New Brunswick Board of Commissioners of Public Utilities

Hearing

In the Matter of an application by New Brunswick Power Corporation dated June 21, 2002 in connection with an Open Access Transmission Tariff

Delta Hotel, Saint John, N.B.
January 6th, 2003 10:00 a.m.

CHAIRMAN: David C. Nicholson, Q.C.

COMMISSIONERS: J. Cowan-McGuigan
Ken F. Sollows
Robert Richardson
Leon C. Bremner

BOARD COUNSEL: Peter MacNutt, Q.C.

BOARD SECRETARY: Lorraine Légère

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CHAIRMAN: Good morning, ladies and gentlemen. I hope that everybody had a good holiday season. Welcome back to the garbage dump of Canada weatherwise. More than interesting.

Before we begin this morning, are there any preliminary matters? Mr. Hashey?

MR. HASHEY: Mr. Chairman, I have five answers to undertakings. But before I get into those, I don't believe there has been any request --

(Technical difficulties)

CHAIRMAN: We will start again.

MR. HASHEY: Start again? Thank you.

CHAIRMAN: Go ahead, Mr. Hashey, yes.

MR. HASHEY: We provided a number of documents at the end of the last day of hearing. And we checked with Mr. Smellie to see if he wished to recall Panel C. And he did not.

Now there may be others that may have a question or so. We have some of the members here from Panel C if that is an issue. I don't know where that was left with the Board or we can bring them back at convenience.

Obviously we are set up for the JDI presentation this morning.

CHAIRMAN: Just go around the room, Mr. Hashey, on that basis then.

You have heard what Mr. Hashey had to say. And we had tentatively -- the arrangement had been made to bring Panel C back.

Mr. Smellie has indicated that he does not have any questions, correct?

MR. SMELLIE: Certainly on the strength of the record as it stood at the end of last week, Mr. Chairman, that is the case. I don't know what the undertaking responses are going to say. But subject to that we are fine.

CHAIRMAN: Well, perhaps we had better do the undertakings,

Mr. Hashey. What the Board had said was obviously don't drag the panel down here if it isn't necessary.

But if any of the intervenors or if JDI, as a result of these undertakings, has questions, why the panel is available to come down from Fredericton and be subjected to cross examination on those undertaking, et cetera.

So what I think I had better do is let's just go around the room and find out what parties are represented here today. And as I do then you can indicate whether at this time if you wish to have any further cross of Panel C.

NB Power is here with Mr. Hashey, Mr. Morrison, et cetera. Formal intervenors. Bayside Power LP? They are not here. Canadian Manufacturers and Exporters?

MR. SMELLIE: Yes, sir. Mr. Nettleton and I are here.

CHAIRMAN: City of Summerside? Emera? Mr. Zed?

MR. ZED: We have no questions of the panel, Mr. Chair.

CHAIRMAN: Energie Edmundston? Mr. Gillis? JDI of course is here. Maine Public Service Company? Northern Maine Independent System Administrator? Nova Scotia Power Inc.? Mr. Zed? Likewise no questions for them?

MR. ZED: Likewise.

CHAIRMAN: Perth-Andover Electric Light Commission?

MR. DIONNE: Yes. No questions.

CHAIRMAN: Thanks, Mr. Dionne. Province of New Brunswick?

MR. KNIGHT: Yes. No questions.

CHAIRMAN: Thanks, Mr. Knight. Province of Nova Scotia?

Saint John Energy?

MR. YOUNG: Dana Young, Jan Carr. No questions.

CHAIRMAN: WPS Energy Services Inc.? Okay.

All right. Mr. Hashey?

MR. HASHEY: Thank you, Mr. Chairman. The first undertaking is in answer to a request by Mr. MacNutt concerning the transmission business unit reconciliation of labour. And this has been done. It is a one-page chart. We would like to offer that.

CHAIRMAN: My records indicate that will be A-39.

MR. HASHEY: The next one, Mr. Chairman, is in answer to undertaking number 48. It is a question raised by Commissioner Sollows. And it dealt with the issue of the two lines.

And this is a fairly extensive document. I guess it is about 10 pages maybe in response to that. And we would like to offer that.

CHAIRMAN: And again that will be A-40.

MR. HASHEY: The next one is undertaking number 49. It was on December 19th, requested by again Commissioner Sollows.

And this dealt with a request for a report that is

entitled "Comprehensive Review of the Reliability of the Bulk Transmission System of the Maritimes Area, New Brunswick Portion 2001-2006."

It was a task force of systems studies. And on that I should comment that it is complete with the exception that there are a couple of exhibits referenced that contain specific customer load information which have been removed because of the confidentiality attached to it. I don't think that really takes away from the completeness of the answer.

CHAIRMAN: That will be A-41.

MR. HASHEY: Thank you. The next two I would read into the record, Mr. Chairman. I believe they are questions that were raised by yourself. The first one is -- the request was made again on December 19th, and it was when Northern Maine entered into an agreement with NB Power to purchase ancillary services from NB Power. Was the agreement public knowledge when it was published with the Maine regulator? Please provide that document to the Board.

Then in answer to that I will quote the document I will try and explain it.

Response, The purchase of ancillary services by Northern Maine from NB Power is under the product and services agreement. The agreement was filed with the

Maine Public Utilities Commission and is a public document. It has already been filed as exhibit NM1 SA-1 in this proceeding. The appendices to this agreement, however, are confidential and have not been filed with the Maine Public Utilities Commission. Hopefully, that's adequate there.

The next one was undertaking 51. Again, it was a question which you raised, Mr. Chairman. And you asked us to find out if at the time of FERC 888 in order for a utility to be compliant with the tariff filing requirements if they, in fact, had to file this information in a public way with FERC.

And obviously questions and inquiries were raised. And the answer to that is, based on discussion with parties who were involved with the filings of the Bangor Hydro Tariff and the Central Maine Power Tariff, FERC required generator cost of service information for ancillary services for all public utilities in the United States. The information was subsequently made public.

I think that is a fairly complete answer to what you asked there.

CHAIRMAN: Yes. I may have a follow up to that, Mr. Hashey, to that answer, but I will wait until after the break.

MR. HASHEY: Okay. As I say, that we do have Mr. Marshall

here today. He can't be here tomorrow. And if there are follows up on, I believe, the last four, were matters that were raised that questions were really directed to Mr. Marshall.

CHAIRMAN: Perhaps you can confirm with him in the next break then. The way I hear what you have responded is that FERC required that information of all filers under 888 at that time and subsequently made it public, and it went on the public record. That's the way I hear you.

MR. HASHEY: That's correct. That's what we have determined.

CHAIRMAN: Yes. Okay. And that's the kind of information that NB Power is -- NB Power Generation does not want on the public record?

MR. HASHEY: Correct.

CHAIRMAN: Yes. Okay.

MR. HASHEY: But that's something we will have -- may have to deal with, obviously.

CHAIRMAN: Yes. I will just leave it at that for now, sir.

MR. HASHEY: Sure. No, we are happy to follow up and have further direction from you on that.

CHAIRMAN: Okay. Thank you.

MR. HASHEY: Yes. That does complete the answers to undertakings.

CHAIRMAN: Any other parties have any preliminary matters at all?

Commissioner Richardson has just pointed out any idea when the answer in reference to the business plan will be discussed in front of us? There was a --

MR. HASHEY: No, no. I'm aware of that. There were about four or five undertakings that were left that we discussed on Friday and again discussed earlier this morning. And that's one that we will have an answer for, hopefully, today.

CHAIRMAN: Okay. Thank you, Mr. Hashey.

MR. HASHEY: We are working -- we obviously want all of these things done before we complete. And it looks like we are on line here to be completed by mid week. So we would have to have that stuff.

CHAIRMAN: That's good. Thank you, sir. Any other preliminary matters? If not, Mr. Smellie.

MR. SMELLIE: Thank you, Mr. Chairman. The witnesses for J.D. Irving and CME will be Mark Mosher, Dr. Robert Earle and Dr. Adonis Yatchew. And perhaps they could take their places and be sworn prior to the presentation.

CHAIRMAN: Yes. All right.

MR. SMELLIE: Mr. Chairman, just while everybody is getting organized, and while the secretary is distributing some

paper to you, each of the witnesses is going to participate in the presentation.

The presentation was filed and served in accordance with your direction on the 20th of December of last year, I can say.

Four slides, Mr. Chairman, were updated early last week. And they have also been filed and served. And as I have it, and assuming there is no objection from my friend or any other party, the presentation should be JDI-28, I believe.

CHAIRMAN: JDI-28 is correct.

MR. SMELLIE: Thank you.

CHAIRMAN: All right. I will just confirm, Mr. Smellie, that the original presentation that was forwarded on the 20th of December of last year, as you say, is amended by the four slides that came to us under cover of an e-mail on the 31st of December last year. And so the document should be amended by replacing the pages with those four.

MR. SMELLIE: That's correct, Mr. Chairman. And thank you for that.

CHAIRMAN: Thank you.

MR. SMELLIE: Immediately to the Board's right is Mr. Mark Mosher, J.D. Irving. To Mr. Mosher's right is Dr. Robert Earle. And to Dr. Earle's right is Dr. Adonis Yatchew.

From an administrative perspective, Mr. Chairman, Mr. Mosher's portion of the presentation, roughly speaking, is in the order of 20 to 25 minutes. He will be followed by Dr. Earle, again about 20 to 25 minutes. And followed by Dr. Yatchew in the order of 25 to 30 minutes.

It would be my preference, Mr. Chairman, that if you wish to take a morning break during the course of the presentation, that it occur when one of the witnesses is handing off to the other, if I can put it that way, rather than interrupting the presentation.

CHAIRMAN: We will take our break after Mr. Mosher.

MR. SMELLIE: Thank you, sir, that makes it very clear. Following the presentation, Mr. Chairman, I would propose, because these witnesses are not well known to you and your colleagues, to briefly examine them in chief. And I have one substantive matter that I wish to deal with with Dr. Yatchew. And then I would propose to turn the panel over for cross examination.

CHAIRMAN: Subject to the nature of that one matter that you speak of, why it sounds like a good plan to me.

MR. SMELLIE: Well, on that note then, Mr. Chairman, I will invite Mr. Mosher to come down and begin the presentation.

CHAIRMAN: Putting the lights down like that, Mr. Mosher, shows a great deal of confidence in your oratorical

abilities. (SWORN)

MR. MOSHER: Good morning, Mr. Chairman and members of the Board. I'm pleased to be here today.

(Technical difficulties)

MR. MOSHER: Good morning, Mr. Chairman and members of the Board. My name is Mark Mosher. I'm employed with J.D. Irving as an Operations Manager at the Irving Paper Mill in Saint John.

I'm pleased to be here today to make a presentation on behalf of J.D. Irving and the Canadian Manufacturers and Exporters on NB Power's application for an open access transmission tariff.

Just to highlight the participating Canadian Manufacturers and Exporters members that are participating in this endeavor is J.D. Irving, and then a very diverse group of manufacturers within the province of New Brunswick that cover the forestry business, manufacturing, mining and chemicals production.

Why are we here today? As manufacturing enterprises our business is not in appearing before regulators for matters such as this. However we feel this is of utmost importance for us to do so.

We have significant commercial interests in the province of New Brunswick. The manufacturing group

represents greater than 400, 500 megawatts of total energy sales within the province. We are energy-dependent and resource-based.

As outlined in the Province's White Paper, the province of New Brunswick is highly resource-based and as such has a very high energy dependence. The price of that energy obviously has a significant impact on our business operations.

Electricity is a significant operational cost. And we fully agree with the initiative as set out by the government and that New Brunswick must follow a gradual transition of the electrical industry from its current monopoly position to a restructured competitive structure.

This slide is taken from NB Power's load forecast evidence as filed with the Board on February the 18th, 2002 from the Point Lepreau Refurbishment application.

And to look at it from a global perspective, on the horizontal axis is the individual rate classes within the province of New Brunswick. And on the vertical axis is the total annual energy sales in gigawatt hours.

Because we are here today focusing on a transmission tariff, it is not any one specific customer class that is impacted. It is every customer class within the province, the industrial load, the residential, general service and

other classes.

The group that I'm here on behalf of today is the industrial enterprise group. The industrial group represents the single largest component of NB Power's energy sales. It's over 40 percent of their total annual sales. And as I have said before, because we are highly resource-based there is a significant interdependence between the two.

Just to focus on one of the industrial segments that I'm here on behalf of, the forest products group, I will talk a little bit about some of the business issues within the pulp and paper. A lot of my slides will focus on the pulp and paper group.

But forestry affects over 90 communities in the province of New Brunswick. It employs one in eight of New Brunswickers which relates to 27,000 direct and indirect jobs. It is the single largest class of exports representing 40 percent or 47 percent of all provincial exports. And it contributes $2 billion a year in labour, goods and services each and every year.

Just to give you an indication of the interdependence between energy and some of the forestry businesses, this pie chart is a representation of Irving Paper's cost structure based on its six main cost components.

Electricity represents 20 percent on average of the total manufacturing cost of the unit of production from Irving Paper. It is equaled only by its major raw material in wood.

And just to give you an indication, this is very typical of a newsprint industry today, of which there are two in the province.

CHAIRMAN: Sorry to interrupt, Mr. Mosher. But just a matter of personal curiosity, that is sort of split, the 20 percent electricity being 20 percent of your cost. Is that true for sawmill operations as well as the paper?

MR. MOSHER: No. It is not true for sawmill operations. Just to give you a bit of indication, the sawmill operations, it would be slightly less.

If you look at a chemical manufacturing plant such as the one in the northern part of the province, it is as high as 40 percent.

CHAIRMAN: Is that right?

MR. MOSHER: Yes.

CHAIRMAN: Okay. Thank you.

MR. MOSHER: Throughout this hearing there has been a lot of discussion about benchmarking. And there is three key messages that I want to focus on in this slide. This is benchmarking that takes place in the paper industry.

The paper industry is a very competitive global business. And we do a lot of benchmarking across all of the operations within the forestry division.

What this graph is is a result of a benchmarking study that is formed by the -- or performed by the Pulp and Paper Products Council. And it is an output from their 2001 Canadian Newsprint Cost Survey.

On the horizontal axis each of the yellow bars represents one of the participating mills. In this specific study there was 28 mills that participated in Canada.

The height of the yellow bar represents their average annual cost of purchasing electricity from their incumbent electricity provider in dollars per megawatt hour.

What you can see from this is that Irving Paper in the province of New Brunswick is currently in the top third. In fact it sits in position 21 of 28. This is for 2001. Just as a point of reference, 2002 is significantly higher than that again.

Our concern is as we go through the restructuring process, is that we don't move higher.

CHAIRMAN: Again I will interrupt just for clarity, Mr. Mosher. When you say it is for 2002 is higher --

MR. MOSHER: Yes.

CHAIRMAN: -- what do you mean? Do you mean your position has gone up in the ranking or the overall cost? What --

MR. MOSHER: The overall cost. The average cost to Irving Paper for the calendar year 2002 was just below $46 a megawatt hour -- or $47 a megawatt hour.

CHAIRMAN: Did that change its ranking within the surveyed companies?

MR. MOSHER: We will not receive the relative position rankings until probably April or May of this year.

CHAIRMAN: I see. Okay. Thank you.

MR. MOSHER: Our concern from this, or one of our concerns from this is that do we have any reason that we are going to go higher? And we do have concerns that we will continue to move and become less competitive.

This graph is an output from the Association of Major Power Consumers of Ontario. AMPCO, as it is called, provided this survey to myself for this hearing. And every though it is a very busy graph, what this graph represents on the horizontal axis is a 10-year period from 1989 to 1999 when this study was performed.

On the right-hand side is all of the major power providers in Canada. There are nine of them listed there. And on the right-hand side of the graph is their average large industrial power cost charged to their industrial

companies in cents per kilowatt hour.

There is two key messages that we have on this graph. First one is the position of industrial enterprises in the province of New Brunswick. You can see that currently it confirms the previous slide as to where we rank within Canada. We are the third highest power cost.

The second concern obviously is the slope of the line or the direction of the line or that the line is traveling.

If you look at the period between 1993 and 1999 -- 1993, last rate hearing of NB Power, there has been a continuous and steady increase in the power cost to their industrial customers. During that period power rates rose by 20 percent.

If you also look at the slope of the lines of all of the other major power providers, you will see a relative stable and consistent pattern.

Previous slides have given you some indication of our business concerns. The next few slides will focus on concerns that J.D. Irving and the Canadian Manufacturers and Exporters have with this specific application for an open access transmission tariff.

But this is a bit of a transition slide. And I just want to tell the Board where the manufacturing group is

with some of the key initiatives as laid out by the province.

We support competitive generation. We strongly support competitive generation. Competitive generation can offer many social and economic benefits to the province.

Generation or competitive generation was explicitly laid out in the White Paper. And generation requires a level playing field so that new competitive generators are able to come in and compete. And that as well was explicitly laid out in the White Paper about requiring a level playing field for competitive generation,

Second initiative that we support is a province self-generation initiative. Self-generation as detailed in the White Paper is the most efficient manner of generation of electricity. It provides many social, environmental and economic benefits. And as industrial enterprises, some of the key locations for self-generation are at those sites.

We also support implementing an open access transmission tariff. To move ahead, to meet the opening of the market on April 1st 2003, we support NB Power's need to implement an open access transmission tariff by that date.

However, we strongly believe that the rates that are

charged within that tariff need to be based on actual costs and prudently incurred costs.

I will now talk a little bit about our concerns with this specific application. This slide is really on the say policy or process of the application.

First and foremost is our concern with the lack of consultation with stakeholders. We believe that many of the issues that have arisen and that have been very time consuming within this hearing could have been discussed and may have been resolved outside of this hearing.

I personally requested consultation on a number of occasions to have an education session to discuss some of the impacts to our business, and it was never received.

Our second concern with this application, as business operators our concern is what is the comparison of the current to the future rates. We know what NB Power has applied for in this application, but we have no comparison to what we pay today. Again that was asked for by a number of intervenors and there was various levels of responses to those questions.

