MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO
COST OF SERVICE STUDY

Before Board Panel:

Graham Lane	- Board Chairman
Robert Mayer	- Board Member
Kathi Avery Kinew	- Board Member
Len Evans	- Board Member

HELD AT:

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APPEARANCES

R.F. Peters		)Board Counsel
Patti Ramage		)Manitoba Hydro
Odette Fernandes		)
Bryon Williams		)CAC/MSOS
Myfanwy Bowman	(np)	)
Doug Buhr		)City of Winnipeg
Peter Miller		)TREE
Tamara McCaffrey		) MIPUG
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TABLE OF CONTENTS

LIST OF EXHIBITS

--- Upon commencing at 9:06 a.m.

THE CHAIRPERSON: Good morning, everyone. Welcome again, Mr. Lazar.

MR. JAMES LAZAR: Thank you very much.

THE CHAIRPERSON: Thanks to the generosity of CAC/MSOS we're changing the order around a bit to ensure that we're able to hear you out and cross-examine you properly before your return flight.

MR. JAMES LAZAR: Thank you very much.

THE CHAIRPERSON: We're pleased to do so, we're a cooperative bunch. Mr. Peters do you have any initial comments?

MR. BOB PETERS: I would indicate that there is a few scheduling issues from some of the parties that I'll keep my eye on, but I won't bring them to the attention of the Board until and unless they need to be -- that is Ms. McCaffrey's absence this morning is planned and Mr. Williams likewise has a commitment that will --

THE CHAIRPERSON: But, Ms. Bowman is here.

MR. BOB PETERS: Yes, of course and I'll keep an eye on that if it becomes an issue I'll bring it to the Board's attention. But, other than that I think we're ready to go.

THE CHAIRPERSON: The only scheduling change that I'm aware of is tomorrow morning because of another conflict, we can't begin until 9:30. Manitoba's a no fault jurisdiction, Mr. Mayer.

Professor Miller, do you want to introduce Mr. Lazar and just quickly go over his credentials because we've heard from Mr. Lazar before.

DR. PETER MILLER: Yes, I wonder if he should be sworn first.

THE CHAIRPERSON: I always forget that. Mr. Barron?

JAMES LAZAR, Sworn

EXAMINATION-IN-CHIEF BY DR. PETER MILLER:

DR. PETER MILLER: Okay. We'll proceed and perhaps Mr. Lazar can give his background experience relevant to this proceeding.

MR. JAMES LAZAR: My name is Jim Lazar, my office address is 1063 Capital Way, South, Suite 202, Olympia, Washington 95801, USA.

I'm a consulting economist specialized in utility rate and resource issues. I've been engaged in utility consulting continuously since 1979. During that time I've appeared before many local State and federal

regulatory bodies.

I've authored papers and articles on utility ratemaking and I've been a faculty member on numerous occasions at training sessions for utility industry analysts. I've appeared before this Board twice, before the British Columbia Utilities Commission several times and before the State Commissions of Washington, Oregon, Idaho, Montana, Arizona, California, Illinois, Hawaii.

I'm also an associate with a group called the Regulatory Assistance Project which is based in the State of Maine. RAP advises regulatory bodies throughout the world on implementation of effective utility oversight programs.

In that role I have participated as a trainer and technical consultant in programs, both domestically and overseas, in India, China, the Philippines, Brazil, Namibia, Mozambique and most recently, the country of Marishes (phonetic).

I testified before TREE and RCM in two (2) previous proceedings involving Manitoba Hydro.

DR. PETER MILLER: Thank you. We circulated evidence and interrogatory responses do you --

THE CHAIRPERSON: Professor Miller, sorry to interrupt --

DR. PETER MILLER: Yes --

THE CHAIRPERSON: -- just on process. Ms. Fernandes or Ms. Bowman, do you have any difficulties with Mr. Lazar's credentials?

MS. MYFANWY BOWMAN: I don't.

MS. ODETTE FERNANDES: We don't either.

CONTINUED BY DR. PETER MILLER:

DR. PETER MILLER: Thank you.

We -- we previously circulated initial evidence and then interrogatory responses that you wrote. Do you adopt that evidence, the written evidence that was circulated earlier?

MR. JAMES LAZAR: Yes.

DR. PETER MILLER: Do you have any corrections that you would like to call to our attention?

MR. JAMES LAZAR: There -- there were substitute exhibits for JL-4 and JL-6 that I believe have been previously circulated, and I want to make sure people are using the revisions. And there is a revision that comes from JL-6 that carries forward to page 2 of the written evidence.

On page 2, at line 40, the number 170 million per year came from the original JL-6 and once that was corrected that number in JL-6 now reads 388

million, and the text should be revised on page 2, line 40, from one seventy (170) to three eighty-eight (388).

DR. PETER MILLER: Thank you. With those corrections to JL-4, JL-6 and page 2, is -- is that the evidence then that you adopt?

MR. JAMES LAZAR: Yes, it is.

DR. PETER MILLER: Thank you.

What is the purpose of your evidence in this proceeding?

MR. JAMES LAZAR: I've been asked to review the -- the Company's evidence and cost of service methodologies, to comment on those methodologies and to recommend alternatives which may more accurately reflect the total costs of providing service, including environmental costs.

Initially, I expected to go the next step into rate design and the application of the originally requested revenue increase, but that part of the proceeding was truncated.

DR. PETER MILLER: Thank you.

And what are the principal findings that you present?

MR. JAMES LAZAR: Well, first and foremost, I find that the -- the recommended method that Manitoba Hydro has presented is a progressive step

forward and improves the accuracy of cost determination and allocation in Manitoba.

However, even this improved method still uses all of the net export revenues to offset utility costs to Manitoba consumers. This is inefficient in an economic sense, as consumers see prices that fail to reflect the full cost of providing service by almost any measure. Customers are assigned only 78 percent of the embedded costs of providing the service.

Given experience in the past where -- with the government appropriating a dividend from Manitoba Hydro, this may not reflect the level of revenues Manitoba Hydro needs to cover -- needs to collect to cover all of its costs. And in -- in a severe drought it could be equally serious.

Second, I present alternatives that build upon this recommended method. The alternatives that I present incorporate marginal environmental costs associated with energy consumption during the various rate periods that are used in the recommended method.

When these are included it shows that the residential class is providing a higher revenue to cost ratio than shown in the results of the recommended method, simply because energy costs and the -- you know, the -- the environmental costs associated with general --

with generation are least significant for this class and for the small general service class.

On the other hand, the most significant impact is to the large general service class, for whom generation costs are by far the majority of their cost of service.

Because any reduction in electricity consumption in Manitoba results in lower emissions from power plants, fossil-fired power plants in the export market, and because the majority of those of those are coal-fired power plants, I recommend that the PUB direct Manitoba Hydro to consider emissions to be an opportunity cost associated with energy consumption for all classes in Manitoba.

Third, I estimate the difference for each class between current revenues and the costs associated with applying marginal generation costs in place of embedded generation costs. Manitoba Hydro has indicated that marginal energy costs are eight point five eight (8.58) cents per kilowatt hour in the winter and four point eight nine (4.89) cents in the summer. These are dramatically higher, more than twice, the generation costs that are included in current rates.

Fourth, I estimate the difference for each class between current revenues and the costs associated

with providing their service including marginal generation costs and the CO2 opportunity costs.

Fifth, based on elasticity estimates provided by Manitoba Hydro I have estimated that total electricity consumption in Manitoba could be reduced by something on the order of 30 percent if these marginal costs were utilized in setting marginal rates.

Based on the estimate of marginal generation costs that could be recovered from the export market this could lead to a net inflow of funds to Manitoba of as much as $388 million a year. While I do not, repeat, do not, recommend moving rates up this much in any short period of time, doing so could be a significant stimulus overall to the Manitoba economy.

Finally, I make the observation that the current method and recommended method both that net export revenue is divided among the Manitoba Hydro customer classes based, primarily, on electricity usage.

I believe that this principle puts the entire net benefit at risk for Manitoba citizens. I say this because if you continue to apply the export credit to rates the rates that a new large electro-process industrial customer might see would be so attractive, and current rates are that attractive, that you're likely to attract a few extremely large energy intensive

industries.

Those new industries could consume the surplus power, wipe out the export earnings, drive up the cost of electricity for every business in Manitoba, for every household in Manitoba, and if it was an aluminum smelter, as probably the most extreme example of a high electricity consumption to job ratio industry, provide really very few jobs and very little other revenue to the province.

Taking steps to prevent this, I believe, is probably crucial to the health of Manitoba and I'm pleased to see from the record that's come before you that Manitoba Hydro has recognized that issue and is apparently taking some steps towards addressing that, at least for electo-process industry.

DR. PETER MILLER: Thank you. I should pause to -- to acknowledge in our audience the executive director of Resource Conservation Manitoba, Randall McQuaker and Mariah Mailman and Carolyn Garley (phonetic). And, oh, Liz, behind a chair there. Liz Dykeman (phonetic) who is the Chair of the Board of RCM.

In your elasticity analysis you calculated that full cost pricing that embodied both marginal generation costs and CO2 costs in the price of electricity could lead to a domestic load reduction of

over 30 percent which, if exported, would bring an additional 388 million into the province.

Do you recommend that the PUB -- to the PUB that Manitoba Hydro should implement such prices as a result of this proceeding?

MR. JAMES LAZAR: No, definitely not. This, as I understand it, is not a rate hearing and the tariffs are not at issue. This is a hearing on the cost of service methodology.

However, I think it's important for the Utility, the PUB and the Government of Manitoba to seriously considering moving gradually in that direction, in the longer run.

And perhaps in the short run with respect to incremental large loads that might come onto the system.

MR. ROBERT MAYER: Mr. Lazar, I hate to interrupt, but I haven't read your evidence and I may be the only person in the room that will have this concern because I live there.

But, where I live we don't really have a lot of option in terms of how we heat. We can heat by propane which is incredibly expensive. We can heat by oil which is likewise expensive or we can heat by wood, which as I understand is not a good plan in terms of the

environment, if my experience from Whitehorse is any indication.

There's no elasticity in terms of when I have to turn my furnace on. When it is minus forty (40), I do have to have my furnace on. And if we start moving to rates like that, I could probably afford it but, I know an awful number of people where I live that could not.

How do we deal with that?

MR. JAMES LAZAR: My -- my evidence actually addresses that in a couple of ways. And my previous testimony before this Board has addressed it, as well.

First of all, the -- from an economist -- from a pure economic perspective, the decision of how to heat your house, how much to heat your house and how much to insulate your house, really ought to be based upon a comparison of the marginal economic and environment costs of oil versus propane versus wood versus electricity.

And that's just sort of a textbook economists answer. And right now you have a market driven cost for propane and oil that don't reflect the environmental costs but do reflect marginal costs, and a regulated price for electricity that does not.

So the economist says that you're working

with bad information in making your decisions.

MR. ROBERT MAYER: Well, unfortunately, Mr. Lazar, many of us didn't build our houses and we purchased them and they were built in the '60's and '70's to a large extent. Although they're -- a number of us have done some insulation work, it would be major, major renovations to make them what Hydro would now call energy efficient homes.

MR. JAMES LAZAR: I understand that, I've now finished being the textbook economist.

MR. ROBERT MAYER: Okay.

MR. JAMES LAZAR: I'm going to turn into somebody a little bit more pragmatic if I may. The next step that I've discussed previously before the Board is a rate design that recognizes that natural gas is not an option in parts of the Province.

And that what I recommended last time I was before the Board is that in all areas of the Province where natural gas is not available at the street, that a different rate design be used in the residential sector to recognize that pretty much those people are going to either have electric heat or be up against oil and propane prices.

So that any kind of a rate design would recognize providing a -- at least an essential level of

electric space heating at a -- I'll call it at Hydro based rate for customers for whom natural gas is not an option.

And the third place where my testimony in this proceeding touches on the problem you describe is that a significant portion of the export dividend could be used to augment energy efficiency programs that may be available and cost effective for retrofit of existing structures and for improving the efficiency of new structures.

And I guess finally, you know, one (1) of the things that I recommended in this testimony if one goes the -- if the Government of Manitoba decides to go the next step and increase rates above the Utility's embedded costs, which is sort of you know the threshold that I think the PUB has historically worked within, but if the recommendations that I made over the long run to actually incorporate marginal costs rather than embedded costs and incorporate environmental costs. That -- that would produce additional substantial amount of revenue that Hydro wouldn't need for its operations and that money could be invested in a whole host of -- of ways.

And as long as they're unrelated to electricity consumption or reduced electricity consumption, they'll be more socially beneficial than

leaving the rates at lower than the economic level. And investing that money in resource alternatives for people who don't have a lot of choices is probably a viable option.

MR. ROBERT MAYER: Thank you.

CONTINUED BY DR. PETER MILLER:

DR. PETER MILLER: Thank you, Mr. Mayer. You picked up my script because I was just going on to customer impacts. You've done that for me. So I'll -- I'll move ahead.

Wouldn't higher electrical rates encourage some people to convert to natural gas or propane? And wouldn't that increase global greenhouse gas emissions now displaced by electric space and water heating in Manitoba?

MR. JAMES LAZAR: In a narrow sense, in Manitoba, yes, I expect some people would convert, and that would increase greenhouse gas emissions in Manitoba. But, at the same time, it would free up electricity that would be sold into an export market that is primarily coal-fuelled and that the margin is often fuelled by natural gas but at relatively low conversion efficiency.

Greenhouse gas emissions in Manitoba would increase slightly, but greenhouse gas emissions in the

export provinces and states would be reduced by a much larger amount. The net greenhouse gas emissions would be lower.

(BRIEF PAUSE)

DR. PETER MILLER: You earlier observed that this isn't a rate hearing, but isn't the cost of service a tool in rate-making, and how might your full cost accounting cost of service be used in rate setting and other planning and operations at Manitoba Hydro?

MR. JAMES LAZAR: Well, first and foremost, it can be used for determining the class revenue responsibility, which is historically the primary function of the -- the cost of service study. And I've provided in my evidence indexed revenue to cost ratios for each of the alternatives that I've presented that could serve as that guide.

It could be used to set the cost effectiveness threshold for conservation programs. It could be used to guide rate design, particularly for the end blocks of inverted rates for the residential sector or for the incremental rates for rolling baseline general service rates, so that general service customers would at least see something resembling marginal cost in making

their incremental consumption decisions.

DR. PETER MILLER: If a future rate hearing were to determine that Manitoba Hydro's revenue requirement is significantly less than the amount that full cost pricing would yield, how might the full cost analysis cost that you've designed be employed to allocate that revenue requirement to the various customer classes?

MR. JAMES LAZAR: With a constrained revenue requirement, we kind of move out of the efficiency realm and into the equity realm. And, in that context, using my analysis or future evolution of that type of analysis, I would say that all shares -- all classes should contribute either their share of the embedded revenue requirement, their share of the embedded revenue requirement plus emission costs, or their share of the full cost revenue requirement, which I'll define as marginal costs plus emission costs.

The analysis that I -- that -- the analysis that Hydro presented in the recommended method is useful for the first, allocating the embedded revenue requirement. My analyses are useful for the second and third options, given that, at present, CO2 is not being assigned a price in the marketplace very effectively. It's not really a part of the embedded revenue

requirement; that could, and I think, will change in the future at which point my method would also apply to the first option; that is allocating the embedded revenue requirement.

DR. PETER MILLER: What are the reasons to prefer your full cost accounting costs to Manitoba Hydro's recommended costs in rate setting?

MR. JAMES LAZAR: The cost of service studies that I present including both the ones that use embedded cost plus emissions and those using marginal generation costs plus emissions I believe provide a more accurate picture of the total share of costs that each customer class ultimately causes to be incurred.

I know it's a bit of a stretch to include environmental costs, particularly those that physically occur south of the border in the US and being from there I'm particularly suspect in making this -- this analysis, but greenhouse gases know no borders.

Frankly, it's not the ice cap of Nebraska that's going to melt and raise the levels of -- of the world's oceans. It's going to be ice caps that are far to the north of Nebraska that are going to melt.

I would agree in a minute that US buyers of Manitoba Hydro power should be paying a price that includes the greenhouse gas emissions that they avoid by

such purchases. If and when the US imposes a CO2 emissions tax those markets will evolve, perhaps after another US election cycle probably not before, and when that occurs it will be obvious that this is a value associated with consuming electricity in Manitoba because those greenhouse gas taxes will increase what Wisconsin is willing to pay for power that it imports from Manitoba.

Until then it's just a matter of kind of doing the right thing, or at least thinking about doing the right thing.

DR. PETER MILLER: Are you aware of any other utilities which have done the right thing and incorporated environmental costs in rates?

MR. JAMES LAZAR: I've provided in one of the information requests reference to a tariff in Denmark that explicitly includes a carbon dioxide adder. Since then I've learned that the municipal utility of Seattle, Washington, Seattle City Light directly funds the incremental cost of bio-diesel that is used by transit busses and ferries that serve the City.

It does that in order to take credit for the CO2 emission reductions in the transportation system to meet its own voluntary self-imposed CO2 emission cap. In effect, what they've done is they've increased

electricity rates to their customers to provide the funds to reduce greenhouse gas emissions off of their system.

DR. PETER MILLER: In your evidence do you explicitly state that you are not advocating massive rate increases based on full cost accounting?

MR. JAMES LAZAR: Yes, I do. In several places I testify that a decision of that type would be a policy issue for the Public Utility Board and the government of Manitoba.

My evidence quantifies the energy savings that I think would result. It quantifies the increased export revenues that I think would be generated. I state and I believe that this would result in a net increase in the welfare of Manitoba. A portion, to be fair, would be offset by higher expenditures to a province to the West for natural gas and propane to the extent that higher prices resulted in fuel substitution.

But on balance it would be a -- I think a huge economic benefit to Canada and to Manitoba in particular.

DR. PETER MILLER: In your evidence do you explicitly consider the impact that significant rate increases would have on Manitoba's existing industrial customers to complement the residential side?

MR. JAMES LAZAR: Yes, I specifically

testify that some way of protecting existing local industries, those who are using local raw materials or recycled -- materials that are recycled in close proximity to Manitoba and who have made significant plant investments based on a reasonable expectation of very low electric rates, some way of protecting these folks is important.

And I've testified in the past of ways that general service rate design could accomplish that. I've also stated in my evidence however that addressing the potential for large new electricity intensive industry is crucial.

And Manitoba Hydro has taken some steps in that direction. I have no way of knowing if my testimony nudged them along or if I just sort of appeared in the middle of a path that they were already on.

I do think, and this is based on experience worldwide, where I've examined the behaviour of the aluminum industry in Australia, in New Zealand, in the United States and Canada, most recently in Mozambique and Bahrain, that that industry searches the world for low electricity rates.

