading Edge 24 and also Leading Edge 27, and this relates to Business Case 30, the DSM plan, in response to Leading Edge 24(c), Item 3, which asked: (as read)

> "Did any of the parties included in the list above --"

And this is a discussion group: (as read)

> "-- indicate to the utilities at any time that they wished to see a more aggressive DSM plan."

The response was "input of that nature was not recorded."

I was just wondering if you could elaborate. I'm not sure what that means. I'm not sure whether that means that no party suggested a more aggressive DSM plan or, if they did, was it simply not recorded? Could you clarify

that?

MS. SEARS: I'm just going to interject at this point.

Yeah, I think that's an appropriate question for the DSM panel. We'll have Mr. Redden on that as well. So pretty much all of your DSM questions, I think, are more appropriately put to that panel.

Q. Thank you. I'll save that.

My last question is in regards to Yukon Conservation Society IR, YCS 2-8. It's in reference to Destruction Bay Burwash Landing wind study. And I'm very pleased that Yukon Electric has agreed to put that study on the record, make it available.

And I would just -- while we're waiting for that, I wondered if Mr. Redden would be prepared to acknowledge that this study provided four different -- looked at four different cases of wind energy. The one quoted in this IR was 50 cents per kilowatt hour which, in fact, was the highest of the four cases and the lowest of which was 41 cents. And I just wondered for the record, would you be prepared to acknowledge that?

A. MR. REDDEN: Mr. Maissan --

Q. Subject to check?

A. MR. REDDEN: -- I can certainly acknowledge that, subject to check, that that was the recommended option

based on the proven technology that would be applicable to the Old Crow situation.

So, yes, of the four that were investigated, there were lower costs. But from a lifecycle perspective of best fit for wind/diesel system in Destruction Bay, the recommendation was with respect to the north wind units at that higher cost.

MR. MAISSAN: Thank you. That concludes my questions, Mr. Chair.

THE CHAIR: Thank you very much, Mr. Maissan.

So we'll move to the Yukon Conservation Society, but maybe we could just take five minutes and allow the Conservation Society to set up and for Mr. Maissan to move.

So if that's all right with people, we'll just -- please keep it to five minutes. So thanks.

(ADJOURNMENT)

THE CHAIR: Please be seated. I would like to welcome the Yukon Conservation Society. And, Ms. Middler, I will turn it over to you.

MS. MIDDLER: Thank you. Yukon Conservation Society researcher Sally Wright is handing out our small package of aids to cross. I just have to apologize that yesterday I spilled tea on them. So that's why they're a

little bit wrinkly, but they're dry.

MS. SEARS: To give them an historical effect.

MS. MIDDLER: Yes. And our cross-examination will start with J.P. Pinard.

DR. PINARD: Yes, this is J.P. Pinard here.

MS. SEARS: Just before we get going, I just want to wait and have a package.

DR. PINARD: Sure. Yeah, this is J.P. Pinard here. Would we be able to just classify this package as one exhibit, or would we need -- because each -- just to explain here that there's a page extracted from each of the studies that we submitted I think it was Monday. Instead of providing exhibit number to all of those different packages, could we just do one for this single piece of document?

MS. SEARS: Yes. So I've had an opportunity, Mr. Chair, to review the documents that Ms. Middler sent out yesterday or the day before. And I don't wish to be overly rigid, but what the documents largely appear to be was studies and various reports.

And I do want to note a concern at the outset that, you know, if the Yukon Conservation Society wants to present evidence from various reports, the way to do that is by presenting evidence and speaking to it and providing us an opportunity to respond to that evidence, as opposed to trying

to simply solicit comments from my panel on their materials.

And so as I say, I don't wish to be overly rigid. I would like to see where it goes, but I'm not prepared to mark any of the documents as exhibits at this time until they've actually been put to the panel and discussed, and we can see how it goes.

THE CHAIR: Ms. Middler, do you want to respond to that before I make a ruling or make my own opinions known?

DR. PINARD: Well, the documents relate to, well, the LNG bi-fuel plant, in particular, in Watson Lake. And they relate to Yukon Electric's comment that they will reduce emissions. And so we want to address the issues around emissions of the plant, whether they are better than diesel or not.

THE CHAIR: Okay. Well, first of all, I've noted Ms. Sears' concern, and I'm going to -- you know, as they go through the questioning if you raise -- if you have an objection, please raise it at that time. I'm sure you will.

I don't want to mark these as exhibits until we've gone through the complete questioning. And I won't answer your first question either in terms of whether these should be separately marked exhibits or whether they should be marked individually, because so I'm not sure what your

line of questioning is. So I'd like to try to associate the minutes with -- sorry, the exhibit with the question area.

But I do want to reiterate a little bit what Ms. Sears said, that you know, an evidentiary portion of this hearing. I know -- and again, YCS doesn't have the benefit of a lawyer to help you through those processes, so I think Ms. Sears is prepared to be a little bit flexible. But, you know, normally things -- and I can't say because I haven't seen these documents before -- you know, in terms of an aid to cross, generally you're not introducing something that might be considered new evidence or not had the opportunity of being vetted before or that there might be an opportunity for the applicant to ask you to call an expert witness to defend the documents that might be here.

So I guess the way I would suggest, if you -- I mean, we'll have these as aids to cross for now, but if you can try to ask your question in such a way that, you know, you are not referring specifically to the aid to cross, that would be more helpful. Because as my opening statement said, an aid to cross is intended just to -- you've seen how they've been used like Mr. Maissan's aid to cross. They're intended just to provide an assistance to the panel to answer the question. It's not an opportunity to introduce new evidence.

So I guess with those kind of general comments

in mind and Ms. Sears' comments that she's fairly flexible, we'll let you proceed on that basis and see where it goes.

MS. SEARS: And I just want to confirm with my panel -- did you guys get the shorter excerpt, copies of that?

A. MR. REDDEN: I did not.

MS. SEARS: Okay. So we need the panel to get them as well.

THE CHAIR: Ms. Bentivegna, did you want to add anything to what I have said?

MS. BENTIVEGNA: No, Mr. Chair.

THE CHAIR: Because I'm not a lawyer, so I'm just going from experience.

MS. SEARS: We need one more copy for the...

THE CHAIR: Actually, I would like to clarify something, because this actually might end up helping in terms of eventually marking the exhibits if they've come in. I know they all probably relate to one subject area, but are these several different studies or several different sources?

DR. PINARD: Yes. They're all from each -- practically each page represents -- is extracted from a study, a different study, the studies that we submitted on Monday through email.

THE CHAIR: So the full study has been -- okay.

DR. PINARD: All the studies should be in the hands of everyone involved here.

THE CHAIR: That might be a guidance in terms of how we mark the exhibits --

DR. PINARD: Okay.

THE CHAIR: -- assuming we do, because I probably want to mark --

DR. PINARD: Okay.

THE CHAIR: -- each one individually if that was the case so that we can refer to the --

DR. PINARD: Okay.

THE CHAIR: -- studies. So proceed. Sorry.

DR. PINARD CROSS-EXAMINES THE PANEL:

Q. The first page that I'd like to bring everyone to is the SPM Point 7, and that's on the third page of your package. This figure comes from the IPCC, the working group, and this is the assessment Report No. 5 which came out actually in September of this year.

The Figure A that I want to refer you to is -- represents the overarching concern that YCS would like to impress on this hearing and members.

What this graph is showing here is our

emissions and the temperature changes with respect to our fossil fuel emissions. I'll just describe this graph here.

Just referring to the numbers that are associated with each line, the number 42 represents the historical temperatures. And the line that is moving upwards, the one that has the number 39 beside it, that line represents the business as usual on fossil fuel consumption, and this is basically from human civilization in the world, our expected fossil fuel consumption over time.

And then the other line that is flattening out into the future, the one associated with No. 32 there, that represents aggressive reduction in fossil fuel consumption. Okay?

Just take a note on the left side of the graph, the 2 degree mark, and if you can go down to the notch below it, that's the 1 1/2 degree mark, and notice that the line that flattens out is below the 1 1/2 degree mark. And what I want to bring attention to with the business as usual -- and I would just like to ask that question to our panel here at Yukon Electric, can you sort of -- looking at that graph, can you tell us how many years or decades that we would have between now and that time when the line that's associated with No. 39, the business as usual, when that will reach the 1 1/2 degree mark?

MS. SEARS: Just before the panel answers,

Dr. Pinard, when you started out, you said this was an IPCC paper. Can you just clarify what IPCC is?

A. That's the International Panel on Climate Change. A body of scientists that help do research and effect policy changes in governments around the world.

So I think we all understand they're a highly respectable group and they tend to be the -- basically the basis of decision-making in world policies -- around the world, that is. They're an intergovernmental panel, that is. Intergovernmental panel on climate change.

A. MR. REDDEN: So if I understood your question correctly, Dr. Pinard, the 1.5 degree line, you were asking where that point in time would be for the crossover of the business as usual plot, if I've done it right. I've just used a straight edge of a piece of paper from -- I believe the 1 1/2 degree mark looks like it would intersect maybe at the year 2045, if I've done it correctly.

Q. That's pretty close. Thank you.

So that's in about how many decades from now then?

A. MR. REDDEN: About three.

Q. Three decades. It's probably a little less than that, So it's somewhere between two and three decades, then, if you agree with that.

So what we're trying to say here is that this

is a matter of time, time is of the essence in terms of us trying to reduce our emissions. And I just wanted to point out here that this is -- Yukon is part of the rest of the world in terms of trying to reduce our emissions. So we're trying to impress that this is something we need to do now.

So let's move on to the next page. These two graphs come from a study. It was entitled "Methane and Greenhouse Gas Footprint of Natural Gas from Shale Formations." That was done by Drs. Howarth, Santoro and Ingraffea in 2011, all from Cornell University.

This was the first of a major study by a research group that addressed methane emissions from gas extraction and their impacts on climate change.

I'd like to note that this was a peer-reviewed paper and has been criticized by other groups, but I have found this study still stands. The authors still defend their numbers, and there are more recent studies now since the last couple years that are confirming the studies' results?

Just to talk about those results, let's refer to this Figure 1A, which is a 20-year timeframe. That refers back to the timeframe, just to give you a description.

Typically, the industry likes to use the 100-year timeframe in terms of methane emissions impact on global warming. The numbers in this figure do not include

methane emissions from the burning of natural gas, that means at the --

MS. SEARS: Sir, I don't think we know what they do and don't include because there is no one here to present evidence about that. Can you just ask a question?

Q. DR. PINARD: Sure. So looking at this graph, can the panel -- this graph -- can the panel tell us what -- graphically looking at the graph A in the 20-year time horizon, how diesel compares to shale gas or conventional gas?

A. MR. REDDEN: So if I'm looking at the 20-year timeframe for the bar chart showing diesel oil comprised of methane and direct and indirect CO_2 would be in the order of 25 grams carbon per megajoule versus -- and did you say shale gas?

Q. Yes.

A. MR. REDDEN: Conventional gas?

Q. Shale and conventional?

A. MR. REDDEN: The shale gas ranges for a low estimate of 37 to as high as a little over 60 grams of carbon per megajoule by this -- by what's shown on this graph.

Q. Okay. And the conventional gas?

A. MR. REDDEN: Conventional gas low estimate in the order of the low 20s; high estimate above 50 perhaps.

Q. Yeah, just to correct here. The conventional gas, the

low estimate is slightly above that of diesel. So the point I'm making here is that the emissions from the extraction --

MS. SEARS: Well, is it or isn't it? No one here has confirmed that in evidence.

You seem to be trying to give evidence again, I'm just noting that. He gave you the answer.

DR. PINARD: Yes, my point is here the emissions from natural gas are being pointed in this document as being greater than emissions from production and transport of diesel fuel.

THE CHAIR: Dr. Pin, can you ask a question? I guess the issue here is that I don't think any of the panel here are experts in gas emissions, and so I guess I would have to take as fact what you're saying, but maybe you can just turn that around and use it as an illustration as opposed to trying to present the study, per se? Because, really, this -- the question, as Ms. Sears said, is this evidence that should have been provided before through the evidence portion of the hearing and allowed an opportunity for counterevidence or experts to be here that could present your case.

So I'm trying to help you here in terms of making it easier for you to turn this around and ask the panel a question. The panel is here to answer your question, not to hear a dissertation on...

Do you need a couple of minutes? No, take your time.

Q. DR. PINARD: I guess the question is what kind of background information would you have used to assess the -- at least in this case, the upstream emissions in the natural gas that you are proposing to use for the bi-fuel plant in Watson Lake?

A. MR. REDDEN: So part of the work that went into looking at this project, there is a lot of discussion around lifecycle analyses, and there's probably as many different answers as there are studies. But we did undertake a literature review of that to get a view on this project to receive natural gas from delta and utilize it in a bi-fuel operation at the Watson Lake facility.

And within that view, what the emissions are and particularly with respect to CO_2 as recognized as a greenhouse gas, what is the effect of that then going to bi-fuel operation? The numbers came out approximately a 20 percent beneficial reduction through the utilization of natural gas.

Q. Had you considered the methane -- the changes in methane emissions from that natural gas as it is lost in well production and transportation and so on? Had you considered those greenhouse gas effects?

A. MR. REDDEN: That would have been included

in the lifecycle so -- and I know there's some information that you've filed and tried to get a better understanding of it, you know, from the Cornell University research work of Dr. Howarth.

And so while I was looking that up, I also noted some research also at Cornell University by another individual, Lawrence Cathles, that on their evaluation, they reported that their lifecycle evaluation of shale gas drilling suggests that shale gas has a larger GHG footprint than coal and that this larger footprint undercuts the logic of using it as a bridging fuel over the coming decades. Their research argued that the analysis done by Howarth is seriously flawed and that they significantly overestimate the fugitive emissions associated with unconventional gas extraction.

So as we're researching and looking, we find it's strong opinions on both sides of the equation. So we have -- you know, did that literature review, we've seen other studies in that area. And from a lifecycle perspective, it does depend where you're sourcing your liquefied natural gas on, even as much as what is the source of electricity generation that goes into the cryogenics plant that freezes the natural gas into LNG has a bearing whether it's from a system that's hydro-based generation, it's going to have a lower lifecycle emissions than one on a coal-fired

base -- basis.

We've looked, you know, as the supply chain develops and the trucks develop to haul LNG, we've talked about it as: Yes, it's less energy dense than diesel fuel on a litre-by-litre basis, but it is more energy dense on a pound-per-pound basis.

So as trucks that are available that are typically limited by a gross vehicle weight and axle loads on highways, that by load-per-load comparison, LNG would be delivered by a fewer number of trucks than diesel fuel.

So all of that is going into the lifecycle analysis. We understand that there's much research on it. We view that, you know, the millions of customers that are using natural gas because they have a piped system and have that ability; if we had an Alaskan pipeline project going by that was able to be connected in -- I mean, LNG now allows the utilization of natural gas to remote systems that don't have a gas pipe system. And we've seen the growth in natural gas customers and growing with the projections of the increased use of natural gas.

Q. Okay. Well, I guess what I should say here is that there's obviously a lot of work that would need to be done here to assess the full impact of natural gas in the use of this plant in Watson Lake because, as I understand, there's a lot of new research coming out that are basically speaking

against what the industry has been traditionally talking about in terms of what natural gas -- how safe it really is and its impact on climate change.

So there's -- we should, I think, consider that more closely before proceeding further.

A. MR. REDDEN: Well, I think I might add there, Dr. Pinard, that certainly has been considered as part of the YESAB or the Yukon Environmental Socio-Economic Assessment Board, and that process whereby we had filed a project proposal in January of 2013, went through that process, where stakeholders -- and there is a registry where research and comments and concerns are all filed. And through that assessment process, then, our project has arrived at a decision document in August to support proceeding with the project that is currently being reviewed for permitting and licensing.

Q. Okay. I'd like -- if I may, I would like to add a comment to the YESAB assessment. I had --

MS. SEARS: Well, are you going to add a comment, or are you going to ask a question?

Q. Did the YESAB assess the impact of the methane, infusion methanes that were lost outside the border of the Yukon?

A. MR. REDDEN: I believe the YESAB process or the YESA process, through their board, do take into consideration impacts outside of Yukon Territory as part of

their mandate on how they view projects, so I believe it's within their capabilities.

Q. I'd have to say I don't believe that's the case because I was involved in the YESAB process, and we were told that they did not assess the impact of methane outside of the Yukon borders.

A. MR. REDDEN: All I was saying is that their mandate allows them to look within the territory and outside.

Q. Well, I'll have to say we'll agree to disagree on that.

Why don't we just move on to the next page. This is the -- this next page -- the title there says "Natural Gas-Fired Drivers," and this is from the Canadian Association of Petroleum Producers. This particular -- it's a guideline, apparently. And it's -- the name of the guide is entitled "Calculating Greenhouse Gas Emissions."

Can you tell us in that table, 1.6 at the bottom, where the bi-fuel -- Watson Lake bi-fuel plant fits in with the driver type? In other words, is it a two-cycle lean burn four-cycle lean or four-cycle rich burn turbocharge?

A. MR. REDDEN: Subject to understanding further how they've categorized this, under reciprocating engines, the best fit appears to be -- I'm trying to find a -- get an understanding of these driver types. I just can't say which one would be the appropriate one for us.

THE CHAIR: So, Mr. Pinard, can you tell him which one is the most appropriate, and then they can take that information subject to check and you can ask your question based on that?

Q. DR. PINARD: Well, I just wanted to clarify which of these categories. I suppose it's either going to be -- I suppose it is a four-cycle engine that you have in Watson Lake. And does it have a turbocharger on it?

A. MR. REDDEN: Yeah, we've got reciprocating engine with a turbocharger.

Q. Okay. So it's probably the third one in that reciprocating engine category, I would assume.

MS. SEARS: I don't think that we should be making assumptions, Mr. Chairman.

DR. PINARD: Okay.

THE CHAIR: I would agree that we shouldn't be making assumptions.

Q. DR. PINARD: Okay. Well, let's just move on, and look at another couple of studies that were done now within the Yukon case. The next page is -- this is entitled "The Yukon Power Plant Fuel Lifecycle Analysis Final Report" that was written by ICF International, and it was commissioned by Yukon Energy, and this was for their proposed plant in Whitehorse, LNG plant.

So Figure 13 here, note the first five columns

of this report ignores recent estimates from the Cornell study. The first five columns note all the way from drilling completions to transportation.

The important column is the last one, power generation. Can you tell us the significance of the numbers in that power generation column?

A. MR. REDDEN: Figure 13 would show power generation methane emissions by pathway category and kilograms per megawatt hour for shale gas at 4.18, conventional natural gas at 4.18, diesel at 0.03.

Q. Okay, thank you. Let's move on the next page from the same report.

Now, it shows -- this is titled here "sensitivity 4: Global warming potential of methane and nitrous oxide." In this Figure 26, can you tell us in the -- as referring back, of course, to the first figure I described to you about the 20-year -- 20, 30-year -- the 20-year time frame versus a hundred years -- could you look at the 20-year time frame in that row and compare the CO_2-equivalent emissions per megawatt hour between shale gas, conventional gas, and diesel? Could you just read out those numbers for the party, please? For the 20-year time frame that is?

A. MR. REDDEN: Are these the CO_2 emissions?

Q. Yeah, the CO_2 equivalent emissions?

A. MR. REDDEN: For 20 years for greenhouse gas for shale?

Q. Yes.

A. MR. REDDEN: 729.3 kilograms of CO_2 equivalent per megawatt hour for greenhouse gases; conventional gas, 20-year GWP of 880.4 kilograms of CO_2 equivalent per megawatt hour; and the same parameter for diesel, 697.8 kilograms of CO_2 equivalent per megawatt hour.