This concern is really two-fold. It's a comparison of the current costs to the future costs. It is also to be able to look through the evidence as filed and ensure that the costs that are in there that will be borne by the

ratepayers are prudently incurred. And there is no tested history of cost of service.

The third concern that we have is the pending changes in the legislation and restructuring. What this concern is is adding to the level of uncertainty that we have.

NB Power has applied to lock in this tariff for a period of three years. These two changes could have significant impacts. We believe that it should not be locked in for a period of three years.

This slide focuses on some of the specifics of this application. We believe that this application is attempting to implement too many components at once. It's attempting to implement a FERC compliant open access transmission tariff, performance based regulation, return on equity and payment in lieu of taxes.

As I have said previously, we support the need for a FERC complaint OATT, but we believe that those rates need to be based on true and prudently incurred costs.

Performance based regulation, return on equity and payment in lieu of taxes, while we don't oppose them outright, we have a significant concern on the timing of implementation of those three components. And Dr. Yatchew will have a significant amount of discussion on those three components.

And when you narrow it down, what it really comes to, our primary concern is what is the impact on the current rates. As I have said previously, we know where we are today or we know what are current bundled cost of energy is today. I have shown you some of the industrial curves, I have shown you where it is on as a percentage of our cost of manufacturing. But there is significant amounts of uncertainty on where it will be in the future. And that gives us serious concerns. Even NB Power's evidence indicates a 15 percent increase in the cost of transmission service. That is significant.

Self generators, in a response to an interrogatory we filed, will see an even greater increase in their cost of transmission. And in both cases we believe that's rate shock.

To summarize and go back to the White Paper, which states that energy costs and reliability are a fundamental importance in maintaining and improving the competitiveness of New Brunswick energy intensive industries. We must ensure that as we proceed through reregulation that New Brunswick industries are not made less competitive.

We believe that restructuring must be deliberate and controlled as outlined in the government's White Paper and

initiatives. We strongly support moving towards reregulation in a deliberate and controlled fashion. And we believe that it is very essential to restructure correctly rather than quickly.

JD Irving and the Canadian Manufacturers and Exporters, when we looked at the evidence as filed, it became very clear that this is a very complex issue, that it was very important to the operation to our businesses and that we did not have the in-house expertise and resources available to adequately analyze the impact of this transmission tariff. So we have retained the services of Charles River Associates.

Drs. Robert Earle and Dr. Yatchew will carry on the rest of the presentation.

CHAIRMAN: Good. Thanks, Mr. Mosher. We will take our 15 minute recess.

MR. SMELLIE: Thank you, Chairman.

(Recess)

CHAIRMAN: Thank you. Go ahead, sir.

DR. EARLE: Good morning, Mr. Commissioner, Mr. Chairman, Commissioners. My name is Robert Earle. I am with Charles River Associates. And I appreciate this opportunity to discuss some aspects of New Brunswick Power's application with you.

My colleague, Dr. Yatchew, and I will be covering six different issues. I will be covering the first two on this -- on this slide, test year and capacity based ancillary services. Dr. Yatchew will then proceed to cover performance based regulation, benchmarking, return on equity and payment in lieu of taxes.

I would like to move to my first topic, that of test year, and give you a bit of an overview of the concept.

The choice of test year is the first fundamental step in the ratemaking process that you can conceptualize as having five different steps to it.

First, you need to choose a test year, which is a 12 month data set used to establish the revenue requirements. The next two steps, starting with step number 2, establish rate base. This is the value of the plant investment in the test year previously chosen. Step 3 is to determine the operating expenses or expenses in the test year. Number 4 is to ascertain a rate of return as appropriate. And 5 is to develop the rate structure.

I want to emphasis the importance here, based on this outline, of choice of test year. Because as you can see, in steps 2 and 3 it really determines the level of revenue requirements is a key factor in determining level of revenue requirements that you have.

So now I would like to turn to what are some different alternatives for test year. Well there are basically three. The first is historical. To use a year that is already gone by and you have -- you know what has been spent. Another alternative is to use a projected year, a year that has not happened yet, or to use some combination thereof.

What are criteria that we can use in thinking about what the appropriate test year is -- what the appropriate choice for a test year is. Well, here are three very important criteria.

First, can cost be verified as prudently incurred. And this is basics of ratemaking in that we want the utility to recover its prudently incurred costs. In this case with New Brunswick Power, unfortunately we have a lack of record. We have 10 years in which we haven't had a rate case. We have 10 years where we haven't had a record of whether the costs have been prudently incurred or not.

The second criterion to consider is inflation. Now inflation is important because if you are in a period of high inflation and you use a historical test year, it may be by the time the utility actually gets rates based on test year, inflation has outstripped those costs. So in a

period of high inflation an historical test year might not be appropriate. However, currently we are in a period of low inflation. And I believe Dr. Morin agrees with that. And also agrees that projections of inflation are also quite low.

And finally, the last criterion I would like to talk about is needed changes in operations. Now there may be a need to adjust historical costs either up or down in order to take into consideration the changing circumstances that a transmission provider faces. Particularly with respect to increases over historical costs due care needs to be taken to determine that there is a true need for the increase.

And my concern here is particularly with respect to the operations, maintenance and administration budget. The available evidence that we have in the record indicates that historical funding levels should be adequate. This can be found in the Stone & Webster report that's part of the applicant's evidence.

So given all of this, these are my recommendations for test year. Because of the lack of record, the extraordinary, really extraordinary 10 year gap in the record, and available evidence operations, maintenance and administration can be safely constrained to historic

levels, I conclude that, first, historical test years for operation, maintenance and administration expense provide a more appropriate basis on which to establish just and reasonable transmission rates for New Brunswick Power. And, second, the savings suggested by the evidence should also go to the benefit of ratepayers.

I would now like to turn to my second topic, which is capacity based ancillary services. These are services provided by generators to support the functioning of the transmission system. These services are needed because we can't predict exact level of load needed. And so load -- since load fluctuates from minute to minute and we can't predict it, we need generators standing by to provide that. Generators go off line unexpectedly and so we need generators standing by to provide these services as well. So there are a variety of reasons why these services are needed. And they are called capacity based since they require a generator to make capacity available on a stand-by basis.

There are a number of different types that vary based on whether the unit must already be on line and how fast it must respond. We will get into that a little bit more in a minute.

But the question I would like to answer right now is,

why are they so important? Why is this worthy of some attention in this application? Well, they are a major cost component in this application. There are $32.9 million for these services that New Brunswick Power indicates that it expects to collect compared to 76.3 million in allocated revenue requirements that make up the costs for point to point transmission service or network transmission service.

Now I would just like to point out that these $32.9 million is not part of this 76.3, but is separate from it. But as you can see, it's a very large component.

Now the different services that we are talking about are regulation, load following, operating reserve spending, operating reserve supplemental 10 minute, and operating reserve supplemental 30 minute.

The first three services there require a generating unit to be on line when it stands by. The last two the unit does not have to be on line. But there are various response times according to each one, and that's what distinguishes them.

So what are the pricing components that go into capacity based ancillary services? Well New Brunswick Power's proposal has four pieces.

The first piece is the scheduled rate. And this is

the rate that shows up in the schedules in the back of the tariff.

The second part are redispatch costs. And these costs are -- are costs that are incurred because sometimes you have to run a more expensive generator to provide energy rather than a less expensive one to have the less expensive one provide capacity based ancillary services.

The third part is a discount from the scheduled rate and the fourth is the rebate from what I am calling the deferral account. Because we understand that in some sense the scheduled rate is a maximum and there may be savings there, but it isn't clear that there will be. And so the operation of the deferral account and the discount are really very unclear at this time.

What I want to emphasize with this slide is that there are really many moving pieces to this. And what I want to focus on for purpose of discussion here, there is a scheduled rate component of price.

And there are basically four methodologies to consider. The first is embedded cost, second short-run marginal cost, third is bid-based and fourth is estimated long-run marginal cost.

And just to give you an overview, embedded cost is the standard method that is used in this sort of situation

where a vertically integrated utility without a centralized market is applying for recovery of capacity-based ancillary service cost.

The fourth method is the method that New Brunswick Power is suggesting to implement.

Now moving back for a little bit more detailed discussion of the different methodologies, as I said, embedded cost methodology is the standard ratemaking methodology. It is the methodology that is preferred in the government White Paper. It is the method that is based on actual costs incurred. It is the methodology that I recommend to this Board.

Now New Brunswick Power has suggested two reasons why it does not want to use this method, why it would prefer not to use this method.

The first is that it says well, if you use this method it depends on the particulars of the system at hand. And therefore in one place you might get low cost, in another place you might get high cost.

But for me that shows the exact virtue of using this. Because you are basing your prices on the actual costs incurred. So rather than being a flaw for this method, I would argue that it is a good thing.

The second reason is that New Brunswick Power has

indicated that it doesn't like this methodology because it would result in the release of confidential information in order to price this.

And I guess I was very pleased to hear the response on the undertaking this morning that their understanding of how this has worked in the United States is the same as mine, that utilities who apply for rates and are justifying embedded costs, they generally release this information publicly. That has been my experience.

So I think that embedded cost provides a time-tested standard method that is based on actual costs incurred.

Turning now to the second method, short-run marginal costs. Well, this methodology would mimic the functioning of a perfectly competitive market.

The actual costs that are currently available, I understand that New Brunswick Power has these so that wouldn't be a limitation for implementing this method. They I think also give two similar reasons for not liking short-run marginal costs. Also -- again one is based on the confidentiality issue, which we just talked about. And the second method is based -- well it's the prices could vary. And again in my opinion, this is basically a good thing because it would send price signals, accurate price signals for users of these services to determine

their consumption.

The third method is bid-based. And New Brunswick Power has pointed out that there are market problems -- power problems in this area. You could control 80 to 90 percent of supply, I would say at least, because that figure is based on two of the units that supply the services. And I agree at the current time there are big market power issues and this would not be an appropriate method.

Then finally, turning to the last method, estimated long-run marginal costs. What this method does is basically say well, in order to provide this service over the long run -- in order to provide that last increment of service what does it cost. So not only does it include things like short-run marginal costs, but it includes for instance the capital cost to build a plant -- building a new plant as needed.

This is, as I said, what New Brunswick Power is proposing. But they are proposing a particular variant of that. And before I get into that, I would like to turn to what the different components of this method are to show you that it really is quite complicated.

In order to come up with a long-run marginal cost for a plant -- predicted long run marginal costs, we need many

components. We need prediction of short run marginal costs. We need to think about the capital structure, return on equity, interest rates, cost of debt. All those things are very complicated issues, as we can see from the record that has been established in this proceeding.

We need to think about -- we need to have demand forecasts, capacity utilization for the plants that we believe are going to need to be built. And we need to think about well, recovery of costs in the market by these plants when they are not providing ancillary services. So it really is a complicated undertaking and speculative in many ways.

Alternatives to this are we can study a natural system, say the actual plant installed in New Brunswick. Or we can use a theoretical generic proxy. And it's the second of these two alternatives that New Brunswick Power has chosen.

Now to focus in a little bit more on their proxy method, to estimate long-run marginal costs for capacity base ancillary services. What this method essentially does is it chooses generic units suited to provide each of these services. And we will skip down now to the bottom bullet point on the slide.

And basically I'm just giving there two examples of

how they have chosen different units for different services. For spinning reserve they chose a particular type of unit that is suited for that type of service. And for supplemental reserve they chose a gas turbine that's also in some sense more suited to provide that service.

Now what this method does it assumes that -- again when you are calculating long-run marginal costs you want to know what's that cost of that last increment of ancillary service that you need. And what this method assumes is that if you need one more megawatt of ancillary service, you need to build another megawatt of generation capacity.

Now another aspect of what they have done is they didn't perform an optimization, a trade-off if you will, amongst the different choices for plants, either respect to their theoretical proxy units, nor did they do this with respect to the actual plants that exist in New Brunswick.

So what's wrong with this method? What's wrong with the proxy method? Well, first off, from a ratemaking perspective, it proposes to recover costs not actually incurred or anticipated to be incurred. And this is very problematic from a ratemaking perspective. Because again it's a basic that a utility should recover its prudently

incurred costs, nothing more, nothing less.

Second is -- again, it's not based on the actual cost or circumstances in New Brunswick so we don't know from this method whether the costs have anything to do with the situation here.

Now again what's wrong with this method? Well, these are theoretical reasons and, Mr. Chairman, I have to talk about theoretical reasons because what they proposed is a theoretical method.

The first point I would like to make is it is not generally true that if you need one more megawatt of ancillary service that you need another megawatt of generation. It could be under some circumstances but it's not generally true. But that's the assumption they make.

The second -- again there is a need to optimize, to make the trade-offs between the plants they have chosen and I would argue amongst the various options there are within the actual existing plants that there are in New Brunswick.

Now turning to the empirical evidence. What's wrong with the method? And I -- and what I found was looking at the NEPOOL three year average for providing these services, a ratepayer would have to pay 81 cents per megawatt hour, including redispatch costs for these

services, for all of these services. And the New Brunswick Power proposal is $2.71 per megawatt hour. It doesn't include redispatch costs. Now these are, as you can see, very far apart. New Brunswick Power is almost three times as much.

Now there is something very counter intuitive, if you will, about what they are proposing. And what is counter intuitive about it is I understand that they view NEPOOL as a vibrant export market in their words for their generation.

Now usually if you have high generation costs you would have high ancillary service costs and that makes sense because it's the same units providing energy or providing the ancillary services. And if you have low generation costs you also have low ancillary service costs. But here we seem to have a situation that is reversed. NEPOOL is this vibrant export market for New Brunswick Power. It means it has higher energy costs. But it has lower ancillary service costs. New Brunswick Power low energy costs but apparently high ancillary service costs. So there is something very counter intuitive about what they are proposing.

Having said this, my recommendation to this Board is to use embedded cost pricing for capacity based ancillary

services. It is very important as a matter of ratemaking to use actual costs in establishing prices. This is the standard ratemaking methodology that's typically used in this sort of situation. There should not be any impediments with respect to confidential data.

And it addresses my second point there because it takes the issue of market power off the table. In talking about that second point, preventing the exercise of market power by New Brunswick Power Corporation, I would like to make a couple of points.

The first is this is not, Mr. Chairman, anything against the fine people at New Brunswick Power. But the reality is is market power is something that has to be dealt with. They want to become a more commercial -- a more commercially oriented enterprise. And commercially oriented enterprises take every advantage that's given to them in order to increase their profits.

This is an untenable situation. And embedded cost pricing will remove this issue with respect to capacity based ancillary services.

My third point is I think that in constructing the tariff there is a need to prevent cost shifting by allowing more flexible customers to get discounts at the expense of others.

Now my understanding of the record is that it's a bit unclear how these discounts would work. But my fear is that there may be some cost shifting from one class or type of ratepayer to another.

So in conclusion embedded cost pricing properly implemented can achieve all these objectives.

Mr. Chairman, Commissioners, thank you for your time. I would like to turn the microphone over now to my colleague, Dr. Yatchew.

I have brought the overview slide back up for his presentation.

DR. YATCHEW: Mr. Chair, Members of the Panel, first I consider it a privilege to have this opportunity to address this Board. I will be as helpful as I can possibly be.

When I first looked at this application, what immediately was very noticeable was the broad scope, the issues that were being considered, and I will be discussing four areas right now, performance based regulation, benchmarking, return on equity and payment in lieu of taxes. I will do that as efficiently as I can.

Performance based regulation. It has been known for some time that traditional modes of regulation can be improved upon. The key issue is how to create incentives

to improved performance within the firm.

Performance based regulation is also called incentive regulation. I will use the terms interchangeably. I actually prefer the term incentive regulation because it emphasizes the role -- the key role that incentives must play.

The objectives of performance based regulation include first, to create strong incentives for cost minimization. And here I have in mind not just minimizing OM&A costs, we also want to minimize borrowing costs and capital costs as a hole. Second, to promote efficient capital investment expenditures and to promote technological innovation. Third, to ensure fair cost recovery for firms and a fair return on investment. But how will we know what are fair costs unless we have reasonable objective benchmarks. And fourth is to enhance information revelation. One wants the regulatory process to improve the information that you receive as regulators so that you can make the best possible decisions. For example, the firm should be rewarded if it provides good benchmark information which provides an objective way of comparing itself to other companies.

How is PBR, performance based regulation, implemented? The firm has proposed price back regulation which is the

most common form of performance based or incentive regulation. The basic idea is to create incentives for the firm by permitting it to keep a share of the profits that result from cost savings. At the same time the prices are capped at prescribed levels.

Price cap regulation has been used in various industries in the United Kingdom, various network industries, such as natural gas, electricity, telecom and water. It has been used in the United States, again in telecom, and also in some energy industries. And in Canada, telecom and to a lesser degree in natural gas and electricity.

The empirical evidence -- when we take a look at the experience -- the empirical evidence strongly suggests that it is beneficial that price cap regulation is beneficial when applied to private sector companies. That's the evidence in the United Kingdom where we have had the most experience.

On the other hand there is little evidence that price cap regulation has been effective in the public sector. Why would one not expect the private sector price cap model to be effective in the public sector, or as effective in the private sector? The key is incentives. So let me talk a little bit about price cap regulation and

incentives.

Under private ownership shareholders can exert pressure on the company through various channels. First and foremost a shareholder can share his or her shares in the market signalling disaffection with the current or expected performance of the firm. Second, management, even the Board, can be replaced. And third, take-overs can happen in the private sector.

So there are various channels through which shareholders can influence behaviour and create incentives.

Let me turn to the public sector firm. The potential for incentive creation, certainly for spontaneous incentive creation, is much more limited. Government and ultimately the taxpayer is a captive owner. Citizens of New Brunswick can't turn around and sell their pro rata share of New Brunswick Power if they are unhappy with performance. So that very important lever is not present.

Second, take-overs are not an option. And third, owner interests are more diffuse and indirect.