That's the biggest factor in their cost of production. The location of a large aluminum smelter or two (2) here would suck up all of the surplus power

that's now being exported. They would have under the current tariff's a very attractive retail rate, and Manitoba would lose the much higher export revenues its receiving.

If that happened under the current method of allocating the export surplus the problem would become much less contentious among the parties because you'd be allocating a nice round number like zero.

That would drive up rates for all of the existing industries from Inco in the north to industries here in Winnipeg. It would drive up the rates for this office building. It would drive up rates for retailers and for homes and to be fair, that smelter would provide dozens of new jobs here in Manitoba.

But nothing comparable -- my calculations are that the sub City per job that smelters typically extract is on the order of between $100,000 and $200,000 per year per job. And that's the kind of industry that maybe you don't want to attract.

DR. PETER MILLER: Have you reviewed the presentations by MIPUG members regarding the impact that high rates would have on certain local industries?

MR. JAMES LAZAR: Yes I have -- I did receive and reviewed the presentation that was given to the Board I guess last week. And it seemed to me that

the industry that was used as an example was the AmeriSteel plant, which as I understand it is a recycled steel smelter.

And that plant was using about 50 megawatts of power and providing about five hundred (500) jobs. It turns out that's about average for the MIPUG members. Their presentation indicated that they employ directly about four thousand (4000) people and use about 4 billion kilowatt hours per year, which is about 450 average megawatts of power.

By contrast, when you get into manufacturing industries, I'll just the Boeing company as an example because I know them. They use about 50 average megawatts of power in the Puget Sound area and employ about fifty thousand (50,000) workers.

So the same consumption as one (1) steel recycle mill and one hundred (100) times the employment. Of course, at the other end of the spectrum a large aluminium smelter would consume something like 500 megawatts of power, ten (10) times as much as AmeriSteel and have about the same employment, about five hundred (500) workers.

And my understanding is that chlor-alkali is about almost as energy -- electricity intensive as aluminum.

So while some of the MIPUG members are much more electricity intensive than a technical industry like transportation equipment manufacturing, most of them are much less electricity intensive than the kind of industry that I fear, that is the kind of industry that I feel that Manitoba Hydro's current industrial rates invite.

My real concern is that inviting chlor-alkali aluminum or another electro-process industry, where electricity isn't a tool in making something, it is a component of making something, that they would come to Manitoba just for the cheap power.

I'm much less concerned about the impact of industries that use native Manitoba raw materials or recycled materials and happen to use a lot of electricity to process that raw material. Those kind of industries provide substantial collateral benefits to the local economy.

The rolling baseline rate concept that I've discussed here in the past may address that. If you give every customer, say, 85 percent of their historical usage at embedded cost prices and any usage above that is at an incremental price, you protect existing industries because they'd be getting the overwhelming majority of their power at a traditional regulated price.

But you would also discourage a new industry that is electricity intensive from locating here. And by doing so you would protect the ability of Manitoba Hydro to continue to offer attractive prices to the existing industries.

DR. PETER MILLER: What tools are available to Manitoba Hydro and the PUB to address the risk of a large energy intensive industry locating here and devouring the export earnings surplus?

MR. JAMES LAZAR: Well, Mr. Weins has testified to some of these already. You know, vintaging of -- of customers is one option. Requiring large increases in load by any customer to pay marginal cost is another. An outright ban on large new loads is another.

I'm an economist and, therefore, I generally favour using pricing tools rather than prohibitions to accomplish that.

I think that the rolling baseline rate concept has a lot of promise to protect existing industrial customers while giving customers that have an ability to expand a legitimate way to do so and eventually to become grandfathered into the system. A marginal cost rate for all large new customers, similar to what we have on Bonneville power administration system would be another.

DR. PETER MILLER: How would you define "large new customer" in this context?

MR. JAMES LAZAR: Well, I think it would -- it would really merit some study. I'd probably survey existing non-electro-process general service large customers to find out what is their usage per employee. I would, you know, be looking at the mines and mills and manufacturers, but not the electro-process industries, chlor-alkali or some of the other air separation, some of those that for which electricity is really an input.

And I'd set -- I'd set the threshold based upon what are our current industrial customers using. You know, I mean, for the Boeing company it's about one (1) kilowatt per employee, 10,000 kilowatt hours a year. For the kinds of industries you have here it's substantially more than that.

But I'd set some kind of a threshold and tying it to the number of employees may be a reasonable way to do it. And then usage above that threshold, however it's set, would be subject to the rate based on marginal cost.

That way you'd be protecting the current low costs or, from another perspective, subsidizing labour-intensive industries that provide a lot of jobs relative to the power consumption. You'd be inviting new

industries that have an average or better ratio of energy to employment. And you'd be collecting marginal cost based rates for excess consumption so that everybody else's rates don't go up when an energy intensive industry locates here or expands.

DR. PETER MILLER: And I think you've already added to that the notion of inverted rates to get incremental price of incremental usage closeage (sic) to marginal costs?

MR. JAMES LAZAR: Yes. And Mr. Wiens has already testified it's pretty easy to set residential rates that are inverted and provide a marginal cost based price for the tail block. It's a lot tougher for industrial customers.

But I think there are some ways to set the incremental rates to reflect incremental usage and the rolling baseline concept is the one (1) that I've found most fair to existing customers and most effective at ensuring that new customers recognize and compensate the system for the costs that they have caused.

DR. PETER MILLER: What tactics do you recommend be explored for larger customers?

MR. JAMES LAZAR: Well, I -- I think -- I think I've answered that. The rolling baseline rate approach is -- is the one (1) that makes most sense to

me. But this is a very creative utility. I would gladly trade the rate staff at most of the utilities I work with for Mr. Wiens.

I'm not sure I can convince the utility to let go of him but there may be some -- some other options that -- that I haven't thought of that will work well for Manitoba.

DR. PETER MILLER: Can you produce any examples of how this might work?

MR. JAMES LAZAR: Well, the -- there aren't many, in the electric industry, customer specific rates. During -- there have been periods when marginal costs were, during the power surplus period, the marginal costs were way below average costs and the utilities offered economic development rates that gave new customers lower rates than everybody else.

If we were creative enough to do that we ought to be able to apply the same concept under different economic circumstances with marginal costs above average rates.

But we're always talking about, sort of, a customer specific rate. And I've looked around and discovered that there's a whole industry that figured this out a long time ago. One that I don't normally think of is at the vanguard of creative rate making and

that's the sewer utility industry.

Many sewer utilities -- they don't have meters on the sewer to measure how much goes down the drain and probably because they have a hard time hiring maintenance staff to work on those meters. But they do have meters on the water that comes into every building.

And what sewer utilities do is they look at like the December, January, February water consumption and they assume that substantially all of that is going down the drain and they base each customers' sewer volume charge on their winter water consumption.

And so if I use five thousand (5,000) gallons of water a month -- excuse me, twenty thousand (20,000) litres of water a month in the winter I will pay for twenty thousand (20,000) litres of sewer service all year long.

And if Dr. Miller uses ten thousand (10,000) litres of water a month in December, January and February, he pays for ten thousand (10,000) litres of sewer service throughout the year. Individual customer rates.

If the sewer industry's customer information systems can keep track of customer individual pricing, it shouldn't be too big a stretch for a sophisticated electric utility to -- to figure it out

also.

I mean, the theory in the sewer industry is, in the summertime a lot of water goes in the garden and they don't have to treat it. It doesn't ever wind up in the sewer and so they don't charge customers for the extra consumption that occurs in the summer.

Anyway, I think that customer specific rates are -- are not, first of all, they're not unprecedented. There's this industry we never thought to look at that does it and they're not that complicated to implement.

DR. PETER MILLER: Thanks. I think I'll skip the next one, it's the one you've already responded to.

MR. JAMES LAZAR: Yes.

DR. PETER MILLER: Do you have a specific recommendation in this proceeding for a set of priorities for application of the export class net income?

MR. JAMES LAZAR: Yes, I think the guiding principle should be that as much as possible the export revenue should be utilized in a way that does not increase electricity consumption in Manitoba.

There's no certainty that that export dividend will be there forever. It is volatile in relationship to water conditions. It is volatile in

relationship to export prices which in turn are dependant upon natural gas prices, which are volatile.

So, first the decision I think you've already made to offset the impact of the uniform rates legislation is appropriate. There's no reason that industrial customers in Thompson should subsidize the rural residential distribution costs in the far north.

Nor, is there any reason why an industrial customer in Winnipeg should do that. There's no reason why a residential customer in Winnipeg should subsidize the rural distribution costs that occur in the more expensive zones.

The export dividend, a pot of money that doesn't really belong to any customer, no customer is paying rates that recover those costs, is an appropriate way to fund it.

Second and this is something, a conclusion I've come to since I've drafted my evidence, but since reading the record here. I think it's important to get Manitoba Hydro finances in line, in order. To get their finances up to the point where they can handle a serious drought without having to resort to drastic or sudden rate increases under those conditions.

Whether that's done by raising the equity ratio up to 25 or 35 percent, or by building up a

segregated drought fund, a drought reserve, isn't really important to me, it's maybe important to the accountants but not to an economist.

I spend an awful lot of my time criticizing American utilities who are asking for 45 or 55 percent equity in their regulatory hearings. I think that's too much. But, below 20 percent is too little.

So, a significant part of the export dividend and particularly maybe the dividend that's being accrued now when export prices are higher than were expected when current rates were set, I think ought to go to building financial reserves.

Third, funding energy efficiency programs is a natural application of this fund. Doing so is consistent with the sustainability goals of Manitoba. It reduces electric bills in Manitoba. It creates jobs for conservation vendors in Manitoba.

And it also increases the revenues from export sales because that electricity isn't used in Manitoba and can be sold somewhere else. So to some extent that's a self-financing result.

Fourth, funding low income energy assistance programs to provide the basic essentials of modern life to individuals who are destitute will have a minimal impact on total consumption. Those people don't

use a lot of electricity. And it will provide some modicum of a 21st century lifestyle to those who can't now afford it.

Finally, you might give thought to an approach that the Oregon Commission formerly used. For many years marginal costs in Oregon were way above their embedded costs. And the Oregon PUC dealt with that under advice from NERA, National Economic Research Associates, the same consultant that's assisted Manitoba Hydro in this work, used them to offset the basic distribution infrastructure costs.

Those costs that Professor Bonbright testifies are not really allocable. The joint costs that aren't really customer related like metres and metre reading, aren't really demand related, like incremental transmission capacity and aren't really energy related like generation.

This is the basic cost of having a network of poles and wires and transformers around a service territory that have to be there regardless of usage level.

Bonbright said forty-five (45) years ago that the basic distribution infrastructure was strictly inallocable.

Those elements of the distribution system

are really an elastic. People are going to hook up to the electric grid whether it's $5 a month or $15 a month. They're going to have a refrigerator. I suppose there are propane refrigerators, but you don't see them much, even in Hawaii where electricity is twenty-five (25) and thirty (30) cents a kilowatt hour.

What Oregon did is, until marginal costs and rates came more closely into balance, they just threw those costs out of the cost of service study altogether. That would be sort of the -- the last option that comes to my mind within the current, kind of, role of the Board as I see it.

DR. PETER MILLER: What would be the result of the steps that you just outlined?

MR. JAMES LAZAR: I think those steps would -- would absorb substantially all of the current export dividend. It -- all classes would then pay rates based on the embedded costs of the service they received, except for elements that you've decided to specifically subsidise, the inelastic elements or the -- the socially important elements. At that point, rates would equal embedded costs. That's still a lot lower than marginal costs.

The tremendous benefits to the Manitoba economy of the current level of export earnings would be

retained for the benefit of the population of Manitoba. They'd get it in different ways than through their electric bill but they'd still get basically every penny.

And I contrast that to the alternative, which is the historical method, flowing it all back to customers based on their usage, or what I call the biggest-piggy-gets-the-most-slop method. Because I -- because I fear that that approach will attract electro-process industry to Manitoba, as that approach has in Ghana, in Mozambique, in Bahrain most recently, and historically did to the Pacific Northwest, British Columbia, Australia, New Zealand and the Tennessee Valley.

DR. PETER MILLER: Thank you for that, Mr. Lazar.

And with that, the witness is available for cross-examination.

THE CHAIRPERSON: Thank you, Mr. Lazar, Professor Miller.

I'm just looking here -- first one up would be CCEP, Mr. Feldschmid. He's not here, so we'll move along the list.

Mr. Buhr, is he here, for the City of Winnipeg?

MR. BOB PETERS: Mr. Chairman, if I can

just interrupt. I -- I hope my comments this morning didn't disrupt the order of process. While Mr. Williams wasn't here, Ms. Bowman was here I believe to cross-examine Mr. Lazar.

THE CHAIRPERSON: Yes. I was just trying to take care of the Intervenors that I had noted that weren't here, just for the record.

MR. BOB PETERS: Okay. Thank you.

THE CHAIRPERSON: Now we will go back to Ms. Bowman, and you can commence your cross-examination for CAC/MSOS.

MS. MYFANWY BOWMAN: Thank you, Mr. Chair. If I can just have a moment to consult with Mr. Harper.

THE CHAIRPERSON: Yes. In fact, what we'll do then is we'll just take our fifteen (15) minute break right now, allow everyone to prepare for the cross-examination. Thank you.

MS. MYFANWY BOWMAN: Thank you. I appreciate it.

--- Upon recessing at 9:59 a.m.

--- Upon resuming at 10:22 a.m.

THE CHAIRPERSON: Ms. Bowman, anytime you

wish to begin.

MS. MYFANWY BOWMAN: Perhaps we should wait for Mr. Evans.

THE CHAIRPERSON: Professor Miller, are you ready to go?

DR. PETER MILLER: Sure we are.

THE CHAIRPERSON: Okay, Ms. Bowman...?

MS. MYFANWY BOWMAN: Thank you Mr. Chair, Members of the Panel. I'll try and speak up this time.

CROSS-EXAMINATION BY MS. MYFANWY BOWMAN:

MS. MYFANWY BOWMAN: Mr. Lazar, thank you for joining us this morning. I was very pleased to hear in your direct evidence that you, in fact, are familiar with Mr. Bonbright. You will find that he had made devotees here. And I'm going to ask you a couple of questions about him.

You would agree with me that Mr. Bonbright prescribes three (3) primary rate criteria -- he describes a number but there are three (3) that he would describe as primary; is that fair? Yes?

MR. JAMES LAZAR: Well, the -- it's only a four hundred and fifty (450) page book and it was published in 1961, and I have read the whole thing but I'm not sure I -- I would identify only three (3)

primary.

The practical attributes of simplicity, understandability and freedom from interpretation are the -- the three (3) that come to my mind.

MS. MYFANWY BOWMAN: All right. The three (3) that have been tossed around here are the recovery of the rate revenue requirements, fairness and efficiency.

And would you agree that those are very important rate criteria?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Would you also agree with me that different cost concepts would be better suited to addressing some as opposed to other of those criteria?

MR. JAMES LAZAR: Sorry?

MS. MYFANWY BOWMAN: Different concepts of costs, embedded versus marginal versus replacement and so on, will have a better or lesser ability to address those different criteria?

MR. JAMES LAZAR: They will affect it differently.

MS. MYFANWY BOWMAN: Each of them will?

MR. JAMES LAZAR: Each of them will.

MS. MYFANWY BOWMAN: You would also agree

with me that the cost of service is only one (1) element in the process of rate setting?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And the other elements would be the revenue -- extended revenue requirement and rate design?

MR. JAMES LAZAR: Well, to me, that -- that is true, but to me -- and -- and Bonbright is -- is fairly clear about this, that cost is only one (1) thing that a regulator will consider, that impacts on the service territory, gradualism, you know, social impacts, are also things that a regulator will consider in addition to cost.

MS. MYFANWY BOWMAN: You foresaw my question.

And, in fact, there would be other factors than those mentioned that would also be legitimate considerations; would you agree with that?

MR. JAMES LAZAR: You're -- can you bring the mike a little closer or talk a little slower or --

THE CHAIRPERSON: I think the problem --

MR. JAMES LAZAR: -- hit me so I listen a little faster.

THE CHAIRPERSON: I think part of the problem is, is that both of you are leaving off on your

mikes when you finish speaking, so it might be affecting the way it picks up.

MS. MYFANWY BOWMAN: I apologize. I'll try and stop doing that.

THE CHAIRPERSON: It's actually both of you.

(BRIEF PAUSE)

CONTINUED BY MS. MYFANWY BOWMAN:

MS. MYFANWY BOWMAN: Would you agree with me also that there are other factors that would be legitimate considerations in terms of setting rates?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And those factors might include equity and fairness?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Impact on the regional economy?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Impacts on disadvantaged citizens?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And there may well be other legitimate criteria that we haven't discussed?

MR. JAMES LAZAR: Many. An impact on the environment would be one that I would clearly add that I don't think, in 1961, Professor Bonbright included.

MS. MYFANWY BOWMAN: Fair enough.

Would you also agree with me that cost of service studies require analysis and judgment?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Would you also agree that there are literally dozens of different methods used to calculate electric cost of service and none of them are precisely correct?

MR. JAMES LAZAR: No. I think there are hundreds and none of them are precisely correct.

MS. MYFANWY BOWMAN: I stand corrected.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: When I reviewed your report I noticed that you said and -- and you continue to agree that, first and foremost, you find that the recommended method of computing cost of service advocated by Manitoba Hydro is a progressive step forward.

You would agree with that statement?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: You believe that it

improves the accuracy of cost determinations and allocation in Manitoba?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And you believe all of the changes proposed are improvements and should be approved by the Public Utilities Board?

MR. JAMES LAZAR: Well, I think on balance the -- the proposal is a significant improvement. If I were to do an item-by-item-by-item evaluation of each and every change I'm sure I would find one (1) that I might approach slightly differently. But I'm not sure, given that none of the methods are precisely correct, I think it's important to look at things in the whole.

Certainly, I would continue to disagree with Manitoba Hydro on the treatment of the basic distribution infrastructure which -- which they classify a portion of as customer related that I would not.

MS. MYFANWY BOWMAN: But on the whole you would?

MR. JAMES LAZAR: The changes I think are -- are -- are an improvement. There's still a few things I would do differently.

MS. MYFANWY BOWMAN: And I appreciate that, having read your report. But on the whole you also note that the change from generation and transmission

only with respect to the allocation of net export revenue to the recommended method offsetting all utility costs, you find that a definite improvement in economic efficiency?

MR. JAMES LAZAR: Yes, I find that a definite improvement.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: The focus of your report, in large part, is environmental and at one point you say that the key issue relating to the environmental impact of electric supply for Manitoba Hydro customers is the -- I think what you call avoidable CO2 emissions in export markets.

Those emissions that can be avoided by conservation in Manitoba?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And your report focusses specifically on that issue?

MR. JAMES LAZAR: Yes. I -- I mean, there are also mercury emissions and some other but I limited my analysis to carbon dioxide.