Q. Thank you. I think just to correct, that was -- for shale, GWP was 792, not 729.

A. MR. REDDEN: I apologize.

Q. So, would you agree that the impact of shale gas -- well, whether it's shale or conventional -- the global warming potential are actually higher than those for diesel?

A. MR. REDDEN: I would say on this graph they're showing higher numbers for that. However, I mean, there are other results done on LNG versus diesel by the Pembina Institute that -- if you would like to refer to YUB-YECL-42, page 6 of 7.

And once you get there, there will be two tables that show the lifecycle analysis. And again, it's another view on topics of strong opinions and varying data. The opinions in this report, if you're there, show under Table 6 for diesel, greenhouse gas, kilograms of CO_2 per megawatt hour, emissions of 884 versus LNG pathway results by

lifecycle stage analysis of 688 kilograms of CO_2 equivalent per megawatt hour.

So it just shows that there is a difference in what's being measured and what the outcomes are and how all of this relates.

A. MR. GRATTAN: Hang on.

A. MR. REDDEN: Sorry, we're just double checking that I had the correct attachment which is a link in that interrogatory.

A. MR. GRATTAN: It was YUB-YECL 42(f), if I'm following correctly.

Q. 42, okay. Did Pembina study include methane in their study?

A. MR. REDDEN: I just have the excerpt here so I don't have all of the parameters in it.

Q. If you could -- I guess subject to check, if you could check that. We had -- just to refer you to here -- in your YCS-YECL 2-1, you have at page 7 of 7 of the YUB -- sorry, I'm confusing you, but the YUB-YECL 42, page 7 of 7 in part (f) of that, I see a graph here from Pembina and I don't see any mention of methane in that table. Sorry, it wasn't a graph. It's a table.

A. MR. REDDEN: Sorry, could you just help me out there, what you just did?

Q. This would be -- this is in a document -- where is this

sitting here? I think it's under the general -- yeah, it's YUB-YECL 42. And it's page 7 of 7 in -- I guess that's an attachment submitted August 29th -- from that document submitted August 29th. And if you're using the pdf, it would be page 3193 -- 3193 of 3489 pages.

A. MR. REDDEN: I don't think I have the same page. I've got the excerpt of page 16. Are you looking at that entire document then?

Q. No, I'm not. Is this in the information response?

A. MR. REDDEN: Yes, it should be within (f) of that information response and that link.

Q. The link? Oh, I see.

A. MR. REDDEN: The link to the report by the Pembina Institute. And what I was referring to was page 16 of that report.

Q. I'm sorry, it's not coming up here. Could you check, then, to see if they included methane emission in that study -- yeah, I believe the -- if you could just look at methane emissions particularly in unburned methane as well, if that study included that.

A. MR. REDDEN: I can do that.

Q. Okay.

MS. SEARS: So I think that's an undertaking.

THE CHAIR: Thank you.

UNDERTAKING - TO ADVISE IF THE PEMBINA STUDY REFERENCED ABOVE INCLUDED METHANE EMISSIONS, PARTICULARLY IN UNBURNED METHANE

Q. DR. PINARD: Let's move on to the next two pages. Let's ignore the first of that. The next two pages had the title AECOM at the top of it. That, for your information, these are from a very recent study that was commissioned by the Yukon Environmental and Socioeconomic Board with regards to Yukon Energy's proposed natural gas conversion plant, and it's titled "Technical Memorandum for Information Gaps in the Whitehorse Diesel and Natural Gas Conversion Project."

Now, go to page 3 of that memorandum of the AECOM study and look at the numbers, 5.6 kilograms per megawatt.

Now, I'll just note here that should be megawatt hours. They made a mistake here, but I don't believe that changes the calculations.

Just for a note here, they used -- the 5.6 is multiplied by 20 which is the -- the global warming --

MS. SEARS: Mr. Chairman, I'm not sure what they did because AECOM is not here. And again, we're getting into explanations from the questioner.

THE CHAIR: Mr. Pinard, do you want to

respond to Ms. Sears before I make a ruling?

DR. PINARD: Obviously, I'm not very well-versed in inquiries.

What I'm trying to get at with this is that if you were to use the more recent numbers of a 20-year timeframe where methane has 72 times global warming potential than carbon dioxide and you were to use that 72 instead of 20, then the greenhouse gas emissions -- and this is just the up stack emissions of unburned methane. If you were to use that number 72 instead of 20, then the total that would add up for the emissions -- the carbon dioxide equivalent emissions for the natural gas plant that Yukon Energy is proposing would be at least 830 kilograms per megawatt hours compared to the diesel plant which would then be just 710 kilograms per megawatt hours.

THE CHAIR: So Mr. Pinard, I'm going to cut you off right now because you need to formulate that into a question.

If you're going to use this as an aid to cross -- this is not evidence. You didn't introduce it into evidence. We don't have AECOM here to ask those -- pose those questions to. You need to somehow turn those around into questions.

Again, I'll just reiterate, an aid to cross is supposed to assist in how you cross-examine a witness. Not

in all cases, but, in many cases, they would have some familiarity with that and could draw upon that.

I leave it to Ms. Sears and the panel, but I'm getting the sense that they don't -- had never seen this study. They don't know who AECOM is. You're saying the change -- you know, that AECOM has made a mistake on this document, so we don't even know the accuracy of it, frankly. And we don't -- so I have --

Unless you can turn it around into a question -- a specific question, I'm frankly going to disallow the entrance of these into the hearing as an exhibit.

Again, take your time. I want to be as flexible as I can because you've obviously got a point. I'm just not sure what that is yet.

DR. PINARD: Okay, thank you. Could we propose that we take a break over this so we can discuss because I'm not quite done with my part of the assessment?

THE CHAIR: Sure, and your timing is perfect here. We can take a break for lunch and then come back after lunch at 1:30 and we'll go from there.

DR. PINARD: Okay, thank you.

THE CHAIR: Thank you very much. So we'll recess until 1:30.

(Proceedings adjourned at 11:59 a.m.)

PROCEEDINGS ADJOURNED TO 1:30 P.M.

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P.M. Session

(Proceedings recommenced at 1:28 p.m.)

THE CHAIR: Please be seated. So before we begin again with YCS, are there any other preliminary matters?

MS. SEARS: Yes, Mr. Chairman. Again, we do have some responses to undertakings to present. And I've passed them out to the secretary, and if she could distribute them to the Panel, that would be great.

THE CHAIR: Thank you.

MS. SEARS: Also, I've made copies available in the back of the room.

The one document that I didn't make copies for the room in respect of would be the wind study, which we'll address in a bit. It's in excess of 200 pages, so we made copies enough for the Board. We will also distribute it electronically, and then if anybody needs a paper copy, we're happy to make additional ones. We just didn't want to waste a bunch of paper if people were happy with electronic copies.

THE CHAIR: Right. Okay. It sounds good.

UNDERTAKING RESPONSES:

MS. SEARS: Okay. So the first undertaking that we have a response for is Undertaking No. 9, and I'll turn it over to Mr. Redden.

A. MR. REDDEN: That you, Ms. Sears.

This Undertaking No. 9 was by Mr. Janigan to Mr. Redden, referencing page 173, lines 6 to 10 in the transcripts:

> **"To advise when the discussions with the Yukon government took place with respect to the fish lake hydro water license and what the discussions involved."**

The Yukon Electrical response is: (as read)

> **"Regarding the Fish Lake water license, various meetings were held with the Yukon government, as well as with numerous other stakeholders. The following table provides details on a number of these meetings that include the Yukon government, including dates, discussions, and attendees."**

Thank you.

THE CHAIR: So in terms of the exhibit

number, if my ordering is correct, I believe that would become B-15?

MS. SEARS: I think we're up at B-16, sir.

THE CHAIR: We are at B-16? I haven't kept good records.

Is that correct?

MS. HENRY: No. 16.

EXHIBIT B-16 - RESPONSE TO UNDERTAKING GIVEN AT TRANSCRIPT PAGE 89, LINES 6 TO 10

MS. SEARS: The next response to undertakings we have is with respect to Undertaking No. 11. And that one is over to Mr. Koenig, please.

A. MR. KOENIG: Yes, I had an undertaking by Mr. Janigan. The reference is page 196 of transcript Volume No. 2, lines 3 to 6, where I was to provide an updated industrial revenue forecast taking into account Riders J, R, and R1 that came into effect on July 1st of 2013.

I've provided an attachment to this undertaking response that provides an updated forecast of our industrial customer taking into account the revenue based on rate .39 plus the Riders J, R and R1.

In 2014, we forecast $621,000 of revenue, and in 2015 751,000, and sorry to go in reverse, 2013 zero revenue.

MS. SEARS: Thank you, Mr. Koenig. So if we could have that marked as Exhibit B-17, please.

THE CHAIR: So marked.

MS. SEARS: Thank you, sir.

EXHIBIT B-17 - RESPONSE TO UNDERTAKING AT TRANSCRIPT PAGE 196, LINES 3 TO 6

MS. SEARS: The next response to undertaking we have is to Undertaking No. 17. And, again, I'll turn that over to Mr. Redden, please.

A. MR. REDDEN: Thank you. This is response to Undertaking No. 17 with the reference within transcript Volume 2, page 284, lines 14 to 19, undertaking by Mr. Janigan to Mr. Redden with response to the feasibility study referred to in UCG-YECL 37 to confirm with the participants of the study that YECL can produce the study and, if so, to produce the same. If you would please refer to Attachment 1 for a copy of the study that is referenced in UCG-YECL 37 entitled "Burwash Landing and Destruction Bay Wind Diesel Feasibility Study."

MS. SEARS: Thank you, Mr. Redden. If we could mark that Exhibit B-18, please, sir.

THE CHAIR: So marked.

EXHIBIT B-18 - RESPONSE TO UNDERTAKING GIVEN AT TRANSCRIPT PAGE 284, LINES 14 TO 19

MS. SEARS: Then finally, sir, we have a response prepared to Undertaking No. 18. And for that one, I'll turn it over to Mr. Grattan.

A. MR. GRATTAN: The undertaking was by Mr. Janigan to myself, page 293 of transcript Volume 2, lines 6 through 9: To provide the percentage that Yukon Electrical's working capital represents of the sum of cost of power and controllable expenses as defined in the Ontario Energy Board correspondence of April 12th, 2012.

Yukon Electrical has provided a response to that in Attachment 1, the calculations in Attachment 1. Yukon Electrical's working capital as the percentage of the sum of the cost of purchased power and controllable operation and maintenance expenses is as follows: 2013, 8 percent; 2014, 10 percent; and 2015, 9 percent. Thank you.

MS. SEARS: Thank you, Mr. Grattan.

Sir, if we could have that marked as Exhibit B-19, please.

THE CHAIR: So marked.

MS. SEARS: Thank you, sir.

EXHIBIT B-19 - RESPONSE TO UNDERTAKING GIVEN AT TRANSCRIPT PAGE 293, LINES 6 THROUGH 9

MS. SEARS: Those are all of our preliminary matters.

THE CHAIR: Thank you very much. I'll turn the mic back to the YCS and, Ms. Middler and Dr. Pinard.

MS. MIDDLER: Thank you.

MS. MIDDLER CROSS-EXAMINES THE PANEL:

Q. If you could refer to -- well, I guess it's a statement that is present in a few IR responses: YCS-YECL 2-1, and 2-3, as well as 2-6. YECL states that: (as read)

> "The primary driver for the Watson Lake bi-fuel project is to provide local emissions reductions."

Please describe in detail your air emissions sampling, testing, monitoring, and reporting plan for the Watson Lake bi-fuel plant to evaluate local emissions.

A. MR. REDDEN: Certainly. So, the reference to the reduction of emissions in the community in response to community desire to follow that initiative reduced the dependency on diesel and reduce emissions in the community.

There is an anticipated reduction in particulate matter which is important for those with lung function-related issues, the reduction of carbon dioxide, a greenhouse gas, a reduction of nitrogen oxides, and sulphur dioxides contributing to smog and acid rain, and the emissions monitoring requirements specified in the decision document to proceed with the project from the YESAB review process. Those are outlined.

And, I think as we've stated earlier in the hearing, that the compliance with all of the measurements and the parameters to be tested and verified are a combination of physical site tests as well as modelled emissions results analysis. And the exact mix of those two methods have not been finalized at this time but they will be in compliance with the decision document requirements and the permit and licensing that comes with the approval of the project.

Q. So the program is still under development. The air emissions monitoring is still under development?

A. MR. REDDEN: That's correct.

Q. Okay. Perhaps you will be able to know at that stage which specific emissions will be measured during Phase 1 of the project.

A. MR. REDDEN: As part of the Phase 1 emissions monitoring, those will include SO_2 as well as NO and particulate matter 2.5, particulate matter 10, CO and HC.

Q. HC -- sorry?

A. MR. REDDEN: Hydrocarbon emissions. Also the monitored greenhouse gas emissions including CO_2 and methane.

Q. So you will be measuring methane, just to confirm?

A. MR. REDDEN: The monitoring of those emissions that I've outlined as applicable for the diesel only system on the basis for comparison and to inform the

success of Phase 1.

So we have to go through the conditions set out in the decision document to clarify the basis of those monitoring parameters.

There's also an item for the proponents to develop -- and this is part of the recommendations from the decision document -- to develop, in discussion with the regulators, suitable monitoring or modeling techniques to understand the constituents of unburned hydrocarbon emissions and, specifically, to monitor or estimate volatile organic compounds, known as VOCs and polycyclic aromatic hydrocarbons and benzene emissions.

Q. So you are still trying to determine whether you will actually be doing air emissions testing or whether you will be doing modeling of those volatile organic compounds?

A. MR. REDDEN: So that's what I was describing earlier that these recommendations in the decision document, then, that have gone to environment are what are being worked out, and then that will be clarified and specified in our license and permits.

Q. Okay. It's our understanding that thorough air emissions sampling, testing, and monitoring and associated reporting can be costly. Is the cost of this air testing and monitoring factored into your cost projections for the Watson Lake bi-fuel project?

A. MR. REDDEN: We don't have the full visibility on what the actual emissions testing scope and cost will be. So they are not fully in there.

Q. Perhaps we can refer to YCS-YECL 2-1, Attachment 1, entitled "Literature Review Air Contaminant Emissions From Dual Fuel and Conventional Diesel Generator Operations."

A. MR. REDDEN: Yes, I've got that.

Q. This SENES report describes some local emissions decreasing, as you spoke about earlier, while some others will be increasing as a result of the modification of the Watson Lake generators to accommodate burning various amounts of LNG up to 70 percent with the diesel.

And their report states that the levels of unburned hydrocarbon with the bi-fuel operations could increase by 2,500 to 6,000 times that of unburned hydrocarbons resulting from diesel-only combustion.

What is your understanding of unburned hydrocarbons, what that constitute?

A. MR. REDDEN: Excuse me, Ms. Middler. Can you give me a reference to where you were pulling that information from?

Q. Okay. I believe it's page 8 about the middle of the page: (as read)

"The magnitude of the increase may range from a 2 ,500 fold increase at

high load factor above the level, and 70 percent natural gas ratio to over 6,000 times that of diesel-only operations at low load and 80 percent natural gas ratio."

Page 8.

MS. SEARS: So to be clear at, it's the page 8 at the bottom of the page. It's 11 of 18 of the attachment itself, if that helps.

A. MR. REDDEN: Okay. Excuse me again, Ms. Middler. Could you restate the question?

Q. What is your understanding of unburned hydrocarbons, such as; what are they, what they constitute, what their local environmental and health impacts are, what some of the global impacts may be.

A. MR. REDDEN: Really, my understanding of the unburned hydrocarbons would be those that enter the generating unit that are not fully combusted through the combustion process, then exit the unit through the exhaust stack. And the numbers showing some large orders of magnitude for potential increase -- it should be noted that had those are very small numbers to start with, and they stay very small and below any set limits or guidelines.

Q. As you mentioned earlier in YCS-YECL 2-3, you state that: (as read)

"The reduction of particulate matter will be important to those with comprised lung function."

I'm just wondering if you are aware of any health impacts associated with unburned hydrocarbons, such as benzene or methane, or of carbon dioxide.

A. MR. REDDEN: We can say from the attachment on page 17 of 18 that -- this is at the bottom of the last paragraph -- that the primary hydrocarbon contaminant of potential concern would be benzene, the increase in hydrocarbon emissions will amount to a relatively increase of small initial quantities. There are no Yukon ambient air quality standards for any of the hydrocarbon contaminants whose emissions are likely to increase.

So it's not on a radar screen for something that is related to this document.

Q. I guess I'm concerned about the existence of the radar screen and the absence, as you say, of Yukon standards applying to unburned hydrocarbons. How will that absence of standards affect your plan to sample them?

A. MR. REDDEN: I think with respect to the project and the -- all of the experts involved in the review and recommendations with respect to the bi-fuel project are taking into consideration all of the parameters and what are the important ones, what are to be monitored, what is

required from health perspectives to make sure that it meets expert requirements.

So with that review, then, that has been vetted through the YESAB process, and that is what Yukon Environment is making sure that everything with respect to the project and its proposal and the emissions reductions and changes due to reduction of diesel are acceptable.

Q. Are you aware of other technologies that would reduce particulate matter emissions from diesel operations?

A. MR. REDDEN: Filtration systems on the back end of generating units could have an impact on that.

Q. Have you employed those technologies to date in communities that are concerned about particulate emissions?

A. MR. REDDEN: No, they have not been put in the communities.

Q. So in IR YCS-YECL 2-4, YECL states that emissions of unburned hydrocarbons and carbon monoxide are expected to increase, but that CO will remain below Yukon air quality standards.

I'm curious as to the emissions that are predicted to decrease. Are they currently within or below acceptable standards?

A. MR. REDDEN: With respect to all of our operating diesel units in the Yukon, they currently meet or exceed all of the emissions requirements.

Q. Great. Back to the technologies that would reduce particulate matter emissions. If that's a priority of communities, did you ever consider implementing that technology for the benefit of local air quality, and have you looked at the cost of doing that compared with this project?

A. MR. REDDEN: Yeah. We're aware of those technologies. Looking at adding additional control equipment costs, we started out on this project as an initiative to reduce those parameters we talked about in the communities, and to introduce cost savings with respect to the purchase of diesel fuel, so show a savings for ratepayers with respect to introducing an alternative fuel supply, and ensuring that we are compliant with all of the legislated requirements; and if there is a need to go further than how far we decide we can exceed the requirements, then that would be looked at further on the project.

Q. I just would like to ask a few more questions about the emissions and efficiency. On day one, Mr. Redden -- it's on page 115 of the transcript, starting on page 25, you say that: (as read)

> "Sometimes there is an efficiency penalty or offset that comes with better emissions performance."

How do you find a balance between emissions and efficiency, which seem to be inversely proportional?

A. MR. REDDEN: Yeah, I believe that reference, Ms. Middler, was talking about -- in that context, we were talking about purchasing new units, right, and what the technology advancements are. And there are a number of different technologies.

One of the aspects in consideration in looking at control technologies for emissions is referred to as the best available technology that's economically achievable. They refer to it as the TEA.

Because there is no doubt many different things that can done to units and other systems and processes put into play. I think the point we were making is that when we look at new equipment and strive for reduced emissions that sometimes those benefits on the emissions side have a heat rate effect on them that you're essentially utilizing more fuel per amount of megawatts of electricity out to achieve that.

So how you look at that, it's a combination of factors that go into it.