Now as I read the New Brunswick Power proposal, and particularly Dr. Morin's evidence on this, it simply asserts that these forces will be unleashed to improve performance at New Brunswick Power. Dr. Morin speaks of

unleashing forces of price cap regulation, but gives no account of how these incentives will simply emerge.

Let me return to the empirical evidence. If you observe a private sector firm under price cap regulation over a period of time, what you see is declining costs, improving financial performance, reductions in rates to ratepayers. That has been the experience in the United Kingdom.

Let me now turn to the empirical evidence here. New Brunswick Power has been under a form of price cap regulation for about a decade. What we observe is that the prices and costs have increased and are now amongst the highest in Canada.

Now economics has become actually quite mathematical and I know that you have seen a few formulas in other evidence. I will be referring to those and I regrettably have to turn to one of them in my next slide, and that is the basic price cap rule.

What does a price cap rule consist of? Well first of all P0. P0 are the initial rates that are approved by the Board. RPI is the rate of price inflation. X is the productivity factor. Z the factors that are outside company control. And the basic idea is to combine these various factors, apply them to P0, the initial rates

approved by the Board, to come up with a price cap P1 for the subsequent period. This sort of price cap rule is sometimes called the RPI minus X rule, to emphasize the portion of the formula where we see RPI minus X. It has been around for quite some time. It was proposed by Steven Littlechild in 1983 in the United Kingdom. He then proceeded to implement it there in the electricity industry when he was director general during the course of the 1990's.

We have heard from other witnesses that it is essential to set the going in prices right, to set P0 correctly.

How could one come up with reasonable going in prices? Well one method is through thoroughly tested historical data for NBP Transmission. My understanding is that we don't have that tested history of data. And the second equally important way is through external benchmarking.

The X factor in the formula, it's essential to set X, that is the productivity factors, based on reasonable estimates of productivity improvement.

Now let me make some comments about the Z factor. The Z factor, which is to reflect factors that are outside the control of the company substantially and immediately reduces risk faced by the firm and therefore by any deemed

or actual investor in the firm.

Private firms in comparison would have to absorb the effects of Z factors. If government taxes go up. Private firms are not made whole by the government. If legislation that is disadvantageous to particular industries is passed. Government doesn't make a company whole somehow. Those are risks borne in the private sector. Those are risks that are not present in this model of regulation.

So these are my comments on price cap regulation and performance based regulation.

Let me turn to the second subject and that is benchmarking.

As I have mentioned earlier and other witnesses have concurred, it is important to get the going-in prices right.

How? In my opinion through benchmarking of costs. Economists and entrepreneurs have been doing it for centuries. Economists have been doing cost estimation for a long time.

Indeed what is really interesting historically is that it is benchmarking that provided the initial basis for disaffection with traditional modes of regulation.

Regulators were looking at firms. They were finding

well, we are under this traditional mode of regulation. It doesn't seem to be working that well. Companies are inefficient. They are not operating as efficiently as we would like them to be.

How would they know without comparing performance of the company that they are regulating with performance of other companies?

So benchmarking has been going on in many settings for a long time. It is something that is routinely done in the private sector.

Moreover, international benchmarking is now an accepted practice in the regulation of transmission and distribution. And in that connection I agree with the conclusions of the Jamasb and Pollitt paper that is filed as exhibit JDI-17. They are researchers at the University of Cambridge.

Let me just back up again and link this back to incentives. Benchmarking is particularly important for public sector firms where one cannot expect spontaneous creation of incentives.

How does one implement benchmarking? Three general classes of techniques. Regression analysis which is a standard statistical technique. Data envelopment analysis and stochastic frontier analysis. These are mouthfuls. I

would happy to discuss technical details of these procedures with you.

All of these techniques have been standardized. They have been around for awhile. And the basic objective, particularly of the last two techniques, is try to identify what are the best practices by looking at collections of firms. So essentially these are best practice type techniques.

Now we have heard both from Dr. Morin and Ms. MacFarlane that New Brunswick Power Transmission is unique, that it is somehow fundamentally different as a company. It operates in a unique environment.

It has issues like age of assets, the structuralist transmission system, the density and so on. These aspects make it very difficult to compare New Brunswick Power Transmission with other utilities.

Well, in fact these techniques provide for ways of taking differing characteristics into account. And in support of that proposition, I provided as part of my own testimony, appendix B to my own testimony, which is in exhibit JDI-1, a short paper which does contain an example of benchmarking of distributing utilities in Ontario.

And distributing utilities in Ontario also face these same differential issues. Some have a dense customer

distribution. Others have old assets.

More importantly some are very small. Some of these utilities have 5,000 customers. The largest one has 220,000 customers.

And yet these models are quite capable of taking an accounting for these various factors and provide valuable information about who is more efficient and who is less efficient. So certainly this can be done.

And again I would be happy to discuss in detail how that benchmarking exercise was conducted. I have a more detailed technical study published in a major economics journal precisely on point to this issue, which I would be happy to describe.

To summarize this area of my presentation, cost benchmarking can be done. It is being done elsewhere. It is being done across firms with differing characteristics. And in my view, it would be very, very beneficial if it were done here.

I will now turn to the third area of my presentation. And that is return on equity and capital cost issues. Essentially this is also a benchmarking exercise. Dr. Morin's evidence repeatedly refers to benchmarking of capital costs.

The picture that I was painting a little bit earlier

was that all costs can also be benchmarked. But now let me focus on benchmarking of capital costs, in particular return on equity.

And a convenient way to think about -- I apologize again. There is a formula on this slide. But it is a formula that did appear in Dr. Morin's evidence. So it is nothing new as far as the evidence is concerned, as far as the record is concerned.

The basic idea is this. You have $10,000. You want to invest it. You have a risk-free investment opportunity such as a government bond. It returns a certain rate. That is RF for risk-free rate.

Then you ask yourself well, I could put it in a stock or perhaps an index fund, some sort of a stock market asset. But that is risky, certainly more risky than a government bond.

What kind of rate of return should I be earning or do I need to earn or expect to earn if I'm going to be induced to make that more risky investment? What kind of risk premium do I need?

The risk premium portion of this formula is everything to the right of that plus sign. And in this particular equation, which is the capital asset pricing model, that risk premium, that portion that you add to the risk-free

rate, is broken up into two components.

The first component, in square brackets, is the difference between the expected return on the market portfolio and the risk-free rate. That is usually called the equity premium or the market equity premium.

But that is the risk premium for the market as a whole. This particular asset has a risk that is generally different from the market as a whole. So one must multiply it by the measure of relative risk for this particular asset. And that is the beta.

So essentially there are three components, the risk-free rate, the equity premium which is the premium for the market as a whole, and the relative risk for this particular asset, the beta.

Let me turn now to the market equity premium or the equity premium. Generally it is estimated in one of two ways. Historically in the sense that we look back and see what kind of premiums people earned, or using prospective analyses which is a more subtle but more relevant question.

It asks what kind of premiums were people expecting to earn at the time of their investment? Because that is the rate that you need to pay people in order to induce them to invest.

The landmark study, Triumph of the Optimist, by Dimson Marsh & Stauton, excerpts from which have been filed as exhibit JDI-23, finds that historically, over the course of the twentieth century, the Canadian equity premium is about 4 1/2 percent. That also coincidentally happens to be the same number for the second half of the twentieth century.

But there is actually much more that we know about the equity premium. The number that I quoted is the historical, the actual factual rate of return.

Research published in top-ranked peer review journals has concluded that the equity premium is actually much lower than previously thought.

Studies that I have referred to in my testimony by Blanchard, by Fama and French, by Claus and Thomas put the equity premium for the United States to be in the range of 2 1/2 to 4.3 percent.

And I believe those studies have been filed as JDI, NBP interrogatory response 24. These studies have met the gold standard for scientific research. They have undergone very careful -- a very careful refereeing process in order to be published in top journals.

As an editor of a journal myself, I place a lot of weight on studies that have undergone such a process. We

have heard quite a bit from Dr. Morin on the Ibbotson data.

Dr. Ibbotson is very well recognized in the industry. He has been published. He has been publishing historical financial information for many years.

In his 2002 yearbook he himself describes his own study, actually a study jointly with a colleague, the Ibbotson-Chen study, which concludes that the U.S. equity premium is just below 4 percent. And there are other studies and papers supporting and confirming his results.

So let me now turn to the second object that one needs to estimate or approximate. And that is this relative risk beta.

Beta, which is a measure of relative risk, essentially can be interpreted this way. If your asset has a value of beta let's say of .5, that means it is about half as risky as investing in the market portfolio. If it is 1.2 it is about 20 percent more risky than investing in a market portfolio. That is what we mean by relative risk.

The best estimates of beta for a specific company are obtained by incorporating information about other companies with similar risk, usually in the same or similar industries.

So company betas should be adjusted towards betas for

other companies with similar risk. Company betas should not be adjusted towards the market beta which by convention is 1.

Let me provide an example that might be helpful, completely unrelated to finance. Suppose it is a beautiful sunny day here in Saint John in January, January 7th, it is 5 degrees Centigrade outside, amazingly warm, the snow has melted, and we want to forecast the temperature for the next week.

Well, this warm day may be part of a trend. So there may be some continuation for a little bit of time. On the other hand we also can expect temperatures to revert to normal January levels which let's say are minus 2 degrees Centigrade for a typical January day.

So our forecast would be, taking into account today's temperature of 5 degrees and the January normal of minus 2, let's say our forecast for the next week would be plus 1 on average. It seems to be a reasonable basis for forming a forecast. And this is analogous to taking the company beta and adjusting it towards the industry beta average for similar companies.

Now let's consider an alternative mode of forecasting. We take today's temperature which is 5 degrees and we adjust it towards the average annual temperature for Saint

John. Let's say that that is plus 12 degrees on average, taking day and night, all seasons into account.

And so our forecast then is, taking into account today's temperature of 5 degrees and the average annual temperature of 12 degrees, we come up with some number in between, maybe 7 degrees.

That is analogous to taking a company beta and adjusting it towards the average for all stocks, the market beta. You can see how this kind of forecasting procedure can lead to some rather perverse forecasts. But this is essentially what is being done.

Dr. Morin referenced in his testimony a study by Kryzanowski and Jalilvand. That study has been filed as JDI exhibit 20. That study itself concludes that the best forecasts of company betas are obtained by moving towards industry betas, not towards the beta of one for the whole market.

Subsequently Dr. Morin suggested in his oral testimony that this study, which was conducted in 1986, is stale.

Dr. Kryzanowski has filed evidence before the Nova Scotia Utility Review Board just last year in 2002 affirming this position, the position that one should adjust towards industry betas. And I can provide you with the exact quote on that if you wish.

One still could be puzzled why is it that Valuline provides this information as adjusted towards one.

Well first of all, there are various financial data providers out there and many of them provide raw betas. In addition they sometimes provide these betas adjusted towards one.

But I think there is actually sort of a deeper historically reason. I am frankly not surprised Valuline provides this information for the same reason that I'm not surprised when I walk into Kent Building Supply and ask for an eight foot 2x4 I don't get a piece of lumber that is two inches by four inches. I get a piece of lumber that is substantially smaller than that piece of lumber. Every carpenter knows exactly how to use that piece of lumber and exactly how to adjust for the fact that it is not two inches by four inches. And financial analysts who want to obtain good estimates of company betas know how to use financial data correctly, how to use raw betas, how to adjust them towards industry betas.

So what is a reasonable estimate of beta for the issues at hand? The graph that is displayed here has been taken directly from one of our interrogatory responses as JDI NBP IR-20, and what we have here is a graph of Canadian utility betas, these are gas, electric and

pipeline utilities, over about ten years, 1992 to 2001.

And what we observe is from 1992 out to 1997, 1998, there is an upward trend. And that is consistent with what Dr. Morin was saying in his evidence, when he has in his evidence that US electric utility betas did increase over this period of time. But that's where Dr. Morin's graph stopped. And when we continue the data to the present those betas dropped rather dramatically.

Now at the moment, certainly at the end of 2001, they seem quite low. They are in around .2. And I'm certainly not proposing that we use .2 as our estimate. There is a time pattern to betas. But just as with the equity premium where generally I think everybody is agreed here, certainly Dr. Morin has supported the view that you want to use relatively longer periods of time rather than the most recent experience in stock markets. Here I also believe you should be using a relatively longer period of time and in fact the average beta for the period 1992 to 2001 here is .4.

I believe that is a reasonable estimate. Moreover the decline has a very plausible explanation in the last few years. What I see that to be is a flight to quality, a flight to safety, as there has been volatility in markets. And utilities are perceived to be safe investments. We

talked more extensively about this graph.

So let me summarize these various components. I relied upon a risk free rate of 5.7 percent, which is the rate on long-term -- the yield on long-term Canadas at the time that I was preparing my evidence. I believe a reasonable range for the equity premium based on the best analyses that have been done and tested in top journals is four percent to six percent. I believe that a range for beta in the range of .35 to .5 is a reasonable range.

Combining these various components just straight directly, mathematically, one obtains a range of 7.1 to 8.7 percent. My recommended return is towards the upper end of this range at eight-and-a-quarter.

I will turn now briefly to a related issue, and that is the issue of debt equity structure.

I think we could all agree that firms should minimize all costs, including capital costs. Furthermore, if one goes to the market at a given point in time, the cost of equity financing is significantly greater than the cost of debt financing.

When we look historically over the last 20 years or so, major gas pipelines in this country have existed and have been able to raise money in debt markets at a 70/30 debt equity structure. They have recently moved to a

benchmark 67 33 and that has been largely as a result of an increasing competition in gas pipelines, particular pipe on pipe competition.

In my view a 70 30 debt equity structure is adequate for New Brunswick Power Transmission given the very low risk of the transmission business.

I know there is considerable interest in this matter and I think it's important to consider what are the advantages and disadvantages of moving to other debt equity structures.

If one gives -- if one assigns a deemed equity of let's say 35 or even 40 higher equity component -- actually if that equity is real, then that would provide more of an equity cushion, so to speak, for the company. And one could perceive that to be an advantage. It does not necessarily imply that capital costs will be lower because equity costs are higher. So it's not clear that it necessarily pushes up the total cost -- that it reduces the total cost of capital.

On the other hand, what are the disadvantages? Well first of all, if it increases the total cost of capital there is an effect on rates. And total costs are not being minimized.

But I think there are two other issues that are more

important. One is the effect on managerial incentives. It seemed to me one provides a reasonable equity cushion for the company, that provides the incentive for management to seek cost improvements rather than to rely on the equity cushion. Financial markets do consider not just the cash flow to the company, but is the company an efficient company. And it will take these factors into account and if it helps to drive efficiencies within the company, they will improve overall performance of the company.

The other issue is the effect on capital and rates of return in the broader context of NB Power as opposed to NB Power Transmission. This is actually a -- as I said at the very beginning, there are a lot of issues being presented at this hearing and it seems to me much more sensible to consider cost of capital and debt equity structure issues contemporaneously with these issues when they are being considered for generation, for nuclear, for distribution, so on. If for example too high an equity structure is assigned for transmission, too high a return on equity is assigned to transmission, that in effect establishes lower bounds for the other companies, because certainly generation -- nuclear generation is much more risky. And consideration of all of these subsidiaries I

think simultaneously would be more prudent and easier for the Board.

My final area, and I think that the issues here are relatively simple, and that is payment in lieu of taxes.

New Brunswick Power Transmission proposes to recover approximately $30 million in the coming three years, the term of this proposal, from ratepayers for taxes that it is not required to pay, certainly not required to pay at this time. And the argument that has been raised is a level playing field argument that is mentioned -- that is delineated in the White Paper.

It's easy to see how the level playing field argument is relevant for generation. A private sector company that has to pay taxes and has to compete against a public sector company that is exempt from taxes is unfairly disadvantaged. So there is definitely a level playing field argument there.

It's much harder to see how this level playing field argument is relevant for a transmission company. Transmission is a monopoly, there is no other player on the playing field.

So in my view, payment in lieu of taxes should not be collected unless the company is specifically directed to do so by the government of New Brunswick. A company that

is trying to become more commercially oriented would seem to me would want to behave like a commercially oriented company. And I know of no private sector companies that actively seek to pay taxes. They have spent considerable resources finding legal ways to avoid paying taxes.

And finally I believe that increasing the price of transmission through taxes does not advance the objective of competition in generation.

I now turn to a summary of my conclusions and recommendations.

My recommendations for 2003, 2004 are these. I believe that FERC consistent tariffs should be implemented. This is one of the issues that I think can be easily dealt with separately and expeditiously.

I believe that this Board should direct New Brunswick Power Transmission to implement transmission benchmarking using international standards.

I believe this Board should recommend that -- should direct the company to develop and institute incentives to promote efficiency and demonstrate how these incentives are going to work.

And finally I think that it would be very beneficial if we could accumulate at least one year of cost and performance results in order to have transparent and

testable data.

All these objectives can be accomplished in a way that minimizes the regulatory burden.

Beyond 2003, 2004, once these other hurdles have taken -- have been met, I believe that implementation of price cap regulation, properly tied back to incentives and benchmarks, should be considered and ultimately implemented.

I believe that implementation of return on equity should be done. I would prefer to see it done in a way where transmission, distribution, generation returns are established in a manner that is consistent with each other heading right out of the gate.

Based on the most up-to-date information that we have, the current best estimates of a fair rate of return at this time is eight-and-a-quarter and a reasonable deemed equity -- deemed capital structure of 30 percent equity and 70 percent debt would to me be -- to my thinking would be quite adequate.

Thank you very much for your patience.

MR. SMELLIE: Mr. Chairman, I'm in your hands. It's a little after 12. I perhaps have ten to 15 minutes of examination in chief. I'm quite happy to postpone that until after lunch if you wish. I'm quite happy to do it

now.

CHAIRMAN: Have you discussed the nature of the examination in chief with Mr. Hashey prior to us reconvening?

MR. SMELLIE: No, I have not.

CHAIRMAN: Okay. Well I suggest we take a break and if you have an opportunity to just share the nature of it with Mr. Hashey prior to our reconvening at 1:30, that might speed things up at that time.

MR. SMELLIE: Thank you, Chairman.