MS. MYFANWY BOWMAN: And that was because you wanted to keep it simple?

MR. JAMES LAZAR: Correct.

MS. MYFANWY BOWMAN: You would agree with me that almost all human activity would have an impact on the environment?

MR. JAMES LAZAR: Yes, although some of them are positive. Death, in particular, occurs to me as one that has a positive impact on the environment. We create fertilizer and quit doing all the other things that we do.

MS. MYFANWY BOWMAN: We'll make a note of that. And you would agree, therefore, that different generation choices would have environmental impacts?

MR. JAMES LAZAR: Yes, absolutely.

MS. MYFANWY BOWMAN: And that would include generation choices made by Manitoba Hydro?

MR. JAMES LAZAR: That's correct.

MS. MYFANWY BOWMAN: And many of the environmental impacts of generation choices made by Manitoba Hydro will be felt here in Manitoba; would that be fair?

MR. JAMES LAZAR: Some of them would. The CO2 emissions would not particularly be felt in Manitoba. They would be felt globally. And, you know, unless they became so concentrated that there wasn't enough oxygen for people to breath, the CO2 emissions

generally are not.

And depending upon the dispersion of other pollutants most of the impacts of the acid rain that was being produced by Illinois and Indiana and Michigan power plants was much more seriously affecting Canada than the US which led to a treaty between the countries to start addressing those.

MS. MYFANWY BOWMAN: So if I understand your point, there's certainly some migration, but you would also agree with me that many of Manitoba Hydro's choices would also potentially have impacts felt here at home?

MR. JAMES LAZAR: Absolutely. I think when Manitoba Hydro builds a dam and floods some area that was formerly used for something else that impact is felt unambiguously in Manitoba.

If it's a combustion resource and things go up the stack that impact is sensed more broadly and if a wind resource causes bird mortality those are migratory birds and that impact is felt in -- throughout the migratory path of the birds. So if it's mostly in Manitoba, it's mostly in Manitoba. Some are more localized, some are more global.

MS. MYFANWY BOWMAN: You seem to have great insight into where I'm going this morning. So

let's talk a little bit about some of those environmental impacts. As I understand it Hydro can potentially have a number of impacts, one of which can be flooding; is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And flooding can have impacts on the people resident in the area, trappers, fishers, harvesters, hunters, people who are using that land for whatever reason?

MR. JAMES LAZAR: Yes. Although I guess I don't know the management of the Manitoba Hydro system nearly as well as I know others. But clearly when you build a dam you impound water and that causes some flooding.

But also once you have a hydro system you have the ability to absorb inflows of water that may allow you to -- to prevent flooding that would otherwise occur and that flood control is one of the historical purposes that the multi-purpose dams built, for example, by the Army Corps of Engineers or the Bureau of Reclamation in the US are --are justified on as flood control.

So flooding can be both a -- from a human perspective both a positive and a negative impact, although those floods -- those floods also were what

provided nutrients to the soil and we've since discovered all that flood control is requiring application of chemical fertilizers that we didn't used to need.

And so in the global sense maybe that flood control isn't such a good thing.

MS. MYFANWY BOWMAN: Would it be fair to say then that it's a very complex system of interconnected impacts --

MR. JAMES LAZAR: Yes --

MS. MYFANWY BOWMAN: -- that can often be hard to predict?

MR. JAMES LAZAR: They're complex, they're hard to predict. We've developed quite a bit of science of predicting them and that's why both in Canada and in the US, extensive environmental analysis is required of major projects.

MS. MYFANWY BOWMAN: Absolutely. Some of the other potential impacts related to Hydro projects can be changes to water flow patterns, not just in an area that might be flooded, but downstream as well. Would that be fair?

MR. JAMES LAZAR: Yes, definitely.

MS. MYFANWY BOWMAN: Other potential impacts might be changes in habitat?

MR. JAMES LAZAR: Habitat, fishery

migration, fishery spawning.

MS. MYFANWY BOWMAN: I understand that water turbines can be a little tough on fish too?

MR. JAMES LAZAR: They can and in addition the nitrogen super saturation that occurs when water is released from dams can be hard on fish. Even if you can pass the fish around the turbines, you wind up with the gas make-up of the water isn't what the fish evolved to handle.

MS. MYFANWY BOWMAN: If we look at natural gas fired generation, obviously there's the potential for the generation of CO2?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And emissions other than CO2, sulphur dioxide, whatever?

MR. JAMES LAZAR: Virtually no sulphur dioxide, the nitrogen oxides can be quite significant. Water vapour can cause, as I understand it, localized climate impacts.

MS. MYFANWY BOWMAN: There's also water demands in terms of cooling?

MR. JAMES LAZAR: Yes, although there are techniques to truly minimize those. One of my clients, the City of Burbank in California just built a 250 megawatt power plant that uses sewage effluent for all of

its cooling water make-up and the plant was designed to have zero liquid discharge.

All of the water is recycled and recycled until it's either steam in the air or solids that are landfill. There's no discharges to a stream whatsoever of the water used. So the water side of it is probably the most managed and manageable at this point.

MS. MYFANWY BOWMAN: But the degree to which that's managed will also depend -- vary from plant to plant?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And again with natural gas there are issues with resource extraction?

MR. JAMES LAZAR: There are issues with resource extraction, with resource treatment, with pipeline construction and with cost.

MS. MYFANWY BOWMAN: A lot to think about?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: If we talk about coal fire generation, again we have CO2, sulphur dioxide, nitrogen oxides things like that?

MR. JAMES LAZAR: Mercury is a big one that I would add and the extraction impacts are often going to be quite severe.

MS. MYFANWY BOWMAN: There's also issues sometimes with thermal discharge and again water cooling demands?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And I understand there can be issues with waste disposal, as well?

MR. JAMES LAZAR: Yes the slag is -- can be a large quantity of material.

MS. MYFANWY BOWMAN: If we look at wind generation, I understand noise can be an issue?

MR. JAMES LAZAR: Noise was a bigger issue in the past with smaller wind turbines that spun fast. The big news ones turn pretty slow and I understand noise is a much smaller problem than it was.

MS. MYFANWY BOWMAN: It might still be a consideration, but less so.

MR. JAMES LAZAR: A consideration.

MS. MYFANWY BOWMAN: Visual disturbance is also a consideration?

MR. JAMES LAZAR: Not everyone shares my sense that wind turbines are beautiful.

MS. MYFANWY BOWMAN: Perhaps if we painted them. I understand that they can also be difficult for birds and bats, hard on their populations?

MR. JAMES LAZAR: Yes. Although, again, the newer turbines that are much slower are a lot easier on birds and bats. I think actually my cat does more damage to the bird population than the average wind turbine.

MS. MYFANWY BOWMAN: So depending on the age and the technology they're have a greater or lesser issues in terms of birds and bats?

MR. JAMES LAZAR: Yeah. They do have impacts and those impacts have been mitigated by technological evolution.

MS. MYFANWY BOWMAN: To some extent?

MR. JAMES LAZAR: To some extent.

MS. MYFANWY BOWMAN: If we talk about transmission and distribution those particular transmission can have impacts in terms of habitat change and bi-section of migration routes, things like that?

MR. JAMES LAZAR: Yes. And one of the more serious impacts is the impact on -- on bees and the pollination that -- that the bees are responsible for. Farmers have wound up having to spend a lot more on pollination as a result of -- if they're in the vicinity of transmission lines.

It's a mitigatable cost but it's one that was a little bit of a surprise to some people.

MS. MYFANWY BOWMAN: Difficult to foresee?

MR. JAMES LAZAR: Sorry?

MS. MYFANWY BOWMAN: If was difficult to foresee?

MR. JAMES LAZAR: It was not foreseen and it did -- it did occur.

MS. MYFANWY BOWMAN: And even if we look at something as environmentally friendly as DSM, demand side management, we still potentially have issues with waste disposal?

MR. JAMES LAZAR: We have issues with the manufacturing of the materials. We have issues of waste disposal. Improperly installed we can have issues with indoor air quality.

I guess what we're getting to is there's no such thing as a free lunch.

MS. MYFANWY BOWMAN: Thank you. You would also agree that it is almost impossible, if not completely impossible, to list all of the potential impacts?

MR. JAMES LAZAR: Yes. The purpose of the environmental review process is to identify as many as reasonably can be identified and quantified and until we're -- until we know everything we -- we can't do it

well. And I guess the solution is to hire 16 year olds to do our environmental impact statements because they know everything.

MS. MYFANWY BOWMAN: They just won't have their jobs for very long.

One of the proposals contained in your report is to include the notional cost of the CO2 emitted in other jurisdictions which is theoretically avoidable if use in Manitoba is reduced; do I understand you correctly?

MR. JAMES LAZAR: Yes, I think you state it very well.

MS. MYFANWY BOWMAN: Now, the CO2 that you're referring to is not the CO2 that is being produced by Manitoba Hydro in its generation?

MR. JAMES LAZAR: That's correct.

MS. MYFANWY BOWMAN: The CO2 is being produced in other jurisdictions by other generators?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And that would obviously be as a result of their generation choices?

MR. JAMES LAZAR: Correct. And I suppose some trivial -- some tiny percent of Manitoba Hydro generation is thermal and that might be mitigated but that's not where the action is. The action is in the

export markets.

MS. MYFANWY BOWMAN: That's certainly not what you were talking about in your report?

MR. JAMES LAZAR: No. 99.7 percent of what I'm talking about is elsewhere.

MS. MYFANWY BOWMAN: And the CO2 emissions that you're talking about in your report do not actually constitute an out of pocket expense for Manitoba Hydro at this time?

MR. JAMES LAZAR: Do not cause an expense nor generally produce a revenue. If and when they start producing a revenue for Manitoba Hydro, that somebody's willing to pay to have the -- the Hydro power to displace their thermal power and willing to pay for the CO2, the math gets a lot easier. They are no longer notional costs. They're real numbers.

MS. MYFANWY BOWMAN: It would presumably have some kind of impact on our export prices?

MR. JAMES LAZAR: Correct.

MS. MYFANWY BOWMAN: You would also agree with me that when or if a CO2 tax is introduced it will presumably be payable by the person or company emitting the CO2?

MR. JAMES LAZAR: I think that's the most likely outcome. It may be imposed at the point of

extraction or first import is another approach to do it as -- rather than cause every driver of every automobile to remit their CO2 emission costs, to tax the oil when it's extracted from the ground or imported into the country.

But it will -- it will be paid ultimately either by the person emitting it or in the fuel cost of the person emitting it.

MS. MYFANWY BOWMAN: Now, you would agree with me that Manitoba Hydro has natural gas generation stations both at Brandon and Selkirk?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: You would also agree that Manitoba Hydro has one (1) coal-burning unit, also at Brandon, unit number 5?

MR. JAMES LAZAR: Yes, that's my understanding.

MS. MYFANWY BOWMAN: Manitoba Hydro has diesel stations?

MR. JAMES LAZAR: A few. Fewer than it used to.

MS. MYFANWY BOWMAN: Correct. You'd also agree that all of those stations, when they operate, would emit CO2 among other things?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Would you agree with me as well that Manitoba Hydro CO2 emissions would be affected by a number of factors, and I will give you a couple of examples.

Water levels. In periods of drought Manitoba Hydro would likely increase its thermal generation.

MR. JAMES LAZAR: Yes, to the extent that it was more economical to operate their thermal plant than to import power.

MS. MYFANWY BOWMAN: That was going to be my next factor. That export prices might also -- or import prices might affect how often our thermal stations are run.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And export prices would also affect how often those thermal stations are run and, therefore, what Manitoba Hydro CO2 emissions would be?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And you are aware that Manitoba Hydro runs the Brandon coal unit for export purposes?

MR. JAMES LAZAR: That's my understanding.

MS. MYFANWY BOWMAN: You are aware as well that Manitoba Hydro imports power?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And they do that sometimes to supplement domestic supply, particular in a period of drought?

MR. JAMES LAZAR: Sometimes they do it during a -- a drought and sometimes they do it when they can buy off, they can sell on, they equally might do just to -- to arbitrage the market.

MS. MYFANWY BOWMAN: Once again, you are prescient, you saw where I was going.

And the power that Manitoba Hydro purchases is generally produced in the United States?

MR. JAMES LAZAR: That's -- I don't think I -- you know, I assume that is true but I don't think I've ever actually looked at any data that I can -- I can cite to. So I -- I'll accept that subject to check.

MS. MYFANWY BOWMAN: If I were to tell you that was the evidence of the Manitoba Hydro representatives at this hearing, would you accept that evidence?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And you would agree with me that power purchased from the United States would

primarily be sourced from coal and natural gas.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: I'm going to ask you to turn to the tables to your report. I'd like to just go through them a little bit. And I'm going to ask you to start with JL-2, page 1.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: Now, this chart, as I understand it, reflects use of energy by various classes at various periods.

Is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And you would agree with me that the numbers reflected here would vary depending on a number of things, including for example changes in consumption choices?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They might reflect -- they might vary depending on changes in technology or pricing of technology?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They might, if we're lucky, vary depending on DSM programming?

MR. JAMES LAZAR: Luck will have little to do with it. If we're skilful, we will affect them and if we're sloppy, we won't, but I don't think it's luck.

MS. MYFANWY BOWMAN: Fair enough. But you would agree that DSM programming, if properly done, will hopefully have an impact on those numbers?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: You would agree as well that changes in -- in industrial or other user profiles might have an impact on those numbers?

MR. JAMES LAZAR: These numbers, as I understand it, are a snapshot at a point in time and they will be affected by anything and everything that changes from that moment forward.

MS. MYFANWY BOWMAN: Precisely. Thank you.

If you can look next at JL-2, page 2. As I understand it, this table shows marginal resources in export markets by period, and then you estimate CO2 emissions.

Is that right?

MR. JAMES LAZAR: That's correct.

MS. MYFANWY BOWMAN: And in order to estimate those CO2 emissions you took information that was based on averages from the Midwest area.

Is that right?

MR. JAMES LAZAR: Yes, it was the mid-west independent system operator data. So it's not just mid-west. The term, mid-west, is a little bit vague. The Mid-west ISO defines a specific group of utilities that coordinate their planning and operation.

MS. MYFANWY BOWMAN: So it could be significantly larger than the mid-west potentially?

MR. JAMES LAZAR: It's -- it depends where you live, where the mid-west is. My relatives in New York think of Pennsylvania as the mid-west and I live on the west coast and I think of Pennsylvania as the east coast. But, the Mid-west ISO is you know, Wisconsin, Minnesota, the Dakotas, Iowa, parts of Illinois, I mean it's a -- down into Missouri.

It's a part of the country -- of the United States that is sort of mid-country but it's called mid-west.

MS. MYFANWY BOWMAN: And in fact, Manitoba is apparently a member.

MR. JAMES LAZAR: Apparently, yes.

MS. MYFANWY BOWMAN: And the information that you used to estimate is based on information that's averaged from that whole area?

MR. JAMES LAZAR: It's not even that

precise. It's information that I estimated from a particular information response that Hydro provided me and which I then asked them if their sense of the data was about the same as mine, and they said yeah that looks about right.

So I don't want to represent this as a hourly study of the dispatch of seven hundred thirty (730) power plants that make up the Mid-west ISO. This is looking at a few tables that they produced based upon summer and winter operations and making an approximate judgment based on that.

You'll notice that the percentage of generation numbers are fairly round numbers.

MS. MYFANWY BOWMAN: That's a fair statement. So you would agree then that the actual numbers, if we were to look contract by contract, where Manitoba Hydro is displacing emissions, the numbers could be precisely the same or they could be wildly different, it's hard to predict?

MR. JAMES LAZAR: I don't think they would be wildly different. I'm certain they would be somewhat different. I know I'm not perfect but, I don't think I'm out of the ballpark here either.

MS. MYFANWY BOWMAN: The numbers would depend on where Manitoba Hydro's actually selling power

to?

MR. JAMES LAZAR: Depends on where and it depends on what hours. The hours at which they can get the highest prices are typically the hours when gas generation is operating and they seek to manage their system to take advantage of that market opportunity.

If there was a carbon tax imposed, the cost structure would change, the dispatch order would change and the operation of the Manitoba Hydro system would probably change in response to a changing market dynamic.

MS. MYFANWY BOWMAN: So the crystal ball gets a little murky after a while?

MR. JAMES LAZAR: Yeah.

MS. MYFANWY BOWMAN: You would also agree with me that marginal resources in use can vary over time?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And it can vary based on fuel prices?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They can vary based on environmental initiatives such as a CO2 tax or something else?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They could vary based on what kinds of new generation plants are available?

MR. JAMES LAZAR: Yes. Probably the biggest variation recently has been the failure of one (1) railroad bridge across one (1) river which constrained the ability of the railroads to move coal out of the Powder River basin into the mid-west and forced a significant shift to the use of high sulphur Appalachian coal or natural gas.

Both of which drove up the cost of generation in the mid-west significantly. And my understanding is that railroad bridge is fixed and the trains are rolling again and prices have mitigated.

MS. MYFANWY BOWMAN: But, that was something that would have been difficult to predict probably?

MR. JAMES LAZAR: It wasn't predicted, it was not a scheduled repair. They wouldn't have scheduled it for a time when natural gas prices were ten (10) plus dollars a million, they would have scheduled it for during the spring run off or something.

MS. MYFANWY BOWMAN: I'm going to look at JL-2 page 3, and this is as I understand it, your attempt to quantify emissions that are avoidable if Manitoba

decreases its consumption; is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And again this is not based on a CO2 charge that is currently being imposed on Manitoba Hydro, this is notional only, is that right?

MR. JAMES LAZAR: Yes. I estimated it at $10 a ton and then multiplied that to get what it would be at different values, but it's -- it's not a charge that's currently being imposed.

MS. MYFANWY BOWMAN: And you would agree with me that the calculations that you've done here depend on the numbers from pages 1 and 2 that we just looked at and changes in those previous tables would have implications for the numbers that we're looking at on page 3.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And if we turn then to JLS, page 3, if I understand what you've done here -- sorry, JLS-3, page 1. I apologize.

MR. JAMES LAZAR: JL --

MS. MYFANWY BOWMAN: JL --

MR. JAMES LAZAR: -- 2?

MS. MYFANWY BOWMAN: JL-3, page 1.

MR. JAMES LAZAR: JL-3 --

MS. MYFANWY BOWMAN: That should be the

next one you have, yes? You have that?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: If I understand what you've done here, you've added this notional CO2 cost into total cost by customer class and you've calculated RCC's on that basis.

Is that right?

MR. JAMES LAZAR: Yes. I've calculated both a revenue to cost ratio without application of the export dividend. And the next to the last column, for example, with residential at 68 percent and general service small non-demand at 77 percent, and I've calculated those same things indexed to one (1).