Q. I guess sort of along the same line, I'm just wondering how you place a value judgment on the health impacts of carbon monoxide and unburned hydrocarbons, which could be a variety of chemicals, volatile organic chemicals; benzene and/or methane. How do you make a value judgment that those will be more acceptable than the health impacts of what

you're currently experiencing from the emissions in communities?

A. MR. REDDEN: We certainly look to guidance from the Yukon Environment and from the experts involved in that. We've also looked at the proliferation of the displacement of liquid fuels by natural gas as that has grown immensely in North America, that where equipment has access to natural gas, that they will pull out liquid fuel engines or at least have a dual-fuel capability where they can utilize liquid fuel or natural gas.

So what we're doing with this project is to say that now natural gas is available by transport to the territory, that we see it as a viable alternative, then, to reduce the diesel consumption and not be subject just to a single fuel while we are also pursuing renewable energy alternatives.

This project, what's desirable about it is that it's relatively simple technology for retrofitting the existing equipment. It introduces another fuel supply. It does have emissions benefits and it does show cost savings.

Q. So IR YCS 2.5, YECL states that: (as read)

"Phase 1 will evaluate the ability of the bi-fuel generator to operate safely and reliably and to demonstrate that the project meets emissions

requirements and we have determined that the current operations meets emissions requirements. The bi-fuel may be different."

I still am not clear how -- the details of how determining whether Phase 1 is successful and warrants further investment in moving ahead with Phase 2, what will -- how will that be determined?

A. MR. REDDEN: There's a number of factors included in that, Ms. Middler, for the success of the first phase. First and foremost that the technology is safe and reliable and can meet all of its requirements, operating requirements, that all of those targets are achieved, and that it has been determined that a viable supply of natural gas, a supply chain of that fuel, then, could be relied on for fueling the remaining units in Watson Lake that would then be converted with the understanding that, while we're in the proving phase, if there's any interruption in the supply of natural gas, that's fine from an operational perspective. We will seamlessly go back to operation on 100 percent diesel. So when these units are transitioning into and out of the bi-fuel mode of operation, standing beside the unit, you can't tell the difference.

And part of this process is the establishment of the supply chain to show that it can meet the supply

requirements.

As we've said, it's the first of this type of project in the Yukon and it does advance the desire for alternatives -- for alternatives that have emissions reductions within them and have cost reductions within them. So those are the main metrics.

Q. If we could refer to the top page of our package of aids to cross, there's a comment submission from the Liard First Nation to the YESAB Board. We haven't included the entire submission, just certain pages of it where the Liard First Nation has stated that: (as read)

> "It appears that the claims of improved air quality and potentially lower rates are not sufficiently supported. Conversely, the potential costs or, at least the risks, are borne by LFN directly to its Kaska citizens and indirectly to the lands for which Liard First Nation is a steward. We invite the proponent to engage with LFN further to discuss this inequity."

I'm wondering, can you tell me have you engaged the Kaska people further in the development of this project, or included them in your evaluation of Phase 1 of the project?

A. MR. REDDEN: Yes, certainly, Ms. Middler.

So I'm referring to the May 8th, 2013 letter.

So since that time, there's been consultation with Kaska and Liard First Nation members with respect to the project, and there has been definite positive movement towards the success of the project since that time.

There's also been consultation with Mayor and Council and the public within the town of Watson Lake. We've received lots of feedback at the public open house, at the site tours.

You know, there's a lot of interest and a level of enthusiasm with respect to this project, and we've had questions back not related to power generation but questions, you know, how soon can we get natural gas to our door and look at displacement of heating oil?

People are interested in it in the communities. There's also interest for industry. There's been a fair level of discussion around natural gas.

So since this letter was filed back in May, there's been a lot of good dialogue and a lot of moving forward on the benefits of the project.

Q. Perhaps we can move on to the other purported benefit of the project being the costs, economic benefits.

If we could refer to YUB-YECL 42(a), Attachment 1. It is a graph entitled -- well, it's a Chart, "Annual Forecast Operations and Maintenance Costs and Fuel

Savings for the Watson Lake Bi-Fuel Project 2012 to 2013."

A. MR. REDDEN: I've got that here.

Q. Okay. Yukon Electrical's LNG price forecast in dollars per litre of diesel equivalent. At what price of natural gas per thousand cubic feet is this based on?

A. MR. REDDEN: On a dollars per gigajoule basis, it was priced at $4 per gigajoule and I'll just say subject to check just to make sure that I've got the correct unit. I don't believe that I have the units that you've requested, Ms. Middler.

Q. I'm just wondering about the projected change in price of natural gas, but we'll get into that a little bit more in a bit.

Looking at the chart itself, why is it that the cost forecast for LNG go from $1.23 in 2014, down to $1.01 the following year, 2015 and then drops again in 2017 to 90 cents? What assumptions are these cost projections based on?

A. MR. REDDEN: If you look at -- there are three line items there that make up that line that's Yukon Electrical LNG price forecast. So the first line is the FOB, so supply to Watson Lake LNG price forecast which is, in 2013, noted as 81 cents per litre.

On top of that is a cost for the LNG storage and vapourization charge of 43 cents. That takes us to $1.24

per litre total price.

So within those first few years, you're seeing a higher cost contribution with respect to the storage and vaporization costs. The top line showing the commodity cost then has, with time, changes in volume than -- it starts out as a smaller volume on a more spot pickup basis and, then as you start to establish a regular requirement, then you can do contracting on a different basis.

So that's what's transitioning with time and as we've seen those prices change.

Q. So it's the increase of volumes that make the LNG price forecasts go down?

A. MR. REDDEN: That's correct.

Q. The economies of scale or your storage and vapourization charges going down, is that...

A. MR. REDDEN: So, there is -- as you're involving more volume, then you're able to get more attractive pricing from a contracting point of view or pickup price point of view or delivery, as well as your cost related to the storage and vapourization charges over a larger volume. So then it dilutes the unit cost per litre.

Q. Okay. Because I just note that the next few years it will be more expensive than diesel, 25 and 23 cents.

A. MR. REDDEN: That's correct. So initially the supply of diesel to Watson Lake, it's typically around a

dollar and then there's an escalation at 1 1/2 percent that's been shown on what the diesel cost is going forward with time.

So with the initial costs of the project, then you're correct that the initial approving and getting the project established does come at a fuel cost premium, and then we show going forward -- then when we're starting to calculate the estimated fuel savings by year that are starting in 2015 on here and then growing through the years, that then there's a crossover point where we show a cumulative fuel saving then in year 2017 of $137,000.

Q. Which would offset the loss from the previous year?

A. MR. REDDEN: That's correct. So then you're building up those savings then to essentially pay off the project, and then going forward, we're showing by the year 2023, a fuel savings of $1.7 million.

Q. Are there other assumptions built into these cost projects about the distance of transport or the location of the source?

A. MR. REDDEN: The source now is in Delta, BC. So it's approximately 2,000 kilometres away. So that is a significant portion of the cost. Almost half of the supply cost to the gate is in transportation.

So should closer sources be developed -- and there are potential projects underway that would be closer to

Watson Lake -- then those can offer a reduction in the transportation costs.

Q. So where in these -- where in this fits the transportation costs? Is it under storage and vapourization or where is it?

A. The transportation -- so that's the FOB Watson Lake line, so that's essentially to get the fuel to the plant site.

Q. So it doesn't seem to change over time. It sticks around 80 cents. So are you assuming then that it will continue to come from Delta? I'm just trying to find where in this chart does it reflect that you're anticipating savings from a reduced transportation.

A. MR. REDDEN: That's correct, Ms. Middler. I mean, the best information that we had to go on the project is the supply that is available, and subject to what happens, what develops with respect to LNG and its availability, then anything that can done to move closer -- though saying that, one has to be aware that the LNG facilities for production are not all created the same. Some will have a capacity but they'll be a lower construction cost but they won't be as effective on the output.

So some plants, it could be closer -- could in fact have a higher pickup cost so that combination of where the plant is located and what its production costs are, what

its supply of natural gas are and how it goes about production of LNG, those are parts of the equation then that go into what we would look at then going forward as an alternative to pick up in Delta for the project.

Q. That also brings me, I guess, to planned LNG export facilities on the BC coast where the price of natural gas could spike to $8 at least for a thousand cubic feet due to the accessibility to currently landlocked gas to global markets and the prices associated with that access, and that $8 per cubic feet doesn't include the costs associated with the liquefaction or the transportation.

So how would that affect the price of LNG in dollar per litre of diesel equivalent or whatever? Have you factored that into this fuel savings assumption?

A. MR. REDDEN: I mean, one of the aspects of the coastal development of LNG, should the cost of the natural gas drive up too high, it just wouldn't be competitive in foreign markets. You know, we are looking at a commodity price that makes up approximately 15 cents per litre diesel equivalent for the natural gas.

So I can say that the forecasts are that there will still be a competitively priced availability of natural gas going forward in the project. But as I mentioned before, if something happens down the road or there is a lapse in the competitiveness of natural gas, then the project would

seamlessly go back to 100 percent diesel.

If we look at the cost savings from the fuel supply perspective, it's a relatively quick payback of a nine-year cycle on the project.

Q. Assuming your current price forecasts?

A. MR. REDDEN: That's correct.

Q. Have you done any sensitivity analysis to compare your projected LNG savings against variable costs of natural gas commodity prices?

A. MR. REDDEN: Yeah, that's the component cost I was referring to then of the commodity. So, if you were going to double the cost from $4 a gigajoule for your gas supply to $8, then that approximate impact would be about 15 cents per litre on the fuel supply cost.

Q. And does that take into consideration that the liquefaction, which is very energy intensive, could also be poured by the commodity itself, therefore, the cost of that project would also be increasing?

A. MR. REDDEN: I guess the supply of LNG that we're getting from is really on a hydro-based system right now. Some of these other plants, it depends what they utilize for their fuel or energy source for the cryogenic requirements for the LNG, but we've also got to keep in mind that while we're all looking at what natural gas prices are doing, we also have to be aware of what diesel fuel prices

can do. But the projections are that the spreads going forward are still an attractive spread in costs between natural gas and diesel.

Q. While we're touching on the topic of liquefaction, YCS seeks clarification on a statement made by Mr. Grattan on Monday, page 84 of the transcript, line 20, he referred to --

A. MR. GRATTAN: Just one moment, please.

Q. Yes, page 84. Personally I find the transcript a little confusing. There seems to be kind of two different page numbers, but this is the page number that is at the bottom of the page that actually has the word "page" before it, so page 84.

A. MR. GRATTAN: I've got it.

Q. Do you see line 20?

A. MR. MASSIE: What's the other number? You don't know?

A. MR. GRATTAN: I've only got the text version.

A. MR. MASSIE: Yeah, the electronic version I guess.

MS. SEARS: So you have page 84, like the written word 84?

MS. MIDDLER: Yes.

MS. SEARS: If you look, 92 is just above it.

Q. MS. MIDDLER: And it should be line 20,

universally understood?
A. MR. GRATTAN: I believe I've found it. It's with respect to the benefits of a lease agreement, is that where we're --
MS. SEARS: Your response, Mr. Grattan, starts at line 15.
A. MR. GRATTAN: I believe I'm there. Thank you.
Q. MS. MIDDLER: So you refer to the proposed facility at Watson Lake as a liquefaction facility. This is semantics, but maybe it's not. YCS wants clarity about whether liquefaction processing is part of the oil and gas/LNG aspirations of ATCO in Watson Lake or if you just misspoke.
A. MR. GRATTAN: I'm just going to find my exact words there, one moment, please.
Q. A liquefaction facility is...
A. MR. GRATTAN: First of all, if I've caused any confusion, I apologize. All that meant to say is that the facility that would be sitting on the ground in Watson Lake that we're leasing, the LNG facility -- Mr. Redden, if you could help me with what word I should have used.
A. MR. REDDEN: The LNG facility that we refer to with respect to our project is that package of the LNG storage and vapourization equipment.

So I think there the reference looks like it's an LNG -- referencing an LNG production facility. I mean, that would be elsewhere where LNG was picked up.

Q. We were just a bit concerned that there would be a liquefaction plant in Watson Lake or if that was something that --

A. MR. REDDEN: Our facility on site is sort of the reverse of that. It's a vapourization plant, so it will take the liquid form and put it back into natural gas form.

Q. Liquefaction, in our understanding, is taking the natural gas, processing it, freezing it down to minus 160. It's a processing plant, then, for distribution and storage?

A. MR. REDDEN: You're absolutely right. We should refer to ours as the LNG facility that's within this project.

Q. I suppose that's a bit of a relief.

A. MR. GRATTAN: I apologize for the confusion.

Q. You're the bean counter. That's okay. You said it yourself.

BC has a carbon tax. The western states of Washington, Oregon intend to join BC in this economic measure to reduce emissions.

Has the YECL taken into consideration the potential for currently externalized cost, such as carbon and carbon equivalent pollution, becoming incorporated into

financial accounting such as through a carbon tax?

A. MR. REDDEN: If it turns out that there is introduction of carbon taxes related to diesel or LNG, then that would certainly be looked at. If there was an exemptions for utilities or power generation, those costs then would be considered part of the FOB supply costs for LNG or for our diesel fuel.

Q. And is there any way to translate the price of LNG per diesel equivalent into a price per kilowatt hour? Is that possible or is it difficult because of the varying percentages of natural gas going into the plant?

A. MR. GRATTAN: So I can briefly speak to that. So, as Mr. Redden just mentioned, for purposes of forecasting costs in Watson Lake, we convert the LNG to a litre diesel equivalent and that litre diesel equivalent is forecasted at Watson Lake.

And maybe the best thing I should do is I should take you to a particular schedule and it will be able to illustrate it better.

Q. Okay.

A. MR. GRATTAN: So if I could get you to turn up Schedule 4.2, and let me know when you get there.

Q. Can I just write that down? What is it?

A. MR. GRATTAN: Schedule 4.2 of the application.

Q. Which is in Part 1 or Part 2?
A. MR. MASSIE: Part 1. It's in Section 4, Schedule 4.2.
Q. Almost there. Almost there.
A. MR. MASSIE: When you said Part 1, there were just the two emails that went out because the application and contents couldn't fit all on one.
A. MR. GRATTAN: So if you go down to line 17, which is the net heat rate for Watson Lake, kilowatt hours per litre. You're going to see that Yukon Electrical is forecasting a heat rate of 3.78 for each of the three years and that is a five-year average of the heat rate for Watson Lake.

So this was a discussion we had a couple of days ago. It was one of the tweaks that Yukon Electrical has requested for purposes of the fuel deferral, that we don't know exactly how that heat rate is going to go up or down as we move forward with the quantum of gas and diesel and the relative mix. So we have asked for that heat rate to be subject to a deferral.

But for purposes of forecasting, we've simply taken the five-year average as we have in the past. So that's 3.78 for Watson Lake.
Q. Does that translate into a cost per kilowatt hour? I'm just trying to wrap my head around...

A. MR. GRATTAN: Just one moment.

A. MR. REDDEN: I'm sorry, Mr. Grattan. I was just going to suggest that if you wanted to do the calculation then and take the dollars per litre of diesel or of equivalent LNG, and then divide that by the heat rate in kilowatt hours per litre, that should leave you with dollars per kilowatt hour.

A. MR. GRATTAN: And to follow up on that, on that particular schedule we've forecasted the average cost per litre of fuel to be 101.76 cents, and we are forecasting a heat rate of 3.78. So whatever that math is, 101 divided by 3.78.

Q. Can I undertake for you to do the math? Ask you to undertake?

A. MR. GRATTAN: This is pretty simple. We'll do the math.

Q. I saw you do some pretty complex math in your head the other day, so let's see some of that magic.

A. MR. GRATTAN: So subject to check, because we'll have our folks double check this, 26.46 cents. Just a second here, we're going to redo it.

THE CHAIR: One calculator, two people.

A. MR. GRATTAN: Okay. Here we go again. Subject to check once again, 26.92 cents per kilowatt hour.

Q. What do you currently have for your diesel cost

estimation?

A. MR. GRATTAN: That is the estimated diesel cost of 101.76 cents.

Q. Okay. Okay. So your diesel is just understand 27 cents a kilowatt hour. Okay. So what about LNG, so we can make that comparison? That's what I'm looking for.

A. MR. GRATTAN: Okay. And I'll let Mr. Redden do some crunching here.

A. MR. REDDEN: So if we went with the delivery cost of LNG at 81 cents per litre diesel equivalent, that would equate to 21.4 cents per kilowatt.

Q. Okay. In your IR response, YCS-YECL 2-9, YECL states: (as read)

> "This project is necessary to advance community and Yukon Electrical objectives for reducing emissions from diesel generating sources while longer-term solution technology such as hydro, wind, and geothermal are being advanced."

Can you please share Yukon Electrical Company Limited's vision of the future, including time frames, where these solutions are advanced and being implemented?

A. MR. REDDEN: Certainly. Maybe we'll start in Watson Lake where we're currently participating with the

Liard First Nation and the Town of Watson Lake on a hydro electricity study.

That will look at a project that could be connected to, call it the Watson Lake electrical grid as part of our renewable energy alternatives that we're investigating. The time frame for that, you know, with certainly the knowledge we have on going through just the re-permitting of an existing hydro facility at Fish Lake -- pick a number; say, ten years or more to determine that based on determining relatively quickly where the viable projects are and what magnitude they are in getting the commitment to go ahead with it.

Other alternatives that we're participating in -- and we've all seen the look that we did, the diesel system and the interest that we had in that. That study that's been presented gave an insight into that.

So we're still pursuing a basket of renewable technologies, including geothermal. We're participating in a study with the Kaska as well as Yukon government and Yukon Energy Corporation, as well as CanNor. So that's a joint investigation into the viability of geothermal energy for renewable energy projects.

The time frame of that one I would have less certainty on. It's early stages to see where the so-called hot spots are for potential locations, and then what's

required by way of mapping thermal gradients associated with a potential resource, how deep you need to go to get either hot water or wet steam that can be used for energy, meeting energy needs.

You know, we're participating in solar energy, not just from the photovoltaic work -- and there is some of that that's going on in the Burwash Landing community that you'd be familiar with. It was kind of one of the first call it net metering installations, then, of customers generating in excess of their own load requirements and pushing into the electrical system there.

There's now a microgeneration policy that is out, to facilitate customers -- be they industrial or commercial or residential -- to utilize renewable energy electricity projects for offsetting their electricity requirements.

On the other side of solar, there is a solar thermal district heat project that we are currently studying with the City of Whitehorse and ATCO Gas, looking at building on their world record class project from Okotoks, Alberta, that utilizes solar thermal heat that's stored in the ground in the summertime and then recovered in the winter to -- as they have met an amount of 97 percent of their space-heating requirements through solar thermal district heat and BTES technology, which is borehole thermal energy storage in the

ground.

And you may have had some visibility into that project, that technology. But it's quite of interest in the north because it is looking at taking the Drake Landing project which was going to be scaled up, if possible, down south, but was competing with natural gas at, say, $4 a gigajoule.

Where we're looking at up to $30 a gigajoule for heating source, maybe the viability, then, in our conditions -- even though we'll get a little less sunlight overall and have somewhat higher heating requirements -- can still be an attractive way of providing a renewable energy source.

So the timeline on that, the study, is to have results out for presentation next month, and that will look at a few different scenarios of sizes of projects to see if they're viable on a large scale or if there are smaller ones that could go elsewhere within the territory.

I mean, that's some of the areas that we're looking at. So it is part of our ongoing interest and desire to have a basket of solutions available. And they will be in time frames. They will be in different sizes. We're finding that these technologies do become more cost competitive as the technology costs go down and as well as existing energy or electricity costs go up. The crossover point should

expect to be closer.