CHAIRMAN: Thank you.

(Recess)

CHAIRMAN: Before I ask the parties for the any preliminary matters, over the Christmas break we considered what we would do about reconvening the hearing after we conclude what's going to happen this week. And I have taken a management decision here and simply said that we will cancel out the weeks of the 13th and the 20th. And tentatively reconvene on the week of the 27th for summation purposes. Because I think it's reasonable to anticipate that the legislation will be introduced in the House before the end of the month.

And, however, again in that -- subject to what any of the parties have to say, I would suggest that we cancel out the week of the 3rd of February, which is tentatively

had scheduled as well. But hold on to the week of the 10th of February in case it doesn't come in in time for us to -- all to have a look at it before the week of the 27th. So that would be -- we would hold those two weeks open now, the 27th of January and the 10th of February.

And it would be the Board's intention that as soon as it is tabled in the House, we will get out an e-mail to the parties and see when they reasonably anticipate summation would be -- could be held at that time. And we will make our choices then.

Now any other preliminary matters?

MR. SMELLIE: Just to say, Mr. Chairman, that Mr. Hashey and I continue to get along famously. He has no difficulty with my question or two that I wish to put in examination in chief.

CHAIRMAN: That is good news. Go ahead. Put your questions in chief.

DIRECT EXAMINATION BY MR. SMELLIE:

Q. - Thank you, Chairman. Mr. Mosher, let me begin with you, sir. You have for five years been the energy and environmental manager for Irving Paper which is a part of J.D. Irving Limited, is that right?

MR. MOSHER: Yes, it is.

Q. - You served as a member of the market design committee

which delivered its final report to the government in April of last year?

MR. MOSHER: Yes.

Q. - Do you have before you, sir, a document entitled "Importance of electricity restructuring and rates on industrial customers", evidence of Mark Mosher dated October 23 of last year and forming part of exhibit JDI-1?

MR. MOSHER: Yes, I do.

Q. - Was that document prepared under your direction and control, sir?

MR. MOSHER: Yes, it was.

Q. - Do you also have before you a copy of the responses of J.D. Irving to the various interrogatories dated November 13, 2002, marked as JDI-2?

MR. MOSHER: I do.

Q. - Were those responses, sir, to the extent that they relate to your evidence, prepared under your direction and control?

MR. MOSHER: Yes.

Q. - And do you adopt those materials as your evidence in this proceeding?

MR. MOSHER: Yes.

Q. - Dr. Earle --

DR. EARLE: Yes.

Q. - -- you are a resident of California?

DR. EARLE: That's correct.

Q. - You are a graduate of the College of William & Mary and Stanford University?

DR. EARLE: I am.

Q. - You have, as I understand it, worked for the past 19 years in the fields of energy, competitive markets and optimization, and you have participated more recently in various phases of wholesale electricity market development, correct?

DR. EARLE: Correct.

Q. - You are also a principal of Charles River Associates?

DR. EARLE: Correct.

Q. - And prior to joining that firm I understand you served as the manager of Economic Analysis for the California Power Exchange?

DR. EARLE: Correct.

Q. - And do I have it correctly that one of your tasks in that capacity was to lead a team which prepared an annual report to the Federal Energy Regulatory Commission in the year 2000?

DR. EARLE: That is correct.

Q. - And do I also understand correctly that you have consulted to other clients in FERC related matters?

DR. EARLE: That is correct.

Q. - Do I take it from that, sir, that you would be comfortable answering questions about FERC and electricity matters such as the notice of proposed rulemaking which is marked as JDI-6 in this proceeding, or the treatment of ancillary services by FERC?

DR. EARLE: Yes.

Q. - You have also, as I understand it, recently served as an advisor to Ontario's IMO in order to develop an analytical framework for market monitoring and assessment?

DR. EARLE: That is correct.

Q. - You have before you, sir, a copy of a document entitled "Test Year and Ancillary Services Pricing at New Brunswick Power Corporation", evidence of Robert Earle, dated October 23 of last year, and forming part of Exhibit JDI-1?

DR. EARLE: I do.

Q. - Was that document prepared under your direction and control, sir?

DR. EARLE: It is.

Q. - You also have before you a copy of the responses of J.D. Irving to the interrogatories marked as Exhibit JDI-2.

DR. EARLE: I do.

Q. - And were the responses in that document to the extent

that they relate to your evidence prepared under your direction and control?

DR. EARLE: They were.

Q. - Now I understand, Doctor, that we need to make some corrections to the material?

DR. EARLE: That is correct.

Q. - Could I take your firstly to exhibit JDI-1, which is the evidence, and in particular the document that we have just identified, "Test Year and Ancillary Services Pricing at New Brunswick Power Corporation". Could I take you firstly to page 8. If you would just wait, make sure all the members have that turned up.

Just as an aside, Mr. Chairman, I have a few corrections to make to the evidence and to the information responses for which Dr. Earle is responsible.

CHAIRMAN: Good. Thank you.

Q. - Doctor, on page 8 you have a correction to make to your evidence?

DR. EARLE: Yes, I do.

Q. - Go ahead, please.

DR. EARLE: On page 8, line 23, starting with the words, for the years 2000, replace the rest of the sentence with -- replace those words in the rest of the sentence with, were 32.6 million for the fiscal year 2000 and for the fiscal

years 2001 and 2002 were 34.7 million each year. The whole sentence would now read, "The historical levels of OM&A expense were 32.6 million for the fiscal year 2000 and for the fiscal years 2001 and 2002 were 34.7 million each year.

Q. - Thank you. Could you turn over, Doctor, to page 11. I understand you have a correction to make at this page?

DR. EARLE: I do.

Q. - Go ahead.

DR. EARLE: On page 11, lines 2 through 4, the two sentences starting with, supplemental reserves, should be replaced. They should now read --

Q. - Please proceed slowly, Doctor, so that we can get it down.

DR. EARLE: I apologize. Supplemental reserved service does not require the unit to be on line, but depending on the type requires the unit to respond in either ten or 30 minutes. Spinning reserve service requires the unit to respond in ten minutes and also already be on line.

Q. - And then can I take you to Appendix B to this document, Doctor. Page 7. And I understand you have a correction to make here as well?

DR. EARLE: I do.

Q. - Go ahead please.

DR. EARLE: On line 13 where it says $17.71 per megawatt should be replaced with 17' --

Q. - Sorry, Commissioner Bremner. I'm going a little too quickly. Appendix B, page 7. And I think Dr. Earle has taken us to line 13.

DR. EARLE: All right. On line 13 where it says 17.71 per megawatt hour, please replace it with 17.71, 17.61 and 17.58 per megawatt hour respectively.

Then in the footnote, footnote 13, last sentence, please replace the two words at the beginning of the sentence, a same with a similar. So the sentence now reads "A similar figure will arise from any of the NBP load conditions."

Q. - Now can I get you then, Doctor, to turn to exhibit JDI-2, the responses to the interrogatories, and in particular the response to JDI CME IR-2, and in particular page 3 of that response.

Do you have a correction there, sir?

DR. EARLE: I do. On the paragraph continued from the previous page, the reference to NBP EEI IR-34 should be replaced with Supplemental Request NBP EEI IR-4.

Q. - Could you then, Doctor, turn to the response to interrogatories from NB Power, in particular NB Power IR number 3 and page 5 of that response? JDI NBP IR-3.

Is there a change to be made there, Doctor?

DR. EARLE: Yes, there is, a clarification. The answer to Question C, part 1, per regulation, those are in units of regs. To respond more forthrightly to the question or more precisely to the question rather, in terms of megawatts the answer should be 3.2 percent.

Q. - So we should delete 8.1 percent and replace it with 3.2 percent?

DR. EARLE: That is correct.

Q. - Thank you. And could you turn in the same response, Doctor, to page 12, that is to say, JDI NBP IR-7. Do you have that?

DR. EARLE: I do.

Q. - I gather you have two changes to make in this response?

DR. EARLE: That is correct. The first change is in the first paragraph of the response towards the bottom, about five lines up. The reference to "NBP EEI 34" should be replaced with "Supplemental Request NBP EEI IR-4."

Q. - And the second and last correction?

DR. EARLE: Second and last correction is in the next paragraph, the second paragraph of the response. It is about the sixth line down.

The line starts "Exercise of market". The line -- the word "power" should be inserted after the word "market".

So the line starts "Exercise of market power."

And the whole sentence should read "The proxy method proposed by NBP, however, creates the opportunity for the exercise of market power that is anticipated by NBP Transmission, since the cost of a proxy unit plus the added redispatch costs go well beyond the short-run marginal costs of producing CBAS, and very likely greatly exceed the long-run marginal costs."

Q. - With those changes and corrections, Doctor, do you adopt this material as your evidence in this proceeding?

DR. EARLE: I do.

Q. - Dr. Yatchew, you are a graduate of the University of Toronto and of Harvard University. And you hold degrees in mathematics and economics, is that correct?

MR. YATCHEW: Yes, I do.

Q. - You are currently an Associate Professor of Economics at the University of Toronto and you are a Senior Consultant at Charles River Associates, is that correct?

MR. YATCHEW: That is correct.

Q. - Since leaving Harvard, Doctor, I understand that you have conducted a number of studies on the electricity industry, and you have published a number of articles and works in the fields of energy economics and econometrics, is that correct?

MR. YATCHEW: Yes, I have, and in other areas of economics as well.

Q. - You have consulted to and prepared reports and studies and testimony on various subjects concerning electricity utilities or electric utilities, particularly in the Ontario context?

MR. YATCHEW: I have advised at hearings in the Ontario context, yes.

Q. - Thank you. And you also currently have been for some seven years a joint editor of a publication known as the Energy Journal with particular responsibility for electricity industry publications, is that correct?

MR. YATCHEW: Yes. That is correct.

Q. - Do you have before you, Doctor, a document entitled "Incentive Regulation of Transmission at New Brunswick Power Transmission" which forms part of exhibit JDI-1?

MR. YATCHEW: It is "Incentive Regulation of Transmission at New Brunswick Power Corporation", is the title --

Q. - Excuse me. My mistake.

MR. YATCHEW: -- dated October 23rd 2002. Yes, I do.

Q. - Was that prepared under your direction and control?

MR. YATCHEW: Yes, it was.

Q. - And do you also have before you a copy of the J.D. Irving responses to interrogatories marked as JDI-2?

MR. YATCHEW: Yes, I do.

Q. - And were those responses to the extent that they relate to your evidence prepared under your direction and control?

MR. YATCHEW: Yes.

Q. - I understand you have no changes or corrections to make to this material, Doctor. Do you adopt it then as your evidence in this proceeding?

MR. YATCHEW: I do.

Q. - Doctor, you attended the hearing in December during the course of the appearance of New Brunswick Power's Panel B, is that right?

MR. YATCHEW: I attended most of that panel's presentations, yes.

Q. - Yes. You were not here for the reexamination by counsel for New Brunswick Power?

MR. YATCHEW: No, I was not here. I was not here for the Thursday.

Q. - Have you read the transcript?

MR. YATCHEW: I have reviewed the transcript.

Q. - And are you then familiar, Doctor, with Dr. Morin's response in reexamination in which he recited elements of the evidence of a certain Dr. Evans filed for AltaLink in that company's 2003-2004 rate application before the

Alberta Energy and Utilities Board?

MR. YATCHEW: I'm aware of this, yes.

Q. - Yes. Dr. Morin noted that a proposed -- sorry, Dr. Morin noted that on a proposed debt equity structure of 63 1/2 debt, 37 1/2 equity, Dr. Evans is recommending a 10 1/2 percent return on equity for AltaLink inclusive of flotation costs.

Is that your understanding of that evidence?

MR. YATCHEW: That is my understanding.

Q. - Are you aware, sir, of any responding testimony which has been since filed in that case on behalf of intervenors?

MR. YATCHEW: Since that time there has been additional evidence filed at that hearing. It is evidence of Drs. Booth and Berkowitz. And they come to a somewhat different conclusion. They recommend a return of 8 1/2 percent on a 30/70 equity debt structure.

Q. - Do they -- does that evidence contain any opinion on market risk premium or the risk premium for AltaLink?

MR. YATCHEW: Their recommended risk premium is in the order of 1.8 and 2 1/4 percent.

Q. - For AltaLink?

MR. YATCHEW: For AltaLink, yes, the transmission company, yes. And they base that on a beta in the range of .4 to .6.

Q. - And do you know, Doctor, from your review of that evidence, whether performance-based ratemaking is an issue in that case?

MR. YATCHEW: I don't recall at this time.

MR. SMELLIE: Just before I turn the panel -- thank you, Doctor. Just before I turn the panel over for cross examination, Mr. Chairman, may I just make it clear in my own mind the rules of engagement.

My understanding is that if there is an undertaking offered, that I'm free to speak to these witnesses in terms of responding to that undertaking. But beyond that I'm to have no communication with them, nor is Mr. Nettleton, while they are being cross examined.

That is how I intend to proceed if that is satisfactory to you.

CHAIRMAN: Subject to comment from counsel opposite that certainly seems appropriate to me.

MR. SMELLIE: On that note then, Mr. Chairman, and subject to Mr. Morrison's comments, the panel is available for cross examination.

CHAIRMAN: Mr. MacNutt?

MR. MACNUTT: Mr. Chairman, I wonder if it would possible for JDI to file the pages corrected by Dr. Earle?

CHAIRMAN: I'm sorry. Would you repeat that, Mr. MacNutt?

MR. MACNUTT: I wonder if it would be possible if JDI could be asked to file with the Board copies of the pages in their corrected form, noted as being corrected with respect to the corrections made by Dr. Earle?

MR. SMELLIE: I expect that within the next 24 hours, Mr. Chairman, we should probably be able to do that and would be happy to do so.

CHAIRMAN: Thank you.

MR. MACNUTT: Thank you.

CHAIRMAN: Counsel will assist the Board if my recollection is incorrect, but I think in this circumstance I should call upon the other intervenors for cross and then NB Power to conclude cross examination. No, Mr. MacNutt?

MR. SMELLIE: Followed by the Board, Mr. Chairman? Followed by Board staff?

CHAIRMAN: Board staff, I'm sorry. That's correct. And then back for redirect. Well not hearing any complaints about that procedure we will proceed that way. So it would be Emera first.

MR. ZED: We don't have any questions of this panel.

CHAIRMAN: Okay. Is that for both hats, Mr. Zed?

MR. ZED: Yes.

CHAIRMAN: Thank you. Perth Andover.

MR. DIONNE: We are happy.

CHAIRMAN: Mr. Knight, does the Province have any?

MR. KNIGHT: No questions.

CHAIRMAN: Saint John Energy?

MR. YOUNG: No questions.

CHAIRMAN: Mr. Morrison?

MR. MORRISON: Thank you, Mr. Chairman. With the Board's permission how we intend to proceed, Mr. Chairman, is that I will be cross examining Dr. Earle and Mr. Hashey will be cross examining the other two witnesses on the panel, if that is okay with the Board.

MR. SMELLIE: As long, Mr. Chairman, as the fertile ground is not being re-ploughed by Mr. Hashey.

MR. MORRISON: I can assure you it won't be.

MR. SMELLIE: That is the first point. And the observation is that I assume my friend is not by his structure precluding any member of the panel to respond to questions that he may put to a particular witness in order to assist the Board.

MR. MORRISON: I have no problem with that, Mr. Chairman, but I suspect that my questions will be directed specifically to Dr. Earle.

CHAIRMAN: Okay. Go ahead, Mr. Morrison.

CROSS EXAMINATION BY MR. MORRISON:

Q. - Good afternoon, Dr. Earle.

DR. EARLE: Good afternoon.

Q. - I would as you to first turn up your evidence which is in JDI-1. I'm talking about the first part of your evidence or the main part of your evidence, and particularly initially at least page 9. And you might also turn up Exhibit A-5. I will just wait for the Board.

MR. SMELLIE: What is that exhibit, Mr. Morrison?

MR. MORRISON: It's Exhibit A-5, tab 3, which is the Stone & Webster report.

MR. SMELLIE: Well the Stone & Webster report is in a volume. What volume is A-5.

MR. MORRISON: Attachments to responses to interrogatories number 1. Exhibit A-5.

MR. SMELLIE: Thank you.

Q. - Do you have those in front of you, Doctor?

DR. EARLE: I do.

Q. - Turning first to page 9 of your evidence, Dr. Earle. Actually it starts on page 8. But if I understand your evidence, you are recommending that the starting point level of the OM&A be set at $34.7 million, is that correct?

DR. EARLE: As a maximal starting point. But I also have another recommendation with respect to the starting point.

Q. - Okay. Perhaps we will get to that as I proceed. But the

initial at least you are saying, if I read your evidence correctly, that the OM&A expense allowed in the rate base be no more than 34.7 million as your starting point?

DR. EARLE: Correct.

Q. - Okay. And if I understand your evidence correctly, Doctor, this is based on your recommended use of historical data for the test year, is that correct, rather than prospective test year?

DR. EARLE: That is correct.

Q. - And you then go on to say at page 9 in your evidence that that figure, the 34.7 million, should be lowered because of what you cite as recommendations from the Stone & Webster report, that OM&A expenses can be reduced, is that fair?

DR. EARLE: That's true.

Q. - Now one of the cost savings that you say Stone & Webster identified is reliability based evaluation methods?

DR. EARLE: That is correct.

Q. - And you say that Stone & Webster state that these reliability based evaluation methods could lower maintenance costs by ten to 15 percent, is that fair?

DR. EARLE: True.

Q. - And correct me if I am wrong, Doctor, but perhaps we could turn to the Stone & Webster report, section 4, page

4-12 and 13.

I am just going to read the paragraph that begins under 4.5 Findings, and it says, "Based on information and data obtained (awaiting additional OM&A breakdown) Stone & Webster concludes the OM&A programs NB Power has established are generally consistent with those of other similar utilities. Further, future OM&A expense budgets should be sufficient to ensure safe and continued reliable operation. There are opportunities for costs reduction without compromising equipment performance or reliability. Principal among these is the phase-in of RCM which industry analysts suggest should reduce maintenance expense on average by ten to 15 percent or more."