The index ratios are sort of -- put everything on a -- in a context that the Board and -- and the parties have generally been familiar with seeing in other proceedings.

MS. MYFANWY BOWMAN: And us non-economists. It makes it easier for us --

MR. JAMES LAZAR: Well --

MS. MYFANWY BOWMAN: -- non-economists as well.

MR. JAMES LAZAR: It makes it easy for a non -- well, you know, actually, the -- the non-indexed revenue to cost ratio to me is -- is the most relevant.

Are people paying their cost of -- of service.

We know that under the current circumstances the export class is paying more than its cost of service because there's this dividend for people to fight over. And I guess I would describe, as long as a class is not paying more than 100 percent in the column labelled "RCC Ratio" they are not subsidizing anybody, they are being subsidized.

And if that column broke 100 percent, then I think a class might have a legitimate argument that its rates are above cost.

MS. MYFANWY BOWMAN: Now, as I understand these calculations, they flow from the tables we just talked about in Exhibit JL-2.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Is that right?

So they would depend on the numbers in the calculations in the pages in JL-2?

MR. JAMES LAZAR: Correct.

MS. MYFANWY BOWMAN: So anything that changed the numbers in the various pages of JL-2 would affect the numbers that we're looking at here in JL-3?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And that would also be true for pages 2 and 3 of this exhibit, which are --

are your calculations of different values.

MR. JAMES LAZAR: Yes.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: Just bear with me for a minute, please.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: If we look at JL-3, page 4, it's sort of a summary of the RCC's at various values for CO2.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And, as I understand it, the changes in the RCC's reflect that some classes, particularly industrial classes, use -- use large amounts of energy in all time periods, including those where the marginal resource and the export market is coal and therefore associated with maximum emissions.

Is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And some classes, and particularly residentials, would use most of their energy at peak times when the marginal resource and the

export market is gas or coal and gas and therefore associated with lower emissions.

Is that also right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: In a general sense, obviously.

MR. JAMES LAZAR: Different classes have their usage different time periods and the marginal resources during those time periods are different. That's why I did the study based upon the time periods.

In previous cases I don't think Manitoba Hydro produced the time period data by -- by customer class. It was done as part of the -- the NERA methodology update and I though it was sensible to use it because the market marginal resources are significantly different, particularly summer versus winter.

MS. MYFANWY BOWMAN: And again, these RCC's depend on the calculations and assumptions that we've talked about in all the preceding pages?

MR. JAMES LAZAR: Correct.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: I have a handout that might help the Board and Members here to follow

where I'm going next, so I'm just going to pass that out if I might.

THE CHAIRPERSON: Absolutely.

MS. MYFANWY BOWMAN: I have a bunch of copies that are highlighted and I have some extras that aren't, just in case I run out, so we will see.

(BRIEF PAUSE)

THE CHAIRPERSON: We have it Ms. Bowman. Perhaps for ease of handling we should give it an Exhibit number.

MS. MYFANWY BOWMAN: Please.

THE CHAIRPERSON: CAC/MSOS 6.

--- EXHIBIT NO. CAC/MSOS-6: Copies of the last several JL-4, JL-5 and JL-6, different versions that have been circulated

MS. MYFANWY BOWMAN: Thank you Mr. Chair. And just for the record it consists of copies of the last several JL-4, JL-5 and JL-6, the different versions that have been circulated just so that everyone has everything in front of them.

THE CHAIRPERSON: Would you mind pulling

the speaker thing a little bit closer to you? Thank you.

CONTINUED BY MS. MYFANWY BOWMAN:

MS. MYFANWY BOWMAN: Now if we look at JL-4 page 1, here what you're doing is substituting marginal generation costs in the cost of service, is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And I have three (3) versions. The original version that was included in your report and then two (2) that were attached to an email dated April the 28th, 2006.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And if we look at version number 2 and I've marked them 1 of 3, 2 of 3 and 3 of 3, so if you look at 2 of 3 -- it should be the second page in.

MR. JAMES LAZAR: Okay, I'm there.

MS. MYFANWY BOWMAN: And it's marked at the top 2 of 3, corrected version email April 28th, 2006 PDF.

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And this was received attached to an email I believe from Mr. Miller

saying that it corrected column B, row 8, which is area and roadway lighting, with minor effects on the other highlighted cells which are 8(c), (e), (f) and 9(b) and (f), is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And the information as to what was being corrected, was that provided by you or is that referred by Mr. Miller, do you recall?

MR. JAMES LAZAR: One of his colleagues caught my mistake and then I went ahead and said, yeah, it looks like you caught my mistake.

MS. MYFANWY BOWMAN: Fair enough. In fact, if you go through and -- I'll back up. So the changes that were highlighted were the ones I just listed in lines 8 and 9 and also up at the top under the ratio between marginal and average generation, that was changed I believe by one (1) percentage point, is that right?

MR. JAMES LAZAR: That was changed because the area and roadway lighting had a lower generation cost than the other classes so it had a trivial effect on that ratio of the existing average generation costs.

MS. MYFANWY BOWMAN: And did those changes flow from a change in the kilowatt hours that you're attributing to area and roadway lighting?

MR. JAMES LAZAR: Yes.
MS. MYFANWY BOWMAN: And can I ask how that came to be, was it just a number written down wrong or what happened there?
MR. JAMES LAZAR: How the change came to be? I had the wrong number in there.
MS. MYFANWY BOWMAN: So it was simply a question of having written down the wrong number as opposed to something else?
MR. JAMES LAZAR: Yes.
MS. MYFANWY BOWMAN: And then the changes in line 8 and 9 obviously flow from that?
MR. JAMES LAZAR: Correct.
MS. MYFANWY BOWMAN: If you --
MR. JAMES LAZAR: The correction was in b-8, the kilowatt hours for area and roadway lighting. That changed the ratio, marginal costs didn't change and everything else that did change, changed because of the area roadway lighting.
MS. MYFANWY BOWMAN: So just so that I understand, the email references the changes to lines 8 and 9 but, in fact you'll find that every number in columns c), e) and f) changed. And is that because of the change in the ratio?
MR. JAMES LAZAR: It's all driven by the

change in cell b-8 --

MS. MYFANWY BOWMAN: Okay.

MR. JAMES LAZAR: -- the area and roadway lighting kilowatt hours.

MS. MYFANWY BOWMAN: All right. And then this copy, this version deletes column (I) which was the indexed RCC, was that simply an error or do you recall how that came to be?

MR. JAMES LAZAR: I think that was an error.

MS. MYFANWY BOWMAN: All right. And so that's what version --

MR. JAMES LAZAR: I think that happened in the conversion from the spreadsheet to PDF.

MS. MYFANWY BOWMAN: Fair enough. And so version 3 of 3, the next page shows the indexed RCC, so column (I) has reappeared?

MR. JAMES LAZAR: Yes.

(BRIEF PAUSE)

MS. MYFANWY BOWMAN: And just so the Board can follow, the highlighting that I have done simply reflects the change from version to version.

MR. ROBERT MAYER: Are we entitled to

assume that of this, the only one we need is 3 of 3?

MR. JAMES LAZAR: Yes.

MR. ROBERT MAYER: The rest are errors or --

MR. JAMES LAZAR: The rest are errors that we've tried to correct.

MR. ROBERT MAYER: Thank you.

MR. JAMES LAZAR: The rest are errors that we have corrected. We haven't corrected the errors that we haven't yet discovered, if there are any.

CONTINUED BY MS. MYFANWY BOWMAN:

MS. MYFANWY BOWMAN: And the purpose of this table is to try and incorporate the marginal costs into the cost of service study?

MR. JAMES LAZAR: Substituting the marginal cost of generation into the cost of service study. Mr. Wiens addresses in his evidence the substitution of additional marginal costs into the cost of service study, which is I think also a useful discussion to have, but isn't something that I did in my evidence.

MS. MYFANWY BOWMAN: So we're dealing just with marginal generation costs?

MR. JAMES LAZAR: Just the generation

side.

MS. MYFANWY BOWMAN: And as I understand it marginal generation costs for Manitoba Hydro are based on export prices?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And as I understand it and I'm new to Hydro so this is all new to me, export prices can vary based on the price of coal?

MR. JAMES LAZAR: Yes, during those hours when coal plants are the marginal resource.

MS. MYFANWY BOWMAN: They could also potentially vary based on the price of natural gas?

MR. JAMES LAZAR: Yes during those hours when natural gas is the marginal resource.

MS. MYFANWY BOWMAN: They could potentially vary depending on weather, a hot summer or a particularly cold winter?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They could vary depending on water levels here and elsewhere?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: They could vary depending on other things related to supply and demand?

MR. JAMES LAZAR: Yes, my understanding is that what Manitoba Hydro did is they estimated a

marginal cost over a multi-year period based upon a range of weather conditions. And at any moment it's a safe bet that the marginal cost is different from this.

But, it was -- my understanding is it was their estimate of what they expected on average over a multi-year period.

MS. MYFANWY BOWMAN: But the actual price at any time could be quite different?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Would you agree with me, as well, that one (1) purpose of a cost of service study is to enable consumers to understand how costs and revenues are allocated?

MR. JAMES LAZAR: Well, maybe about three (3) dozen consumers, those that are in this room. I would think it's a safe bet that the other 1 million or so consumers of Manitoba Hydro haven't got a clue what this is about or would be capable of understanding it without the amount of effort that everybody in this room has put in to trying to understand this stuff.

MR. ROBERT MAYER: From my discussions at my favourite places after work, I agree with you. When asked what are you doing here, it is really difficult to explain.

MR. JAMES LAZAR: The purpose is to allow

a bunch of geeks to understand those relationships, I don't think it's to enable ordinary consumers to understand those relationships. They have to --

MS. MYFANWY BOWMAN: Some might take offence at that.

MR. JAMES LAZAR: Ordinary consumers are put in a position of trusting that the Board has done its best to understand this and applied its judgment to the results.

CONTINUED BY MS. MYFANWY BOWMAN:

MS. MYFANWY BOWMAN: So in your view transparency would not be important?

MR. JAMES LAZAR: I think transparency is important and I think that being able to have an auditable, traceable logic between what we as experts present to the Board and then in the Board's order a logical and transparent explanation of how they've used that data and interpreted it, that is readable to a slightly larger group of the general public, maybe including two (2) newspaper reporters plus the people in this room, the people that actually read the orders, is important.

But ultimately consumers find out about this either by looking at the rate schedules, and now

we've added several hundred more consumers, or by looking at their bills, and then we've added several thousand more, or by looking at their bank statements when their automatic payment gets entered into the Quicken account at the of the month, and then we've picked up almost -- you know, those that actually keep track of how much they've paid.

Then there's a whole bunch of consumers that pay their bills and don't have -- don't look at how much they consumed, don't pay a lot of attention how much they pay, and as long as it's smaller than their house payment and smaller than their car payment -- in the case of Manitoba, smaller than their liquid refreshment payments in a lot of cases -- it's just not a big thing to worry about.

MS. MYFANWY BOWMAN: So to some extent transparency would be significant.

MR. JAMES LAZAR: I think transparency is important but I don't think it reaches the -- the average guy who's -- you know, a school teacher or a factory worker or -- or a homemaker.

MS. MYFANWY BOWMAN: If we can look then at JL-5, page 1. And this is your attempt, I believe, to combine marginal cost with -- with the added CO2 cost and then calculate RCC's.

I have two (2) versions of this table, the first that came with your report and the second we received by e-mail dated April the 28th, 2006.

You have those?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And the e-mail dated April the 28th is the one that provided the corrections to JL-4 that we just talked about. And the e-mail indicated that:

> "Although other pages of the spreadsheet are not affected, including JL-6, I'm also attaching a revised copy of the active spreadsheet."

I'm going to suggest that if you actually looked at the entire spreadsheet you would find that it included the changes to JL-4 that we've talked about and the changes to JL-5 included as Version 2 of 2.

Would you agree with me?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And if we look at Version 2 of 2 we'll note that every number under the column marginal cost of service has changed. Yes?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And every number under total cost of service has changed.

MR. JAMES LAZAR: Yes. And those derived from column F on JL-4, page 1 -- page -- Version 3, that's right.

MS. MYFANWY BOWMAN: That's right. And similarly every number under class subsidy versus full cost has changed and, again, that's a result of the changes to JL-4?

MR. JAMES LAZAR: Yes. The -- but the -- what's interesting is the RCC ratios didn't change at all. And that, to me, is sort of where the rubber meets the road here.

MS. MYFANWY BOWMAN: So we have some fairly compelling evidence, you would agree, that the numbers on this table rely entirely on the numbers in the previous tables.

MR. JAMES LAZAR: Oh, yeah, they -- they do.

MS. MYFANWY BOWMAN: We've got a little mathematical food chain as it were.

MR. JAMES LAZAR: Yeah.

MS. MYFANWY BOWMAN: And if we turn then to JL-6, page 1, I have three (3) versions of that. The first is the version that was attached to your report. The second is the version that was circulated by e-mail dated April the 17th, 2006, along with your IR responses.

MR. JAMES LAZAR: Yes.
MS. MYFANWY BOWMAN: And, again, there was follow-up e-mail as well. And then the last version was handed out by Mr. Miller at -- when the proceeding began.
MR. JAMES LAZAR: Yes.
MS. MYFANWY BOWMAN: Is that your understanding as well?
MR. JAMES LAZAR: Yes.
MR. ROBERT MAYER: Version 3 of JL-6 the copies we don't have -- are there any changes to this aluminum smelter stuff, that was page 2? On Version 3 that was handed out it doesn't have the aluminum smelter attachment.
MR. JAMES LAZAR: No, I don't think there were changes to the aluminum smelter example.
MS. MYFANWY BOWMAN: It was a one (1) page handout I believe.

CONTINUED BY MS. MYFANWY BOWMAN:
MS. MYFANWY BOWMAN: So if we look at the changes from Version 1 to Version 2, we'll find that you've changed the percentage increase in price in each column, is that right?
MR. JAMES LAZAR: Yes, I had

inadvertently used the wrong denominator in the spreadsheet cells, all the way across.

MS. MYFANWY BOWMAN: And then the changes in additional energy export and additional revenue to Manitoba, those flow from that mathematical error, is that right?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And then if we look at the changes from Version 2 to Version 3, you've corrected marginal generation cost and therefore total costs including CO2 marginal generation based on the changes to J1-4, is that right?

MR. JAMES LAZAR: Yeah, the changes in Version 3 of 3, derive from correcting the kilowatt hours for street and area lighting. And those are such a minor thing that it doesn't actually have any impact on the percentage increase in price or the elasticity for anybody other than -- I mean really the only change is that street and area lighting, pretty minor.

MS. MYFANWY BOWMAN: So all of the other changes that I've highlighted here, flow from that one?

MR. JAMES LAZAR: They all flow from using the corrected kilowatt hours for street and area lighting.

MS. MYFANWY BOWMAN: My mathematical food

chain in action?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: Now, in this table you're attempting to quantify the benefits to Manitoba of adopting the suggestions that you propose. And if we start by leaving out the export credit that would lead to a rate increases of 28 percent, yes?

MR. JAMES LAZAR: On average yeah, I'll assume that's correct.

MS. MYFANWY BOWMAN: And if we add in CO2 at $20 a tonne, the rate increase moves up to 60 percent, on average?

MR. JAMES LAZAR: Yes, but I have to reiterate that that part of my discussion indicates that making that decision would require a policy change by the Government of Manitoba.

I think that that goes beyond what the Board would or could do in this or any other stand alone rate proceeding without some direction.

MS. MYFANWY BOWMAN: I appreciate that, but the impact of what you're proposing would be ultimately, if you add in the CO2 adder, a 60 percent rate increase? If you did the things that you are suggesting?

MR. JAMES LAZAR: Yes, if the Government

of Manitoba directed the Board to include avoidable environmental impacts from CO2 in the revenue requirement in --

MS. MYFANWY BOWMAN: In the fashion you propose.

MR. JAMES LAZAR: -- the fashion I propose, the revenue requirement increase would be as you've described.

MS. MYFANWY BOWMAN: And then if we are to use marginal generation cost, the rate increase moves to 95 percent?

MR. JAMES LAZAR: Yes.

MS. MYFANWY BOWMAN: And if we combine all three (3) of those, the rate increase moves to 127 percent, is that right?

MR. JAMES LAZAR: That's my estimate, yes.

MS. MYFANWY BOWMAN: Although in the first version of this table you calculated that at 56 percent?

MR. JAMES LAZAR: Because I used -- yes that's correct, because I used the wrong denominator in my calculation.

MS. MYFANWY BOWMAN: You would agree with me also that if marginal rates equal export prices for

Manitoba and we're adding in a notional CO2 adder, the prices for Manitoba customers would be higher than for export customers, that's also correct?

MR. JAMES LAZAR: Well, yes the retail prices for Manitoba customers would be higher by the amount of distribution costs plus the CO2 costs.

MS. MYFANWY BOWMAN: Thank you. If I can just have a quick moment?

THE CHAIRPERSON: Yes, we'll just take five (5) minutes.

MS. MYFANWY BOWMAN: I just need one (1) minute even.

THE CHAIRPERSON: The rest of us might take five (5).

MS. MYFANWY BOWMAN: Fair enough.

--- Upon recessing at 11:17 a.m.

--- Upon resuming at 11:23 a.m.

THE CHAIRPERSON: Okay. Ms. Bowman...?

MS. MYFANWY BOWMAN: Thank you for the indulgence. I'm -- those -- that concludes my questions. Thank you.

THE CHAIRPERSON: We appreciated the interruption.

MS. MYFANWY BOWMAN: And thank you to Mr. Lazar.

THE CHAIRPERSON: Oh, you're finished, Ms. Bowman. I didn't realize that. I apologize. Well, thank you very much.

(BRIEF PAUSE)

THE CHAIRPERSON: I don't see Ms. McCaffrey, so we will go to Mr. Anderson.

CROSS-EXAMINATION BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: Good morning, Mr. Chair.

THE CHAIRPERSON: Good morning.

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: Mr. Vice-Chair, Dr. Avery-Kinew and Dr. Evans.

Mr. Lazar, it's -- I was listening in the -- the back work room while you were presenting your material. Thank you very much.

Mr. -- Dr. Miller, good morning.

It will just take me a moment to open my books up here.

THE CHAIRPERSON: While you're doing that -- Mr. Peters, do we know if Ms. McCaffrey is going to cross-examine Mr. Lazar?

MR. BOB PETERS: Yes, she will. And she'll be here after the lunch break.

THE CHAIRPERSON: Very good.

(BRIEF PAUSE)

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: Mr. Lazar, while I'm putting my materials together, I just wanted to ask a few questions about your background and the familiarity that you might have with some of the matters I'd like to discuss. It will help me focus some of my questions, if I might.