Q. Grid parity or however it's called.

A. MR. REDDEN: Hmm, hmm.

Q. Hydro projects, as you say, have a long lead time, regulatory studies and this and that, consultations. Do you see anything more immediate in terms of renewable that could be implemented in Watson Lake?

A. MR. REDDEN: Yeah. Probably the quickest uptake, maybe simplest of technologies would be the solar photovoltaic, and we can expect that through the new microgeneration policy that that will help to get that going.

Q. If reducing emissions is a primary driver, would that not be something that Yukon Electrical would want to undertake itself?

A. MR. REDDEN: Yeah. As with the technologies that we've looked at, you know, as we're screening them, it's a challenge to find the ones that aren't rate drivers, then. Yes, they can go in. However, they come at a cost premium. And not that there isn't ways to find ways to bridge the cost premium to implement, but what we're proposing with this alternative fuel project at Watson Lake is one that brings an alternative, it brings benefits, including cost savings.

Q. So we've got the microgeneration policy to help individuals offset their own generation, and should there be surplus, offer it back to the grid, which will help reduce

overall consumption, hopefully.

In terms of independent power producers who may have similar aspirations to Yukon Electrical to reduce emissions and to offset fossil fuel power generation, do you see that as viable, considering your cost projections for LNG? How will an IPP be able to compete? Do you see that as something that will happen in the next few years?

A. MR. REDDEN: Our understanding of the follow-up to the micro generation policy is that there will be an IPP policy that is forthcoming. That will then facilitate projects that -- for independent power producers to then attach into either communities or into the Yukon interconnected system with projects that are developed and show that they can meet the requirements of interconnection and what is going to be contained within the new policy.

Q. Just more along the integration of renewable sources, looking at the Kluane First Nation example in Destruction Bay, their desire to build a wind project that will complement the diesel to advance Kluane First Nation's aspiration to become energy self-sufficient and less reliant on fossil fuels and to reduce the impacts associated with energy generation and use resulting from extraction, transportation, combustion of fossil fuels.

Seeing as your main driver -- one of your main drivers or justifications for bringing LNG to the Yukon and

Watson Lake and potentially, as you've said, other off-grid communities to reduce emissions, how are you ensuring that projects, such as Kluane's wind project, receive adequate support from you to help YECL and communities meet their respective goals to reduce emissions?

A. MR. REDDEN: Ms. Middler, can you give me a reference first on what you were referring to?

Q. Just about, in general, how will YECL support projects such as Kluane's wind project?

A. MR. REDDEN: I'm just interested where you're referencing the initial part of that --

Q. The driver of reducing emissions, or --

A. MR. REDDEN: Yeah, what you were reciting there for Kluane interests. I didn't catch all that.

Q. Maybe we can strike that because I don't have it written anywhere. It's just what I know from Kluane or hearsay, or general knowledge.

A. MR. REDDEN: No, let's still talk about it.

Q. Okay. How will YECL support projects such as this one and other projects that communities are bringing forward to meet their respective goals, environmental stewardship and reducing emissions?

A. MR. REDDEN: Yukon Electrical certainly has an interest in the development of viable projects such as what we've looked at on the first review with the wind diesel

system.

If Kluane First Nation wants to bring that forward as an IPP when there's policy in place, that would certainly be under that forum, and then from the utility perspective, we would be looking at the interconnection requirements and assisting in that way.

But we do have a joint interest to see how, for example, the wind diesel system could be developed. You know, we've identified that there is a cost premium that was shown as the study results. I'm not saying that those can't be overcome through technology improvements, through subsidy funding or other methods.

Yukon Electrical has an interest in participating with First Nations and with communities and our customers on renewable initiatives.

Q. I guess I struggle with understanding how Yukon Electrical can -- where you find the balance of aspiring to develop renewable projects where the fuel is free and how that -- such as hydro, wind, solar, and how that jibes with the business model?

A. MR. REDDEN: So that is that whole selection of different technologies that we have been and continue to investigate.

You know, should the wind diesel system be brought forward and can be shown that it's viable from

technology, reliability, interconnection and safety perspectives, then that totally fits. The timing of these is advancing.

Now, there's a micro generation policy. There's supposed to be, soon, an IPP policy. There's, I think, always the opportunity for communities or developers to look at a technology and develop it to -- the project to a development phase that it can be identified, that it actually can be licensed, permitted and operated beneficially that -- we're very interested in that.

I don't know if I answered your question, but we are, on many fronts, not just doing what we need to do to keep the lights on and stay safe and reliable and pursue alternatives, as the bi-fuel project alternative is, but also all of the renewables. So we've got just about all of those renewable technologies on the go.

Q. This morning -- I'm afraid I didn't put the number down, but Jay and John Maissan were having a discussion about the automated meters, and I'm wondering -- just shifting gears here -- about how the information is relayed over the transmission lines themselves. And there was a little bit of uncertainty. It sounded like it was a yes, but I was wondering if I could request an undertaking that utility-controlled --

MS. SEARS: Let the finger movements -- let

the record reflect she has made finger movements.

A. MR. MASSIE: That is what we do.

Q. MS. MIDDLER: It's magic. How does it work? Tell me about electricity. No, just kidding.

Would the utility be able to control customer appliances via the transmission lines themselves through these meters? Do you recall that conversation?

A. MR. MASSIE: Yeah, absolutely. So what we were talking about, if I recall correctly at the time, was the -- and it's called a load control transponder, and basically it's a unit that will go into a customer's residence and it gets hooked up with whatever deferrable, I guess, or controllable appliance that they would volunteer to put on it. That would be one of the key things that I would put out there.

Now, the technology for AMR is definitely over the power line carrier. So it travels down the power line to talk with the meter to give us the reads.

Now, what I was not sure on was from the meter to that optional load control transponder that's inside the house. Is that what we're asking about?

Q. Yes, because I think what we were talking about was the potential in the future and whether radio frequencies would be required for that kind of communication or if, like the automated meter reading component of it, that could also be

done through the power line transmission as well?
A. MR. REDDEN: So the question is how it communicates from the AMR meter to the device.
Q. From the transponder to the house wires to the appliance?
A. MR. MASSIE: So overall how it works, more or less.
Q. Will it require radio frequency or can it be done through the transmission wires -- lines?
A. MR. MASSIE: Again, I don't know the exact answer on how it communicates from the meter to the transponder, but -- that is what you're looking to? I can undertake to get the information on the unit, is that --
Q. Thank you.

UNDERTAKING - TO ADVISE HOW THE LOAD CONTROL TRANSPONDER COMMUNICATES FROM THE METER TO THE TRANSPONDER

MS. SEARS: I believe it was an undertaking to figure out what makes the fingers move.
THE CHAIR: I've got that. Thank you very much.
Q. MS. MIDDLER: Does Yukon Electrical have any kind of policy around climate change?
A. MR. REDDEN: Yes, we do. As part of the ATCO group of companies, we're within that sustainability

reporting that we participate in. So the latest submission on that would be from 2012 summarizing the various initiatives in that regard.

Q. Initiatives around mitigating climate change? Greenhouse gas reductions?

A. MR. REDDEN: Around sustainability, so a whole list of various initiatives.

Q. Sustainability defined as?

A. MR. REDDEN: Conservation, the environment, you know.

Here we are presenting a demand side management plan as part of not just reducing costs to ratepayers but of being responsible for the environment and electricity usage.

MS. MIDDLER: Thank you.

DR. PINARD: Okay. Thank you. This is JP Pinard here again.

Q. Just to confirm what Ms. Middler had asked you, can the TWACS -- I guess is the acronym used for the AMR -- can they be used to control switch relays? And I guess you're referring to the transponders. So those particular AMR meters that you're proposing to use, can you use them to control appliances through these devices?

A. MR. MASSIE: Yes. So the TWACS technology, which is these AMR meters, they do have that ability. Now,

again, I'll preface it with the fact that these low control transponders are extra cost, for sure, to be able to be added on that we have not put in our economic model at this time.

Q. Okay. And the same meter -- just to clarify from an earlier question this morning -- the AMR can do time of use with the added modules or through those meters. You wouldn't have to take the meter out and replace it; is that correct? Would you still be able to keep the same AMR meter if you were to go to time of use down the line?

A. MR. MASSIE: No, I don't think we said that. The time-of-use ability of these meters we said were -- we could use them for load studies and for load profiling and information on our power system. They're not approved for revenue, so we can't -- they can't be used for time-of-use rates.

Q. Okay. Are you -- you mentioned this morning you were only aware of Ontario and I guess the NWT that are using AMR -- whether you're aware of time of use being used elsewhere in the country. Are you aware that there are other jurisdictions using time of use in Canada?

A. MR. GRATTAN: Sorry. Could you repeat the first part. You said Ontario and the NWT using time of use?

Q. DR. PINARD: Yes. Sorry, maybe I'm just strike that out and reword my question.

A. MR. GRATTAN: Thank you.

Q. Are you aware that in Ontario and Nova Scotia they are using time-of-use meters?

A. MR. MASSIE: I have no idea what happens in Nova Scotia, to tell you the truth, but I do believe time of use is in place in areas of Ontario, from my limited knowledge of it for sure.

Q. Okay. So that just relates to the question of you mentioned there's Canada regulations that -- around time-of-use metering with your units. Now, just to clarify that that is -- since there are meters being -- are in Canada that are being used for time of use, so that those standards are there and available for your use here in the territory.

A. MR. MASSIE: So, again --

Q. I'm sorry, I'm referring to Measurement Canada.

A. MR. MASSIE: Yeah. I would say, again, I definitely am not an expert on time-of-use applications across Canada. What I can say, from Measurement Canada and the time-of-use ability within these meters -- from my understanding, for the jurisdictions that do have time of use out there -- and again I'm not sure what they are -- they would just be a different technology than TWACS, than the technology we are putting in. So they have -- they would have a Measurement Canada-approved ability for time of use, that these meters that we are putting in do not have that Measurement Canada approval for time of use for the revenue

part of it. Does that help? Does that clear...

Q. That's fine, yeah, thank you.

Just moving to heating, you were speaking about heating, electric heating earlier. Can you tell us what you -- in your estimate how much electric heat is on the grid presently?

A. MR. MASSIE: Honestly, no.

Q. Can you --

A. MR. MASSIE: I have a percentage of the overall megawatt hours --

Q. Yeah.

A. MR. MASSIE: -- or the peaks of the loads. No, we don't have a clear idea, just for the fact that, you know, aside from the people that put in electric heat as their main source of heat in their houses, you know, all the little heaters that are plugged into every outlet -- we just -- we don't -- we can't see that.

Q. Okay. Are you aware of the Marbek study that was done for the residential and the commercial side, that they had come up with estimates for electric heating on the grid? And my estimate from that is about 10 percent of the total electric grid. That's what I understood from those reports.

MS. SEARS: I'm just going to interject at this point. We will have folks from Marbek, as well as --

DR. PINARD: Okay.

MS. SEARS: -- people from Yukon Electrical on that panel --

DR. PINARD: Okay.

MS. SEARS: -- if you want to save that question --

DR. PINARD: We can ask that --

MS. SEARS: -- for the DSM panel.

DR. PINARD: Yes, thank you.

Q. DR. PINARD: Okay. Just one last -- a couple of little questions about ETS, since that was mentioned earlier. Are you aware that there is actually a customer on your grid that has an ETS in their home?

A. MR. MASSIE: Yeah. Again, this is where we -- you know, we don't have vision inside customers' houses. We're not -- we're not sure what their -- who is using electric heat and who isn't, anyway.

Q. Okay. Anyway there is one customer I'm aware of, and they're using their ETS to recharge at night. So do you -- and would you be interested in investigating what they are doing and how? Because over time they are saving diesel because they only recharge at night. And would you be interested in looking at ways to compensate this particular customer if they -- if you found that they were actually saving diesel for the ratepayers?

A. MR. MASSIE: Are you asking me to adjust

rates for one customer?

Q. I think that list will grow.

So, yeah. Okay. I think that will conclude my questions. Thank you.

THE CHAIR: Ms. Middler, does your panel have any other questions?

MS. MIDDLER: No, thank you.

THE CHAIR: So before I let you go -- and thank you very much for your questions to the panel -- can we sort out how we're going to deal with this aids to cross? And I'm going to have to leave, I guess, that between yourself and Ms. Sears to kind of give me some guidance as to which ones we include or which ones we don't include, or do we include the whole package and how you want --

MS. SEARS: Or, Mr. Chairman, in my submission, we don't include the package.

My position on the documents is that, you know, they were put to the witnesses. It was quite clear that the witnesses weren't familiar with the documents.

There were questions about errors in some of the documents; and in my submission, it would be inappropriate to mark them as exhibits. I think there was discussions had on some of the issues that these interveners wish to raise, and I think the record will reflect those discussions. And in my submission, we would just leave it at

that.
THE CHAIR: So I guess the only one I would question, because I didn't -- the same view, subject to -- is the one from Liard First Nation.
MS. SEARS: Yeah, I wouldn't be opposed to marking that as the exhibit, and I suppose what we would do, it would my preference to mark the full submission from Liard First Nation. So I think we were provided with just a couple of pages of it.
Is that right, Ms. Middler?
MS. MIDDLER: It's the full submission --
MS. SEARS: Was in the electronic.
MS. MIDDLER: Yeah.
MS. SEARS: Yeah. So, in my view, we would mark the full submission from Liard First Nation which we received via email as the exhibit.
THE CHAIR: Okay. So just dealing with this one first, so then, by my record, this one would be Exhibit C-5-3, if I'm correct.
MS. HENRY: C-5-3, but I don't know that I have a complete document.
THE CHAIR: No, we'll have to get the complete record from YCS to include with the package.
Can you undertake to do that, Ms. Middler?
MS. MIDDLER: Yes.

THE CHAIR: You can provide it to the Board secretary so she has a whole document for the record.

EXHIBIT C-5-3 - FULL SUBMISSION FROM LIARD FIRST NATION

THE CHAIR: So I guess I didn't give you an opportunity to speak to Ms. Sears' requests to not include the other items as aids to cross and mark them as exhibits. Did you have a rebuttal, or did you want to respond to that before I make a ruling?

MR. JANIGAN: Mr. Chair, while they're conferring, can I confirm that Board staff's cross-examination will probably consume the rest of the afternoon, we won't start with DSM until tomorrow?

THE CHAIR: I'll let Ms. Bentivegna confirm that.

MS. BENTIVEGNA: I believe so, Mr. Chair. I mean, I think we have a couple of hours.

MR. JANIGAN: Okay. With your leave, Mr. Chair, I will tear myself away from these proceedings and come back tomorrow morning for DSM.

THE CHAIR: Okay. Well, thank you very much, Mr. Janigan.

MS. SEARS: I can't imagine why he would miss any portion of it, but...

THE CHAIR: I'm sure he'll read the

transcripts.

MS. SEARS: Of course, sir.

MS. MIDDLER: Well, I guess it's difficult to provide evidence when these are scientific papers, and how are we to, you know, just to bring up the experts, the authors, to defend them? So it's difficult for us to participate in that way, and also we -- you know, I guess can understand that there are a time and place for opportunities to discuss and to educate about things like climate change, methane emissions, how it's a bit of a moving target. How there's differences and opinions about global warming potentials and that impact to our climate and even the economic impact that that will have.

So I guess when it comes down to it, if it wasn't as per procedural stuff, then I guess that they are not going to be aids to cross but we yearn for an opportunity to provide a narrative somehow to the Board that doesn't require us to seek out academics from across the continent to defend this material.

THE CHAIR: Go ahead.

MS. SEARS: Just in response to that, a couple of points. I think what I was trying to convey is I think the record in the discussion will reflect the narrative that we're talking about. I think Mr. Redden has said on the record that there are studies going both ways, et cetera.

Now, I guess the next issue is: You know, apart from the issue of bringing up experts to speak to a bunch of different reports, you know, there was a time for filing of evidence. And to the extent that Dr. or Mr. Pinard who has, in my understanding, some expertise, he could have very well have put forward evidence and put forward various positions and his views on those things in evidence which would have provided an opportunity to gather some rebuttal evidence, et cetera.

And I think what I'm expressing is there is an aspect of procedural fairness here. I'm certainly not trying to suggest that it's easy to bring in experts from all kinds of places, but there is a process. And, in my submission, it would be unfair to put these studies on the record at this point.

THE CHAIR: So unless anybody else wants to speak to this, Mr. Maissan, did you want to speak to this issue?

MR. MAISSAN: Yes, I would like to. I guess I would like to express a concern that there is a body of evidence, much broader than we've heard today, that indicates that the information that we have from the applicant may not be as clearly as they portray it as is reality. And the difficulty is how do we get that to the public and to you to be properly reviewed? And I can understand the difficulties.

MS. SEARS: Mr. Maissan, you file it at the time for filing of intervener evidence. There is a clear procedural step when that occurs. It was set in the process schedule. Decisions were made for whatever reason on the part of interveners not to file evidence. My point is now is not the appropriate time to do so.

MR. MAISSAN: Thank you. I accept that, Mr. Chair.

I would wonder then -- I would like to hear your comments as to if there are third-party reports in future that I or any other party have, can we submit somebody else's report as our evidence to show that there are more opinions out there on a matter than is being brought forward in an application?

THE CHAIR: Well, I think the short answer is probably yes, but I'm going to turn it over to Ms. Bentivegna and she can respond to that on behalf of the Board because she has a lot more expertise than I do in that regard.

MR. MAISSAN: Thank you, Mr. Chairman.

MS. BENTIVEGNA: The thing is I don't think the Board can really say yes or no. It's up to the parties to decide what reports, what information they want to put forward. Now, how they want to support that information is, again, up to the parties.

Now, bringing forward a third-party report without the third party, then, yes, you can bring it forward, but it's been in other proceedings and, generally, what's happened is that then it goes to the weight of that report. If there's no one who did the report to explain how it was done, then it goes to what weight should the Board give it.

So it's not a question that you can't bring it forward; it's just then if it's relevant and you want to bring it forward, and then it's up to the party how they want to present it.

So those are -- the general parameters. Then, in each case the parties can argue whether it's relevant and whether it should be admitted as evidence.

So that's why it's difficult to give you a flat yes or no.

MS. MIDDLER: Thank you.

THE CHAIR: So I'm going to -- earlier on, Ms. Middler, I think you accepted that these would not be included as aids to cross. And, as Ms. Sears mentioned, you did get, you know, a lot of the information on the record in some form or another. So I will make a ruling that these will not be included as aids to cross for the purposes of this proceeding with the exception of the Liard First Nation letter.

MS. MIDDLER: Thank you, but I also encourage

you to read them.
THE CHAIR: Well, I have.
MS. MIDDLER: Thank you.
THE CHAIR: At least the three pages you sent me. Thank you very much.
DR. PINARD: Sorry, if I may then. In that case, can we just ask a few questions in regard to one of the studies that was submitted by YECL? I still have a few questions I'd like to ask about -- that's particular to the bi-fuel project. And I promise it won't take more than five minutes.
THE CHAIR: Certainly, since you were not finished your presentation, then go ahead. You can go ahead and do that.
DR. PINARD CROSS-EXAMINES THE WITNESS:
Q. In the YCS-YECL 2-1, the Attachment 1 was from the SENES study. And that would be page 12 of 18 in Attachment 1 of YCS-YECL 2-1. Are we there?
A. MR. REDDEN: On page 12?
Q. Page 12 of 18.
A. MR. REDDEN: I'm there.
Q. It's Figure 2.5. You can see that? Okay. Could you tell us where the bi-fuel plant sits in this figure? In which of these figures is the bi-fuel plant sitting in? You have these different speeds and different loads and different

proportions of natural gas to diesel.