Now is that the portion of the Stone & Webster report that you rely on for your statement that the maintenance expense can be reduced by ten to 15 percent?

DR. EARLE: It is.

Q. - Okay. So that you would agree with me then, Dr. Earle, that Stone & Webster in the passage that I was just reciting was referring to RCM, which I think is reliability centred maintenance?

DR. EARLE: I'm sorry. Could you rephrase the question?

Q. - Okay. As I read the passage that we just looked at, what the analysts were saying is that maintenance expense could

be reduced by ten to 15 percent as a result of the phase-in of this RCM program.

DR. EARLE: Correct.

Q. - Okay. And I want to draw your attention particularly to the term phase-in. And does this suggest to you that this would be a program that would be implemented over a period of time?

DR. EARLE: Phase-in could have that meaning.

Q. - And, Doctor, I know that you were here at some points in time during the hearing. But were you present on December 19th when David Lavigne gave evidence that it will take three to five years to achieve the value from RCM, or did you read any of his transcript with respect to that evidence?

DR. EARLE: Could you take me to the transcript, please?

Q. - Okay. It's the December 19th transcript. It appears twice actually. It appears at page 1781 at the top of the page. Mr. Lavigne was being examined with respect to RCM and the Stone Webster report in particular. And I think that was examination by Mr. MacNutt.

And the question was "And how many years is it expected to last, RCM and roughly what impact it would have? Can you give us an approximation of the expected" --

Mr. Lavigne: "I don't have an approximation. I suspect the project would probably be in the three to five-year range. Stone and Webster quoted some figures in their study of 10 to 15 percent reductions. I'm not sure if that is reasonable. I think that depends on the utility and the infrastructure, the situation and the environment."

And then a couple of pages later at 1783 -- actually it starts at the bottom of 1782 -- Mr. Lavigne says "Looking at the Stone and Webster study, I think in actuality we probably incurred costs. If you look at the study, the premise of the study was to look at the infrastructure. And what Stone and Webster found was that transmission was a very old infrastructure in the low-voltage area. This has resulted in increased costs in both the capital program and the maintenance program in order to compensate for the aging infrastructure. So at this stage, coupled with the fact that it is a multi-year program, you know, three to five years, at this stage costs are actually increasing in order to deal with the recommendations which Stone and Webster put forth."

So were you present when that evidence was given, Dr. Earle?

DR. EARLE: Yes, I was.

Q. - Okay. So if you look at the statement in the Stone & Webster report, that basically says that RCM is to be phased in, and Mr. Lavigne's evidence that it is going to take three to five years before results are seen, is it your position that this 10 to 15 percent reduction will be realized in year one?

DR. EARLE: Well, my position is this. The Stone & Webster report -- the Stone & Webster report was written in 1999, three -- a bit over three years ago now.

New Brunswick Power has had the opportunity to accomplish three years of the phase-in during this timeframe. We face a record that has very little in it in terms of what cost savings could be achieved, what cost savings New Brunswick Power has actually experienced.

What we can note from the record is that in the meantime, since the three years since the Stone & Webster report, that OMA costs have gone up. And they are projected to go up. So I think that it is reasonable to think that those cost savings should have been achieved.

Q. - So it is your position then that the 10 to 15 percent reduction in maintenance costs should be achievable in year one?

Is that what you are saying, Doctor? I'm just trying to get your evidence clear, that is all.

DR. EARLE: If in fact it is true that it takes three to five years to implement, if that is true, then you wouldn't expect to see all the cost savings -- you wouldn't expect to see all the cost savings in year one.

However, as I recall -- I don't recall the amount or when they started. But I recall that some money has already been spent. It has been three years since the report. So I would have expected to see savings by now.

Okay. Let's move on, Doctor. I would like to again refer you to page 9 of your evidence. And if I understand your evidence correctly, you are saying that the $34.7 million starting -- which you say is a starting point for OM&A, that should be reduced by 1.1 million to 33.6 million.

Is that a fair assessment of your evidence?

DR. EARLE: It is.

Q. - Okay. And if I understand your evidence, in order to calculate the reduction from 34.7 million to 33.6 you first had to determine what portion of the OM&A expense related to maintenance, is that fair?

DR. EARLE: Correct.

Q. - And if I understand your evidence, you did that by using the ration of maintenance workers to the rest of the business unit as set out in the Stone & Webster report?

DR. EARLE: Correct.

Q. - Okay. And I'm going to refer you again to the Stone & Webster report, Doctor. And I'm going to refer you to -- it doesn't have a page number, but it is really -- I guess it is page 4.1, which is the page immediately before 4-2. It is the opening page in section 4.

Do you have that in front of you, sir?

DR. EARLE: I do.

Q. - Okay. If we can -- I'm going to refer you to the last sentence which says "Approximately 175 of the 133 employees in the T & D organization worked for T & D maintenance. Of these, Stone & Webster estimates approximately 80 to 85 percent of the department's workload is transmission line and equipment maintenance."

Do you see that?

DR. EARLE: I do.

Q. - Now is that the ratio that you were referring to?

DR. EARLE: It is.

Q. - Okay. So perhaps you can explain to me, Doctor, then. You just took this ratio and you applied it to what number?

DR. EARLE: I applied the ratio to 15 percent of the historical test year.

Q. - To 15 percent of the historical test year? Okay. Why 15

percent?

DR. EARLE: The evidence suggests that there is -- the evidence suggests that there is savings of 15 percent achievable.

Q. - Okay. Now -- okay. I understand that part, Doctor.

Now Stone and Webster also goes on to say that 80 to 85 percent of the department's workload is transmission line and equipment maintenance.

Did you adjust your ratio by 80 or 85 percent?

DR. EARLE: I did not, since the adjustment I made for that OMA expense applied to only the transmission department.

The figures given in ratio of employees applies to the integrated transmission and distribution department at the time.

Q. - Okay. I'm not clear on what you mean when you say that the initial ratio only applied to transmission unit employees.

Perhaps you can just go through the calculation. I'm just trying to understand it, Doctor.

DR. EARLE: Sure. So starting with the historical test year figure of 34.7 million, what I wanted to do was to get at a figure that would allow me to approximate what the suggested savings from Stone & Webster are. They suggested 10 to 15 percent savings off the maintenance

activity.

Based on that and based on the number of employees in the T & D business unit that are in the maintenance function, I took that percentage of the historical test year figure of 34.7 million, multiplied it by 15 percent to get 1.1 million.

Q. - So this 80 to 85 percent adjustment, was that done to identify that portion of the maintenance which was transmission-specific?

DR. EARLE: I'm sorry. I don't understand your question.

Q. - Okay. Basically how I understand it is you took the whole transmission and distribution department employees, correct?

You took the ratio of transmission employees to the whole T & D department, correct, and got a ratio?

DR. EARLE: That is not correct.

Q. - Okay. Then you better step it through me again.

DR. EARLE: Okay. The figure we have, that we started out with for the historical test year of 34.7 million is just transmission, operations, maintenance, the administration.

The issue is that in the Stone & Webster report -- this is a report on the still combined transmission and distribution function.

In order to approximate the amount of maintenance work

performed -- excuse me, to estimate the amount of the budget that represents maintenance work, I took the ratio of 175 to 833, which was the maintenance employees in the transmission and distribution organization.

I multiplied that ratio times the historical test year figure to get the approximation of the maintenance expenditure in the transmission organization.

Because the original figure I started out with was transmission only, the 34.7 million. There is no need to adjust again for the 80 to 85 percent.

So 34.7 million times 175 divided by 833 times 15 percent -- and I apologize for this long string of numbers -- yields a 1.1 million savings.

Q. - Okay. Thank you. Again on page 9 of your evidence, Dr. Earle, you refer to Stone & Webster and you refer to maintenance cost savings that can be achieved through lower vegetation and management costs?

DR. EARLE: I do.

Q. - And you suggest that -- excuse me, are you relying on recommendation 8 on page 4-14 of the Stone & Webster report for that conclusion?

DR. EARLE: I am.

Q. - And that recommendation, if you read through the other passages, refers to right-of-way clearing, is that

correct?

DR. EARLE: I'm sorry, can you point me to that passage?

Q. - If we go back to 4-9. And it is the last full paragraph above section 4.3.3, particularly the last two sentences. Well the whole paragraph really. Would you agree with me that when Stone & Webster is talking about vegetation management improvements it's really talking about the application of herbicide for a right-of-way clearing operation?

DR. EARLE: Yes.

Q. - And were you aware, Doctor, of the lengthy litigation in which NB Power was involved called the Sprayers of Dioxin litigation that went on in New Brunswick for several years?

DR. EARLE: No, I am not.

Q. - Well as a result of that and other matters, Doctor, NB Power has adopted a policy not to use herbicides for clearing rights of way. Now my question to you is that in order to implement the Stone & Webster recommendations for cost savings, NB Power would have to reverse that policy, wouldn't it?

DR. EARLE: Well I wasn't aware of the legislation so I can't really -- excuse me. I wasn't aware of the litigation so I can't really come to a conclusion.

However, part of the difficulty of dealing with this record is we don't have a history to rely upon in terms of what costs have been prudently incurred and what haven't. The savings suggested by the Stone & Webster report are about -- is about all there is in the record. And with a report like this, it is important to have the issues addressed and they should be addressed in a manner so that ratepayers can know what savings are actually possible and have been achieved and the -- what New Brunswick Power is undertaking in order to achieve those savings.

Q. - Well I'm sure, Doctor, you will have plenty of opportunity to comment on the completeness of the record. But my question was, and I will perhaps try to restate it, in order to achieve the cost savings and vegetation management that the Stone & Webster report refers to, NB Power will have to implement a policy of using herbicides to clear rights of way, is that correct?

DR. EARLE: It appears to be so.

Q. - Now I will refer you, Doctor, to page 4-13 of the Stone & Webster report. And it is the third last bullet, I guess, is about the only way I can describe it.

DR. EARLE: Can you give me the page again please?

Q. - It's 4-13.

DR. EARLE: 4-30?

Q. - 4-13. Sorry. Do you have that in front of you, sir?

DR. EARLE: I do.

Q. - And I'm just going to read really I think the last middle two sentences beginning with the second sentence.

DR. EARLE: I'm sorry, what bullet?

Q. - The third last bullet beginning with the transmission vegetation.

DR. EARLE: I have it.

Q. - The second sentence begins, "Right-of-way trimming appears to now be on schedule and observed corridors appear well managed. The current rate of expenditures (or higher) is likely necessary to maintain clear ROW corridors. Limited herbicide applications has the potential to reduce vegetation management expenditures over time."

Now I draw your attention, Doctor, to the words "over time". You would agree that -- or perhaps you wouldn't but I will put the question to you, does it not imply to you that even if NB Power were to introduce a policy of spraying dioxin or other herbicides that the expenditure savings would only be realized over time?

DR. EARLE: Sure. Starting in 1999 with the report.

Q. - And do I take it from that last response, Doctor, that you still believe that those savings -- or is it your

position that those savings would be achievable in year one?

DR. EARLE: Well again the report is three years old. If there were savings to be achieved in this area I would have suspected after three years to start to see them.

Q. - Assuming the policy to introduce spraying of herbicides was introduced, correct?

DR. EARLE: Assuming that that was a necessary component, yes.

Q. - Okay. Doctor, again I'm just going to touch briefly and then I promise you you can put the Stone & Webster report away. Back to page 9. Another cost saving that you identify is improved project evaluation methods.

DR. EARLE: Correct.

Q. - And I was looking through the Stone & Webster Report and the only reference I could see to that was under -- I think it has -- it's at the very beginning of the report and it has Roman Numeral page number VIII. Do you have that in front of you, sir?

DR. EARLE: I do.

Q. - And it's really the first full paragraph at the top of the page, Doctor. Is that the section of the Stone & Webster report that you rely upon for your statement that improved project evaluation methods will result in reduced

OM&A costs?

DR. EARLE: Yes.

Q. - And does it say anywhere there, Doctor, that these project evaluation changes, if you will, will result in cost savings?

DR. EARLE: Well I think it's implicit, because when evaluating projects with a limited budget, one has to choose the most effective projects within the given budget. If one has an improved method to choose projects, one could therefore logically achieve the same level of service at reduced cost.

Q. - In your opinion?

DR. EARLE: Yes.

Q. - Okay, Doctor. I think you can safely put away the Stone & Webster report. Keep your evidence out though, Doctor, and perhaps if you can turn up, because I will be referring to it as I go through this section of my questioning, it would be exhibit A-4, it's an interrogatory response, it's exhibit A-4. It's WPS IR-15. I will go through that again. Exhibit A-4, WPS IR-15, and it's at page 592 of that binder.

Now, Doctor, if I can get you to turn to Appendix B to your evidence, and just keep that handy for the time being. And, Doctor, just so that we are all clear of the

area which I am pursuing, it's really at the bottom of page 4 and 5 of Appendix B of your evidence, and it's dealing with the contingency reserve.

Doctor, would you agree with me that operating reserves are a function of the systems' contingency requirements?

DR. EARLE: Yes.

Q. - And NB Power's largest contingency is Point Lepreau at 660 megawatts, you would agree with that?

DR. EARLE: Yes.

Q. - And that is determined not by NB Power, but by the Northeast Power Coordinating Council, isn't that correct?

DR. EARLE: That's my understanding, yes.

Q. - Okay. Now with the exception of Nova Scotia in terms of the sharing of contingency obligations or reserve obligations, in this application NB Power has the basis for computing the share of the contingency reserve which each of the utilities must bear was based on the average 12 coincident peaks, would you agree with that?

DR. EARLE: Yes.

Q. - Okay. And if you look at WPS IR-15 -- do you have that in front of you?

DR. EARLE: I do.

Q. - The last column on the right at the bottom, the total

averages at 3,926 megawatts --

DR. EARLE: Yes.

Q. - -- that would be the average 12 coincident peak, correct?

DR. EARLE: That's correct.

Q. - So to determine each utility's load ratio for this -- for reserve obligations, you would divide each utility's monthly average coincident peak, and for example NB Power's would be 20 53, you see that?

DR. EARLE: That's right.

Q. - So you would divide that by the total 12 coincident peak of 39 26.

DR. EARLE: That's right.

Q. - And that would give you a load ratio in the case of NB Power of 20 53 divided by the 39 26 would be 52.29 percent, correct, subject to check?

DR. EARLE: Subject to check.

Q. - So if the largest contingency at Point Lepreau was 660 megawatts then NB Power's share of that contingency would be 52.29 percent of 660 megawatts, correct, assuming that Point Lepreau is the largest contingency?

DR. EARLE: Correct.

Q. - But that is not how NB Power has chosen to calculate the obligation sharing mechanism in this application, is it? It hasn't used what I will call the true contingency which

is 660 megawatts. For the purposes of collecting revenues under this tariff, NB Power has essentially made Point Lepreau responsible for the contingency above 500 megawatts, correct?

DR. EARLE: Could you show me that in the evidence again, please?

Q. - I believe it's at -- just give me a moment. Okay. Dr. Earle, it's exhibit A-2, attachment B -- I have just been told by your counsel that you don't have the exhibit numbers on your binders. So it's the NB Power evidence, volume 1 of 2, and it's Appendix B to that volume, Appendix B to the tariff design documents, and it's page 69. Do you have that in front of you, Doctor?

DR. EARLE: I do.

Q. - Okay. And if you look at that down just above the notes at the bottom of the table, it says, actual first contingency 660 megawatts, do you see that?

DR. EARLE: I do.

Q. - Okay. And it says, nominal second -- I'm sorry -- nominal second contingency relative to Maritimes Control Area load 500 megawatts?

DR. EARLE: Yes.

Q. - And that, as I understand it, Dr. Earle, is the amount of contingency that is really being subject to sharing under

the tariff that is being put forward by NB Power?

DR. EARLE: Yes.

Q. - That's correct. And NB Power chose to do that using a general rule of thumb that the largest contingency on the system should not be more than ten percent of the system peak. Is that your understanding?

DR. EARLE: I'm sorry. Could you repeat the question?

Q. - NB Power chose to use 500 megawatts for purposes of collecting revenues rather than the 660 megawatts by using ten percent of the system peak, being approximately 5000 megawatts for the purposes of the Maritime Control System?

DR. EARLE: Yes.

Q. - And you have no reason to dispute that the system peak load is approximately 5000 megawatts, Doctor?

DR. EARLE: No.

Q. - And as we discussed a moment ago, the 12 CPI average peak, the 39 26, which shows up on WPS IR-15. The function of that is to share the responsibility among the utilities, is that your understanding? It's the sharing mechanism?

DR. EARLE: Yes.

Q. - Now if I look at your evidence, Doctor, at page 5, and I will just read it, it's the first paragraph, though it appears nowhere in NB Power's original filing, NB Power

has subsequently provided a set of monthly coincident peak data in its response to WPS at IR-15. The use of these numbers is of key importance since if I use 3926 megawatts when computing the first contingency then the amount of control area operating reserves decreases by about 20 percent, which lowers the revenue requirement sought by NB Power accordingly.

And I just want to be clear, Doctor, that we are not mixing apples and oranges here. Are you saying that the 12 coincident peak, the 39 26, ought to be the basis for determining the contingency requirement?

DR. EARLE: No.

Q. - Then what are you -- what do you mean by that passage that I just read to you?

DR. EARLE: The difficulty I had in interpreting the evidence had to do with understanding the origin of the 5000 1 CP number, the annual coincident peak number.

Q. - You just didn't know where the 5000 system peak number came from, is that where you had your difficulty?

DR. EARLE: It wasn't apparent -- it wasn't apparent to me from the evidence how the 5000 annual peak number came into being, and I wanted to comment on that.

Q. - Okay. So what do you mean when you say if I use 39 26 megawatts when computing the first contingency, what do

you mean by that?

DR. EARLE: What I meant in terms of the application -- what I meant in terms of the application was that it wasn't clear to me the reasoning applied, given I didn't have a reference for the 5000 megawatt number from the application.