I was looking at Exhibit JL-1 attached to your pre-filed testimony and in particular the direct consulting clients partial listing that you've kindly provided, in addition to the listing of expert testimony and research that you'd conducted. I -- I thank you for that, that's very helpful.

I notice in the -- the list that a considerable amount of -- or quite a lot of the work that you've done is in the Pacific Northwest of the United

States and in British Columbia.

Is that correct.

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: And I also note that you'd worked with Pacific States Marine Fisheries Commission.

Is that correct?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: And with the Columbia River Inter-Tribal Fish Commission.

Is that correct?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Could you please describe in -- in general terms, Mr. Lazar, what the scope of the work for those two (2) agencies was?

MR. JAMES LAZAR: My work for those two (2) agencies dealt with the management of the Columbia River by the Bonneville Power Administration and the impact that had on salmon migration, and ways that the cost of restoring something closer to natural stream flow conditions for salmon migration could -- the cost of that could be mitigated for Bonneville Power Administration.

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar. In your work for these two (2) agencies were -- did you also become familiar with what I would describe

as irreversible adverse environmental affects of a large scale Hydro electric developments?

MR. JAMES LAZAR: In a general sense, yes, but my work was kind of more short run changes in nature rather than sort of the long term global impacts of major projects.

MR. MICHAEL ANDERSON: Thank you.

MR. JAMES LAZAR: So management of dams that existed as opposed to evaluating the impacts compared to not having the dams.

MR. MICHAEL ANDERSON: And that reference -- comment is specific to the scope of your detailed research and study, is that correct?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: When you were working with these agencies, however, were you familiarized with the scope of these other more global impacts as you describe them?

MR. JAMES LAZAR: As I say, in a general sense yes. But, not -- it's never a part of my detailed work. My work for the Nez Perce Indian Nation, came closer to that kind of look because they had claims on the water flows of the Snake River that predated any of the European development.

MR. MICHAEL ANDERSON: I was listening in

the back to Ms. Bowman's questions and you anticipated what my next one (1) would have been, which was to ask the question directly, which of your other clients did you have an occasion to actually assist in doing research on a larger scale of global impacts as you describe them.

Were there any others, other than your work for the Nez Perce?

MR. JAMES LAZAR: There was a little tiny bit of it in my work for the Natural Resources Defence Council where I looked at the amount of spill that occurred at dams on the Columbia River, immediately post-dam construction compared to the natural flows prior to dam construction.

But, that was also all sort of in the context of impact on salmon migration, looking beyond that to social impacts or cultural impacts, was beyond the scope of my work there.

MR. MICHAEL ANDERSON: Specifically in that case for the Natural Resources Defence Council?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Thank you. In your work for the Nez Perce, as I guess is how you would describe it, is that correct, the pronunciation?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Thank you. Was

the analysis done to quantify the pre and post project effects of hydroelectric development?

MR. JAMES LAZAR: The objective of my retention was to find ways -- to find a million acre feed of water that could help fish get from the headwaters of the Snake River to the ocean before they turned into salt water fish.

So again it was all -- it's all salmon migration work. But, in that case, I actually went back to how fast did the river flow under pre-development conditions to how much water would it take and what kind of management of the dams would it take to get the fish to sea as quickly with the dams in place as before the dams were built.

But, that was the one where I went all the way back to pre-dam conditions. But, again it was all fish flow and water flow and not looking at cultural impacts. They had other experts who worked on those issues.

And for those of you who aren't familiar, salmon are a very important historic and cultural icon in the Pacific northwest. It was the centrepiece of the Native American economy and the basis of an awful lot of trade and communication between the various tribes and bands.

So the -- I'm aware that there were huge cultural implications. I didn't study any of them.

MR. MICHAEL ANDERSON: Once again as we've been mentioning that you've proceeded my thinking. I was going to ask if you, through that work, had become familiar with the significance of the salmon resource to the Pacific tribes.

And is there any other comment in addition to the ones that you've just described that you'd like to share?

MR. JAMES LAZAR: No.

MR. MICHAEL ANDERSON: The key issue, however, in terms of this study that you contributed to in respect of finding a million acre feet to assist fish movement of migrating salmon fry, is that correct?

MR. JAMES LAZAR: Yes and basically I was looking for the lowest value agricultural uses of water being sucked out of the river to figure out what was the cheapest way we could restore enough water to the river that the fish could get to sea before they died.

MR. MICHAEL ANDERSON: And you'd indicated that other experts had done impacts on the cultural significance of salmon to the Nez Perce, is the correct?

MR. JAMES LAZAR: Other people were

advising the Nez Perce and I interacted with them a little bit. The same was true for my work for Inter-tribe I just never interacted with the people who were doing that work for Inter-tribe.

MR. MICHAEL ANDERSON: One (1) of the things I just wanted to clarify in that, was this work done by yourself and the other experts part of a comprehensive analysis that was being done for a specific purpose or are they parallel studies, are they intended to be integrated, et cetera?

MR. JAMES LAZAR: It was all part of a very large piece of litigation over water rights. And I was working on one (1) aspect of the settlement negotiation between the Idaho water users the Nez Perce Indian Nation, the State of Idaho and various federal agencies.

MR. MICHAEL ANDERSON: Thank you. And the hydroelectric facility, are we talking about one (1) or more facilities?

MR. JAMES LAZAR: Fourteen (14) I think in the State of Idaho and eight (8) more down river that belong to the federal government. So a couple of dozen facilities that turn the Snake River from what used to be a natural, free flowing fast river into a bunch of lakes connected by dams.

MR. MICHAEL ANDERSON: So in the course of examining this -- the million acre feet to assist fish movement, you had to examine an integrated hydroelectric system that involved twelve (12) facilities, is that correct?

MR. JAMES LAZAR: Well I think -- I know there's eight (8) on the lower Snake and I think there's fourteen (14) on the upper Snake.

The Bonneville power administration provided the staffing to do the modelling of the options that we had worked on. By the time I came to the project the parties had pretty well determined that a million acre feet was what it was going to take to get the fish to sea.

And then my job was to figure out where we could buy a million acre feet cheapest. And the answer was from farmers growing alfalfa and potatoes at higher elevations, that is low value crops in areas that aren't very good growing areas, where the ones with the lowest farm income per acre foot and the ones that would be willing to sell their water rights for the lowest price.

MR. MICHAEL ANDERSON: And as a matter of interest, what was the cost of this million acre feet as you determined?

MR. JAMES LAZAR: Ultimately, the case

settled on different terms and I don't think that number was ever quantified. Apparently enough of the farmers went broke on their own that the water rights were released in many cases without cost.

THE CHAIRPERSON: This is fascinating, Mr. Anderson, and I can understand how it helps you assess Mr. Lazar's background and expertise, but I presume you'll be moving on to the subject closer at hand, the COSS and his testimony in that respect.

MR. MICHAEL ANDERSON: Yes. Absolutely, Mr. Chair. The intent of it what to confirm my understanding of Mr. Lazar's familiarity with integrated hydroelectric systems that operated in the US Pacific Northwest, as distinct from the focus of the testimony which, as I understand it, and without giving testimony on behalf of Mr. Lazar or -- or RCM/TREE, I understood that his environmental costs were being examined in respect of CO2 -- avoided CO2 emissions in the US marketplace.

I just -- which is generally associated with thermal projects. I just wanted to bring the -- my questions a little closer to home, Mr. Chair.

THE CHAIRPERSON: I can see the relationship.

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: Thank you.

Mr. Lazar, would the...

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: In looking at your response to PUB/RCM/TREE-3, if you mind, it's in response to Question A. It would be our -- PUB Interrogatory RCM/TREE number 3. And I'm looking at your response, which is a summary of course of -- of your testimony.

And in the response to A could you please read the last sentence of your response, please, into the record.

MR. JAMES LAZAR: "The most important of these in the context of the present proceeding is the incorporation of environmental costs into the cost of service study."

MR. MICHAEL ANDERSON: Thank you. In respect of the testimony that you've provided, what are the scope of the environmental costs that you are suggesting be incorporated into the cost of service study of Manitoba Hydro?

MR. JAMES LAZAR: Avoidable carbon

dioxide emissions that could be achieved through changing the pricing structure for Manitoba Hydro.

MR. MICHAEL ANDERSON: In the case of the investigations that you had done on costs associated with changes to fish migration in the Pacific Northwest, presumably the hydroelectric facilities there are regulated utilities?

MR. MICHAEL ANDERSON: I'm sorry, I couldn't hear the last phrase.

MR. MICHAEL ANDERSON: I'm sorry. I cut the microphone out.

Are the hydro -- are the facilities that are operating the hydro -- hydroelectric and -- and water management facilities on the Snake River also regulated utilities that would have cost of service studies associated with their operations?

MR. JAMES LAZAR: Generally, no. The vast majority of them are owned by the Army Core of Engineers and the US Bureau of Reclamation. They sell the output of those to the Bonneville Power Administration, which does do a cost of service study, but that doesn't get into -- basically a purchase power expense by the time it gets into their studies.

The middle part of the river has, I think, five (5) dams that are owned by the Idaho Power Company.

It is a regulated utility and does do cost of service studies.

MR. MICHAEL ANDERSON: Thank you very much, Mr. Lazar. I appreciate the precision. So that the output of the plants on the Snake River are purchased by Bonneville Power or -- again, if you could state the other utility that you mentioned again?

MR. JAMES LAZAR: Idaho Power.

MR. MICHAEL ANDERSON: Are these utilities in the practice of incorporating environmental costs into their cost of service studies?

MR. JAMES LAZAR: I can't speak to Idaho Power's current practices. A decade ago I -- or more I worked on a Idaho Power case and they certainly were not at that time. But they just received an award from the Northwest Energy Coalition for the progress that they've made in -- in environmental considerations of their power planning and resource acquisition process, and it may be that some of that has flowed into the cost of service study.

I will say that for all of the hydro utilities the out-of-pocket costs that they are expending for fish migration mitigation measures are incorporated but that's more akin to having the costs of a coal plant scrubber included in a power utility cost of service

study.

Those are actual dollar payments that are made that are included like any other accounting costs in the cost of service. They're not comparable to the inclusion of -- of avoidable CO2 costs that are not currently monetized.

MR. MICHAEL ANDERSON: How are the fish migration costs functionalised in their cost of service study; are you aware?

MR. JAMES LAZAR: They're functionalised to generation and then classified differently by the different -- Bonneville would ultimately functionalise them perhaps differently than Idaho would -- would classify them different than Idaho would. But they'd always be functionalised as generation.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: In the resource acquisition process that Bonneville power undertakes are they required to consider the full cost of production -- the full cost associated with the power that they're intending to purchase?

MR. JAMES LAZAR: Yes, the statute requires that they consider all quantifiable

environmental costs. It does not require them to consider quantifiable social costs; that was an amendment that was lost in the United States Senate.

But the quantifiable environmental costs are required to be included and they now are including a specific adder for CO2. Which is in addition to the monetized costs for things like nitrogen oxide, sulphur dioxide, mercury and that sort of thing.

MR. MICHAEL ANDERSON: Are you aware of what would -- is it set out in the provisions of the guidelines or the regulation for -- the resource acquisition process -- does it specify a list of items that must be quantified for -- as environmental costs?

MR. JAMES LAZAR: The federal statute simply requires all quantifiable environmental costs, the Northwest Power and Conservation Council has interpreted that language and basically left it at those costs that are monetized plus a CO2 adder.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: The term "notional cost" was applied in this proceeding to the CO2 costs; do you agree with that?

MR. JAMES LAZAR: Well, I interpret the

term "notional cost" to be a cost that we know exists and we're capable of estimating how much it is but no money actually changes hands.

And that's precisely what the Northwest Power and Conservation Council has done. I think they used a eight dollar ($8) US per tonne cost which at the time I was writing my testimony was pretty close to ten dollars ($10) Canadian a tonne.

It's getting to be less and less of a benefit to do my shopping up here.

THE CHAIRPERSON: Actually the Canadian dollar is up another cent today.

MR. JAMES LAZAR: We used to call them big American Dollars now we just kind of trade them.

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: And I apologize for asking this again but I just wanted to make sure I have it precisely. You used a very precise description for what you describe as a notional cost.

Would you mind just please repeating that for me?

MR. JAMES LAZAR: A cost that we know exists that we can quantify, but no money actually changes hands.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: And one (1) of these costs is CO2 costs, is that your evidence?

MR. JAMES LAZAR: That's the cost that I have used that Northwest Power and Conservation Council has used and I haven't used any other. So the one that I've used is CO2, there could be others.

In the US, mercury regulation is anticipated imminently and many analysts are using those costs as though it's a done deal.

MR. MICHAEL ANDERSON: And the -- in terms of incorporating these costs, to your knowledge, and you may be repeating yourself but I just wanted to be clear, that carbon dioxide costs are to your knowledge the only notional cost that's currently reflected as a cost in cost of service -- for cost of service purposes by US utilities?

MR. JAMES LAZAR: I don't think anybody else in this proceeding has included any notation costs in their cost of service studies. I have and CO2 costs are the ones that I have included.

MR. MICHAEL ANDERSON: So the Northwest Power and Conservation Council is utilizing the CO2 costs in what way, I just wanted to be clear?

MR. JAMES LAZAR: They're using CO2 costs in the resource planning and acquisition process, but they don't do the cost of service study.

MR. MICHAEL ANDERSON: How do they apply it in the recourse acquisition process?

MR. JAMES LAZAR: I think they adopted eight dollars ($8) a tonne as -- it's actually -- it ramps up over time. But, it kicks in sometime after January 20th, 2009 which is the inauguration date after the next presidential election.

And gradually rises over time but, it works out over sort of the planning horizon to I think -- over the twenty (20) year planning horizon to about eight dollars ($8) a tonne.

MR. MICHAEL ANDERSON: Is that reflected in the purchase power cost to the utility?

MR. JAMES LAZAR: It is in the sense that when Bonneville seeks to buy power they have to buy resources that are consistent with the Council's plan and under that plan they would in theory be willing to and in practice have been willing to pay a premium for a non-carboniferous resource.

The plan actually calls for meeting all of the region's energy growth needs with a combination of energy efficiency and wind generation, fossil generation

kind of got bumped out of the resource acquisition priority by the inclusion of CO2 costs.

MR. MICHAEL ANDERSON: And purchase power costs are included in cost of service analysis?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: They are functionalized how?

MR. JAMES LAZAR: They're functionalized at generation.

MR. MICHAEL ANDERSON: So indirectly then the CO2 cost is reflective in the cost of service study through purchase power costs?

MR. JAMES LAZAR: As Bonnsville acquires resources under the fifth power plant it was adopted last year, to the extent that they actually pay a premium to buy wind power or to buy DSM, over what they could have paid for a fossil resource, that will be functionalized to generation and functionalized to production and included in the cost of service study.

MR. MICHAEL ANDERSON: Based on your experience with the proceedings that you provided evidence to and the research that you've done can you identify any other costs that we can quantify but that no money actually changes hands that would be incorporated within the scope of environmental costs?

MR. JAMES LAZAR: Well, certainly the impact on fisheries, on forestry are examples of that that occur from hydroelectric development. While I'm not an expert on it the cultural impacts of displacing native peoples, interfering with wildlife migration patterns and interfering with the ability of -- of people to engage in their usual and accustomed hunting and fishing and gathering practices are quantifiable, I'm not an expert in the quantification of them.

But to the extent that those impacts occur there are people who are experts in them and who can speak to the quantification of them.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: And in the event that there would be an interest in either the utility, it's regulatory authority or the government in quantifying these costs, such as you've just now described, would it be appropriate to incorporate them into the cost of service of the utility providing the service and incurring the effects?

MR. JAMES LAZAR: Yes, if the policy of the government is to use a full costing approach in examining the impacts of -- of decisions that are made by

consumers.

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: I note, Mr. Lazar, in your response to MH/RCM/TREE-6 that you refer to Manitoba's Sustainable Development Act, I just wondered if you could get that out, I have a few questions about your response there?

And if you could please make reference to it, Mr. Lazar.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: I'm sorry, I have Manitoba Hydro, RCM/TREE number 6.

MR. JAMES LAZAR: Yes. Yes, I do -- I see that reference.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: I'm noting that you had made a reference to the Sustainable Development

Act and noting that you're not legal counsel so I won't be asking you for a legal opinion on the legislation per se itself, do you happen to have a copy of the Act with you?

MR. JAMES LAZAR: I do not.

MR. MICHAEL ANDERSON: I just wanted to make a brief reference to a single definition in it and for that purpose perhaps I could just read to you from the -- from the Act and ask my question, if that's acceptable?

In your -- just to assist the Board and participants, if you could please read the second paragraph of your reply to MH/RCM/TREE-6 into the record, Mr. Lazar?

MR. JAMES LAZAR: "This is a proceeding where the MPUB can consider such a policy decision. It is my understanding that the Manitoba Sustainable Development Act includes a provision for full cost accounting including environmental externalities. My evidence introduces this into the costing methodology for MH."

MR. MICHAEL ANDERSON: Thank you very much, Mr. Lazar. And the types of environmental costs

that you had just illustrated for us in respect of the operation of hydro electric facilities would also be incorporated within your description of environmental externalities; is that correct?

MR. JAMES LAZAR: I would include them in my definition of environmental externalities. I can't speak to what the Manitoba Sustainable Development Act includes.

MR. MICHAEL ANDERSON: I appreciate the clarification. I had just wanted to -- as we changed terminology slightly in respect to your testimony and replies I wanted to make sure we understood we were still talking about the same items. Thank you very much for that clarification.

In the definition of full cost accounting in the Sustainable Development Act it says:

> "Full cost accounting means 'accounting for the economic, environmental, land use, human health, social and heritage costs and benefits of a particular decision or action to ensure no costs associated with the decision or action including externalized costs are left unaccounted for'."

Is it -- would that be a definition of

full cost accounting that is consistent with your concept of accounting for the full environmental costs as set out in your testimony?

MR. JAMES LAZAR: Yes. Obviously my evidence only addresses one (1) element of these that I have some expertise in.

MR. MICHAEL ANDERSON: And recognizing that you have only the benefit of my reading it to you, are there any other elements that should be incorporated into a full cost accounting in respect of decisions made by a utility, it's regulator, or government regarding environmental costs?

MR. JAMES LAZAR: I think the categories that are in the passage that you read to me are broad enough that almost anything I can think of that I would term an environmental externality could be described as fitting within one (1) of those categories.

But I'm sure if one attempted to do that that someone else would argue a different definition. A different interpretation of the Act. So I -- it -- it looks like a very broad collection of -- of -- of considerations to me. But my expertise is really in the power sector impacts which are primarily air, water and -- and land use.

MR. MICHAEL ANDERSON: Now --

MR. JAMES LAZAR: And to a lesser extent as we've see -- at least I've seen in the Northwest a little bit of historical or cultural with respect to, I'll call it, the ceremony around salmon separate from the economic value of the salmon.