A. MR. REDDEN: With respect to the different speeds shown there, our unit would be closest to the 1500 rpm machine. However, the performance from an emissions perspective are going to be dependent on the fuel mix at the particular time that we're looking at the unit and its dispatch load, its percentage of its rate of capacity, the ambient conditions, and the specifics around the fuel.

Those are not known at this time, so I can't speculate as to which numbers fit best where.

Q. Okay. Those graphs, they do show -- this is on burned hydrocarbon. So the question is -- and the hydrocarbon increases with the introduction like the proportion of methane, so that does beg the question: How much methane is in that hydrocarbon -- unburned hydrocarbon mix, and at what load?

What do these numbers, the -- like, for example, the first graph where you have the speed of 1500 rpm. Let's just look at that one, for example. Which load range would you be operating at in the four scenarios, and what proportion of methane is being emitted at different levels of methane -- or natural gas ratio to diesel?

A. MR. REDDEN: I mean, again to get into the combustion specifics around combustion temperatures, the specific emissions related to the unit that we are first

fitting with bi-fuel operation are very unit specific. So I can't speculate, sir.

Q. So would you be able to do a study around that about estimating methane output through the stack from this particular study?

A. MR. REDDEN: We're going to do everything that's required to make sure we're meeting all of the legislation and license requirements to operate the unit.

So, as we said earlier, that's still to be resolved with respect to what parameters are measured and which ones are modelled.

Q. Ultimately my question is -- sorry, go ahead.

A. MR. REDDEN: So that's when we'll know ultimately what we're able to do from a modeling perspective, what is going to be physically tested at site.

Q. So ultimately my question is: How many grams per kilowatt hour will be estimated to be produced up the stack at varying loads and methane ratio -- methane to diesel ratio? That's the number that we would like to see in your modeling. That's the grams per kilowatt hour of methane emitted through the stack. That's the unit that we would like to see as you're doing your modeling work.

So I guess that's a question. Will you provide the grams of methane per kilowatt hour of generation that is unburnt in the power generation process?

MS. SEARS: Well, sir, I'm going to interject again, and I'm sorry that I'm having to do this so often. It's just that there is another process where these very issues, these very issues are being decided and discussed. And in my submission, this isn't the forum to discuss, you know, the nature of the modeling and monitoring, given that it's a live issue elsewhere.

THE CHAIR: And I accept that view.

DR. PINARD: Okay. I'm done. Thank you.

THE CHAIR: So thank you very much for your participation.

And I'd suggest or recommend that we take our break now for 15 minutes and return, and the Yukon Utilities Board advisors will do their presentation -- or do their questioning. Thanks very much.

(ADJOURNMENT)

THE CHAIR: For to record, are there any preliminary matters?

MS. SEARS: No, sir.

THE CHAIR: Thank you.

So I'll turn it over to Yukon Utilities Board advisors to pose questions to the panel. So, Ms. Bentivegna, please proceed.

MS. BENTIVEGNA QUESTIONS THE PANEL:

Q. Just as you pointed to me my computer went blank, but

now it's back, so we're okay. Now, Mr. Grattan, just yesterday when you were in a discussion about line losses, and I can give you the transcript reference; it's Volume 2, page 210, lines 16 to 25. Now, you can refer to it, but my question is very simple. I just wanted to clarify, because it wasn't clear from your response.

My question is: Were you saying in that passage in that response that the percentage of line losses increases with load, or were you just talking about the load; if load increases, then the amount -- this was with Mr. Janigan because you were saying that the line losses have been flat rather than increasing, but in your experience would the relative line losses remain constant at approximately 6.2 percent, but the quantum in megawatt hours of line losses increases as the load grows?

A. MR. GRATTAN: So I'm just going to answer that. I'm not an engineer, although in my operational experience at Yukon Electrical, I did have the opportunity to work with engineers and something called IR squared. So is it's an engineering term, and it deals with line losses in load.

So to answer your immediate question, I was saying that if load goes up, all things being equal, your line loss will go up. I don't know whether...

Q. Right. But is that the percentage --

A. MR. GRATTAN: Percentage.

Q. -- or is that the --

A. MR. GRATTAN: Percentage.

Q. The percentage will go up? Are you certain? As opposed to the megawatt of losses.

Anybody else on the panel is welcome to jump up.

A. MR. MASSIE: I'm just trying to understand exactly what you're saying.

So in relation to if -- so if you have a powerline, any given chunk of powerline with a load going down and nothing else changes, but the load goes up; absolutely your line losses will increase with the amount of load due to those IR squared losses. Really, the loss on the line is directly contributed to the current that is flowing in that line. And the resistance of the line will stay the same. If nothing else changes in that powerline when you build it, nothing else -- that resistance will stay the same. If the load goes up your, 'I' squared 'R' losses will go up.

Q. Right. But if you're looking in terms of load and output, is the percentage of your line losses -- let's go from 6 percent, jump to 10 percent? That's what I'm trying to get at is just an understanding of whether the percentage will go up, not the amount.

A. MR. GRATTAN: So my understanding is the

percentages go to go up, but if I could just -- if we could talk to our engineer, who's in the room, we could confirm that real quick.

Q. All right. Okay. So, anyway, if you can confirm, I'd appreciate that. That's an undertaking?

A. MR. GRATTAN: Sure, yes.

MS. BENTIVEGNA: All right.

UNDERTAKING - TO ADVISE AS TO WHETHER THE RELATIVE LINE LOSSES REMAIN CONSTANT AT APPROXIMATELY 6.2 PERCENT BUT THE QUANTUM IN MEGAWATT HOURS OF LINE LOSSES INCREASES AS THE LOAD GROWS

Q. MS. BENTIVEGNA: Now, going to -- now switching. It's on the labour inflation forecast, and the reference I'm going to be referring to is application page 1-6 and 1-7 and YUB-YECL 17, the response to that.

A. MR. GRATTAN: Could you repeat the references? I was writing down my undertaking.

Q. Yeah. Oh, that's fine. Now, my question is: What was the basis for cutting YECL's labour inflation forecast down to 2.5 percent in 2015?

A. MR. REDDEN: Ms. Bentivegna, are you referring to 1-6 in the application of --

Q. I believe so. That's what my reference here says.

A. MR. REDDEN: The key assumptions for labour

inflation?

Q. Yes.

A. MR. REDDEN: So those in the application are shown as 3.5 percent for all three years of 2013, 2014, 2015.

Q. All right. My mistake, then. I had in the question here that -- then can we turn that around? And so what is the assumption for it being the same for the three years?

A. MR. REDDEN: So we have a collective agreement in place for the years 2000 to 2014 that that rate are set at, and then if I could refer to Watson Lake-YECL 4, response (a), it provides visibility into what we benchmarked against for what was available data for the year 2015 and for the companies, the four companies that we looked at there, utility companies were 4 percent, 3.5 percent, 3.5 percent, and 3 percent.

So we targeted that grouping as a relevant number for 2015.

Q. All right. Thank you. Now, staying on inflation rates, can I point you to LE-YECL 15. That response was dated August 8th.

A. MR. REDDEN: I've got that.

Q. All right. Now, in that response it states that the requested labour inflation rates for the following utilities, which for ATCO Electric 2011-2012 GTA, AE requested approval of labour inflation rates of 3.0 for each of 2011 and 2012

test years. AltaLink -- and there the requested labour and inflation rates were to 4.24 for salaries and wages and 4.50 for union, and 4 percent for non-union, and 3 percent for executives for each of 2011 and 2012 test years.

Then there's EPCOR, Fortis. And these -- I mean, I can read them all out --

A. MR. MASSIE: Hmm, hmm.

Q. -- but Northland Utilities -- but these were all requested. My question to you is: Are you aware if there's been approvals of any of these requested rates, and if they were approved at what rate were they approved.

A. MR. REDDEN: I can answer with respect to the Northland Utility Company's for -- the bottom of the page, Northland Utilities, Yellowknife, the collective agreement there through 2013, then, reflects those -- no, excuse me.

I'd have to provide an update for -- and just subject to check -- what the collective agreements for the two Northland utilities companies ended up because they did end up in separate test years -- or not test years, but collective bargaining agreed terms. So --

A. MR. GRATTAN: But those were the rates that were approved as part of the negotiated settlement in the two Northland proceedings. And --

Q. Right. That -- sorry, go ahead.

A. MR. GRATTAN: And ATCO Electric's 2011, 2012 GTA, the 3 percent was what was approved as part of ATCO Electric's 2011/2012 GTA.

Q. Do you have any information about any of the others or can you please undertake --

A. MR. GRATTAN: No, I don't have them off the top of my head. We can undertake to do that.

Q. That would be great. Thank you.

UNDERTAKING - SEE TEXT

Q. MS. BENTIVEGNA: Now, again, on the topic of inflation. In response to YUB 17(c), YECL provided the background information data it used to negotiate the 3.5 percent labour increase for 2013 and 2014.

A large part of the information or data provided relates to Alberta, and I wondered if you could explain how this is applicable or if it is applicable. Obviously if you're asking for it, you're suggesting it's applicable to the Yukon.

So if you can just explain what the basis of the thinking how, how it's applicable to the Yukon.

A. MR. REDDEN: Certainly. We've talked about the markets that we compete with for labour and the significant amount of work that's happening in other jurisdictions with respect to electrical infrastructure systems.

Even within the Alberta market, they've had to look to foreign sources for the sorts of skills necessary for construction and operations with respect to their electric systems, and that is a market that we obtain skilled labour from and some labour can go to, if that's more attractive.

There's certainly many opportunities, not just within Alberta, but many areas within North America. So we have to make sure that our compensation package, of which the labour inflation is one component of, we have to make sure that we're competitive.

Q. All right. With the exception of the data regarding Northland Utilities, who are the affiliates of ATCO Electric? The information that YECL submitted supports a labour inflation rate of 3 percent, as we've just been saying.

Further, YECL submitted that external company agreements, settlements in the north range from 2.25 to 2.5 percent increases in 2012 and 2.5 to 2.75 for 2013 for those where information was available.

Now, based on this information, and relating it also to my previous question, is 2.5 percent a better estimate of labour increases forecast in the test period?

A. MR. REDDEN: Well, I think when we talk about total compensation, that we've mentioned that those percent increases are one component. So the salary surveys, the compensation package work that Yukon Electrical does with

the assistance of its human resources group within ATCO Electric does those sorts of studies that gets insight into the whole compensation package.

So on that basis then, that was the basis for determining that a different rate than the ones that you were referring to in the 2.5 percent range were deemed to be the appropriate ones for Yukon Electrical.

Q. Who are the affiliates with ATCO Electric for which these numbers were provided?

A. MR. REDDEN: Can you point me to that reference, Ms. Bentivegna?

Q. I'm still referring to your labour inflation forecast. So YUB-YECL 17. So that's why -- I mean, I realize, you know, you refer to Northland Utilities, but I was wanting who the other affiliates are on which you based the -- I mean, YECL, of course, is one but who are the others on which these inflation rates are based?

A. MR. REDDEN: Yukon Electrical's affiliates, then, through ATCO Electric would be the Northland Utilities Yellowknife and Northland Utilities NWT within the north.

Q. Right. And within the broader -- not just the north, are there others?

A. MR. REDDEN: Other than ATCO Electric?

Q. Yes. Yes, that are affiliates of ATCO Electric and, therefore, within the YECL family, or is that all you've

based it on is the Northland Utilities and YECL?

A. MR. GRATTAN: I think we just need to take a step back here and make sure that we're all on the same page.

You had mentioned the -- you were looking for other affiliates upon which we based this decision -- this forecast decision on.

Q. Yes.

A. MR. GRATTAN: I believe you were referencing numbers of 2.25 to 2.5 percent for '12, and 2.25 to 2.75 for 2013?

Q. Exactly.

A. MR. GRATTAN: I think I found that reference in the interrogatory response. I think that's on page 5 of 6, the second paragraph. And if I'm to understand this correctly, this paragraph relates to external company agreement settlements.

So that does not relate to any of our affiliates, if I'm understanding this correctly.

Q. All right. So it's not -- so then those figures -- you say external then.

A. MR. GRATTAN: It says external company agreements.

Q. It says external company agreement settlements. External to who then? Now I'm confused. I don't know who you're comparing yourself to then.

A. MR. REDDEN: I can add to that. The external companies, then, are outside of ATCO Electric and the two Northland Utilities companies then, where the surveys that the human resources group is going after information from companies outside our group of companies. So Northern Utilities or major employers in the north would be some of those.

Q. All right. So that's basically a study that's done for YECL or ATCO Electric and limited to the north. Is that my understanding, of companies who operate in the north?

A. MR. REDDEN: So as part of the compensation studies by the human resources group, they'll look at Alberta companies as well as, then, look at what it is in the north for competitive rates.

Q. All right.

A. MR. REDDEN: And I see further down -- and we'll summarize the information in the undertaking, we do provide the reached collective agreement rates for the two Northland companies that are shown at 3.5 percent each year.

Q. All right. Thank you.

Now, moving on to income taxes. And I'm looking at your application page 10-1, Schedule 10.1.

A. MR. GRATTAN: One moment, please. I'm there.

Q. If you can look at the phrase -- I believe it's lines 5 to 9: (as read)

"Yukon Electrical continues to use the flow-through method in calculating the income tax expense. Under the flow-through method, Yukon Electrical calculates the income tax expenses based on taxable income which is minimized by claiming the maximum of all available deductions, including capital cost allowance.

Yukon Electrical does not book deferred taxes under this methodology."

Do you see that?

A. MR. GRATTAN: I do.

Q. My question is: In Schedule 10.1, line 14, which refers to the cost of capital allowance, that allowance exceeds the depreciation line -- the depreciation line 3 for the previous test years 2008 and 2009. And I wanted an explanation, if you can, of why the trend changes post 2009.

A. MR. GRATTAN: Off the top of my head, I'm not -- if I do know that, I don't remember, so I'll have to undertake to respond to that.

Q. All right, that's fair.

UNDERTAKING - IN SCHEDULE 10.1, LINE 14, THE COST OF CAPITAL ALLOWANCE, EXPLAIN WHY THE TREND CHANGES SO THAT

ALLOWANCE EXCEEDS THE DEPRECIATION LINE 3 FOR THE PREVIOUS TEST YEARS 2008 AND 2009

Q. MS. BENTIVEGNA: Now, a question on IFRS. And I'd refer you to the response to Watson Lake 7(b).

A. MR. GRATTAN: Just one moment, please. Okay, I'm there.

Q. And there's the statement there that: (as read)

"In 2011 all IFRS transition-related work was handled by the supervisor of financial services. As such, no incremental costs were incurred."

Now, my question is: What is YECL asking for in the test years -- sorry. YECL is asking in the test years to run and maintain the IFRS system. What amount is YECL asking for those -- for 2013, '14 and '15? And this is just to run and maintain the IFRS system.

A. MR. GRATTAN: Just I'll let -- to be as clear as possible, we're not really asking for anything to run the IFRS system per se.

We are asking to include in our revenue requirement the staffing that we've asked for. And we were asked the question: Well, how much time is that staff required to incur in order to address the requirements to do IFRS versus the requirements for regulatory? And we've

estimated that the staff involved with the accounting and financial aspects will spend approximately 5 percent of their time on that activity.

So we've just done the math and said: Okay. A manager and a supervisor and a corporate accountant, 5 percent of each of their time will go to maintaining these different sets of accounts, crunch the math, and those are the numbers that result.

Q. So then it just --

A. MR. GRATTAN: It's just part of the labour expense.

Q. Right.

A. MR. GRATTAN: Yeah.

Q. But it seemed that -- and correct me then, that is why I'm asking the question -- that it was more expensive to run and maintain the system than it was to implement it and test it. So that's why I'm asking the question if you can clarify. Is the understanding correct?

A. MR. GRATTAN: Yeah. So that intuitively sounds really strange.

This is one of those situations -- and the Commission Panel members are going to cover -- the Commission staff members from Alberta are going to cover their ears -- I'm joking.

But one of the benefits of ATCO -- being

affiliated with ATCO and ATCO Electric when it came to IFRS was that all of the huge amount of effort that went into setting everything up for IFRS for ATCO and Canadian Utilities and ATCO Electric and then, by default, Yukon Electrical was done at significantly higher levels. And it was pushed down to the subsidiaries, one of them being Yukon Electrical here in Whitehorse.

So Yukon Electrical did not have to incur any setup costs when it came to IFRS because it was all done at the group level. So that's why you don't see any tens of thousands or hundreds of thousands of dollars being incurred to transition to IFRS back in 2010 and 2011. But on a go-forward basis, you're stuck with the reality of maintaining two sets of books.

Does that make sense?

Q. I understand what you're saying.

A. MR. GRATTAN: Okay.

Q. Now, again, this could be a mistaken impression, but it appears that there's two levels of review for the IFRS system. There's a supervisor and a manager, and I'm wondering why you need two positions or two sets of reviews.

A. MR. GRATTAN: Well, they're both involved with IFRS, and they're both involved with all aspects of Yukon Electrical's accounting, financial reporting, regulatory matters. So they just do different -- they have

different tasks within the whole responsibility.

But the crux of the matter is, is that, for a number of years, Yukon Electrical tried to run with a -- just a supervisor handling all financial aspects of Yukon Electrical. And we came to the conclusion, as far back as, actually, 2011, that it just wasn't sustainable.

And what you have to appreciate is, is that we're, you know, close to a company of $200 million worth of assets that, not only -- and we're a subsidiary of a publicly traded company. So we have all of the reporting requirements of a publicly traded company. And rather than having a chief financial officer or a controller, a manager of this or a manager of that, we are trying to make a go of it with a .5 manager, as we've requested and set up in 2012, a supervisor and a corporate accountant.

So, yes, they are incurring a little bit of additional time as a result of IFRS, which we've attempted to quantify, 5 percent of their respective time. But we're actually very proud that we're able to survive all of this more or less with our sanities in tact with the relatively modest group of professionals that are involved with Yukon Electrical.

So to answer your question, are they all working, or is the supervisor and manager working on IFRS? The answer is yes. Is it approximately 5 percent? Yes, as

well.

Q. Now I want to take you to YUB 4. Again, it's related to the IFRS.

A. MR. GRATTAN: I'll just call it IFRS.

Q. Sure.

A. MR. GRATTAN: Fair enough.

Q. All right.

MS. SEARS: It differs with IFRS.

Q. MS. BENTIVEGNA: Ah, late in the afternoon; poetry in the air.

A. MR. GRATTAN: We're clearly getting punchy, including our lawyer.

Q. Have you got that YUB 4?

A. MR. GRATTAN: I do.

Q. All right. Now, you'll see there that there's a list of some of the financial statement treatment differences between IFRS and Canadian GAAP, and some of these differences relate to regulatory assets and liabilities, deferral accounts, capitalization and non-capitalization of costs, treatments of insurance proceeds, depreciation, accounting for income taxes, pension costs and other employment benefits, reserve for injuries and damage and rate case reserve.

Now, how are these different treatments handled by YECL in these different accounts?

A. MR. GRATTAN: So we maintain one set of books

for IFRS purposes, and we maintain a separate set of accounts to the deal with the various puts and takes associated with these differences.

So for lack of a better description, we would be recording regulatory assets on an ongoing basis for purposes of our regulatory accounts, and when it comes to IFRS, those accounts magically get zeroed out, and any differences are not recorded for purposes of our IFRS accounts.

Q. But is it done through one financial system?

A. MR. GRATTAN: Yes. Just additional accounts that we've got that relate to regulatory accounts that would not be counted, per se, for IFRS purposes.