Q. - Well, Doctor, if I might, I believe it's the evidence at Appendix B, that is volume 1 of 2 that we just looked at. I believe it's in Appendix B again -- it's exhibit A-2 but I don't know -- do you have that in front of you?

DR. EARLE: What page?

Q. - Page 45 of Appendix B. Do you have that in front of you, sir?

DR. EARLE: I do.

Q. - And do you see the first -- well starting at line 8 where it's -- I will read it. The transmission customer service obligation for each of the reserved services under this tariff will be based on a load share ratio. However, it will not exceed the obligation for the respective services that would exist in the first and second -- if the first and second contingencies were ten percent of the annual peak load for the control area. The portion of the first contingency in excess of ten percent of the annual peak load, i.e., 5000 megawatts for the control area --

Maritimes control area -- shall be the direct responsibility of the owner of the first contingency. Do you see that?

DR. EARLE: I do.

Q. - Was that not clear to you, Doctor, as to how the first contingency was being calculated?

DR. EARLE: It wasn't really a matter of calculation of the first contingency.

Q. - But certainly the figure of the annual peak load of 5000 megawatts is clearly shown on that page, isn't it, Doctor? Would you agree that it's shown there?

DR. EARLE: Oh, I'm sorry. It is shown there.

Q. - Yes. So that brings me back to my question again, Doctor, when we turn back to Appendix B of your evidence at page 5 that we have been looking at. It seems to me that when I read that last sentence in that first paragraph, lines 3 to 6, what you are suggesting is that the operating reserve requirement can be reduced by 20 percent if we use the 12 coincident peak of 39 26 megawatts.

DR. EARLE: I'm not suggesting that.

MR. MORRISON: Okay. I'm going to move on to another area, Mr. Chairman, if you want to take --

CHAIRMAN: I think we will take our break.

(Recess)

CHAIRMAN: Go ahead, Mr. Morrison.

Q. - Thank you, Mr. Chairman. Dr. Earle, I will ask you to turn up JDI exhibit 27, just keep that out for a while, and the IR response that I think you put a correction on at the opening of your testimony which was JDI NBP IR-3, which is found in exhibit JDI-1 and 2.

DR. EARLE: I have it.

Q. - We will wait for the Board. Just keep those at hand.

CHAIRMAN: Mr. Morrison, would you -- we all have JDI-27, but from there on in some of us do, some of us don't.

MR. MORRISON: Okay. It's exhibit JDI-1 and 2 which I guess it's JDI-2, and it's the following undertaking. It's JDI NBP IR-3. Unfortunately that exhibit isn't numbered consecutively, so --

CHAIRMAN: Okay.

Q. - I will ask everyone to turn to JDI-27 and it's the second last page. And it's the schedule entitled "Development of Rate for Operating Reserve Spinning Reserve Service". Dr. Earle, I would just like to go through this with you. Do you see on the table, sort of on the bottom right-hand column of the table where it has 77 59 weighted annual cost per kilowatt hour, per kilowatt, under column 11?

DR. EARLE: $77.59 --

Q. - Right.

DR. EARLE: -- weighted annual cost per KW.

Q. - Right. And that represents an annual cost per kilowatt for Central Maine's -- well it's the generation used for the provision of the spinning reserve, would you agree with me on that?

DR. EARLE: I'm sorry. Repeat the question.

Q. - That is the cost -- Central Maine's cost of generation used for the provision of the spinning reserve?

DR. EARLE: Yes.

Q. - Okay. Now two rows below that there is a spinning reserve requirement and there is a number there of 39,910, do you see that?

DR. EARLE: I do.

Q. - And would you agree with me that that is the quantity of the spinning reserve service that is required to be provided by the generator?

DR. EARLE: Yes.

Q. - Okay. Now just below the $77.59 there is a number, 1,171,873, do you see that?

DR. EARLE: I do.

Q. - And would you agree with me that that represents the load in the Central Maine territory that is expected to pay for the spinning reserve?

DR. EARLE: It looks like it's the average 12 month system peak and it looks like that's the number they used in order to calculate.

Q. - That would be the basis of the calculation for sharing, correct?

DR. EARLE: That's the basis they used.

Q. - And two rows below that you see percentage spinning reserve required, 3.41 percent?

DR. EARLE: I do.

Q. - And is that -- would you agree with me that is the quantity of the service provided, which is the 39,910, expressed as a percentage of the load?

DR. EARLE: Subject to check.

Q. - If you -- perhaps to do it another way, Doctor. If you took the 39,910 and divided it by the 1,171,873, you would arrive at that percentage of 3.41 percent?

DR. EARLE: It appears to be that.

Q. - And going back to the first number that we started with which is the number -- the yearly rate for spinning reserve, the 2.6425, you see that, just below the 3.41 percent?

DR. EARLE: Yes.

Q. - And you would agree with me that is the rate that is to be paid by the transmission customers for that spinning

reserve service?

DR. EARLE: Yes.

Q. - And that's simply a product of the cost of generation and the 3.41 percent, if you took the 2.6425 -- sorry -- I'm lost here. That rate is the product of the cost of generation, which is the 77 59 times 3.41 percent?

DR. EARLE: Yes, subject to check.

Q. - Okay. And that appears to be the process or the methodology that was used by Central Maine Power to derive its rates for its customers for these ancillary services?

DR. EARLE: Correct.

Q. - And I believe we heard earlier that this was submitted to FERC and approved by FERC. So would you agree this was a just and reasonable approach for calculating the rate?

DR. EARLE: I'm not sure I understand the question.

Q. - Well the process that we just went through in terms of how the rate was calculated by Central Maine, as I understand it this was part of a FERC filing, if I understand what you said earlier, is that correct? Did you not mention -- well perhaps it was mentioned in earlier testimony that this document was filed --

DR. EARLE: Yes. I think it was somebody else who mentioned that, not me.

Q. - Okay. So would you -- is this a standard methodology for

determining rates for ancillary services?

DR. EARLE: I think I understand your question now. This is one methodology that has been used that FERC has approved. The question is not just the methodology but whether the numbers themselves are justifiable, whether the costs are prudently incurred and so on. But as far as the calculation you took me through --

Q. - Assuming, Doctor, that the numbers are reasonable numbers, the methodology is one that is widely accepted or at least if not universally accepted, widely accepted by regulators?

DR. EARLE: It has been one of the methods. There is also concern of course with this sort of method because what it does is it doesn't differentiate the value of these services during off peak hours. It just looks at the peak. And so there are issues of allocation here and the correct way to do the allocation. I would say increasingly this is not the method of choice.

Q. - This is the method that was at least used by Central Maine Power in its filing with FERC, correct?

DR. EARLE: Yes.

Q. - Okay. And would you agree after having reviewed the NB Power application, particularly your examination of the pricing of ancillary services, that this is the same

methodology that NB Power used to determine its rates other than NB Power has used proxy units rather than imbedded costs, but that aside, the calculation methodology is the same, would you agree?

DR. EARLE: Well I would agree that it's the same with respect to the particular numbers that you have shown me, you helped me out in my answer by pointing out that the proxy unit numbers that New Brunswick Power is using are very different from the numbers here. But with respect only to the calculation you took me through, yes.

Q. - Yes. Now, Doctor, if you could turn up JDI NBP IR-3. I think I asked you to have that handy. And, Doctor, this is an interrogatory that was directed to you by NB Power. And the interrogatory was what is the corresponding capacity requirement in megawatts for each of the CBAS services. And the answer that was supplied was -- if you look at the fifth page of that response the answer was the average historical capacity reservations as a percentage of load. Now these results are percentages and not megawatts, is that correct?

DR. EARLE: That's correct. Well they are percentage of load in megawatts.

Q. - But -- fair enough. But you didn't provide megawatt quantities, did you, in your response?

DR. EARLE: I did not.

Q. - Can I ask you why you didn't, Doctor, or is it --

DR. EARLE: I think perhaps I had -- maybe I had misunderstood the question.

Q. - Fair enough. Now if we can turn back a page -- actually if we can turn back to page 4 of the response. I am correct, am I, Doctor, in assuming that -- use the data that is on this page to prepare the percentages that appear on page 5 under the answer to C?

DR. EARLE: That's correct.

Q. - So if I was looking at the calculation of the spinning reserve then the information on spinning observe, which I believe is in columns 5 and 6, would have been used to calculate your percentage of load of 4.3 percent?

DR. EARLE: That's correct.

Q. - Okay. Now, Mr. Chairman, I have taken a table that you see on page 4 and we have added a couple of calculations to it. I have given it to my friend, Mr. Smellie, this morning. I don't believe he has any objection to it. It's really just an aid in cross examination and really an aid to understand the process of how Dr. Earle arrived at his percentage calculations. And with your permission I would have that marked.

CHAIRMAN: All right. Mr. Smellie has indicated quietly

that he has no objection. That will be A-42.

Q. - Okay. Doctor, do you have A-42 in front of you?

DR. EARLE: I do.

Q. - And, Doctor, you may not believe this but I am not trying to trip you up here, I really am just trying to understand how you came to your calculations. Am I correct in understanding that the numbers in columns 5 and 6 which have the label TMSR are referring to 10 minute spinning reserve?

DR. EARLE: That's correct.

Q. - And specifically that column 5 is the requirement each month for spinning reserve?

DR. EARLE: My understanding of that number is that's the sum of the requirements.

Q. - That would be the sum on an hour by hour basis for any particular month?

DR. EARLE: Well for that particular month.

Q. - Right. So for September then that 501,718 would be the accumulation of the requirement month, hour by hour for that month?

DR. EARLE: Correct.

Q. - And that column 1 is the total energy delivered by the New England system?

DR. EARLE: That's correct.

Q. - And I believe I am correct but I would like your confirmation, would you confirm to me that the 4.3 percent which shows up on page 5 of IR3 for the 10 minute spinning reserve, you arrived at that by dividing the column 5 total by the column 2 total?

DR. EARLE: That is correct.

Q. - And that would be true for each of the other percentages that you have calculated on page 5? You went to the appropriate column and divided by the load?

DR. EARLE: That is correct.

Q. - Now I would like to ask some clarification, Doctor. You made a correction to your evidence this morning that dealt with -- instead of being 8.1 percent for regulation I think you said it was going to be 3.2 percent, is that correct?

DR. EARLE: Approximately, yes.

Q. - And would that relate to column 3 on that table?

DR. EARLE: Yes.

Q. - And column 3 the requirements are it says in Regs, is that correct?

DR. EARLE: That's correct.

Q. - And it is by converting Regs to megawatts that you then arrive at 3.2 rather than 8.1?

DR. EARLE: That's correct.

Q. - I may come back to that, Doctor.

CHAIRMAN: I would like to clear up if we could at this time, what are Regs, or is that a slur on our responsibilities here?

MR. MORRISON: Well, Mr. Chairman, I probably know as much about Regs as the rest of the Panel knows about vars, but perhaps Dr. Earle could explain what Regs are.

CHAIRMAN: Would you, Doctor, explain what a Reg is?

DR. EARLE: Well the way -- my understanding is is the way that NEPOOL purchases regulation because of issues of response time. Remember this is the very fast responding ancillary service. It doesn't measure the response in terms of megawatts. What it does is it looks at the 10 minute ramp of a generator in the 60 minute ramp. And by ramp I mean the number of additional megawatts, if you will, that the generator can output if it's called upon in 10 minutes, in 60 minutes. And they use a weighted average of those two to come up with a figure of what they need to buy in megawatts and the resulting purchases are in Regs based on a unit's own particular 10 minute ramp output and 60 minute ramp output. So as a result you come up with a figure of .4 Regs per megawatt.

CHAIRMAN: Is that clear, Mr. Morrison?

MR. MORRISON: I had a bit of a tutorial on Regs before I

came in here, Mr. Chairman, so yes, it does make sense to me.

CHAIRMAN: I will ask Professor Sollows if it is clear to him.

DR. SOLLOWS: I wouldn't say with any clarity but it will probably be fine to carry on.

CHAIRMAN: Thank you, Doctor.

Q. - Doctor, again if we cold look at column 5, and it says requirements in megawatts --

DR. EARLE: Yes.

Q. - -- is the heading. That really isn't requirements in -- it really isn't megawatts, is it? Would it be -- and I'm just trying to -- is that a megawatt calculation in that column, or is it a megawatt hour calculation or --

DR. EARLE: Well the reason why the title is megawatts is purchases in NEPOOL for ancillary services are on an hour by hour basis. And you measure the reservation you make, the capacity you reserve for ancillary services in megawatts. So what this figure represents is, as I understand it, the sum of all the hours in the month, how much they reserved in megawatts. So therefore the units are megawatts.

Q. - Okay. That makes sense. So if you wanted to get an indication of the actual megawatt capacity requirement you

would need to average this over a month, divide it by the number of month -- hours in a month?

DR. EARLE: If you did that calculation what you would get is the average capacity reserved --

Q. - Right. Okay.

DR. EARLE: -- which is not the peak capacity reserve.

Q. - No. That would be the average capacity requirement, right?

DR. EARLE: That's correct.

Q. - So in that case -- and you will see that I did -- I have had the calculation done and it appears up in the upper right-hand corner. If you took that 501,718, divided by the number of hours in the month, you would get the average capacity requirement, 697 megawatt, subject to check? I don't know whether you have had a chance --

DR. EARLE: Yes, subject to check.

Q. - Now Doctor, this morning in your presentation you were making a comparison between the ancillary service rates in NEPOOL versus the rates charged under this tariff, is that correct?

DR. EARLE: That is correct.

Q. - Okay. What I would like to do now, Doctor, is using sort of the same methodology that we just went through and which appears on exhibit A-42, try to apply that to the NB

Power situation.

And I would just like to walk you through some calculations and see whether we can come up with comparable percentages that are -- you have given the percentages for Central Maine Power in response to IR-3. I'm going to try with your assistance to develop the same for NB Power.

Sorry, New England, not Central Maine Power.

DR. EARLE: Thank you.

Q. - Forgive me. In that regard I would first ask you to look at exhibit A-2 which is the original evidence binder, Doctor. And it is Appendix B which is the rate design document and at page 71 of that document.

Do you have that in front of you, Doctor? Doctor, if you could look at the second column under "Service Required". And since we have been focusing on spinning reserve, go down and look at spinning -- 10-minute spinning. It has 88.2.

Would you agree with me that that is NB Power's requirement for 10-minute spinning reserve?

DR. EARLE: For the purposes of this discussion.

Q. - You will agree with me that that is --

A. I agree.

Q. - -- what is filed in the evidence though, Doctor?

A. Yes.

Q. - And we just did the calculation on A-42 where we arrived at the 697 megawatts for New England. So those would be comparable numbers? They would be comparators?

DR. EARLE: No.

Q. - They wouldn't? Why not?

A. As I understand NB Power's methodology, this number here would refer to the yearly -- is based on looking at the yearly peak. The number -- the 697 number is an average number.

Q. - Well, for purposes in this application, Doctor, NB Power hasn't differentiated. It is just a peak number. It hasn't differentiated for peaks over the year. This is what NB Power has determined is its spinning reserve requirement.

Would you agree with that?

DR. EARLE: I would agree with that.

Q. - And if we go back to the 697 megawatts that we talked about earlier, Doctor, that would form part of the 10-minute spinning reserve of 4.3 percent on your exhibit IR-3, is that correct?

DR. EARLE: That is correct.

Q. - Okay. Now if we take the spinning reserve requirement for NB Power, which is 88.2 megawatts, and if we take

that, if we were using the same methodology, we would take NB Power's total transmission system load, which is 14,129,000 megawatts, you can calculate a similar ratio for NB Power, is that correct, if you had the system load and the spinning capacity requirement?

DR. EARLE: I'm sorry. You are saying system load?

Q. - The system load is 14,129,000 megawatts?

DR. EARLE: All right.

MR. SMELLIE: Is there some reference for that, Mr. Chairman?

MR. MORRISON: Yes. If you would like to -- I can refer Mr. Smellie to it. It is in exhibit A-5. It is the annual report, tab 4, page 47, total in-province sales and distribution losses. Total in-province sales were 13,795. Distribution losses are 334. The total is 14,129,000 megawatts. Sorry, megawatt hours.

Does that satisfy you, Mr. Smellie?

MR. SMELLIE: If you had a page reference it would be helpful.

MR. MORRISON: Okay. It is A-5, tab 4.

MR. SMELLIE: Page 47, did you say?

MR. MORRISON: Page 47.

MR. SMELLIE: Thank you.

Q. - And I don't know if it is necessary for you to turn that

up, Doctor, but --

DR. EARLE: It is at page 47?

Q. - Page 47, yes. "Statement of Generation, Statement Overview" on the top of the page. In the second block, "Statement of Sales", you see total in-province sales 13,795?

A. Yes.

Q. - And then two lines -- three lines below that, distribution losses of 334?

DR. EARLE: Yes.

Q. - And the sum of those is 14,129,000 megawatt hours?

DR. EARLE: Yes.

Q. - So subject to check, Doctor -- you can go through the calculation if you like. But we have done it. But you can -- for purposes of my questioning, if you take the 88.2 megawatts and you multiply it by the number of hours in the year, which is 8,760 and you divide that by the total system load, which is 14,129,000 megawatts -- megawatt hours, sorry, times 100 percent, that should give you the ratio or the percent -- sorry, the percentage for spinning reserve for NB Power, would you agree with that, of 5.5 percent?

DR. EARLE: The difficulty I have with that calculation is that the assumption that seems to be built into it is that

you have a 100 percent load factor.

In other words, the assumption is that at every hour you are going to be purchasing 88.2 megawatts of spinning reserve, whether it is the peak or whether it is off-peak.

Q. - Okay. But for the purposes of this, let's assume that that is the case, for the purposes of this calculation?

DR. EARLE: But it is not the case.

Q. - Dr. Earle, it is the contingency that determines the requirement. And the contingency won't change whether it is on-peak or off-peak, is that correct?

DR. EARLE: Contingencies are usually expressed in percentages of load. Now when you talk about peak load and the contingency of that, that gives you -- that leads to, according to the evidence, 88.2 megawatts of spin.