MR. MICHAEL ANDERSON: But you're comfortable that this definition captures the scope of full -- accounting for the full cost of environmental effects as you have mentioned in your testimony?

MR. JAMES LAZAR: Yes, it's a definition that I -- I think does a fine job.

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: And of these -- if an effort were made to quantify these externalities in respect of the list of extern -- of -- of items that you'd indicated were associated, in your view, with the operation of hydro electric facilities would all of those costs so identified be functionalised to generation?

MR. JAMES LAZAR: I think so.

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar. And -- and just to be clear, you had described

that there were other experts, I just had wanted to confirm for the record that it's your opinion that the science, that is the methodology -- methodological approaches that may be applied to quantify these externalities do, in fact, exist and it is really a function of a direction to do the quantification as distinct from an inability to quantify?

MR. JAMES LAZAR: The science exists, the precision is certainly not the same level of precision that we have in dealing with accounting costs. And the range of dispute between experts can be considerable.

MR. MICHAEL ANDERSON: I can appreciate that and that's very helpful. I think the distinction that I was looking for is that it is not impossible to quantify that there are approaches that may be taken to quantify those externalities?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Thank you Mr. Lazar.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: Now, I recognize that in your evidence you'd indicated that it would be most efficient from a -- just a moment Mr. Lazar.

THE CHAIRPERSON: Mr. Anderson, could we get some idea of how much longer you expect. Because we're thinking of the lunch break and what time we'd come back.

MR. MICHAEL ANDERSON: I don't have that many more questions, Mr. Chair. I'm in your hands if you wish to break now and I complete them as soon as we return. Or whether we just plow on and --

THE CHAIRPERSON: Well, why don't we continue then until 12:15 or 12:20, if you think you can finish by then otherwise we'll break until 1:15. I'll leave it up to you.

MR. MICHAEL ANDERSON: I'm just doing the math to see whether I can meet your deadline or your suggested time requirement, Mr. Chair. I understood it as a suggestion, of course.

THE CHAIRPERSON: It was.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: I do think it would take me more than seven (7) minutes to ask the remaining questions that I have.

THE CHAIRPERSON: Okay. Well, we'll hold it all over then until 1:15 p.m.

MR. MICHAEL ANDERSON: If that's acceptable, thank you Mr. Chair.

THE CHAIRPERSON: We'd rather do that than rush.

MR. MICHAEL ANDERSON: I appreciate it Mr. Chair. I do. Thank you.

--- Upon recessing at 12:08 p.m.

--- Upon resuming at 1:20 p.m.

THE CHAIRPERSON: Okay, welcome back everyone. Mr. Anderson...?

MR. MICHAEL ANDERSON: Thank you, Mr. Chair.

(BRIEF PAUSE)

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: Mr. Lazar, in essence, I understand that in your -- at page 4 of your -- your pre-filed testimony, the very last question, at line 43 of page 4 you provide your opinion in respect of the Manitoba Hydro recommended method to approach the cost of service study.

Could you please read the first sentence

there at line 43?

MR. JAMES LAZAR: On line 43?

MR. MICHAEL ANDERSON: Yes, please, Mr. Lazar.

MR. JAMES LAZAR: "I believe all of the changes are improvements and should be approved by the MPUB."

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar. In essence the changes that are being described that you're referring to there would be summarized by you as what?

MR. JAMES LAZAR: The big one is to use time of use energy billing determinants for allocation of the power supply costs instead of the demand and energy split method, and allocating the export dividend across all costs not just across generation and transmission costs.

MR. MICHAEL ANDERSON: And the most significant of the additional costs that are encompassed by all costs would be what, Mr. Lazar?

MR. JAMES LAZAR: Oh, I -- across all of the costs that are in the cost of service study, distribution costs are the big -- the big difference.

MR. MICHAEL ANDERSON: Thank you, Mr. Lazar.

So if I understand the essential basic process is that the -- and I referred to this earlier in my reference to Mr. Warden's comments of November 24th which I won't refer to again now, but just for the record, is that the process is net export revenues are allocated to Manitoba Hydro's customers based on costs to serve those customers; is that essentially correct?

MR. JAMES LAZAR: The cost to serve those customers that flow cross Manitoba Hydro's books currently.

MR. MICHAEL ANDERSON: And the essence of your testimony or one (1) element of it is that you're suggesting, recommending that another cost flow across Manitoba Hydro's books being the CO2 related costs, is that correct?

MR. JAMES LAZAR: Well, I'm recommending that another cost be included in the cost of service study -- CO2 costs, and that the Government of Manitoba and the Board consider whether those costs should be reflected in Manitoba Hydro's revenue requirement.

They still might not flow across Manitoba Hydro's books except on the revenue side.

MR. MICHAEL ANDERSON: It's your understanding that if it was incorporated into the revenue requirement it would be reflected either directly

or indirectly in the cost of service?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Thank you. Now, to some extent I know that there's been exploration by all parties of different approaches to examining costs and conceptualizing how to address those costs within cost of service -- for cost of service purposes.

And I will now join the group in taking advantage of an opportunity to explore a possibility, dealing entirely with the understanding the quantification of environmental costs for the purpose of cost of service.

And I'll ask a question, just a moment.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: Assuming that there was a direction either as a policy by the utility, Manitoba Hydro's regulator to the Public Utilities Board or government to apply the full cost accounting process set out, for example, in the Sustainable Development Act, to the environmental affects of hydro-electric development and operations that we discussed earlier.

And those costs -- would they -- I just wanted to know whether the -- and those costs were

quantified, were they -- I'd ask this question before, they would all be functionalized to generation, is that correct?

MR. JAMES LAZAR: Those associated with hydro development yes, obviously. Hydro development sort of carries with it transmission development and there may be some environmental costs associated with that transmission development that would be functionalized to transmission.

MR. MICHAEL ANDERSON: And if in the identification and quantification of these costs it was established that these effects could be reasonably associated with a group of customers, would it be appropriate to allocate those costs to that identified group of customers?

For example, the communities that are directly affected -- most directly affected by Manitoba Hydro's operations?

MR. ROBERT MAYER: You surely wouldn't want to assign costs to them Mr. Anderson?

MR. MICHAEL ANDERSON: I just have an exploration based on the approach that we're taking in the cost of service study, Mr. Vice Chair. I just wish to explore it with the witness.

MR. JAMES LAZAR: If I understand your

question correctly, that if the cost of hydro development is primarily being borne by some group and they can be quantified, should that group be compensated?

And if that's the question you're asking, that's the question for the government not for an economist. It sort of depends, to me, on who has the rights to what's being taken.

CONTINUED BY MR. MICHAEL ANDERSON:

MR. MICHAEL ANDERSON: All right. I wasn't going to speak directly to compensation. I was containing it directly within cost of service. So, I'll just provide the following scenario with the beginnings that I had. That is is that there was a direction to quantify those effects that we discussed.

So this would be the sequence for cost of service purposes using the current model where net export revenues are allocated to customer classes on the basis of their costs.

As a side note, as I understand, one of Ms. McCaffrey's concerns is that MIPUG is on -- at least the reference is being allocated a smaller amount of net export revenue based on a smaller pot of costs.

So clearly the costs that are being used and those that are assigned to the customer classes are

clearly driving the quantum of the net export revenue assigned to that class; correct?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: Thank you. So the scenario would be this is that first a Hydro affected customer class or sub-class, and this would be, in my understanding, residential and general service primarily, must be included in the cost of service study for each effective customer class, which would be residential and general service.

And I'm basing this on my knowledge of our communities. I'm the Research Director of MKO's Natural Resources Secretariat, and I apologize for not introducing myself earlier.

MKO, Manitoba Keewatinook Ininew Okimowin represents the thirty (30) northernmost First Nations in Manitoba and most of those directly affected by major hydro and transmission facilities. So that's where I'm coming from. Thank you.

So, first, we identify a class or sub-class of hydro affected customers, just using that phrase for now. Second, the full costs associated with the ongoing adverse environmental effects would be identi -- defined, identified and quantified.

Third, a value associated with those costs

and then -- and, fourth, net export revenues would be allocated to the hydro affected customer class or sub-class by functionalising 100 percent of these costs as generation or by direct assignment of these costs to the hydro affected customers?

MR. JAMES LAZAR: I'm going to answer your question a bit of a historical and roundabout way. In previous proceeding I testified that one reason for applying the export dividend to the Zone 2 and Zone 3 cost deficiencies was that those were the areas that were most affected by the hydro development and this was a way of providing them with something in return for what they've given up.

And I -- and I think that -- that makes some sense. Clearly, Manitoba already does that in another sense by subsidising the diesel communities. Going beyond that to a direct assignment is something I haven't thought about and don't really have an opinion on.

MR. MICHAEL ANDERSON: And I would just add, and I take that response and thank you for it, that if it was a decision of the -- policy decision, a proposal by the utility or a recommendation by the PUB or by government that given this particular model that's before us to allocate net export revenues based on costs,

that if these costs were to be quantified would this process that I've described of creating a sub-class, assigning these environmental costs to that sub-class and then making an allocation of net export revenue be a mechanism of providing an allocation of net export revenues to these particular customers?

MR. JAMES LAZAR: Yes. But it seems backwards to me. It seems like the more logical way to do it would be to provide direct compensation as a production cost; that is pay for the damages caused, classify that to production, raise the cost of service to everybody and then if the Board allocates the export surplus to cover that cost, fine.

If the Board reflects that cost in rates, fine. It seems to me if it's a cost it ought to be charged to Hydro and show up on their books as an expense rather than the Board kind of going around, if you will, around the books of Hydro allocating the export dividend to -- to some particular group.

It seems to me that monetizing it would be much more straightforward.

MR. MICHAEL ANDERSON: And just so that I -- I clearly understand your response. When you say "monetizing it would be much more straightforward"; could you just clarify that please?

MR. JAMES LAZAR: If I -- the development of hydro dam B caused $10 million worth of damage to a land area that is historically the territory of aboriginal nation C, then Hydro ought to pay aboriginal nation C $10 million bucks, that shows up as a production cost and gets classified and allocated and recovered in the hydro tariff.

Revenues come in from customers using electricity from that project, expenses show up on the books of Hydro for compensation and the current system of accounting works just fine for that.

I mean that's what we do now with, for example, water rental. Hydro pays the government for water rental. It gets functionalized to production. It gets included in the rates. The customer pay it to Hydro. Hydro pays it to the government and it's -- the accounting is real simple.

If you substitute land occupation for water rental and you have -- and all the accounting principles stay the same.

MR. MICHAEL ANDERSON: So in the -- I just wanted also to clarify that in the context of the discussion that we've been having when we say -- using your example and recognizing its notional as an example, cause $10 million in costs -- by in costs, we're

referring to full cost accounting as we've been discussing earlier today?

MR. JAMES LAZAR: Yes, and in this case we've quantified it and monetized it.

MR. MICHAEL ANDERSON: And the qualification or comments that you'd made about the approach that I've described being to some extent backward, speaks also to your comments about -- about efficiencies in cost of service and assignment of net export revenue that you'd referred to also in your evidence, is that correct?

MR. JAMES LAZAR: Yes.

MR. MICHAEL ANDERSON: But, in the end you recommended that the Board adopt the recommended method suggested by Manitoba Hydro?

MR. JAMES LAZAR: I recommended they adopt the recommended method but, I also made additional recommendations, first of all, with respect to the treatment of carbon dioxide costs being added to the recommended method.

And then I've made some suggestions as to the treatment of the export dividend over and above the change that has been proposed to allocate it across all costs. That is, for example, to strengthen Manitoba Hydro's equity and fund energy efficiency programs, low

income assistance programs.

MR. MICHAEL ANDERSON: Thank you.

(BRIEF PAUSE)

MR. MICHAEL ANDERSON: In preparing for your evidence did you have the opportunity to review, as you discussed, the change in circumstances over the past decade and a half or so of Manitoba Hydro's operations in respect of the marginal value of a kilowatt hour of electricity sold in Manitoba and a kilowatt hour of electricity sold on the export market?

MR. JAMES LAZAR: Yes, generally.

MR. MICHAEL ANDERSON: Thank you. And did you also generally bring yourself to arrive at an understanding of the change in net revenues or net incomes of the Corporation over that same period of time?

MR. JAMES LAZAR: Yes, the export revenue has gone from something like a penny and a half a kilowatt hour to 4.5 cents, it's roughly tripled and the net income is now pretty substantial.

MR. MICHAEL ANDERSON: Thank you for that. Earlier you had described -- we had discussed and you had described the quantification of a full cost environmental effects and the -- your suggestion that

they be provided as direct compensation to affected parties, essentially that was the substance of that comment; correct?

MR. JAMES LAZAR: Yeah. If the costs are quantified and compensated, the accounting is pretty straightforward.

MR. MICHAEL ANDERSON: In addition to those types of payments, do you believe that there would be any other consideration made for the substantial change in circumstances of the Corporation financially between those times that the dams were originally commissioned and constructed and the current circumstances.

That is that those persons who were most directly affected by the operations of Manitoba Hydro would also, in addition to be compensated for their direct impacts, the full cost environmental effects, receive additional consideration regarding the significant change in financial circumstances of the Corporation, given their continuing contribution to that operation?

MR. JAMES LAZAR: I -- I think you're beyond the scope of my knowledge of Manitoba Hydro, Manitoba history, Manitoba culture, and Manitoba politics.

MR. MICHAEL ANDERSON: I appreciate that. Thank you. And I very much appreciate our opportunity to have a discussion and for your responses, Mr. Lazar, and Dr. Miller for presenting Mr. Lazar as a witness here today and Mr. Chair for the Board's patience and my questions, Mr. Vice Chair, Dr. Avery-Kinew and Dr. Evans. Thank you very much. Mr. Peters, those are my questions.

THE CHAIRPERSON: Thank you, Mr. Anderson. Ms. McCaffrey, MIPUG...?

MS. TAMARA MCCAFFREY: Good afternoon. Good afternoon, Mr. Lazar. Nice to see you again. I'm here on behalf of MIPUG.

THE WITNESS: Can you either get close to a microphone or get closer to me?

THE CHAIRPERSON: Ms. McCaffrey, I think --

THE WITNESS: Or both?

THE CHAIRPERSON: -- Mr. Anderson is willing to give up his spot.

(BRIEF PAUSE)

CROSS-EXAMINATION BY MS. TAMARA MCCAFFREY:

MS. TAMARA MCCAFFREY: Good afternoon,

again, Mr. Lazar.

MR. JAMES LAZAR: Good afternoon.

MS. TAMARA MCCAFFREY: I'm here on behalf of Manitoba Industrial Power Users Group and I wasn't in the room this morning. However, one of the consultants from Intergroup was here and I have been briefed on your evidence and I have just a couple of brief questions for you just to clear up a couple of things on the record --

MR. JAMES LAZAR: Okay.

MS. TAMARA MCCAFFREY: -- if you don't mind.

First of all, with respect to your response to the IR CAC/MSOS/TREE/RCM-9.

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: I just -- I wanted to give you an opportunity, actually, just to clear up your response on the record there. If you -- you recall this is a question where you were asked whether it was your understanding that BC Hydro's industrial rate proposal would mean that a new industrial plant locating in BC would pay rates based on marginal or incremental costs for all electricity purchased.

You've had a change to have a quick look at that IR do -- do you recall this --

MR. JAMES LAZAR: I recall this.

MS. TAMARA MCCAFFREY: -- Mr. Lazar? Now, I believe your answer, sir, and I'm just going down to the bottom two (2) bullets, was that it did not appear -- or you -- it did not indicate the rate -- the posted tariff did not indicate how new industrial customers would be treated.

And you also indicate that it does appear to anticipate enlargement of existing facilities but does not appear to anticipate new facilities; do you see that there?

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: I'm just -- MIPUG actually had provided in a response to an IR from CAC/MSOS-12, the rate schedules from BC. So what I'd like to do now is give you a copy of that response and just really I -- I want to give you an opportunity to clear -- clear up that response for the sake of the record, if you don't mind.

I'm looking here at Attachment 2, Schedule 18.23; do you have that page, sir?

MS. PATTI RAMAGE: Ms. McCaffrey, could you repeat the reference so we can follow?

MS. TAMARA MCCAFFREY: Sure. CAC/MSOS/MIPUG IR-12. And I'm referring here to attachment 2, which is a portion of the tariff in the BC

Utilities Commission, effective April 1st, 2006.

MR. JAMES LAZAR: Yes, I have it.

MS. TAMARA MCCAFFREY: Okay. There should be a highlighted portion on that page.

MR. JAMES LAZAR: Yes, I see that.

MS. TAMARA MCCAFFREY: All right. I'll just give you a moment to look at that. And for the sake of the Panel who may or may not have it before them, it indicates that:

> "Part a) energy charge for new customers and customers supplied with electricity under schedule 18.21 for less than twelve (12) billing periods as of the date of this schedule becomes effective."

Then there's a rate 2.725 cents per kilowatt hour per billing period.

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: And then it indicates, sir, that this rate will apply until the customer has been supplied with electricity under the schedule or under schedule 18.21 together with the schedule and so on -- for twelve (12) billing periods after which the customer will be supplied with electricity at the rate specified in part b) below.

And then part b) indicates a heritage type of contract where there's a certain rate for 90 percent of the customer's use and then a different rate for the usage above 90 percent. Do you see that sir?

MR. JAMES LAZAR: I do.

MS. TAMARA MCCAFFREY: Now having had an opportunity to look at that would you now agree with me, sir that it does appear that new industry was contemplated and it also is apparent that the new industry in British Columbia would not be billed at marginal costs for all of their energy purchases?

MR. JAMES LAZAR: If I'm interpreting the tariff that you've just given me correctly, your representation of it appears to be correct and I guess then I would agree with, I think it was the testimony that Mr. Wiens gave earlier, that this kind of an approach wouldn't solve the problem that Manitoba Hydro faces right now.

MS. TAMARA MCCAFFREY: So it sounds like you wouldn't -- you're not crazy about this proposal as it would apply in this case. But you recognize that is the rates that have been approved by the BC Utilities Commission?

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: Thank you. Just a

brief comment about aluminum smelters, sir. Are you aware of any jurisdictions that have a regulated -- and I'm talking about regulated jurisdictions -- that have a regulated rate that's different for aluminum smelters, a special rate for that type of industry?

MR. JAMES LAZAR: I am aware that there have been some. I don't really -- it seems to me the State of Maryland had a tariffed or regulated rate for a smelter in that area and that the smelter that was served out of Niagra Falls had a special tariff.

But I -- there -- I haven't studied either of them.

MS. TAMARA MCCAFFREY: I'm wondering if you would be able to provide details of that as an undertaking.