Q. And are reconciliations also handled through the FIS system?

A. MR. GRATTAN: Reconciliations?

Q. Yes. Or is it some type of manual process?

A. MR. GRATTAN: Yeah. There would be Excel spreadsheets, as far as I'm aware, that would be utilized in order to make sure that we understand what's going on between our IFRS world and our regulatory world.

Q. I'll refer you again to page 7-2 of your application. And we're still on the topic of IFRS.

A. MR. GRATTAN: Just one moment, please.

So I'm in the Section 1, page 13?

Q. No.
A. MR. GRATTAN: 7-2 is -- oh, sorry.
Q. Yes, 7-2.
A. MR. GRATTAN: Oh, sorry. Okay. So we're in depreciation. I'm there.
Q. All right. And what I'm looking at is: (as read)

> "As indicated, the need for the deferral account treatment is to account for new information or events such as a technological change that occurs in a year where Yukon Electrical has not undertaken a full depreciation study. The intention of Yukon Electrical's proposal in this regard is, to the extent possible, permit Yukon Electrical to harmonize IFRS and regulatory accounting and avoid the administrative burden of keeping two sets of financial records."

Now, we've just talked about those two sets, one management system but different accounts or two different sets for two different purposes.

Now, can you describe what the administrative burden is if there is no harmonization? I just want a description?

A. MR. GRATTAN: Sure.

Q. If you can give us some detail of what you were referring to by that statement.

A. MR. GRATTAN: Well, this is a -- we talked about earlier, as part of this regulatory application, we did a depreciation study that has resulted in a number of the life parameters in various accounts changing. They have actually increased. So the depreciation rate is decreasing. So the depreciation expense is decreasing.

So we've come before this Board to have those depreciation parameters approved in 2013. And should those depreciation parameters be approved, that's what we would be recording for both IFRS purposes and regulatory purposes in 2013.

So then we come along in 2014 or 2015 -- let's talk 2015, and -- or end of 2014 and something goes on with regards to a technological change, such that, as part of your year-end audit of IFRS, we have to go before our auditors and they say, "Well, we need to make a change in the depreciation parameters in 2014 for IFRS purposes." And we talked about $100,000 as being a threshold level for that.

So for IFRS purposes, for financial reporting purposes, we would have to change the depreciation rate and book whatever the impact of that was for IFRS purposes.

At that minute in time, we have suddenly

created a situation where the depreciation rate is different for IFRS purposes in 2014 versus what was approved by this Board associated with this 2013, 2014, 15 GRA.

At that point, we are into having to record two sets of books for every asset that has a depreciation rate that is different from the legacy depreciation rates that were approved as part of this proceeding versus the depreciation rates that we have now been required to go with for IFRS purposes.

So the deferral that we're asking for, the ability -- and we think it's largely for regulatory efficiency -- is to be able to come before this Board and, just like we would as part of a normal depreciation study and say, "Listen, this is what happened in the IFRS world, here's what's changed with regard to technology, here's why the depreciation rate has changed."

We would seek to make that change in the regulatory world as well so that our depreciation rates remain consistent between the two regimes, for lack of a better word, and we march forward.

If we did not get that deferral, we would just be marching forward with regards to creating two sets of books for, say, 2014 and 2015 and forever going forward because once your depreciation is out, it's out, and we would come before the Board as part of the next regulatory

application and seek to update the depreciation rates which, at that point in time, would be in sync again with IFRS, at least for the one year that we had the regulatory proceeding.

So hopefully that -- it was a rather quick description but, hopefully, that gives you the gist of the matter.

Q. I'm still trying to understand what would the financial be if it wasn't -- I mean, we talked about, in the previous question, about how you have different accounts, but you have one information system, and then you take accounts in and out, depending whether you're reporting for IFRS or regulatory purposes. So I'm just trying to understand what the --

A. MR. GRATTAN: It's a time and efforts burden. It's a time and effort burden of the staff that would have to address yet another difference between IFRS and regulatory accounting.

Q. And has that burden difference been monetized or is there -- or just -- are you saying that the --

A. MR. GRATTAN: It's a conceptual -- it's a conceptual issue. It hasn't happened yet, obviously, that we've run into a situation where --

IFRS is relatively new, obviously, and we haven't yet run into a situation where we will -- we've had to change our depreciation parameters for financial reporting

purposes as compared to those that are used for regulatory purposes. But it's a conceptual issue that, although the time and effort that will go into -- and depreciation rates touch a lot of things on a regulated utility's books. So it will add complexity should this sequence of events come to pass.

Q. And can you give us an example of what you might consider or what has been considered as a sudden technological change or that would result in these changes that we've been talking about?

A. MR. GRATTAN: Sure. I'll give you -- we've had a large amount of discussion today with respect to natural gas, liquid natural gas in the territory, and you could find ourselves -- we could find ourselves in a situation at some point in the future where natural gas becomes the predominant fuel source in the territory as opposed to diesel.

So the diesel units that we've got in the territory, maybe they're not going to last another 25 years, at least from a useful purpose perspective. Maybe we'll be converting them out to natural gas at some point in the future.

So you could -- you could find yourself in a situation where you expect a diesel unit to last for 30 years or 25 years, but something happens in the territory with

regard to natural gas, and you find yourself in the situation where your depreciation needs to be faster because of the technological change.

Q. So you'd agree that that example is not exactly going to be a sudden technological change, or are you saying that it will be, you know, like -- you know, within the space of six months this will happen or could happen, I should say.

A. MR. GRATTAN: Yeah, for that one example, would it happen overnight, it's probably a fair comment that it isn't going to happen overnight. I'm just trying to think if anything else would happen overnight that might cause something more interesting to happen. Off the top of my head, I can't think of anything right now.

Q. All right, thank you.

Now, if I can take you to YUB 31, your response to that -- or anyone on the panel for that matter. I'm not just addressing questions to Mr. Grattan.

A. MR. GRATTAN: Thank you. Oh, dear, it's me.

Q. All right. Now, I'd refer you to the following statement: (as read)

"At the outset it should be noted that Yukon Electrical's request for an increase common equity ratio arises primarily from the recognition in other jurisdictions that similar increases

have been approved for other utilities which -- as Yukon Electrical have been compared or benchmarked against."

Now, can you confirm that what I've just read summarizes YECL's position with respect to equity thickness or debt-equity ratio. And I know you talked about it the other day, but I want to make sure that it's clear on the record that what YECL's position is with respect to equity thickness or debt-to-equity ratio.

A. MR. GRATTAN: Sure. As we stated in our application, as well as YUB-YECL 33, Yukon Electrical's request is based on the expert evidence it filed in the 2008-2009 GRA, that concluded Yukon Electrical's business risks are higher than those of the typical Canadian distribution utility and that the capital structure for Yukon Electrical should respect the stand-alone principle.

So at that point in time, in 2008, Yukon Electrical brought forth an application that was seeking the capital structure that we sought at that point in time.

Since 2008, and I don't propose to regurgitate what I discussed yesterday, there have been, what we believe, significant changes in the world around Yukon Electrical that very clearly show us that the common equity ratio that we are requesting all fit very well with regards to what Ms. McShane was putting forth before this Board in 2008-2009.

And I talked about the simple math, about the BCUC benchmark going from 35.01 percent up to 40 percent, and then we were going on the debate of whether it's dropped by 1.5 percent or gone up 3.5. Well, the record speaks for itself on that.

So our position is, is that the British Columbia Utilities Commission has increased its equity thickness for the generic utility by 3.5 percent. We've asked for an increase of 4 percent. And that 4 percent, in part, is based on what's happened in British Columbia, but also based, in part, with respect to what happened in the Northwest Territories with our sister companies where Northland Utilities, NWT, was awarded a 44 percent equity thickness and Northland Utilities, NUY, was awarded an equity thickness of 43.5. And that's been the case for those two utilities since 2008 through to 2013, this year.

So the math is relatively straightforward. The credit metrics that we've filed as part of this application, the financial credit metrics, are consistent with what the credit metrics were that were in place for the time that Northland Utilities were approved and the credit metrics that we've filed as part of this application.

And I'm just trying to find my reference. One moment, please. The credit metrics -- Yukon Electrical's

credit metrics -- and we detailed on Watson Lake-YECL 17(b) are consistent with the ratios calculated by the Northwest Territories Public Utilities Board when it approved common equity ratios of 43.5 and 44 percent for Northland Utilities, Yellowknife and -- and Utilities NWT respectively.

But I have to -- I have to stress that for credit metrics to mean anything at all, the stand-alone principle has to be respected. And as I mentioned yesterday, the British Columbia Utilities Commission in its 2000 -- recent 2013 decision, reiterated its -- re-affirmed the long history and importance of the stand-alone principle.

So that was a rather long answer to your question, but in its totality, that is the evidence that Yukon Electrical is relying upon for purposes of this application and our request to go from 40 percent equity thickness through to 44 percent equity thickness.

Q. All right, thank you. Now, moving on to working capital. I'm looking at Schedule 8.10 at line 26 of -- and I'll wait for you to get there.

A. MR. GRATTAN: I am there.

Q. And, now, it shows net depreciation -- a net depreciation of 5,126,000 for 2013, and that number is used to calculate depreciation working capital on line 28 of that same schedule.

A. MR. GRATTAN: Yes, I see that.

Q. Okay. Now, can you explain why that depreciation number is different than the total depreciation expense shown on line 4 of Schedule 7.1 for 2013?

A. MR. GRATTAN: Let me just -- maybe I will. I'll just take a look here. What was the other reference?

Q. It was Schedule 7.1, line 4.

A. MR. GRATTAN: Rather than me guessing, I'm just going to -- with respect to confirming what net depreciation on Schedule 8.10 is, I'll undertake to get you that answer. Is that okay?

Q. Well, if it's different. I mean, if you can explain what causes the difference.

A. MR. GRATTAN: Yes. Yes.

UNDERTAKING - TO CONFIRM WHAT NET DEPRECIATION IS ON SCHEDULE 8.10

Q. MS. BENTIVEGNA: Now, going to Watson Lake 18(b) which deals with the forecast cost of debt.

A. MR. GRATTAN: Just one moment, please.

MS. SEARS: Sorry, was that 18(e)?

Q. MS. BENTIVEGNA: Sorry. Actually, the reference I was looking for was the application -- in Schedule 8.3 of the application, the 2015 test period -- that relates to the 2015 test period. It's related to the forecast step, but it's not the WL IR that this question relates to.

So if you can look at the application Schedule

8.3. And I'm looking at line 69, and I can tell you that that line doesn't show any bond issues forecast for 2015.

A. MR. GRATTAN: Correct.

Q. And that's what I wanted you to confirm, that YECL, or CU on behalf of YECL, has not included or does not foresee any bond issues for 2015.

A. MR. GRATTAN: Sorry, Yukon Electrical, in order to maintain the capital structure of 44 percent equity in 2015, is not forecasting any long-term debt issues in 2015.

Q. All right, thank you. So can you also confirm that for 2015 the cost of debt has not been given any weight, or has not given any weight to the 2015 forecast debt costs?

A. MR. GRATTAN: That is correct.

Q. All right. Thank you.

A. MR. GRATTAN: I'm just wondering if I should say something here, but -- and I think I will. You're probably wondering, why did we put a forecast rate for 2015 in the application.

So the reason why that decision was put in there is, si so that it could be tested as part of this application, and should the Commission -- sorry, should the Board come back with a different capital structure and we do have to model debt in 2015, that we wouldn't have to rehash what the appropriate debt rate should be for 2015.

Q. All right. Thank you. Now, moving on to the defined benefit deferral account, I'm looking at your application page 1-5 and 1-6.

A. MR. GRATTAN: Just one moment, please.

Okay, I'm there.

Q. All right. Now, YECL submitted a criteria for determining the need for a deferral account, more specifically, the two following criteria were submitted. One was costs are not under the control of the company and are not reasonably forecastable, or an error in forecasting could produce a loss or gain of a substantial magnitude.

Now, can you relate that criteria to the requested defined benefit pension deferral account?

A. MR. GRATTAN: Sure, just one moment.

So what I'll start off with is the "not under the control of Yukon Electrical." And: (as read)

> "Actuarial evaluations are impacted by many factors including the performance of the investment held by the pension plan, inflation rate and changes in mortality rates. As a result, defined benefit contributions can fluctuate materially from year to year."

And if I take you to YEC-YECL 10(a), I'll let you pull that up.

Q. All right, go ahead.
A. MR. GRATTAN: You'll note that defined benefit contributions have varied between a low of zero and a high of 1,268,000 between the years 2006 and 2012. So we believe those are material fluctuations.
And the fact, as we see it, is that an error or an inaccurate forecast could produce a substantial gain for Yukon Electrical or a substantial loss for Yukon Electrical, and then vis-à-vis the same for ratepayers.
Q. And aside from the valuations, how are the current contributions calculated and would that be forecastable?
A. MR. GRATTAN: They're calculated by Mercer Canada who is responsible for preparing the annual pension plan actuarial valuation. And I am not an actuary, so I can't comment on the -- all of the variables that they include, but they are numerous, based on my understanding.
Q. And would the contributions both include current contributions and special payment to the defined pension benefits, and are you asking that both qualify for deferral treatment?
A. MR. GRATTAN: Yes and yes. And the reason why we're asking for both current service portion and special payment portion to be included in the deferral is because both of them fluctuate due to actuarial valuations.
And what I'm going to do is point you to

Watson Lake-YECL 12(f). I'll let you pull that up. And under the current -- the current service -- or sorry, current service payments, you're going to see that we've fluctuated between just over $500,000 up to $630,000, depending on which year it is.

Q. And are the differences just the -- I mean, how often is the pension reevaluated? Why are you these contributions fluctuating to this extent?

A. MR. GRATTAN: The contributions, as we've -- actually maybe what I should do is I'll find the interrogatory response. So just one moment. I'll take you to YEC-YECL 10.

Q. All right. We'll go there.

A. MR. GRATTAN: Specifically (a) and the -- in that response to that particular undertaking was that in 2010, the federal pension plan regulations -- new federal pension plan regulations came into effect or came into force. As a result, federally regulated pension plans, of which the pension plan is regulated, are now generally required to file updated actuarial valuations on an annual basis.

So because -- and there's a solvency ratio of 1.2 percent that has to be looked at on an annual basis and if your solvency ratio is less than 1.2 percent, you've got to do an actuarial valuation. You've got to hire Mercer every year to reevaluate how much you need to be putting into

your pension plan.

The solvency ratio for Plan 2 at this moment in time is significantly below 1.2. So we are currently expecting that Mercer, just as they did an updated actuarial valuation as of December 31st, 2012 for payments in 2013, they will do yet another actuarial valuation as of December 31st, 2013 for payments in 2014, and they will do another actuarial valuation as of December 31st, 2014 for payments in 2015.

So we are, unfortunately, into a cycle of having an actuarial valuation done as of year-end and then that will drive what will need to be contributed to the pension plan in the following year.

And as we're seeing in the information that we included in Watson Lake-YECL 12(f) as well as the updated actuarial valuation that we included and noted in the update, our numbers are bouncing around quite significantly due to the various actuarial assumptions that are going into these calculations on an annual basis.

Q. Now, if I can take you to the Watson Lake, I note that the current service payments fluctuate up and down and then there's the special payments that seemed to have increased. If I understood you correctly, you're asking that both be considered for deferral account treatment; that the difference under the current service doesn't seem to be great

from year to year. As I said, it goes down, and seems to go up -- down and up, but that the special payments have increased.

And are those special payments due the following year or is there any discretion as to when they are paid into the fund?

A. MR. GRATTAN: So I'll answer your first question.

So, yes, we are requesting the deferral to cover both the current service payment portion of pension payments as well as the special payment portion of pension payments.

As I previously mentioned, both components of the pension plan are varying by material amounts. As I mentioned, the current service payment has varied between $509,000 up to $630,000. So that's over a $100,000 change. And, quite honestly, I don't know what it's going to be on a go-forward basis. So that's the answer to your first question, I believe.

The second question is, when we are told that these are the payments we are to make in a particular calendar year, we are required by law to make those payments. There's no -- there's no choice.

Q. One more -- one further question on that. Although the numbers fluctuate, is it your position that you can't

forecast what the amount is likely to be?

A. MR. GRATTAN: Yes, that is our position.

Q. All right, thank you.

Now, as you're asking for approval of the -- of a deferral account for the pension -- for the defined pension, should there be an offsetting reduction in the return on equity if the Board approves the deferral account due to a reduction in risk -- in the risk that you would incur higher costs for the defined pension benefit plan?

A. MR. GRATTAN: I don't believe so, because the last time that we were before this Board, 2008-2009, we had an actuarial valuation in place that covered the years 2007, 2008, and 2009. So we knew at that point in time -- this was pre having to do an actuarial valuation every year -- it used to be on a three-year cycle.

So as part of the last regulatory proceeding, we had an actuarial valuation as of December 31st, 2006. And we knew how much we were going to have to contribute in 2007, 2008, and 2009. And 2008 and 2009 were the regulatory years before the Boards last time around.

So effectively, what we are saying as part of this application, is we're seeking to keep our risk in exactly the same place as it was last time around given the fact that we now are in a cycle of annual actuarial valuations where we're seeking a deferral to either collect

or refund amounts due to customers.

Q. And if you don't know this, I'll take it as an undertaking. Do you know as a further or as an update to IR YEC 5(d) where YECL responded that ATCO Electric Transmission and ATCO Pipelines were both requesting a deferral account treatment for both current contribution and special contribution payments. Do you know if they were approved deferral account treatment, or not, for ATCO Pipelines and ATCO Electric transmission, not distribution?

A. MR. GRATTAN: Sorry, what was the reference you were...?

Q. I was looking YEC to YECL 5(d).

A. MR. GRATTAN: I think it's YUB.

Q. It could well be, and maybe we noted -- let me just check that.

A. MR. GRATTAN: I'll let you check.

Q. Yes, it is. It's YUB 5(d).

A. MR. GRATTAN: So I can speak to the most recent ATCO Electric transmission GTA, and that was Decision 2013-358. And in that decision, the Commission stated that: (as read)

> **"Costs related to an updated actuarial defined pension plan valuation are outside the control of ATCO Electric and are, therefore, not able to be**

reasonably forecast and that forecasting differences could result in a material gain or loss."

And that's paragraph 99 of that decision.

They went on to state: (as read) "Results of the December 31st, 2012 actuarial valuation are to be provided to the Alberta Utilities Commission as part of ATCO Electric's compliance filing with that application, and that no final decision as of yet has occurred as to whether the requested deferral will be approved or not."

So it's still a pending situation, as far as -- as far as 2013-358 is.

With regards to -- with respect to ATCO Pipelines, subject to check, I do not believe that a decision has been rendered on their application as of -- as of yet.

Q. All right. Now, we're moving on to the allocation of affiliate costs. Now, the reference is to your application Schedule 5.2 and to the response in YUB 6. My first question relates to 6(e).

A. MR. GRATTAN: Just one moment, please.

Q. Sure.

A. MR. GRATTAN: I think once he dials it up, I

think Mr. Massie is going to be the lucky contestant on this one. Thank God.

Q. I assume that means you have it.

A. MR. MASSIE: We're not tired of your melancholy voice. YUB 6 --

Q. Yes. (e).

A. MR. MASSIE: (e). As in Edgar?

Q. Yes.

A. MR. MASSIE: Okay. I think I'm there.

Q. All right. Now, there's a statement that says: (as read)

> "YECL submitted that due to a review of YECL's fair share of costs based on usage needed to be increased to reflect what was actually taking place, in essence, Yukon Electrical was undercharged by ATCO Electric for this service in 2012."