It is somewhat unusual, and I don't think that it is the case here in New Brunswick, but it is certainly not the case in NEPOOL, that off-peak you would buy the same number of megawatts of spinning reserve as you would on-peak, for the simple fact that off-peak you have less load. And so you don't need to buy as much.

Q. - But the capacity would remain the same whether it is on-peak or off-peak, correct?

Maybe I can ask you a different question, Doctor. Are you saying that the requirement depends on the load?

DR. EARLE: Well, I guess I should clarify. In New Brunswick if the first contingency is in fact always Point Lepreau, then in that case it would not.

Q. - Well, the first contingency always is Point Lepreau, isn't it, Doctor?

DR. EARLE: I guess my understanding is Point Lepreau does have a very high capacity factor. There are times when it doesn't run.

Q. - But the first contingency in New Brunswick is Point Lepreau. And that doesn't change?

DR. EARLE: I will accept that.

Q. - So then we can continue with our calculation, Doctor. If you took the 88.2 megawatts times the number of hours in the year, divide it by the total load times 100 percent would yield a percentage which would be similar to what you calculated in your IR-3.

But the percentage for New Brunswick spinning reserve would be 5.5 percent, subject to check? Would you agree with that?

DR. EARLE: Subject to check.

Q. - And Doctor, we could do the same calculation for the other ancillary services. And I don't want to take the time of the Board in doing that.

But subject to check -- we have done them. And

subject to check, the reserve spinning, as I said, was 5.5. percent for New Brunswick compared to 4.3 for New England. The reserve supplemental 10-minute for New Brunswick was 15.2 percent.

And in your IR-3 you had 4.7. And the reserve supplemental 30-minute was 9.9 percent. And your calculation for New England was 4.2 percent. And for regulation in New Brunswick, which includes load following, New Brunswick would be 3.9 percent.

And New England, I believe your corrected number is 3.2 percent, is that correct?

DR. EARLE: That is correct.

Q. - Okay. And wouldn't you agree, Doctor, that the differences between these two sets of percentages are attributable to the required generation capacity relative to the size of the load?

DR. EARLE: Yes.

Q. - So that if you had two systems that have the same cost of generation capacity that are providing ancillary services, one requires more generation capacity for the provision of ancillary services relative to the size of its respective load, it would be reasonable to expect that the rate paid by customers on the system that has the larger requirement proportionately would be more than the rates on the other

system?

DR. EARLE: Assuming the costs of generation were in fact the same.

Q. - Yes. You would agree with that, given that assumption?

DR. EARLE: Well, just to make it clear, certainly if you have a higher requirement than -- you would have a higher cost for the ratepayer.

So if New Brunswick increased its requirements, if it went from Point Lepreau to say a thousand megawatts, then there would be an increase in the rates in New Brunswick, yes.

Q. - And those criteria are driven not by NB Power but by the size of the contingency, correct?

DR. EARLE: Well, those criteria are driven by -- the reliability criteria are set up through a reliability organization such as the NPCC that you mentioned.

In terms of how those reliability criteria apply and what the resulting numbers are, those resulting numbers are the result of choices made by New Brunswick Power.

Q. - But all things being equal between two utilities or two systems, two control areas, all things being equal, Doctor, the system that has the larger requirement proportional to its load is likely to have higher rates, isn't that correct?

DR. EARLE: Again assuming the same costs of generation.

Q. - So the answer is yes to that, Doctor?

DR. EARLE: Yes.

Q. - Doctor, I understand that, at least in response to one of your undertakings, and I don't have -- I have the reference, but I don't have the undertaking immediately before me. It was JDI NBP IR 2.

You indicated that you had looked at the Alberta market in formulating your evidence. Did you do any examination of the Alberta market?

DR. EARLE: I considered using Alberta as a comparator.

Q. - And in doing that, Doctor, were you aware that Alberta used proxy units for its pricing methodology in 1996?

DR. EARLE: I was not aware of that as apparently neither was New Brunswick Power given the novelty of using proxy pricing.

I believe New Brunswick Power also said in response that they didn't know of any place else that did use proxy pricing.

MR. MORRISON: Thank you very much, Dr. Earle. Those are all the questions I have. Thank you for your consideration, Doctor. And I believe my friend --

DR. EARLE: You are welcome.

MR. MORRISON: -- and colleague Mr. Hashey will continue

with the balance of the panel.

CHAIRMAN: If you want to break while you move around or --

MR. HASHEY: If you would like to wait -- maybe we should have five minutes.

CHAIRMAN: Okay. Five minutes.

(Recess)

CROSS EXAMINATION BY MR. HASHEY:

CHAIRMAN: Go ahead, Mr. Hashey.

MR. HASHEY: Thank you, Mr. Chairman.

Q. - Dr. Yatchew, I will question you initially. And then I will move on to Mr. Mosher. I probably won't get to Mr. Mosher till tomorrow by the look of the time today. But let's carry on.

Dr. Yatchew, my understanding is that your background is economics not finance, is that not correct?

MR. YATCHEW: Finance is a subset of economics. So I'm an economist. And I do a lot of quantitative analyses. And amongst other things I do areas of financial analyses.

CHAIRMAN: Doctor, I'm having a little bit of difficulty in hearing you. If you would like to bring the mike over. I'm terrible that way. But it is the role I play I guess. Thanks.

MR. YATCHEW: And I have done a considerable amount of advising in the financial area. And some of my research

is basically at the frontier of financial economics. I would be happy to point you to papers of mine.

Q. - No. I think we can go on the Internet and find those. This is the first time you have testified before a Public Utilities Board or similar board, is that correct?

MR. YATCHEW: That is correct. This is the first time I have testified. I have prepared testimony before. As it turned out the hearing ended because the applicant withdrew their application.

Q. - Now if we could -- just a very few questions on the price cap issue here?

MR. YATCHEW: Yes, sir.

Q. - From what I read and what I have heard you say this morning, you are really saying that price cap regulation is a good idea and that you promote it, is that correct?

MR. YATCHEW: Price cap regulation, and more generally the idea of incentive regulation is a good idea. It represents an improvement over conventional modes of regulation.

How it is applied is critical. The way it is applied in the private sector, where you have the natural creation of incentives, is rather different than how it would need to be applied in the public sector to have some efficacy.

Q. - Well, what I believe I heard you say this morning, that

this may not be suitable for a public company, price cap regulation?

MR. YATCHEW: Price cap regulation as proposed, as contained in the application and as described in Dr. Morin's evidence, I do not believe will lead to substantial efficiency gains.

Q. - You disagree with Dr. Morin on that point. I appreciate that.

MR. YATCHEW: Yes.

Q. - Yes. And in your evidence on Interrogatory which is Interrogatory 21, which was an Interrogatory from NB Power -- we can find that in JDI-1 and 2 in the exhibit book. And under tab -- or sorry, appendix A which starts with JDI NBP IR 17 --

MR. YATCHEW: Yes.

Q. - Yes.

MR. YATCHEW: This is the -- you are referring to the paper by Jamasb and Pollitt?

Q. - No. I'm sorry. I may have confused you. It is the answer to the Interrogatory. It is referenced "Evidence of Dr. Adonis Yatchew"?

MR. YATCHEW: Yes. My apologies. This is IR 21, JDI NBP.

CHAIRMAN: We thought we were there. I thought we were looking at JDI NB Power IR 17, appendix A?

MR. HASHEY: Yes. It is 21. It is at the top of it. It says page -- or it says 38.

CHAIRMAN: I'm sorry, Mr. Hashey. This is page number you are talking about now?

MR. HASHEY: The 38 is.

CHAIRMAN: Oh, okay.

MR. SOLLOWS: Oh, I see, yes.

CHAIRMAN: It is within the answer to IR 17?

MR. HASHEY: Right.

CHAIRMAN: Okay.

MR. HASHEY: No, no, no. It is IR 21.

CHAIRMAN: If I can't find the pages how can I understand the evidence?

MR. HASHEY: That is a whole different area.

Q. - Looking at that question and the answer -- and I would go down into the third paragraph of your response. And what you say, it is consistent with JDI NBP IR 16.

Then you say the recommended return of 8.25 percent and 70/30 debt equity ratio assumes that all the necessary and required steps have been completed to permit adoption of a PBR methodology.

Do you still agree with that?

MR. YATCHEW: Yes.

Q. - And you would agree with me at this point that all the

necessary required steps in your opinion have not been completed to permit the adoption of PBR at this time, is that not correct?

MR. YATCHEW: That is correct.

Q. - Therefore these two numbers, 8.25 percent and 70/30 I assume are not available?

MR. YATCHEW: As I stated in my presentation, particularly at the last slide, the recommendation that I have is that once all these steps are taken and once effective incentive mechanisms are put in place, then at that point in time it would be appropriate to introduce a rate of return on equity with a 70/30 debt equity structure.

And that would be consistent with an efficient PBR mechanism being in place.

Q. - I hear -- oh, I understand. Thank you. I didn't I guess appreciate that. So therefore until that is done those numbers wouldn't be appropriate?

MR. YATCHEW: That is correct. And indeed Dr. Morin's evidence was that his numbers were premised upon a price cap methodology being in place.

Where we disagree, amongst other areas, is what kind of incentive methodology should be in place and how to assure that it is effective or at least how to increase the likelihood that it is effective.

Q. - Now on your return on equity you have relied extensively on Booth and Berkowitz evidence in the province of Quebec in answers to your undertakings. A big part of this book contains that, does it not?

MR. YATCHEW: The answer to the second question is yes. A large part of that book does contain the Booth and Berkowitz evidence.

Q. - Yes.

MR. YATCHEW: However it is not the case that in my return on equity recommendations I have relied upon the Booth and Berkowitz documentation.

I have relied upon gold standard fundamental research that has been published in the top journals. What Booth and Berkowitz evidence shows is there is a body of evidence that also relies more or less on the same kinds of studies.

So I draw my conclusions in part on the Triumph of the Optimist, on the papers by Fama-French, by Claus-Thomas, by Blanchard, all of whom conclude that return on equity numbers are much more appropriately in the range of 4 percent rather than the much higher numbers that Dr. Morin recommends.

And Booth and Berkowitz also reference these same analyses and studies.

Q. - But you would agree with me that before the board in Quebec on the transmission hearing that took place, that Booth and Berkowitz recommended 8.25 percent ROE in that hearing, did they not?

MR. YATCHEW: Yes. I believe that is correct, yes.

Q. - Right. And you further agree that the Regie didn't see fit to make that award. And there was an award of 9.77 percent?

DR. YATCHEW: Yes, I believe the Board awarded something like 9.72, if I'm not mistaken. Perhaps I'm --

Q. - Well I may have been off by a point or two and I apologize if I was on that.

DR. YATCHEW: That Board also used raw betas with a value of about .53 and also rejected the use of adjusted betas, which is what Dr. Morin uses.

Q. - But they -- that Board as well I would suggest to you did give consideration to the American factor which you haven't, and I will come to that.

DR. YATCHEW: I would expect that it did to some degree, yes.

Q. - It stated it right in there, did it not?

DR. YATCHEW: I don't have the decision before me.

Q. - Now would you agree with me that TransEnergie has no revenue risk from the long-term users of the transmission

system as the revenue requirement in Quebec is spread on the basis of load ratio share?

DR. YATCHEW: I haven't reviewed this in detail but that is my approximate understanding of the case, yes.

Q. - And you further understand that NB Power Transmission is proposing a fixed tariff and will bear the risk of volume fluctuations?

DR. YATCHEW: I'm aware of that, yes.

Q. - Now TransEnergie I would suggest to you has a much smaller share of revenue derived from short-term transactions. In other words it's about one percent as compared to New Brunswick Power's 10 percent?

DR. YATCHEW: I don't know the exact figures. I will accept that as being reasonable.

Q. - And you do recognize that TransEnergie differing from NB Power will not need to raise capital on the open market on the stand alone basis?

DR. YATCHEW: Subject to check.

Q. - And size-wise there is no real comparison, is there, between TransEnergie Transmission as compared to NB Power Transmission?

DR. EARLE: Yes.

Q. - Much bigger in size?

DR. EARLE: Yes.

Q. - And you would therefore agree with me that size is a relevant factor in raising capital?

DR. EARLE: Yes, size is a relevant factor in raising capital.

Q. - And that was one of the considerations in Quebec that Booth and Berkowitz used in doing their assessment?

DR. YATCHEW: I believe they would have.

Q. - Therefore NB Power I would suggest to you has significantly more risk attached to it than TransEnergie, does it not?

DR. YATCHEW: It might have moderately more risk attached to it in the broader scheme of things. But it's still a transmission company. And from the perception of the market place as a whole transmission companies have much closer similarity in terms of risk characteristics to each other than to other alternative investments out there. There is variation in risk factors even across transmission companies, but transmission companies are generally quite similar to each other. In arriving at my recommendation I took these factors into account, the risk factors faced by New Brunswick Power Transmission.

Q. - And on risk factors as you say you have based these on a company that is set up with a proper PBR system in place?

DR. YATCHEW: Yes, amongst other assumptions.

Q. - Right. Now on your capital structure I read your evidence -- and what I read you to say is on capital structure it would appear that you -- and I'm talking about your evidence on page 1, where you say, I believe that a marginally lower rate of 30 percent would be adequate essentially because it is very little risk in the transmission business. That is what you are saying, correct?

DR. YATCHEW: Yes. Could you just point me to -- this is page 1 of --

Q. - Of your evidence.

DR. YATCHEW: -- of my testimony?

Q. - Yes.

DR. YATCHEW: Do you mean at page 31?

Q. - No. On page 1 I believe it was, right at the start. I may be incorrect on that and if I am I apologize.

DR. YATCHEW: I know I make -- on page 31 at line 10 I state that I believe that a marginally lower rate of 30 percent would be adequate essentially because there is very little risk in the transmission business and that the risk of bankruptcy is negligible.

Q. - Okay. Well I will accept that. But in your evidence, your direct evidence that I have read, I don't believe I have ever found a reference to the fact that these numbers

rely on a proper PBR system to be in place. Now I may have missed it. I picked it up on the interrogatory.

DR. YATCHEW: In making my assessment of appropriate rates of return for this company I considered a lot of factors, and I did certainly consider PBR as one of the factors.

Now I think it should be taken in perspective. There is unquestionably regulatory risk, but the proportion of risk faced by a company that comes from the regulatory line item, so to speak, is really actually very modest. And in some ways incentive regulation properly applied in some ways it actually reduces risk rather than increasing risk. Imagine a circumstance where you have got a traditional mode of regulation and the regulator isn't very happy with the performance of the company. And the market is expecting adverse rulings from the regulator, which in turn depressed it and increases risk -- decreases stock price. So traditional modes of regulation are not risk free. They also have an attached regulatory risk.

Now imagine the circumstance where you have a company being regulated through incentive regulation, bounded ranges on these ROE's of the kind Dr. Morin has suggested, dramatically reduces the risk, there are off ramps, you can apply or appeal to the Board if you have adverse cost outcomes. So there are ways of exiting from a current

situation if there are unanticipated outcomes.

And in addition if your cost performance is improving as for example what has been the case in the United Kingdom under performance based regulation, the regulator tends to view the companies in much more favorable light because there is more of a pie to share with the ratepayer for example.

So there is risk in both modes of regulation, whether it's -- there is regulatory risk in both modes, whether it's price cap regulation or whether it's conventional regulation, and it's not obvious to me that price cap regulation is necessarily much more risky than conventional regulation.

Q. - Thank you, Dr. Yatchew, for that long remark. Would you agree with me that what this Board decides to do concerning debt equity ratio will have long term implications?

DR. YATCHEW: I think here it is also important to get the numbers right, or as right as we can. I think that there are long term implications. That doesn't preclude the Board in any way from making changes to equity ratios in the future, as for example the National Energy Board has had to do with natural gas pipelines, which operated at 30/70 ratio for a very long time, for more than 15 years.

Recently with pipe on pipe competition the National Energy Board has had to move to a different ratio. They moved to a 33/67 ratio.

So there are -- you would rather get the number right. There are long-term impacts. It is not impossible to move from a given debt structure or debt equity ratio to a new one.

Q. - But you are aware that this is the first step into this arena?

DR. YATCHEW: Yes, I am aware of that and that actually concerns me particularly.

Q. - Right. And that's where the Board has to be careful to make sure they get it right, as I believe Mr. Richardson has suggested?

DR. YATCHEW: Yes, I agree with that. And in fact that's exactly why in my view the best way to assess the issues of proper capital structure and proper rates of return is to consider these issues simultaneously in a generic type approach across all three subsidiaries, or four. If there is going to be a transmission, a distribution subsidiary, a conventional generation subsidiary and a nuclear subsidiary, it seems to me that you would want to consider those ideas -- those issues collectively.

Q. - In the best world we live in that may be exactly correct,

but you are aware that there is legislation have been passed that require us and require this Board to make a decision in this area?

DR. YATCHEW: I'm not aware that the legislation has been passed.

Q. - You weren't aware of the amendments to the Public Utilities Board that were passed that caused us to be here?

DR. YATCHEW: I am aware that there is legislation that is underway. I wasn't aware that actual legislation has been passed.

Q. - Okay. Well I'm talking about the amendments to the Public Utilities Board of last year and I can refer you to those tomorrow, I can have them here if necessary.

DR. YATCHEW: Okay.

Q. - Anyway, so you do agree though it is critical to start at the right level?

DR. YATCHEW: Yes. And let me just add one more item.

Q. - Okay.

DR. YATCHEW: I'm trying to put myself in the shoes of a regulator and I have never been in those shoes, but trying my best to understand that point of view, the kinds of complex balances that need to be struck.

It would seem to me that it is generally easier to

move up a little bit than to back off. For example, suppose that -- if we take Dr. Morin's number of 11 percent return on equity for this company, and then Generation comes in, what kind of number are we looking at there for conventional generation? 15 percent? What are we looking at for nuclear if 11 percent is sort of the benchmark for lower bound?