MR. JAMES LAZAR: I'm not sure that I could as sort of hearsay from years and years ago when I was dealing with the element of the smelters in the Pacific Northwest. And I doubt that I have files or data that would be responsive to a request. That's -- just sort of a vague recollection is the most that I can offer.

MS. TAMARA MCCAFFREY: Okay. And so that we're clear, this is a vague recollection, you're not sure.

MR. JAMES LAZAR: Correct.

MS. TAMARA MCCAFFREY: I don't want to pigeon-hole you into giving an answer if you're not -- if you don't know whether that's the case. And I'm just asking you whether you actually do have knowledge of other jurisdictions that have this?

MR. JAMES LAZAR: I don't have specific knowledge of another jurisdiction. I believe there have been some and the two (2) that I mentioned are ones that I -- I think fall into that category.

MS. TAMARA MCCAFFREY: But, again it sounds to me that you can't say that for certain and you don't have details of them and you wouldn't have -- you wouldn't be able to provide us details of that in this hearing?

MR. JAMES LAZAR: That's correct.

MS. TAMARA MCCAFFREY: Are you aware of specific examples of economic development or special contract rates for industries?

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: Can you provide us an example of that?

MR. JAMES LAZAR: Yes, I worked in a 1988 case I believe, involving Illinois Power, where one (1) of the issues was basically who was going to pick up the

subsidy for the Diamond Star Motors Assembly Plant. That's the Mitsubishi assembly plant that was constructed in Illinois in that period.

And they were receiving a rate that was dramatically lower than that that was being paid by the other industrial customers served by that company.

And the decision of the Illinois commission, I believe, was to make basically all other customers cover the subsidy.

MR. ROBERT MAYER: It's my understanding, Ms. McCaffrey, that when Inco was established they had a twenty-five (25) year special rate contract with Hydro and, in fact, put up the money for the development of Kelsey at 2 percent interest rate; that contract was still in existence, as I understand it, when I moved to Thompson.

MS. TAMARA MCCAFFREY: And I can candidly admit that I -- I don't know that. I don't have that information, Mr. Mayer. I'm sure I could find that out, however, if it -- if it's required.

CONTINUED BY MS. TAMARA MCCAFFREY:

MS. TAMARA MCCAFFREY: Other than the Illinois power example --

MR. JAMES LAZAR: Yes.

MS. TAMARA MCCAFFREY: -- are you aware of any other --

MR. JAMES LAZAR: Well, that's the one I worked on most -- most directly. I mean, there were several others that I worked on that were not adopted for which my client was very happy.

MS. TAMARA MCCAFFREY: You're probably aware that there's no aluminum smelters in Manitoba?

MR. JAMES LAZAR: That's -- yet.

MS. TAMARA MCCAFFREY: Are you aware that -- that there are smelters, however, operating in British Columbia and Quebec?

MR. JAMES LAZAR: Yeah, I know -- I know the -- the Kitimat plant in British Columbia quite well and I understand there's some capacity in Quebec.

MS. TAMARA MCCAFFREY: Are you familiar at all with the ongoing competition, as it were, to attract the next aluminum expansion between those two (2) jurisdictions; Quebec and British Columbia?

MR. JAMES LAZAR: The people I've talked with would describe it as something other than a competition but more a game of running and hiding.

MS. TAMARA MCCAFFREY: You're familiar -- you've familiar with that?

MR. JAMES LAZAR: Well, I -- I know that

there's been discussion in BC about -- about Kitimat. They've improved the efficiency of the plant and they're no longer using all of the capacity of their dam, is my understanding. They're selling the output of the dam into the market and they have the option of expanding the plant and using their power.

They also -- there was a proposed completion -- they call it the Macheko Completion Project (phonetic) but -- that was diverting yet another river into the -- the headwaters of the dam that Alcan has and there was an agreement with BC Hydro to provide power in lieu of -- of that diversion and that gives Alcan some operating flexibility in BC.

MS. TAMARA MCCAFFREY: Sir, with your background, would you agree that presumably if an aluminum facility were to locate in BC or Quebec, in this case, it would be locating in a jurisdiction that has a heritage generation type rate structure? That type of structure that would be available in those two provinces or are you aware of that?

MR. JAMES LAZAR: Well, BC does have what they -- you know, a -- a heritage type rate structure. I don't think there's any expectation that a new smelter would be served by BC Hydro.

MS. TAMARA MCCAFFREY: One final

question, Mr. Lazar, how would you define a discriminatory rate?

MR. JAMES LAZAR: Well, a discriminatory rate I would describe as a rate that treats two (2) customers similarly situated in a different manner and in most utility law the proscription is against undue discrimination, a term that obviously lends itself to the judgment of the regulators and, if necessary, the courts.

MS. TAMARA MCCAFFREY: Would you agree that -- that a discriminary (sic) rate might also be seen as a rate that treats a particular group in a more harsh manner as a result of certain characteristics of that group; would that also fall within your definition?

MR. JAMES LAZAR: I think you meant to say "discriminatory" and I think that -- yes, I mean, if it's -- if it treats two (2) otherwise similar customers differently but a lot of jurisdictions have closed rate schedules and open new ones so that all customers who existed as of a point in time are treated one way and all customers who come along thereafter are treated differently.

And while those may be discriminatory they seem to have survived the tests of whether it's due discrimination or undue discrimination.

MS. TAMARA MCCAFFREY: Thank you very

much for you time this afternoon, sir. I have nothing further for you.

THE CHAIRPERSON: Thank you, Ms. McCaffrey. I think we're at the Bob Peters hour now.

Please proceed at your leisure.

MS. PATTI RAMAGE: I was going to suggest perhaps I'll move cross the room because we're a little at odds here.

THE CHAIRPERSON: Sounds good, give you a bit more space.

(BRIEF PAUSE)

THE CHAIRPERSON: By the way, Mr. Peters, don't interpret my weak attempt at levity as restricting you to an hour.

CROSS-EXAMINATION BY MS. PATTI RAMAGE:

MS. PATTI RAMAGE: Good afternoon, Mr. Lazar.

MR. JAMES LAZAR: Good afternoon.

MS. PATTI RAMAGE: I hope this moving from tables doesn't impair our relationship in any way.

I want to just begin simply by confirming that you would consider one (1) of your prime or primary

recommendations that you'd like to see the CO2 adder or an environmental adder, I'll call it, in the cost of service study methodology?

MR. JAMES LAZAR: Yes.

MS. PATTI RAMAGE: And would you, following up a little bit on Mr. Anderson's cross, would you recognize that Manitoba Hydro's technology or resources has various different environmental impacts and many have already been included in the utilities cost by virtue of inclusion in their revenue requirement?

MR. JAMES LAZAR: Yes.

MS. PATTI RAMAGE: And so for example, the example I think Mr. Anderson worked with you and the numbers I think you used, was a $10 million payment.

I just wanted to confirm that if a $10 million mitigation payment had been made to a particular group on account of the Utility's activities, it would not be appropriate then -- and that $10 million ran through the revenue requirement and cost of service, it would in fact be double counting to make any type of a calculation to take that $10 million and put it into the cost of service study in the same manner as you've done with the CO2 costs?

MR. JAMES LAZAR: Well, if it has been paid and it was capitalized as a cost of say a dam, then

it is in the cost of service study as plant and service hydro or some other accounting category and it's already there and putting it in a second time would be double counting.

MS. PATTI RAMAGE: Thank you.

MR. ROBERT MAYER: Excuse me, Ms. Ramage. You're confusing me and I think at least one (1) other member of the Board.

You keep using the word mitigation cost. Are you using it mean the equivalent of compensation?

MS. PATTI RAMAGE: It could be, yes.

MR. ROBERT MAYER: I see them as two (2) different things and I mean, I understand mitigation is when you actually do something to prevent further damage from happening like enclosing your fore-bays (phonetic). Doing things like that.

I see compensation as being money paid to compensate someone for the effects of your projects.

MS. PATTI RAMAGE: I'm including compensation in mine and perhaps I'm being a little too generic in that.

CONTINUED BY MS. PATTI RAMAGE:

MS. PATTI RAMAGE: Mr. Lazar you discussed a Utility this morning that was new to me and

that was the Seattle City and Light example you gave. Can you tell me a little about Seattle City and Lights resource base, is it similar to Manitoba Hydro's?

MR. ROBERT MAYER: Well, it's -- it's the City Light meets about half of their requirements with hydroelectric projects that they own. They meet a very small portion of their requirements with thermal power resources that they purchase.

They meet a significant portion of the requirements with power that they purchase from the Bonneville Power Administration which in turn, is mostly hydro.

So, if you measure where the kilowatt hours come from, hydro versus other sources, it's quite similar. But unlike Manitoba Hydro they don't own more hydro than they need. They own less hydro than they need and happen to have the ability to purchase from a hydro based resource for most of the balance.

MS. PATTI RAMAGE: What emissions for Seattle City -- is it Seattle City and Light?

MR. JAMES LAZAR: Seattle City Light.

MS. PATTI RAMAGE: What emissions are being offset by its contributions to the transit system that you referenced this morning?

MR. JAMES LAZAR: I don't know. You

know, I've read a -- a description of a court case that is now before the Washington State Supreme Court on this issue. City Light has been paying for the bio-diesel fuel for some transportation agencies to offset some of their own emissions; that was challenged by a group.

The trial court sustained City Light's practice. It's now before the Supreme Court. But the court papers didn't say whether they were offsetting the emissions of their line trucks or offsetting the emissions of that power of their power that comes from -- from fossil energy.

I mean, I can't -- I don't know one (1) step backwards in the process what it is that they're offsetting.

MS. PATTI RAMAGE: Their -- their decision to offset emissions, though, is that a voluntary decision or was that something imposed on them by a regulator?

MR. JAMES LAZAR: It's a self-imposed greenhouse gas initiative.

MS. PATTI RAMAGE: So it would not be unlike Manitoba Hydro's self-imposed greenhouse gas initiative; is that right?

MR. JAMES LAZAR: I think so. I mean, I think it was imposed on them by the Seattle City Council

which is their regulator. But, you know, I mean, drawing the line between Seattle City Light and the Seattle City Council is a little difficult.

MS. PATTI RAMAGE: Sort of like Manitoba Hydro's board and Manitoba Hydro's management?

MR. JAMES LAZAR: That would be the analogy I would make, yeah. Yeah, they don't have a separate regulator, like this Board, that has public hearings and Intervenors that look at its budget.

MS. PATTI RAMAGE: And Bonneville Power, you also spoke of it earlier. Am I correct in understanding that the legislation applicable to Bonneville power requires it to employ full cost accounting in resource acquisition and planning?

MR. JAMES LAZAR: In resource acquisition it's required to consider all quantifiable environmental costs.

MS. PATTI RAMAGE: I just want to make sure I'm correct here, did I hear you say this morning that Bonneville power meets those obligations by assessing environmental impacts in its resource planning decisions; is that how --

MR. JAMES LAZAR: The Northwest Power and Conservation Council is a four (4) state, inter-state compact agency appointed by the four (4) governors that

adopts a regional power plan.

And that power plan includes a CO2 adder in it in evaluating resources and Bonneville is required to follow that plan or if it wants to deviate from the plan to come back to the Power and Conservation Council for approval of the deviation.

And so far they're following a plan rather than seeking approval of a deviation. So it's -- the Power Conservation Council isn't quite a regulator but it has this one (1) regulatory authority under the law. And if Bonneville wants to deviate they have to get permission.

About fifteen (15) years ago they asked for a deviation and it was approved to build a gas-fired power plant but they then terminated the plant before it was constructed.

MS. PATTI RAMAGE: So, again, to help me with my understanding; if that CO2 adder, is this how it works; if that CO2 adder causes the acquisition of one (1) particular resource to be more expensive than another they would go with the lower cost resource, both that CO2 added would be specifically applied to both of those assessments?

MR. JAMES LAZAR: In a sense what happened was the CO2 adder pushed new coal plants out of

the resource plan leaving wind and conservation as the only resources to be acquired over the next twenty (20) years.

MS. PATTI RAMAGE: Okay. Now, I'm getting it. But the CO2 adder, and this is where my confusion went, it isn't put into the cost of service study of this utility similar to what we're recommending here, it's at the resource planning stage?

MR. JAMES LAZAR: Well, you know, in a -- in the sense it is. It's not explicitly put in. But let's just say the CO2 adder was eight dollar ($8) a tonne and in response to that the Bonneville bought a wind project that mitigated the CO2 at a cost of seven dollars ($7) a tonne.

So the cost of the wind project was -- was seven dollars ($7) a tonne more than the cost of the coal project but because of the eight dollar ($8) a tonne adder Bonneville chose the wind project.

All of the costs of that wind project goes into the cost of service and, in essence, you've got, in the cost of service, the cost of a coal plant plus seven dollars ($7) a tonne. So to the --

MS. PATTI RAMAGE: And that --

MR. JAMES LAZAR: -- to the extent it causes you to buy a more expensive resource, that more

expensive resource flows through the cost of service. It's really the same as flowing the carbon cost through.

MS. PATTI RAMAGE: Okay. So that's how it meets its full cost accounting obligations, correct?

MR. JAMES LAZAR: Yes.

MS. PATTI RAMAGE: Thank you. You had a brief discussion and now I've already forgotten whether it was Ms. McCaffrey -- it was with Ms. McCaffrey regarding stepped rates.

And I'm not sure if you heard my exchange with Mr. Harper or read it yesterday. And I just wanted to clarify again that we're all on the same page. You had talked about a rolling baseline proposal.

And I think you may have said this with Ms. McCaffrey, but just to confirm that I'm correct that while the rolling baseline approach would impact most customers energy consumption decisions, it in and itself wouldn't resolve the concerns with respect to the energy intensive customer's decisions to expand or locate in the Province, is that correct?

MR. JAMES LAZAR: That's my understanding from looking at the rate schedule that was provided to me by Ms. McCaffrey.

MS. PATTI RAMAGE: And that would be because that rolling baseline is based on an average

rate?

MR. JAMES LAZAR: Well, first of all, the new customer doesn't -- doesn't pay a baseline. He is basically grandfathered in with a -- arrives with a -- effectively a baseline.

So they never see a marginal cost rate when they make the decision to locate. And then the --- the rolling baseline rate that BC has looks like it quickly collapses into a flat rate.

Some customer would look at it and wouldn't see the incentive that we're really looking for here.

(BRIEF PAUSE)

MS. PATTI RAMAGE: One (1) of the goals as I understand it from the recommendations you're making to the Board is that we manage rate increases to produce positive results as opposed to having large consumption drive up rate increases and we lose the benefits of surplus power.

And that one (1) of the measures you thought was the application of marginal rates for new customers and part of that proposal, in turn, was that we study electricity usage per customer, or in order to

implement any kind of a marginal rates for the new customers, you referenced studying the electricity usage per customer, is that correct?

MR. JAMES LAZAR: Yes, I mean I think you need to come up with some way of defining at what point is a customer's energy use high enough that it becomes a net loss to the Manitoba economy rather than a net gain.

And at one (1) extreme, I used the Boeing Company, 10,000 kilowatt hours a year per employee. They're making 70, $80,000 a year. I don't have to do a very sophisticated study to conclude that that customer is a tremendous addition to the Puget Sound economy.

And I'm sure that there are many -- most nearly all of Manitoba's industrial customers fall into the same category. But at some point the use per employee gets so high, aluminum smelters use on the order of 3 million kilowatt hours per year per employee.

That and chlor-alkali are the two (2) industries that I'm most familiar with that are most extreme.

MS. PATTI RAMAGE: And thank you for correcting me without pointing it out, I said per customer, not employee but you knew where I was going.

MR. JAMES LAZAR: Yes.

MS. PATTI RAMAGE: I'm just wondering in

your experience, do you believe it's appropriate for a Utility to be considering measures such as electricity usage per employee in rate design or does that really fall into the government side?

There's been a few things today that you've said that's really a government matter. And I'm wondering if that's one of those?

MR. JAMES LAZAR: Well I think it's the Utility's job to identify for this Board the risk that all customers face from the addition of large energy intensive load to the system and to quantify the macro economic impacts of those customers.

What do the jobs bring? What are the spin-off benefits? Is this, you know, how good a deal is this? And I think it's probably the Board's role to say we think this is due discrimination to treat these customers differently or we think this is undue discrimination and everybody's just going to have to suck up and pay higher rates if somebody wants to come in and receive service on the same terms and conditions of everybody who's already here.

Do we want to approve a -- you know, a 50 percent increase in Manitoba Hydro rates in order to get five hundred (500) jobs in an aluminum smelter and that, to me, is a regulator or a government decision.

But it's the Utility's role to make sure the regulator has all the information to make that decision and I think to make a recommendation too.

MS. PATTI RAMAGE: Thank you for that. You also in your evidence set out some priorities for dealing with the next export revenues and the second one in your list was one that I think is very near and dear to Mr. Warden's heart and that is for Manitoba Hydro to get its financial house in order to deal with the debt equity ratio; do you recall that?

MR. JAMES LAZAR: Yes.

MS. PATTI RAMAGE: And I think you characterized in your evidence that Manitoba Hydro's current level of equity as being too low; is that correct?

MR. JAMES LAZAR: Yes, I did.

MS. PATTI RAMAGE: And is it fair to say that that's not a position you've typically taken in -- in -- when testifying in front of regulatory tribunals?

MR. JAMES LAZAR: I spend a great deal of my time criticizing American utilities that are seeking 45 and 50 percent common equity ratios when the evidence in the marketplace is that equity ratios in the 35 to 40 percent range produce a lower overall cost of capital because the debt is so much cheaper in the --

particularly in the American tax structure.

But the argument is in the range of 35 to 50 percent and they think I'm crazy to argue that 35 percent is adequate and I think they're crazy to argue that 50 percent is necessary. But 19 percent doesn't enter into the discussion anywhere.

I would concede in a moment that a utility exposed to drought risk or catastrophic resource failure risk or even for some period of time a catastrophic failure of the BC transmission system which, you know, would be fixable and wouldn't be environmentally catastrophic but would be financially pretty catastrophic to Manitoba Hydro, needs to have substantial reserves against those contingencies.

And whether it's a sequestered contingency reserve or just built into retained earnings doesn't matter to me. It's -- either way it's a -- a cushion against contingencies and that's what I think is needed.

MS. PATTI RAMAGE: Thank you. And given that do you think it would be reasonable for Manitoba Hydro to build a zone of reasonableness around pre-export revenue cost coverages and to recommend future rate increases to this Board accordingly?

MR. JAMES LAZAR: Yes. If I talk about the way some of the hydro utilities I deal with approach

this issue, they ask their regulators to set -- Bonneville sets -- asks its self-regulator to set rates based upon an 80 percent probability of being able to make all of its debt service payments and have positive cash flow.

That is one (1) year out of five (5) they expect to lose money. And that's one (1) way. Seattle City Light has built into its cost of service an annual contribution to a drought reserve that's expected to be drawn down one (1) year out of ten (10).