Can you explain whether the total cost to provide this service is a fixed cost or a variable cost? And I'm talking about the shared cost of services.

A. MR. MASSIE: Sorry. Yes, I was just confirming.

So the contract that we have with ATCO Electric for the after-hours answering service, it is a fixed

cost.

Now, what we were speaking to about the review is we had entered into this contract a while ago, and either we had underestimated or the calls from customers and the usage of after-hours increased over a certain period of time that when they sat back and had a look at, really, their percentage of our calls, we were actually a whole lot higher than the rest of their call centre.

So that was the cost allocation was to figure out exactly what percentage we were taking up of the whole cost of the answering service, I guess.

A. MR. GRATTAN: So, yeah, they would have effectively done a cost causation study on their side to make sure that they were appropriately recovering an appropriate percentage of their costs from Yukon Electrical based on our usage of the service.

Q. All right. So this is now going forward, from what I understand you're saying, 2013, 2014, 2015, that the cost is fixed for this call -- this after-hours call service? Is that correct? For your share of --

A. MR. MASSIE: Yeah, yeah. I'm just trying to recall the length of the actual agreement, and I can't pull that out of my head. I think we might have answered it in another. Let me just have a quick look.

THE CHAIR: Maybe while there's a little

pause while Mr. Massie is looking for that document, I'm noting the time is close to where we had originally planned to cut off. But I'd like to propose, if there's no objections, that we continue on for another hour. Would that be...

MS. BENTIVEGNA: I believe I'll be done, Mr. Chair, by then.

THE CHAIR: Do we need to take a five-minute break?

A. MR. GRATTAN: I would appreciate that.

THE CHAIR: Yes. I think there are some people here, too. So maybe after this question we'll just take a quick five-minute break, and then we'll just reconvene really quickly.

A. MR. GRATTAN: Maybe if -- I think we can find the answer for this question, but if you just give us the five-minute break, we'll find it.

THE CHAIR: Okay. You may not get a chance to do what you need to.

A. MR. GRATTAN: We'll multi-task.

THE CHAIR: We'll take a five-minute break now and come back to it. So thanks.

(ADJOURNMENT)

THE CHAIR: Please be seated and we'll continue. I guess we had left off with Mr. Grattan to

respond to a question.

MS. BENTIVEGNA: Or Mr. Massie.

THE CHAIR: Or Mr. Massie, yes.

MS. SEARS: I was just going to interject at this point. We actually have a couple of answers to undertakings that Mr. Grattan is prepared to give orally perhaps before we proceed.

THE CHAIR: Sure. That would be wonderful.

MR. GRATTAN: Earlier I was asked why the depreciation wasn't matching between line 26 on Schedule 8.10 and line 4 on Schedule 7.1. And if I had been a little bit sharper, I would have remembered that the difference is due to amortization depreciation. That's why it says net depreciation. It's net of contributions, and the numbers are detailed on Schedule 1.1, lines 12 and line 13.

So I'll let the folks over there crunch the numbers, and I'll move on from there. Hopefully that number works.

And the other undertaking that was asked with regards to line losses that I spoke to yesterday, we did have a chance to double and triple check with our engineer with respect to line loss percentage increasing with load. And that is in fact what happens; line losses increase at a higher rate than load increases.

Q. Okay. Thank you.

A. MR. GRATTAN: So that hopefully knocks off those two undertakings.

Okay. Back to the after-hours call services. So just getting back into this, ATCO Electric did a -- probably the wrong word, but I'll use it anyway -- a cost causation review figuring what percentage that Yukon Electrical was causing of their calls in Alberta. And they have to do that for affiliate purposes, so that Yukon Electrical is getting charged a fair share of the cost that they're incurring down there.

So they did that review, and they determined that the rate that they were charging Yukon Electrical was insufficient, thus the increase that occurred.

So, we have used that latest and best information available to us and just trended it out for the years 2013, 2014, and 2015. But it is not -- do I know whether they're going to do another study at some point in the next year or two? I don't know. But for purposes of their internal making sure that we're charged a fair share, they may or may not. And the rate may go up, the rate may go down, but we're forecasting the $62,000 in '13 trending forward from there.

Q. And that --

A. MR. GRATTAN: Hopefully that -- I'll let you --

Q. All right.
A. MR. GRATTAN: Go ahead.
Q. Well, the thing is that I thought we were trying to -- over the break, trying to find out how long that agreement is for. So that's my first question.
A. MR. GRATTAN: So the agreement is part of the affiliate services that is detailed on UCG-YECL 21(g), Attachment 5. And if we go to page 6 of 21, of that agreement, you're going to see under 'N' for Nancy, outage call management and a description of the services provided by ATCO Electric to Yukon Electrical. I'll let you catch up there.
Q. All right. Page 6 of 21?
A. MR. GRATTAN: Yes, 6 of 21.
Q. All right. Yes, we're there.
A. MR. GRATTAN: That's a description of the services being provided by ATCO Electric to Yukon Electrical.
And then you were asking about whether -- how long this agreement is in place.
Q. Yes.
A. MR. GRATTAN: So I'd ask you to go just a couple more pages down to page 9 of 21. And it says: (as read)
"The term of the contract is in perpetuity with annual renewals subject

to each party giving a six-month notice to terminate. In the event that new amendments are required, an amendment agreement will be renegotiated three months prior to the effective date of the amending agreement."

So that goes back to my point that if they determine that we're using more of the service than we said we were going to, they're going to charge us more.

So hopefully that answers your question.

Q. So then YECL doesn't have any control as to -- or any look into, as to how much it's using of the service so that it can go back and negotiate with ATCO Electric to say, you know, "We're using less than you are"?

A. MR. MASSIE: Well, the last time we looked at the contract -- and granted, it comes from Electric and their call centre -- they gave us the printout of the calls answered, calls dropped, and how many calls that we were bringing in or that were originating from the Yukon. So they gave us the data.

Q. And how often do you get that kind -- I'm just concerned that if it's a fixed amount, then, you know, how do you know to negotiate an amendment to be charged less?

A. MR. MASSIE: So I know that we do get updates regularly, but how often and how we figure out the

costs after that I can't confirm at this time. So it would probably be best for me to undertake to find that for you.

Q. That would be great because my question is: How does YECL determine if the trend is now moving back and there's less cost to renegotiate the agreement for the following year or however long?

A. MR. MASSIE: Okay.

UNDERTAKING - WITH RESPECT TO THE CONTRACT WITH ATCO ELECTRIC IN RELATION TO THE AFTER-HOURS CALL CENTRE, TO ADVISE HOW OFTEN YECL RECEIVES UPDATES RE THE SERVICE AND HOW IT DETERMINES THE COSTS (SEE TEXT)

Q. MS. BENTIVEGNA: Moving on from the call service centre and the cost allocation, in YUB 6(g), YECL stated that the supervisor financial services position was relocated from Whitehorse to Edmonton, and if you can explain the details or the reasons for the need for the relocation, why it was relocated.

A. MR. GRATTAN: Sure. Can you just give me the reference again?

Q. Sure. It's YUB-YECL 6(g) like George.

A. MR. GRATTAN: So a story near and dear to my heart. So Yukon Electrical has had a supervisor financial service based in the Yukon since the early 1990s, of which I

was one of them.

My successors in the early 2000s were both -- one was recruited here in Whitehorse from a certain telephone company. Then the next person was recruited from southern Ontario, and the next person after that was recruited from Alberta. That person came up and did okay, but it was not a fit for him and, ultimately, that person decided to move on.

So at that point we were without a supervisor and no local source to tap on -- or could find anybody in our Alberta market to tap on the shoulder to head north to seek fame and fortune. So a decision was made to move the supervisor financial services to Edmonton, and the same supervisor that took the job after I had taken the job in the early 2002s, who is now living in Edmonton, has taken on the role. So we were very fortunate to draw upon the resources of that particular individual.

So long story short, we were unable to fill the position here. We have filled the position in Alberta based on that somewhat long and convoluted story.

Q. And can the position fulfill the same duties from Edmonton as they could if they were based in Whitehorse or is there any differences, the fact that they're located far away?

A. MR. GRATTAN: The simple answer is yes, you can make it work. We've been making that particular model

work with our Northland companies for many years where our financial people are based in Edmonton as opposed to Yellowknife and Hay River. And maybe I'll --

A. MR. MASSIE: No, absolutely. Even with that individual in Edmonton with the main floor, it works quite well, does the same job for us here, and actually has gotten a -- there's some key benefits for that person being in ATCO and on the floor with the rest of the regulatory group that is in with electric -- in amongst his peers, really can speak the accountant language, rather than being that lone person up here.

So, yes, they can do the same job.

Q. All right. And are there incremental costs that are being allocated to YECL by the fact that that person is now situated with ATCO Electric or on their premises?

A. MR. GRATTAN: So I would say no. The cost of the individual in Alberta has to be flowed through to Yukon Electrical based on the affiliate code, so that person's salary along with the affiliate's codes rates is charged to Yukon Electrical along with all other staff member who provide services to Yukon Electrical. It's at cost, it's in accordance with the code.

That person obviously doesn't -- is not based in Whitehorse. There were no costs with regards to moving that person up from Whitehorse. There's no training costs

with regards to that person in Whitehorse. There's no business systems, all the -- no office for the person in Whitehorse, et cetera.

So I would say it all -- the costs are coming from a different location, but I would not say that there's an incremental cost to Yukon Electrical as a result of the arrangement.

Q. So because -- yes, that's what I was getting at is are there, for example, is there an empty office here or personnel that would have worked with that person and, therefore, there's an increase in costs because now office space is being occupied in Edmonton and that --

A. MR. MASSIE: It didn't take long to fill the office here with the bodies we have for sure. For the office in Edmonton, I'm not really sure. Like, are you asking if there's an extra cost?

Q. Yes.

A. MR. GRATTAN: So the affiliate overhead rate accounts for all of that. So the person's computer, their share of office space, all of the training, it's all averaged out. So that is covered as part of the affiliate overhead rate for charges, not only to Yukon Electrical, but to all other ATCO Electric affiliates that utilize people that are employed by ATCO Electric. I just want to add one more thing.

While I'm very comfortable stating that there are no additional costs being incurred by Yukon Electrical, even if there were additional costs, there was nothing that we could do from the perspective of having the person -- not having a person based in Whitehorse.

You have to appreciate that the people that are involved with Yukon Electrical are involved with financial reporting, they're involved with accounting, they're involved with regulatory. Those types of people are not easily found. We don't use consultants, per se. And having that one person based in Whitehorse to be able to cover off all of that stuff is a very challenging task to be able to find that type of person.

Q. All right, thank you. Now, if I can refer you to YUB-YECL 20(b). I'm interested in the day-to-day responsibilities of the senior corporate communication advisor, if you can describe the duties of that position.

A. MR. MASSIE: I'll look that up.

A. MR. REDDEN: So the senior corporate communications advisor, main role there really with respect to public communications and messaging through print media, through radio, through our website, information regarding planned outages, energy-related issues, general knowledge that customers need, but specifically to when there are system situations, then that individual is the point person

for getting the information from our operations teams as to the situation, a point person for outside sources to go to for updates on critical information for public safety and outage information.

But there is also, you know, communications with our employees that are based in Whitehorse or in our communities as to corporate policies, safety, training initiatives, making sure that everyone is up to date on what's happening from Yukon Electrical's perspective, from the ATCO group of company's perspective, and that individual has responsibilities as well for the two Northland Utilities companies.

Q. What percentage would they have responsibilities to Northland Utilities? What percentage of their time or of that position?

A. MR. REDDEN: So that position has 40 percent of the time allocated to Northland Utilities.

Q. And is Northland Utilities paying 40 percent of costs, benefits for the position or how does that work?

A. MR. REDDEN: That's correct.

Q. Now, in response to -- and we're still talking about the senior corporate communication advisor -- YUB-YECL 22(d), it was -- YECL stated that previously, prior to the position being filled or being a full-time position now as you've explained it, it was filled by part-time contractors.

Now, can you provide -- if you don't have it, an undertaking would be fine -- the total cost spent on part-time contractors in 2008, 2009, and 2010, to fill these functions as you described them of the senior corporate communication advisor?

A. MR. REDDEN: I can certainly provide that for you, Ms. Bentivegna.

Q. Then if you can also provide the total cost of salary, benefits and pension for this position and, from what you've said, the portion anyway that YECL is responsible for.

A. MR. REDDEN: Ms. Bentivegna, I can certainly provide that information and if you wanted any background on why we made the switch, I could tell you that now.

Q. Because I was going to -- since you don't have the numbers, I can't really see, is it costing you more or is it costing you less? That was really the purpose of the question, and if it was -- if it's costing you more now, what was the benefit?

A. MR. REDDEN: The situation that we were looking for coverage from -- and previously to a contract position, we did have a permanent person in that role that left. So we looked at seeing if we could provide adequate coverage for those responsibilities through contract arrangement.

And honestly, we just could not get the smooth

coverage that we need on a basically full-time basis that we needed from a part-time contract position. So we have needs for information support 24 hours a day, 365 days a year and we have the consistency with one person that is dialed into the situation for Yukon Electrical and all of our communications requirements. So that's just been a much better way for us to go, and I'll certainly provide you with the cost comparison.

UNDERTAKING - PROVIDE THE TOTAL COST OF SALARY, BENEFITS AND PENSION FOR THIS POSITION FOR THE PORTION FOR WHICH YECL IS RESPONSIBLE (SEE TEXT)

Q. MS. BENTIVEGNA: Now, does the senior corporate communication advisor have any role with DSM? And I know the panel is tomorrow, but since we're talking about the position, I thought I could ask now.

A. MR. REDDEN: Certainly from the communications perspective, there has been a fair bit of work making arrangements then and letting individuals know, for example, when we were having consultation meetings. And there was a presentation -- a number of presentations that have been done. So all the arrangements with respect to that end involvement in getting the communications and the messaging out with respect to the development of the DSM plan have had support from that role.

Q. Is it foreseen that this person or this position would continue in providing that type of support if DSM were approved or implemented?

A. MR. REDDEN: Certainly to carry on with information and communications with the stakeholders, the public and parties that are involved in DSM, that that role would have a hand in getting the information in and out of Yukon Electrical.

Q. And would you have any idea how much of the time that person might spend or even based on your experience to date on those types of functions are related to DSM?

A. MR. REDDEN: Well, the individuals for -- that will be directly involved in DSM management will, of course, be dealing directly with all those aspects of DSM and then would be providing information to the corporate communications advisor as to, you know, what sort of information out through radio and newspaper and those sorts of communications.

I'm not sure what level as a percentage of time that that is going to require, but it will be perhaps an easier task with individuals dedicated to DSM and then an outline program saying here's what the steps and timing are with respect to implementing the various measures.

Q. All right, thank you. Now, if I can take you to YUB-YECL 22(i).

A. MR. MASSIE: I am there.

Q. YECL stated that due to work hold there were increased error rates and an increasing trend of vehicle incidents, and this is related to meter reading and meter readers.

What was the increase in workload? How many new meters were they reading? I'm just trying to get an understanding of what created the increased workload?

A. MR. MASSIE: Certainly. So I'm sure it would go back a few years because, really, we've had two meter reader positions within Yukon Electrical for some time, as long back as I can remember, to tell you the truth.

So these two meter readers were reading those -- well over 13,000 meters a month. And the increase was steady over from 2008, '9, '10. Before that, it just kept increasing and the workload kept increasing. And at first we used power line technicians and field service reps to fill in to help read all the meters. It just got to the point where they couldn't read all the meters in a given workday.

So that led to -- really they were rushing to get the job, and really what we looked at was increasing error rates in reading. They were moving at a fairly good speed. And then, really, that was what we found also with the vehicle incidents.

So as soon as we saw that, you know, these

individuals are racing to get -- just to try and keep up and get their work done and it was leading to safety issues. We really had to look at getting another person in or another meter reader position in to try and level out the workload a little bit better. And, really, that was what -- the reasoning behind adding the third meter reader.

Q. Would you have a statistics regarding error rates and number of vehicle incidents for 2009, '10, '11, '12 and '13?

A. MR. MASSIE: Yeah, we do have them. I can undertake to provide those for sure. We looked at them.

Q. That would be great. Thank you.

UNDERTAKING - PROVIDE STATISTICS REGARDING ERROR RATES AND NUMBER OF VEHICLE INCIDENTS FOR 2009, '10, '11, '12 AND '13

Q. MS. BENTIVEGNA: You just mentioned that the work -- it was difficult to complete the work for the meter readers during their regular work hours. Were there -- was there overtime that was done by the meter readers for those same years, and if you can provide an estimate -- well, not an estimate, if you have the statistics of how many hours of overtime these meter readers worked?

A. MR. MASSIE: We should be able to pull up the overtime hours that are charged to the meter reading account. But you know, as I think about it, they really

-- they worked some long days and had overtime to complete some routes, and then some routes they were unable to complete and they were estimated.

So rather than -- we wouldn't actually see that, but, absolutely, I can provide the overtime.

Q. That's great. Thank you.

UNDERTAKING - OVERTIME THAT WAS DONE BY THE METER READERS FOR 2009, '10, '11, '12 AND '13

Q. MS. BENTIVEGNA: Now, you mentioned that the field representatives and power line technicians helped out and now that there's an additional meter reader, they no longer -- I assume that they no longer have to help out. Can you confirm that?

A. MR. MASSIE: For those areas, the Whitehorse, Marsh Lake, Tagish and Carcross, yes.

We have power line technicians that travel up to, say, Carmacks and Old Crow. They do other work and they read the meters there while they're there.

Q. So since in the areas that they're no longer needed, are there offsetting savings if these positions may not either be working overtime or be doing that work?

A. MR. MASSIE: For the field service reps and power line?

Q. Yes.

A. MR. MASSIE: More that they're able to now focus on their responsibilities or their tasks. Like, a power line technician engaged in the high voltage system, rather than actually reading meters, they're actually doing what they should be doing with their skill set, I guess, for lack of a better term.

Q. All right.

A. MR. MASSIE: Sorry, just on the undertaking for overtime for meter readers, the years or the --

Q. It will be the same as for the error rates and vehicles. It's 2009 to 2013.

A. MR. MASSIE: Thank you.

Q. Now, in YECL's application on page 1-13, YECL stated that it would be reducing the number of meter reader positions from three to two midway through 2015 due to the implementation of the AMR meters.

Can you explain why would YECL need any meter readers if AMR was to be implemented?

A. MR. MASSIE: So we were looking at halfway through 2015 there?

Q. Yes.

A. MR. MASSIE: Is that correct?

Q. Yes.

A. MR. MASSIE: So, really, by the time we went halfway through 2015, AMR wouldn't be fully implemented so we

figured we'd have a stepped decrease in meter readers at that point. The other -- a second meter reader would stay on for the remainder of 2015, basically for a year, and then we'd reduce down to one position come 2016. So we would reduce another meter reader position in 2016 after AMR was fully implemented and up and running.

The third meter reader we were going to evaluate, really, the effectiveness of having them read the rest of our service areas. So the Carmacks, Ross River, Pelly and Stewart Crossing areas, as well as Old Crow.

Q. Because they're not connected to the system, they're not on the wires; am I correct?

A. MR. MASSIE: Yeah, that's absolutely -- they're -- yeah, the AMR system is only connected into these communities because it's served by our 35 kV distribution system.

So, yeah, the isolated communities would not. We'd still need to manually read the meters there.

Q. Now, with regards to capital spending and the levels of capital spending and the position needed to -- sorry, I'm just -- needed to manage the assets.