At that point if it's discovered well perhaps 11 percent and 35/65 was too generous it's a little bit more difficult to move back from those numbers than to move forward as circumstances change in the future.

Q. - Now you would further agree, or I would suggest to you, I don't think I am getting many agreements, but I would suggest to you that to have proper bond ratings -- to have a proper bond rating to attract it's necessary to have favorable interest rates?

DR. YATCHEW: Of course it's important to have a reasonable bond rating in order to have reasonable interest rates. But you also have to take the bigger picture. It's not just interest rates that we are trying to minimize. We are trying to minimize the total cost of capital. And from that point of view equity is more expensive than debt.

I would also add to that that rating agencies look at

many things when they assess a company. There is a whole list of criteria. And amongst those are calculated benchmarks that they do to assess how efficient this company is in comparison to others. And it seems to me that that is where you would want to focus the company's energy to try to get good approval ratings from the bond rating agencies, not simply relying upon providing it with the maximum equity cushion just so that it can minimize its interest costs.

Q. - Well I have listened to the presentation this morning and I have heard comments to indicate that management is poor, highest costs in Canada, no dependable information. A company going into a situation like that to get proper bond ratings, if this is the way you view the company, I would suggest are going to require some significant equity investments, are they not?

DR. YATCHEW: That sounds like an odd way to put the point. If you are saying to me that what I want to do is I want to create incentives for the company for people in the company to be as inefficient as possible so that they can get the largest possible equity cushion for the regulators to ensure a low bond rating, then that's exactly what I would not recommend.

Q. - Well that's not what I was saying. I'm saying that JDI

has been highly critical of NB Power and I have heard -- you know, the cross examination went on for days, suggested that there was uncertainty in their numbers, there was questions on management, there were questions concerning many, many items, you know, higher rates and what have you. And I'm saying if that is your view of the company I would suggest that you would need to look at -- and you were looking at it, you would have to have a significant equity investment?

DR. YATCHEW: Let me begin with the -- I mean, there is a lot of issues that you have just raised and I'm not quite sure exactly where to start.

But to begin with, management inefficiency. When I made my presentation I did point to the fact that electricity prices had been rising over the course of the last decade and that is not consistent with a company that prima facie would be under a price cap regulation and its efficiency would be improving. I did also say that what you really want to do is is -- and I stated this in my evidence as well -- what you want to do is you want to do some international benchmarking comparisons to the best. Because without doing that how will you know that your assertions of efficiency are indeed correct? How would I know? I cannot make that conclusion that the company is

indeed inefficient without actually doing that kind of transmission benchmarking comparison.

So a major conclusion in my mind is that if you really are efficient that can be demonstrated in relatively short order. There are -- for example I would call up the international transmission operation and maintenance study group which consists at this time I believe of about 20 transmission companies from around the world, as far apart as Tasmania, the UK, the US, and in England, get into their group. In short order you should be able to know whether you are efficient. If you are efficient you can check that off. This Board will have it would seem to me a better basis for coming to the conclusion that it is efficient.

So the assertion that the company is inefficient I can't make that because the proper comparisons haven't been done yet and I have not made that assumption.

Q. - No. Well I have heard that assertion through the whole evidence or indications that that might be the case. But the point is you are not making that assertion.

DR. YATCHEW: The point is that -- the point is this that the circumstantial case in my mind is that there should be substantial efficiency gains in the company. What are the reasons why I might believe that but not have convincing

evidence to prove it. What are the reasons? Well for one thing prices have been going up. Secondly, the company has not been under a mode of incentive regulation that would promote efficiency. if it were as it has been, for example, in the UK, you would see trends going in the other direction. So while, yes, there are circumstantial reasons why I might think that there should be substantial efficiency gains -- and indeed the Stone & Webster report did suggest that there was potential for that -- I don't think that the convincing evidence one way or the other is out there. I think that it can be obtained and I think it would be very useful not just to persuade the Board members but to persuade the financial community out there.

Q. - Do you know why your panel on page 8 of the presentation stopped at 1999 in showing the cents per kilowatt hour and didn't expand that to 2000 and 2001? A simple answer, do you know why that happened? Mr. Mosher might answer. Go ahead, what is the answer?

MR. MOSHER: The association of major power consumers carried out that study and discontinued it in 1999, basically saying that since then as jurisdictions have moved towards deregulation that it becomes much more difficult to make an adequate comparison of what the large industrial rate is across those jurisdictions.

Q. - Thank you. You don't need to answer that, Dr. Yatchew.

DR. YATCHEW: Thank you, Mr. Hashey.

Q. - Now, Dr. Yatchew, you are the publisher, I believe, or the editor of a journal in Ontario, are you not? Is it published in Ontario?

DR. YATCHEW: It was actually published -- produced in Ohio. It's edited at the University of Toronto. I'm the joint --

Q. - I'm sorry. Thank you. That's fine.

DR. YATCHEW: -- editor -- actually the senior editor. My colleague, Campbell Watkins is the other joint editor. And he is in British Columbia.

Q. - What do you do as an editor?

DR. YATCHEW: For one thing I get to see a great deal of the research, some very good, some not so good, coming across my desk that is coming forth in the electricity industry. So as an editor I need to assess the quality of the research that is being done. Ensure that it is given a fair and anonymous -- we actually use what is called a double blind process for refereeing where neither side -- the referees don't know who the author is. The author of course never finds out who the referees were -- are. Based on these referee reports I usually will review the paper myself and come to a decision on whether it meets

the standard for the journal or what needs to be done. So it's basically assessment of the quality of research that's being done.

Q. - And unless the quality is good you wouldn't publish it, it needs to meet a certain standard I would suggest, correct?

DR. YATCHEW: At times I make mistakes I'm sure. And I certainly have published articles that are controversial. I published in the sense of as an editor I accepted for publication articles that are controversial. I have been fortunate to have some very, very high quality authors write to the journal, some of the top names in energy in the world. People like Paul Joskow or -- have published in my journal. There is a list of people that I provided in one of the interrogatory responses. But, yes, that's correct, sir.

Q. - And you are familiar with the Electricity Journal which would meet that same standard?

DR. YATCHEW: I think that it's necessary to explain a little bit about what different journals -- what roles publications play. Perhaps it is best illustrated by the fact that I have published -- by a paper that I have published in the Electricity Journal which is not the Energy Journal which is the journal that I edit.

Q. - No, it is a different publication. But you, I believe, have attached as part of your evidence an article you have published in the Electricity Journal?

DR. YATCHEW: That's correct. The article that I have attached as appendix B to my evidence I sent to the Electricity Journal. The Electricity Journal is essentially a communications type journal. It's more in the nature of a trade journal that doesn't go -- undergo the same kind of referring process that the journal that I edit or other journals would undergo.

In fact, the Electricity -- the reason that I sent my -- the reason I sent a paper to the Electricity Journal was this, I had written an extensive analysis of cost -- a cost for distribution function -- a cost of distributing utilities. It was published in an academic journal. The journal of Applied Econometrics, which is a thoroughly refereed journal. But it was a very technical paper. And it had some ideas in it that I wanted to try to convey to the sort of electricity community, so to speak, that regulators, for example, might read.

So I took that work, simplified it, substantially extracted things, the unnecessary technical stuff and then sent what was really a communications piece to the Electricity Journal. So for example, the statistical

analyses that are found in the paper that I have attached are contained in another previously published paper that have been undergone an extensive audit refereeing process.

That's not generally true for papers in the Electricity Journal per se.

Q. - So you snuck one in to the Electricity Journal, is that what you are trying to tell me?

DR. YATCHEW: I'm not sure what you mean by snuck one in? No, sir.

Q. - Well, you knew it wouldn't be refereed or assessed so you would get away with it?

DR. YATCHEW: No, sir. Let me not disparage the journal. The Electricity Journal is a very fine and important publication.

Q. - Okay.

DR. YATCHEW: And I look at it regularly but it serves a different purpose. It serves a purpose of providing an arena for policy debates. It's -- actually I think it's -- in its banner, subscribes itself as a policy journal. So -- in fact when I sent -- if I could just -- if you would mind for a moment turning up my paper which is in appendix B of -- what's the exhibit number? I guess that would be JD-1. Have you got that, Mr. Hashey?

Q. - Oh yes. Yes, I -- in fact the whole journal, that's what the next question is going to be.

DR. YATCHEW: Oh, you have got the whole journal. It's appendix B of my evidence. And it's the paper entitled Incentive Regulation.

Q. - What do you want to say on that? I really didn't have a question on that other than the fact that you did publish that there?

DR. YATCHEW: Yes. Well --

MR. SMELLIE: Well before my witness continues, Mr. Chairman, if my friend is going to suggest that my witness snuck one in the journal, he better sit back and listen to the answer.

Q. - Well go ahead.

MR. SMELLIE: It's a totally inappropriate remark.

Q. - Well maybe it's inappropriate, but I was told this journal is not one that you were going to have subjected to severe scrutiny. That's all I meant.

I wasn't trying to insult you or indicate that you were doing anything inappropriate. But in this case, you knew that when you submitted this, it wouldn't be subject to scrutiny before a decision was made on publication. Is that what you are saying?

DR. YATCHEW: Let me -- let me repeat. This journal, the

Electricity Journal is a good journal. It serves a very important purpose. It has an impressive Board. It does not undergo -- the papers of that journal do not undergo the same refereeing process as I understand that, for example, an academic journal would.

Moreover, the Electricity Journal is not listed as one of the -- it's not covered in the Social Science Citation Index, for example, which is a standard index in the social sciences which encompasses literally hundreds and hundreds of journals that are usually considered to be academic referee journals. Having said that that doesn't mean that this journal publishes inferior quality material.

The reason that I asked you to turn up my paper is this. When I did send this paper to the journal and they said to me, well that's fine, and I said well are you sending it out for refereeing? And they said well, we will just review it in-house. What I did is I sent it out myself to people in the energy business and others to review it. And if you take a look under the -- on the left-hand column you will see a list of names at the bottom?

Q. - Yes. No, I see that.

DR. YATCHEW: Denny Ellerman, Richard Green, David Newbery,

Maurice Tucci, Campbell Watkins, and so on. I sent it out to these people to have it reviewed just to get their views to make sure that I hadn't omitted stuff that was important.

Now if you turn -- if you would be kind enough to turn with me to page -- what's marked as page 60, it's the last page of the paper --

Q. - I am there.

DR. YATCHEW: -- and there is a footnote, marked footnote 7 in the right-hand column. And what's listed there is a paper of mine that's published in the Journal of Applied Econometrics. This paper in the Electricity Journal is founded upon empirical work that was published in the Journal of Applied Econometrics, which did go through an extensive refereeing process. In fact the turn around time was something like two years.

So that's why I felt confident about the numerical analyses that I had performed here.

Q. - In any event, the Electricity Journal in January/February 2001, you published an article in that? Correct?

DR. YATCHEW: Yes. And it was this article.

Q. - And in that journal there is a further article that states -- and it's entitled, Assessing the Cost of Capital for a Stand Alone Transmission Company?

DR. YATCHEW: I understand there is that, yes. And you were kind enough to --

Q. - And I have supplied to that my friend, Mr. Smellie and yourself?

DR. YATCHEW: I very much appreciate the courtesy.

MR. HASHEY: Mr. Chairman, I would like to question on this article. And I would like to have it marked. It is in the very journal this gentleman published. I would like to ask him a few questions on it.

CHAIRMAN: Any problem with that?

MR. SMELLIE: No. Dr. Yatchew doesn't publish the journal. But I have no difficulty with the article being marked.

MR. HASHEY: Thank you, Mr. Smellie.

CHAIRMAN: That's A-43. Mr. Hashey, I am just looking at the time and when you are through --

MR. HASHEY: It might be at an appropriate time to break.

CHAIRMAN: Appropriate now?

MR. HASHEY: Yes.

CHAIRMAN: All right.

MR. HASHEY: And Mr. Chairman, it's clear to me that I will be finished easily in the morning tomorrow.

CHAIRMAN: All right.

MR. HASHEY: The line of questioning is moving ahead well. Just so that you have a sense of that.

Do we have a time set for the Informal Intervenors? And do we know how many will be addressing the Board yet at this point? I think we set it Wednesday, didn't we?

CHAIRMAN: On the first score, the Board Secretary sent out an e-mail to the Informal Intervenors just prior to Christmas and asked that they contact an individual at the Board offices tomorrow morning to get a sense of when it is that we would hear them.

Certainly if we were to set it for -- I just don't know for instance if you are looking at rebuttal possibilities, et cetera, that sort of that?

MR. HASHEY: Not very much.

CHAIRMAN: Okay. Well then I would suggest that we could set it for noon hour or let's say at 1:30 on Wednesday if that's convenient to the parties that we do the Informal Intervenors at that time if that's all right.

Yes. Mr. Smellie?

MR. SMELLIE: Sorry, Mr. Chairman. I just -- I was going to ask a question, which Mr. Hashey's comment just made me forget about -- there is going to be rebuttal evidence?

CHAIRMAN: That was rather a nebulous response. And I decided to leave it just that way for now and we would see --

MR. SMELLIE: Well I will tell you what my original question

was, Mr. Chairman, particularly vis-a-vis Dr. Earle, who needs to return to California. If my friend says he is going to be finished tomorrow at noon, I gather Mr. MacNutt may have a couple of questions. I'm presuming that the Board might have a few questions, but potentially --

CHAIRMAN: You know how you have to have caution with Board counsel.

MR. SMELLIE: Oh indeed. I have come to learn that, Mr. Chairman.

MR. MACNUTT: The Board counsel's questions are now zero.

CHAIRMAN: Oh, all right.

MR. SMELLIE: So that gives me some confidence that at least Dr. Earle can make plans to return home tomorrow afternoon late. But if there is to be rebuttal evidence, then there may well need to be cross examination.

CHAIRMAN: All right. Well what I am going to suggest Mr. Hashey if I might is that when we reconvene tomorrow morning, perhaps we could approach what the nature of the evidence that you might wish to bring by way of rebuttal. Would that be --

MR. HASHEY: That's fine. There may not be any. There might be just a little bit.

CHAIRMAN: Yes.

MR. HASHEY: And depending on maybe some of the answers tomorrow morning. But we are not bringing Dr. Morin back. He is not here. And we won't be going into lengthy rebuttal evidence.

CHAIRMAN: Okay.

MR. HASHEY: And I don't think there will be any problem for Dr. Yatchew, Dr. Earle and even Mr. Mosher --

CHAIRMAN: I certainly hope they have their --

MR. HASHEY: -- to get home tomorrow night.

CHAIRMAN: -- I hope they have their reservations because my understanding is there are none available till at least Thursday.

When you live in the back of the beyond and you get one day of flights interrupted it takes a week to catch up. That's all I can say. There is a monopoly that should be regulated.

MR. HASHEY: Mr. Chairman, there is one other issue before concluding?

CHAIRMAN: Just before we do there was a second part of your question, Mr. Hashey, was how many Informal Intervenors have indicated that they wanted to address the Board?

And I will ask the Secretary, Mrs. Legere. We had one. But it turns out that that in fact is a Formal Intervenor.

So have any of the Informal Intervenors indicated that they wanted to address the Board, to your knowledge at this time?

MRS. LEGERE: Not to my knowledge at this time.

CHAIRMAN: Okay.

MR. HASHEY: That may solve that one too.

CHAIRMAN: That may solve that as well.

MR. HASHEY: Last issue for the day, Mr. MacNutt pointed out to me today, as you know, Ms. Tracy's assistant has had quite an effort in trying to keep track of all the undertakings that we have had here.

CHAIRMAN: She has done a remarkable job.

MR. HASHEY: I think so too. It is an enormous effort. But Mr. MacNutt indicates, as only Mr. MacNutt could ever do, that he has found one that we didn't manage to pick up on our list. And I have asked him if he could put that on the record today. Because I'm hoping against hope that we will be able to finalize the undertakings tomorrow, so when we leave here we have got a complete record and we don't have to be concerning ourselves with whether somebody would want to have to question on something.

So we are working hard towards that. Whether we achieve it or not I'm not certain. But we are getting very close.

So there is one other that Mr. MacNutt wanted to mention.

CHAIRMAN: Okay. Mr. MacNutt, will you --

MR. MACNUTT: Yes, Mr. Chairman. The reference is the transcript of December 16th, pages 1,361 to pages 1,369. It arises out of an answer given by Ms. MacFarlane in response to a question I asked of Dr. Morin wherein he quoted from his text with respect to the treatment of AFUDC and CWHIP in table 4 of Mr. Lavigne's evidence.

In her response, before I actually got the chance to put the question to Ms. MacFarlane, she responded at the opening of the hearing. She indicated that table 4 was amended. And NB Power filed an amended table, exhibit A-28.

At the end of it she -- immediately following the tabling of that exhibit, she gave an explanation of the impact on the table. And she asked if that was clear. And I said yes, on the record it is clear.

And I asked, would you please -- what other table would it appear in? And I indicated that we found it at -- well, she had been giving the answer that it applied in table 5.

And then I asked, are there any other tables, and asked if Mr. Lavigne could supply the advice, namely the

other tables in which the change in figure in table 4 would appear.

That has not been responded to. I would like to ask that not only that it be responded to but that NB Power be requested to provide the other tables where that change in table 4 has an impact and copies of those tables as amended.

CHAIRMAN: I -- you want a revised table -- if there were any other tables in the evidence that was impacted by that change, you want those revised tables to be filed?

MR. MACNUTT: Correct.

CHAIRMAN: Okay. My suggestion, Mr. Hashey, if you don't have time before we break this week to get them all in, at least put them on the record and then supply the amended tables at a future time.

MR. HASHEY: We might do that with the same undertaking that we have given with respect to the changes to the tariff document per se that we had agreed on.

CHAIRMAN: Yes. As long as we get them on the record.

MR. HASHEY: We will circulate those. We will get those.

CHAIRMAN: Okay. Fine. We will adjourn then until 9:30 tomorrow morning.

(Adjourned)

Certified to be a true transcript of the proceedings of this hearing as recorded by me, to the best of my ability.

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