Now, YECL submits that the capital spending amounts are higher since 2011 than historically experienced. Now, if the level of capital spending declines, will the FTE complement decrease by one in the next application if it's

been managed, 2011 to date, without an additional FTE? Can it be expected that there will also be a decrease once there's a decrease in this high level of capital spending?

A. MR. MASSIE: So I think I would start by saying that absolutely we have added a number of positions to answer this capital program that we've embarked on here for the test years.

So we definitely added the positions for -- as a response to this upcoming capital spending. So I would say that down the road if -- for outside the forecast years, if capital spending was to significantly drop, let's say, we would do what we normally do and that really is to evaluate and have a look at our complement and our organization on a yearly basis to ensure that we're matched to the workload and the system. And we really want to ensure that we're going to be reasonable and prudent.

And I can say this has been done in the past. I can say that we have reduced the complement in the past to -- I recall two power line technicians actually being transferred to Alberta, not that they wanted to be, and that was really to match the workload or the lull at that time.

So, absolutely, I think in answer, we would be looking at our complement and matching it to whatever the business need was, both in operating and capital.

Q. Do you have any description or any explanation of how

the work was managed from 2011 'til now seeing that the increase appears to have been from 2011 and that it's similar to the test years or is going to be similar to the test years?

A. MR. MASSIE: Do you have a schedule or anything?

Q. Sure. I can refer you to YUB-YECL 22(f) where YECL -- I'll let you get there -- but basically I'm looking at the reasons for the addition of the financial analyst position, and it refers to 2011.

A. MR. MASSIE: Sorry, just to reiterate the question, I'm --

Q. Sure. Well, I noticed in that response, in 22(f), that YECL stated that in 2011, capital spending increased substantially over prior years and that the annual forecast of capital spending for each year from 2012 to 2015 is similarly higher.

I assume from that that it's like or similar to 2011 capital spending. And if that was -- that previously had been less, my question is how did YECL handle in 2011 and 2012 this historical high in the increased capital spending?

A. MR. MASSIE: So on Schedule 9.1, I think what really we were referring to was, as we'll see -- sorry, are you there or -- I can wait a second.

And I refer you to line 31 is really what I'm

looking at of Schedule 9.1.

Q. All right. We're there.

A. MR. MASSIE: So in 2010, what we were speaking to specifically there was in 2010 we had total capital expenditures of 9,388,000, and then in the next year, the big increase that we alluded to there in (f) was to 14,938,000.

So the big jump and then, as you'll see, it goes along. Of course, it stayed very similar in '12 and then jumps up for the test years.

So in answer to how we managed and, really, I hate to jump around, but on page 1-8 of our application where we itemized each of the positions that we have added over -- since the 2009 approved complement, in 2011 we added the financial analyst at that point. And, really, that was in answer to -- really, we needed -- with increased capital spending and increased projects we had, all these economic models that we provided with our business cases for the AMR, levelized cost of energy models for Fish Lake, those, we know, needed to be done. So we needed that -- that position to help us try to analyze all these projects for us on -- from a financial and a business end of things, I guess.

So in 2011, you'll see we added three positions there, and then in 2012 -- again I'm referring to page 1-8 -- we added another six positions and, really, that

was -- out of those six positions, four of them are directly attributable to capital projects.

So in answer to your question, I guess how we managed with the workload was try to add some bodies and keep ahead of the workload and keep our head above water, I guess.

Q. So just to confirm you've added five positions to deal with the workload, one in 2011, and then four out of those six in 2012. Did I understand you correctly?

A. MR. MASSIE: Absolutely, one in 2011, the financial analyst, and then in 2012, and that would be the planning supervisor, the construction lead, the engineering tech 1 civil, and the engineering assistant.

Q. And are these positions -- are their duties and responsibilities similar to the accounting positions, or are these apart from any accounting positions?

A. MR. MASSIE: So we're talking specifically the financial analyst. Is that --

Q. Yes.

A. MR. MASSIE: Because really the rest of the positions are capital and more, if you look at them, field-based and customer-based positions, but the financial analyst absolutely is -- has to have an accounting background to give us that financial and business and the economic analysis we need, and not just on the capital end of things.

That position also works within the operating

budgets to do reporting on that side also. So it does have an accounting asset I guess to it.

Q. Is there like an overlap with what your accounting people do and what the financial analyst does or do they still overlap?

A. MR. MASSIE: I wouldn't say they overlap, but they definitely work together. The financial analyst is based here in Whitehorse, and they definitely, I guess, work in tandem at times to pass the financial information back and forth.

Q. Now, in 22(h) YECL stated that the role of the planning supervisor used to be done by the supervising engineer. Am I correct in that?

A. MR. MASSIE: Yes.

Q. If you can provide some details on how the supervising engineer's role has changed since the restructuring in the engineering department or has it changed?

A. MR. MASSIE: The role -- overall the role hasn't changed. The supervising engineer is the department head, so they do have all the responsibilities that a leader of a department has on a regular basis. But also as our only professional engineer on staff, they have to sign off on all of the information that is needed to sign off. And I kind of struggle there because I'm not really sure what that is, to tell you the truth. I just know that we need an electrical

engineer to ensure that we have to -- we can carry on how we do.

So the role overall really hasn't changed except for to offload the workload of that supervising engineer a bit and get this planning supervisor more focussed on the distribution and generation system improvements. It was focusing on that because, as you'll see in our capital plan, there is a fair amount of both distribution and generation improvements that we have planned in the -- that we have done and we have planned in the test years.

Q. All right, thank you. Now, in 22(n) -- YUB-YECL 22(n), YECL provided the hourly rates for the engineering tech 1 civil. What -- again, I'm going to ask you what the total cost was when the work of the engineering tech was previously done by contractors. Would you have that, and if not, if you can provide that?

A. MR. MASSIE: I just see that -- and I know we provided in the Watson Lake-YECL 5(j), Attachment 1, up above it was the comparable or the contractors that we used to previously complete this work.

It's just going to be a little bit tough to gather it all together on exactly what they were doing compared to what the engineering tech civil 1 is focused on.

Q. Can you provide any insight if there is an additional benefit to bringing the position or creating the position

rather than using contract expertise?

A. MR. MASSIE: Sorry, we were just conferring. So I think we can provide you some information based on the attachment -- Watson Lake 5 attachment, and the hourly rates for those contractors. We can roll up by contractor those rates on an annual basis.

Q. That's fine, thank you. And 2009 to 2013 I think would be a good -- well, or until the position was created or filled.

A. MR. MASSIE: Sure thing.

UNDERTAKING - TO PROVIDE THE HOURLY RATES FOR THE CONTRACTORS REFERRED TO IN THE WATSON LAKE-YECL 5 ATTACHMENT FROM 2009 UNTIL THE ENGINEERING TECH 1 POSITION WAS CREATED OR FILLED (MOVE THIS UP BEFORE THE UNDERTAKING)

THE CHAIR: Ms. Bentivegna, I'm just conscious, we're about two minutes to six or one minute to six, and I'm just trying to the sort of assess what we should be doing here, whether -- I'm conscious of the need to finish this portion as well so that we can go on to the DSM, but I also see people yawning. So I'm just wondering how to address that at this stage. So I don't know.

MS. BENTIVEGNA: I could just speak louder but...

THE CHAIR: I don't want to rush you because I want to make sure you get through the questions.

MS. BENTIVEGNA: I just want to see how many questions I have left because I have to scroll.

MS. SEARS: Also for the record, I have not yawned once, sir.

THE CHAIR: I have never spotted you doing that. I have spotted people on the Board yawning, including myself.

MS. BENTIVEGNA: I've got another 20 minutes on FTEs and then maybe half an hour to an hour on capital costs. So I would suggest if -- I mean, I can go on, but it depends on --

THE CHAIR: Well, I'm just trying to -- and I'll actually open it to the floor for discussion. I'm wondering if people -- if we can go on another half hour here and see where we can get on the O&M and maybe start tomorrow at 8 o'clock? Is that going to be a problem?

Because the court reporters and the person doing the recording as well, you know, it's tiresome on them as well. So we have to be aware of conscious of their limitations because I know the court reporters' job isn't finish when we leave the room.

So I'm just thinking would it be reasonable to try to go another half hour and then maybe start an hour

earlier tomorrow? Unfortunately that would mean the panel would have to come back but that's fine. Is that something that would be acceptable to everybody?

MS. SEARS: I think that's certainly acceptable to us, sir. They're all still around, and you might see me yawning in the morning though because I'm just hitting my peak right now, sir.

THE CHAIR: We can keep going if you want.

MS. SEARS: No, no, that's not what I'm suggesting.

THE CHAIR: Mr. Maissan...?

MR. MAISSAN: Mr. Chair, I have a commitment at seven, so limiting the time from now to a half hour would be convenient for me.

THE CHAIR: Okay.

MR. MAISSAN: Eight o'clock in the morning is fine with me, but I would note that there are a number of parties, including Mr. Janigan and the Yukon Conservation Society, who have already left the proceeding, and they would have to be informed of the decision to start at eight tomorrow.

THE CHAIR: I'm not sure, I think Mr. Janigan is staying at this hotel so we can probably get a hold of him. I would have no idea of how we'd get a hold of YCS.

MR. MAISSAN: I have phone numbers for Ms. Wright and Dr. Pinard but not for Ms. Middler.

THE CHAIR: Would you mind taking it on and just phoning -- JP can probably get a hold of Ms. Middler.

MR. MAISSAN: I would expect so. Yes, I would be prepared to call them and pass the message on.

THE CHAIR: And somehow we'll make sure that we get that message to Mr. Janigan.

MS. BENTIVEGNA: Also the City of Whitehorse as well.

THE CHAIR: They're there.

MS. BENTIVEGNA: My apologies.

MS. SEARS: It's the yawner in the back.

THE CHAIR: No, no. She had her head right down on her computer, but I know she was looking at it to make sure.

That sounds like a reasonable interim -- or solution for now, so we'll proceed for, again, another half hour and then we'll definitely quit at 6:30 and we'll start again tomorrow morning at eight. I should just check with the court reporters and the recorder. That works for you?

Okay, proceed. Sorry.

MS. BENTIVEGNA: Sorry, Mr. Chair. My computer went off so I am just logging back in. All right, not to hold things up, I'll read from this computer.

Q. Now, I understand there was a position of engineering training prior to that position being vacated. And I was wondering if you can explain if there would be any overlap or any difference in roles if you were to hire another engineer in training and those of the engineering tech, the engineering assistant or the planning supervisor?

A. MR. MASSIE: Is there any overlap in the responsibilities or the work task; is that --

Q. Yes, yes, between what an engineer in training does and those other positions.

A. MR. MASSIE: No, there's no overlap. They all have their specific job tasks, I guess, and so there wouldn't be any overlap in between those positions.

Q. Thank you. Now, in the application on page 1-11, YECL stated that an additional customer service advisor is required since a number of customers served has increased from 11,000 to 17,000.

Can you tell us when YECL had approximately 11,000 customers and how gradual that increase has been to 17,000?

A. MR. MASSIE: Just give me one moment. No, actually I can't. I know we wrote it up, and just to define exactly when -- how long we had been working with the same complement of customer service advisors in our office, it was back to 11,000, but I cannot pull up the actual date or the

year.

Q. Can you give me an undertaking -- as I said, I'm interested in the time period, like when it was around 11,000, how many complements you had and what the increase has been since that time to now reach 17,000, and if and when positions were added of customer service advisor.

A. MR. MASSIE: So how many customer service advisors we had when we had 11,000 employees.

Q. Exactly, and sort of what the time period was when you added the customer service advisor. So I would assume that it was somewhere between the 11,000 and 17,000, but I don't know.

A. MR. MASSIE: Sorry, I just thought I had that reference here a minute ago. Give us a moment.

No, I don't. Sorry, I will have to undertake that.

Q. All right.

UNDERTAKING - ADVISE AS TO HOW MANY CUSTOMER SERVICE ADVISORS YECL HAD WHEN IT HAD 11,000 EMPLOYEES, AND WHAT THE TIME PERIOD WAS WHEN YECL ADDED THE CUSTOMER SERVICE ADVISOR

Q. MS. BENTIVEGNA: Now, again, with regards to the customer service advisor's position, do you have any statistics on how many calls these persons handled in 2009,

'10, and '11 and then 2012 as well? I mean, does YECL have those type of statistics?

A. MR. MASSIE: So we wouldn't have statistics on the number of customer calls. They really aren't logged day to day, but we would be able to provide the customer interactions that result in a work request of some sort rather than a customer just phoning in and chatting for a moment or two. We could -- the ones that phone in and ask for a disconnect or that they're moving or they need an account update, that kind of information we do have.

Q. That's fine.

UNDERTAKING - WITH REGARDS TO THE CUSTOMER SERVICE ADVISOR'S POSITION, TO ADVISE AS TO THE NUMBER OF CUSTOMER INTERACTIONS THAT RESULT IN A WORK REQUEST OF SOME SORT IN 2009, '10, AND '11 AND 2012

Q. MS. BENTIVEGNA: Again in your application, YECL submitted that the engineering assistants are the project leads that work with customers on project design, acquire proper permits, create material lists and ensure initial project is properly closed out.

Now, is this job description similar to that of a customer service representative as it was described in YUB-YECL 22(b)? And if it is, or if it's not, if you can

describe either the similarities or the overlap or that there's no overlap.

A. MR. MASSIE: Sure, I would apologize if there was anything that was similar in the write-ups because there really shouldn't be.

Between the two positions they are quite different. So the customer service advisors, they are our front-line folks at our downtown office. They answer the calls when people are phoning in, "I want an account inquiry," see where their bills are at, see how much their usage is, they're moving, things like that. They're at the downtown office, the customer service advisors.

The engineering assistant really is concentrated more on new extensions, new customers, customers that come in and need to be hooked up to the distribution system. So they're the ones that will work with the customers, work with to design their project to get them hooked up into the system. They're two-pole tabs, get their projects squared away for them, ensure we're on side with the terms and conditions in our contribution or our company investment compared to theirs, and ensure that the project gets put together into a design and put together into a package to hand off to the construction department to go build. That's what the engineering assistants do.

Q. I think what I was referring to was the customer service

representative that you don't have today, from my understanding, that's planned for 2014 and it was those two positions. And I'm sorry if I misspoke and said advisor.

A. MR. MASSIE: That could have been me. That definitely could have been me.

Q. Is there any overlap in those -- that proposed customer service representative and the way it's described and the other position? Well, what I'm referring to is the engineering assistant.

A. MR. MASSIE: So, really, they'll definitely be working in tandem, the customer service rep and the engineering assistants. Really, what the goal of the customer service rep was is to give new customers, customers that are coming in to get hooked up to the system, need a project design, to give them a single point of contact from start to finish through the organization.

Right now, as I was explaining with the engineering assistants, we have three engineering assistants, and they'll work with a customer to design their project, ensure that they have the package together and then that package heads off to the next -- to the warehouse department, pull materials from there to the construction department.

So that customer ends up bouncing through a few of the departments. And there's no real lead, I guess, through there. So what we've been hearing with feedback from

customers -- because with every one of those new extension projects, we put a customer comment card in every single one of them to see basically how we're doing, and we've seen -- the common theme was that there was a lot of confusion for customers if they come in, they have to guide -- they basically have to guide their own project through Yukon Electrical, is what we were hearing for some of it.

So this CSR really was to be that point person for the customer, take their information, ensure it goes to the engineering assistants for design. It goes to the warehouse to get material, it goes to the construction department, terms and conditions are made, their account is set up with the billing department downtown, and when the lights go on, everything is to run. That was -- that's the main reason for the push for that CSR position.

Q. But YECL does have a tracking system? I mean, when these things come in, when they get put through different departments. Or am I mistaken? I mean, without this position, it just doesn't happen.

A. MR. MASSIE: No.

Q. Or do things fall through the cracks, I guess is my question.

A. MR. MASSIE: That's unfortunately exactly one of the things that does occasionally happen. I wouldn't say we have a lock tight tracking system from start to

finish.

Again, the customer engages multiple employees across multiple departments. So if there's confusion of who's contacting who, that was one big issue, if we think we're waiting on the customer, the customer thinks they're waiting on us. And there's just that disconnect there. So we found that -- we just didn't think that it was being run -- what was happening was being as efficient and or providing, you know, the customer service -- the level of customer service that we really should be providing customers.

Q. All right, thank you. Now, in 22(m), at YUB-YECL 22(m) YECL stated that the construction lead took over the responsibilities of the former construction coordinator. Now, can you explain whether most of the work currently being done by the construction lead was previously done by the construction coordinator?

A. MR. MASSIE: The majority of the responsibilities that the construction lead is responsible for now did -- did rest with the coordinator of construction materials management.

So, again, in with -- as we looked at our forecasts and our coming capital plans, we re-organized the construction department to better pull off the construction of these capital projects, really, is what it was. So that

the coordinator of construction materials, they became the construction supervisor and, really, the head of the department. So he was the head of the department now that, really, with all those responsibilities of a department lead.

The construction lead really was going to or is our point person for coordinating all our contractors. So within that construction department also is our internal line crews or our internal line crews that pull off all -- like, build all our projects. The construction lead is -- coordinates all of the contractors involved in building our distribution system.

So, powerline contractors, as well as civil contractors, to dig in our underground.

Q. I didn't quite follow all that. So is the construction lead more senior, a senior role than the construction coordinator role?

A. MR. MASSIE: No. Basically the coordinator became the construction supervisor. They are a department head.

Q. Okay.

A. MR. MASSIE: So they are a supervisor or management. Construction lead reports to the construction supervisor. So if you see in our org chart in Section 1, construction lead and the team leads of the line crews all report to the construction supervisor, and that supervisor

position is a management position.

Q. All right. And the construction coordinator reports to who?

A. MR. MASSIE: Basically, yeah, they morphed. It was just a change of title.

Q. Oh, I see.

A. MR. MASSIE: Yeah, sorry. Sorry I wasn't on that.

Q. All right.

A. MR. MASSIE: It's a little late. We also have the materials management group in there, so the warehouse and the stock keeper report to the construction supervisor.

Q. All right. Now, in YUB-YECL 22(u), it uses the title of "DSM Administrator" -- sorry, uses the title of "DSM Administrator," while in the application, YECL uses the title of "DSM Coordinator."

And I was just wondering, is that the same role or the same position that's being referred to? And rather than waiting for tomorrow, it's just that we're in that response.

A. MR. REDDEN: Oh, sur. The correct title for that position is the DSM coordinator.

Q. All right. And we're talking the same position or same --

A. MR. REDDEN: That's correct.

Q. All right. Thank you.

MS. BENTIVEGNA: Mr. Chair, this is a good place to stop. I have a few more questions on O&M for capital, but...

THE CHAIR: All right. I'll defer to you, so that's fine.

We'll adjourn until tomorrow at 8 a.m.

(Proceedings adjourned at 6:21 p.m.)

PROCEEDINGS ADJOURNED TO NOVEMBER 7, 2013 AT 8:00 A.M.

Certificate of Transcript

We, the undersigned, hereby certify that the foregoing pages 373 to 593 are a complete and accurate transcript of the proceedings taken down by us in shorthand and transcribed from our shorthand notes to the best of our skill and ability.

Dated at the City of Whitehorse, Yukon, on November 6, 2013.

"A. Jones"

A. Jones, CSR(A)

Official Court Reporter

"S.J. Lea Dormer"

S.J. Lea Dormer, CSR(A)

- I N D E X -

VOLUME 3

J. MASSIE, J. GRATTAN, D. REDDEN, K. KOENIG

(For YECL)

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