Both of them have different ways of providing for a high probability of being able to weather a drought without having to come in for a twenty (20) or forty (40) or sixty (60) percent rate increase.

MS. PATTI RAMAGE: Another one of your priorities that you mentioned was funding of energy efficiency programs. And I'm wondering if you're aware, Manitoba Hydro's DSM planning already attempts to identify and fund all measures which are cost effective relative to the utility's marginal cost forecast and that that forecast already anticipates future internalization of greenhouse gas costs in Manitoba Hydro's regional market?

MR. JAMES LAZAR: If my third priority recommendation is already being done then you need to

work on one (1) and two (2). And then move on to four (4).

(BRIEF PAUSE)

MS. PATTI RAMAGE: Again another priority was for the use of the net export revenues, is to use the monies to offset basic infrastructure.

I'm wondering if you've quantified the extent to which what you referred to as -- and this is -- inallocable distribution costs, how -- the extent to which what you refer to as inallocable distribution costs causes distortion in the cost base?

MR. JAMES LAZAR: Well, actually Manitoba Hydro has sort of done that for me. You've produced a cost study based upon eliminating the customer classification of the basic distribution system.

And the difference in customer related costs in that study versus your recommended study is the inallocable basic infrastructure costs. I haven't actually added up what the dollars are but that -- both of those studies have been done by MH and it's -- as Professor Bonbright describe that basic infrastructure, that's the part that's strictly inallocable.

MS. PATTI RAMAGE: So would you be

prepared to accept that Manitoba Hydro's recommended method effectively directs approximately 20 percent of net export revenues to offset distribution costs. Would that seem in the right magnitude?

MR. JAMES LAZAR: That would -- you know without looking at the numbers I can't say and maybe at the next break you can help me look at the numbers and I'll be ready to agree.

I mean it feels like it's the right order of magnitude but I didn't anticipate the question. I didn't do the analysis and -- but the numbers exist. They've been produced for this docket.

MS. PATTI RAMAGE: Well maybe I'll suggest, you and Mr. Wiens can have a brief talk at the next break --

MR. JAMES LAZAR: Sure --

MS. PATTI RAMAGE: -- and we can just confirm that. And that was actually the close of my cross-examination so I think I can turn it over to Mr. Peters now.

THE CHAIRPERSON: Thank you Ms. Ramage. Mr. Peters perhaps you could begin until the break and then after the break we'll go back to Ms. Ramage.

MR. BOB PETERS: Certainly.

THE CHAIRPERSON: Mr. Peters ...?

MR. BOB PETERS: Thank you.

CROSS-EXAMINATION BY MR. BOB PETERS:

MR. BOB PETERS: Good afternoon, Mr. Lazar. As counsel to the Board I have some questions and I'll try to keep us moving briskly so that airplane is not kept waiting.

MR. JAMES LAZAR: I don't you need to worry about the airplane.

MR. BOB PETERS: Mr. Lazar, in your materials you provided your resume and an outline of some of your work. In the last ten (10) years, how many of those assignments that you had have you been specifically involved in cost of service methodology debates? Can you just give us a ballpark figure?

MR. JAMES LAZAR: Less in the last ten (10) years than in the previous fifteen (15) for sure. Most of the early part of my career was overwhelmingly cost of service related.

But, I've been in cost of service analyses involved City of Burbank, Pacific Power, Avista Utilities, Puget Sound Energy, Manitoba Hydro, in contested cases and additional work for the New England Demand Resource Initiative. And the County of Maui, Hawaii.

And some work that I actually did in Indonesia that was really focussed around low income energy assistance, but quickly turned into a direct assignment of a limited amount of low cost hydro to meet the essential needs of residential customers and running that through their cost of service models.

So I guess I would count the -- they serve 170 million people, it's the largest electric utility in the world in terms of the number of customers served in Indonesia.

MR. BOB PETERS: So somewhere between five (5) and ten (10) cases where you've done some cost of service --

MR. JAMES LAZAR: Yeah, in the last ten (10) years.

MR. BOB PETERS: And in those cases, sir, did you give specific recommendations to a regulator as to what the cost of service methodology should be?

MR. JAMES LAZAR: We settled most of the cases that I was involved in without going to Hearings. So it didn't -- all we got presented to the Commission was a settlement.

MR. BOB PETERS: That was in all of them, except the one (1) here in Manitoba Hydro?

MR. JAMES LAZAR: Well, I have -- let me

look at my resume and -- and see if looking at the -- at the docket list --

MR. BOB PETERS: Let me -- let me go on and let's not bog down on that, Mr. Lazar. But in your recommendations as to methodology in your settlements, were you recommending the inclusion of externality costs in the cost of service study?

MR. JAMES LAZAR: No.

MR. BOB PETERS: In none of them?

MR. JAMES LAZAR: None of them.

MR. BOB PETERS: And why is that?

MR. JAMES LAZAR: Well, the ones that we -- I -- I -- there might have been one (1) had it gone to hearing that I would have involving Puget Sound Energy in 2002, but it settled and so the issue never got into testimony.

The ones that were before 2002, frankly, our -- the status of the science of quantifying CO2 costs wasn't good enough to make it ready to go before a regulatory body.

MR. BOB PETERS: Do I gather from -- from your answer so far, Mr. Lazar, that when you went into these settlement negotiations or alternative dispute resolution processes did you go in seeking externalities to be included in the cost of service study?

MR. JAMES LAZAR: Yes and it -- in -- that would be in the 2005 cases involving Washington Water Power and Pacific Power and it quickly became evident that enough other parties weren't willing to go that far that it wasn't going to be fruitful to proceed.

MR. BOB PETERS: All right.

MR. JAMES LAZAR: And it was one of the issues we gave up early on in the negotiations.

MR. BOB PETERS: What if I asked the same questions relative to recommendations you've made in the last ten (10) years to incorporate marginal generation costing into the cost of service study; did you do that?

MR. JAMES LAZAR: In the last ten (10) years I don't think I've worked in any marginal cost jurisdictions and, kind of -- in 1978 to '80 in the US all the regulatory commissions had to consider and determine various rate-making standards and they all, sort of, either came down on the side of using embedded costs or came down on the side of using marginal costs and it's sort of argued and decided in the States that I've worked in the last ten (10) years.

If I go back to '91 in Arizona, I did and 1990 in Illinois, I did.

MR. BOB PETERS: Most of those '78 to '80 decisions that were being made, you would agree with me

that the majority came down on the side of using embedded costs?

MR. JAMES LAZAR: Probably about two-thirds (2/3) maybe three-quarters (3/4) came down on the embedded costs side and about a quarter (1/4) on the marginal cost side.

MR. BOB PETERS: Mr. Lazar, in your evidence, and I think one of my colleagues referenced it earlier, you suggest that Manitoba Hydro's method of allocating net export revenue is a step in the right direction; do you recall words to that effect?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: Did you mean to say that was a step in the wrong direction because what you are telling the Board here is that it is a mistake, I think you're saying, to credit customers with any net export revenue?

Is that what you're -- is that -- are you saying what I'm suggesting to you?

MR. JAMES LAZAR: The answer to -- you've asked me actually several different questions.

MR. BOB PETERS: Let me -- I'll --

MR. JAMES LAZAR: I think it is a step in the right direction because it allocates those export revenues across all costs not just generation and

transmission costs. That's a step and I think that's a step in the right direction.

A better step in the right direction, I think, would be to allocate it across distribution costs that are inallocable as I've just been discussing with Ms. Ramage, and not against generation and transmission costs and an even bigger step to an economist in the right direction would be to -- to refund it to the people of Manitoba in some manner wholly unrelated to their consumption of electricity.

That would be the best and biggest step in the right direction. But what -- what has been proposed, I think, is a step in the right direction.

MR. BOB PETERS: Thank you for answering my three (3) questions with those answers, sir. I appreciate that.

Would you agree that when we come to the net export revenue amount what we're facing here is not really the allocation of a cost but, deciding on how to share in some surplus wealth that's been generated by the Utility?

MR. JAMES LAZAR: It's surplus wealth that's been generated by the Utility and by the people of Manitoba who took the financial risk to build some resources that have proven to be significantly more

valuable than what they cost.

MR. BOB PETERS: And so to that extent, all of the academic theory that you bring in from the economist perspective, in terms of cost allocation, doesn't necessary apply to the net export revenue credit?

MR. JAMES LAZAR: Well, the traditions of embedded cost allocation don't apply, in my opinion, very well to the net export revenue. You know the economist is saying, you've got a pot of benefits for which there is no associated pot of costs.

You've already paid off the costs. It doesn't belong to anybody, except for in a broad sense, the people of Manitoba. How do you divide it up? And that's as much a policy and political decision as an economic or technical decision.

MR. BOB PETERS: And that was the point I was head to, is it becomes a matter of policy and considerations of that nature.

MR. JAMES LAZAR: Yes, the role the economist brings is to say, don't divide it up in some way that causes people to consume more electricity than they otherwise would.

MR. BOB PETERS: And that's what Manitoba Hydro is doing right now, is they're crediting it back to customers and therefore that's encouraging customers to

use more electricity?

MR. JAMES LAZAR: They're crediting it back to customers in proportion to their usage of electricity driving down the price per kilowatt hour of electricity and that invites usage that is uneconomic.

That is people to buy kilowatt hours for 3 cents and use it for some value -- purpose that's worth 3.5 cents when, in fact, it's worth 5 cents in the market.

MR. BOB PETERS: All right. You've heard and you've read and you've probably been briefed by Dr. Miller, that there are a number of different cost of service studies afloat here in the hearing room, including four (4) from Manitoba Hydro and some suggestions by other parties.

I think you told my colleague opposite that there could be thousands of different ways you could do this cost of service study, in terms of methodologies?

MR. JAMES LAZAR: I think I got the -- she asked me about dozens and I think I got to hundreds. But we could work together and get it up to a thousand, I'm sure.

MR. BOB PETERS: All right.

MR. JAMES LAZAR: And I think there's more than four (4) that have been brought in by Manitoba

Hydro. Because in their direct evidence there were four (4). But in the rebuttal evidence they also, I believe, brought in an improvement on the study I did that brought marginal generation costs into the cost of service study.

MR. BOB PETERS: That's one (1) of the thousands that I was referring to.

MR. JAMES LAZAR: That's the least fo them. If you count my evidence as two (2), one (1) with and one (1) without CO2 costs and the original evidence as four (4) and the marginal study that Hydro brought in on rebuttal that gets us to seven (7) and I'm not sure if MIPUG brought in any of their own.

MR. BOB PETERS: All right. Recognizing that the number is growing, you'd accept that the end objective is to adopt and have the Board approve a methodology that is considered fair to all customers?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And could you comment on the possible merits of adopting maybe two (2) different cost of service methodologies and then weighting them or maybe averaging them or somehow coming to a final RCC number? Is there any merit to that and I know that was a question posed earlier in the Hearing. What's your view?

MR. JAMES LAZAR: I personally don't think there is merit to that. Each of the studies that

is before us has different specific principles that underlie it.

And I think it would make more sense for the Commission to list out those principles, identify which of those principles they think are appropriate and then tell Manitoba Hydro, we're going to take principle one (1) from study one (1) and principle two (2) from study three (3), and principle four (4) from study five (5).

And we think those principles are appropriate principles. Now show us us what a study that combines those principles looks like rather than weighting them.

However, a number of commissions have looked at the study that the consumer advocate brings forward, the study that the utility brings forward and the study that the industrial customers bring forward and if they all show one (1) particular class is paying too much or they all show that one (1) particular class is paying too little they take guidance from that that's sort of independent of the methodology. Something is askew and that I think is an appropriate use of multiple studies.

But the studies have principles behind them and I think it's more important to provide guidance

on the principles than it is to take studies and average them. If you take studies and average them you're just inviting the parties to bring in the most outrageous studies in the world with the industrial customers allocating all the costs to the residential customers, the residential customers allocating all the costs to the industrial customers and when you average them you've put all the costs on the commercial customers.

And I don't see their representative here, maybe he is. But if he's not in the room he winds up with all the costs. And I don't think that averaging outrageous studies is as good as, kind of, focussing in on good ones.

MR. BOB PETERS: Would you agree with me if I distilled your evidence down to telling the Board that your main concern is that consumers in Manitoba presently make inefficient energy decisions because their current electricity prices fail to reflect the full cost of providing service to them?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And you gave an example -- well, one (1) of the components that leads to that inefficiency is the assignment of export credits and we've talked briefly about that?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And in essence that's the argument when you are crediting back to the customers you're under -- they're underpricing the energy they're consuming and it doesn't give them this correct price signal that you've talked about?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And one of the best ways to deal with that from certainly your economist's point of view is to remove the net export revenue credit entirely from the consumer classes?

MR. JAMES LAZAR: From being credited against consumer costs.

MR. BOB PETERS: In the cost of service study?

MR. JAMES LAZAR: In the cost of service study. Yeah, I think it would be too big a step to take at one (1) time.

MR. BOB PETERS: We'll come to that.

MR. JAMES LAZAR: We're talking about a 20 or 25 percent rate increase and I don't think that's pragmatic.

MR. BOB PETERS: All right. The other -- the other concern that I take from your evidence is that there's a failure to recognize marginal environmental costs associated with energy generation?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And even if those environmental costs are not incurred in Manitoba, Manitobans should be global citizens and recognize that those costs exist whether they're within the Manitoba border or outside the border?

MR. JAMES LAZAR: They should recognize that in the pricing of the electricity that they consume, yes.

MR. BOB PETERS: And I wasn't quite sure of something you told Dr. Miller first thing this morning, I guess that even if Manitobans left the electric utility and went over to the gas side of the utility and took all their heating needs through natural gas that would free up a whole bunch of electricity for export; wouldn't it?

MR. JAMES LAZAR: Yes, it would.

MR. BOB PETERS: But it would leave behind some of the very problems that we presently don't have and that is in terms of our environmental emissions?

MR. JAMES LAZAR: It would incre -- as I -- as I stated very clearly in my opening remarks, it would increase greenhouse gas emissions in Manitoba a little bit and decrease greenhouse gas emissions in the export market jurisdictions by a much greater amount --

MR. BOB PETERS: Well, that --

MR. JAMES LAZAR: -- so there would be a net benefit.

MR. BOB PETERS: Sorry to interrupt. The net benefit is that because we're using gas and we're displacing coal?

MR. JAMES LAZAR: It's because we're using gas at sixty (60) and seventy (70) and 80 percent efficiency in gas water heaters and gas furnaces and they are burning coal at 35 percent efficiency in power plants. So there's roughly four (4) times as much CO2 emissions from burning coal in power plants as there would be from burning gas in appliances.

You've got both gas as a cleaner fuel from a CO2 perspective and direct application of fuels is more efficient than using it to make electricity.

MR. BOB PETERS: All right. Thanks for clarifying how that -- how you see it netting out and it nets out that even if Manitobans all resort to natural gas they're doing a better good for the world because they are exporting electricity which will displace coal?

MR. JAMES LAZAR: Yes, and then in a perfect market they would receive compensation either in the form of certificates of good stewardship or better yet money. Where the greenhouse --

MR. ROBERT MAYER: I get you Hydro will go along with the certificates. They made some comment about being able to produce paper really well.

MR. JAMES LAZAR: You know, better yet money for the greenhouse gas emission reductions that occur in the power purchasing jurisdictions.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: And presently the most Manitobans could hope for would be the good citizenship award because there is no money in it for them at this time?

MR. JAMES LAZAR: No, they also get the export sales revenues which is a substantial amount of money and not to be taken lightly. I mean the heating bills in Manitoba would change very little, but the export revenue coming into Manitoba, that then everybody could fight about who gets what part of it, would increase.

MR. BOB PETERS: And you agree that there's a perception problem then for Manitobans that they are cleaning up somebody else's problem?

MR. JAMES LAZAR: I don't think there's any question that making this argument easy for the public to understand and get behind is difficult. It

would be much more difficult in a lot of jurisdictions other than Manitoba where the population is less educated and less worldly in their views.

MR. BOB PETERS: I'm not sure if I understood your answer to the point that if Manitoba Hydro electricity -- if Manitoba Hydro electricity carried and for my question, I'll call it a surcharge for environment adders, that would put it at a competitive disadvantage with say, natural gas, which wouldn't contain the same adder, would you agree with that?

MR. JAMES LAZAR: Yes, unless the same kind of adder were put on natural gas that would be true.

MR. BOB PETERS: And the same kind of adder would have to be put on all alternative energy choices to make it a level playing field so the correct price signal could be interpreted by the consumer?

MR. JAMES LAZAR: To make a more perfect market, you would want to treat all fuels the same, obviously wind and solar and geothermal and a number of other non-carboniferous sources would be less impacted than gas, oil, propane and electricity.

MR. BOB PETERS: In your evidence --

MR. ROBERT MAYER: Excuse me, that came by pretty quick. But, if you use the same argument for wind power that it also displaces -- has the ability to

displace coal-fired fuel, don't you have the same issue as you would have with Manitoba Hydro -- with hydro power?

MR. JAMES LAZAR: If the wind power was coming into the Manitoba Hydro system absolutely. If the wind power were being used directly by a customer, then they would be looking at the full cost of that wind power including any carbon tax on buying that wind turbine, which would be the carbon embedded in the equipment -- the carbon emissions embedded in the manufacturing of it versus buying electricity from -- or natural gas from utility.

THE CHAIRPERSON: Mr. Lazar, just so we understand, when do you have to be at the airport to catch your plane?

MR. JAMES LAZAR: 4:30 -- 4:45.

THE CHAIRPERSON: All right. Thank you. Mr. Peters.

MR. JAMES LAZAR: 5:29 -- you guys know your airport better than I do.

(BRIEF PAUSE)

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Lazar, earlier this

morning the Vice Chair had questions of you about the true elasticity of energy consumption in Manitoba when it's minus thirty-five (35) degree Celsius.

To that end do you -- do you expect that the electricity consumption that's going to be reduced by increasing the prices would come from the residential customers or would it have to come from the commercial and the industrial customers?

MR. JAMES LAZAR: Well, I have to revert to being an economist. In the Hydro response to our data request 2-26(b) they estimated long-term elasticities for all three (3) classes. The low end was minus point two nine (-.29) for commercial, the high end was minus two point eight seven (-2.87) for industrial and they were -- you know, they were all in the -- in wide ranges of sort of minus point three (-.3) to minus two (-2).

I think it would come from all sectors. In the short run when it's minus thirty-five (-35) the elasticity is pretty limited. In the long run when there's equipment substitution that can be made, a residential structure retrofit that can be done, the response can -- can be pretty clear.

I mean, the -- the lighting technology in use in this room is kind of vintage. And we could get this much light onto our work surfaces for half the

electricity. And that might happen in office buildings if the rates --

And I suspect as soon as the new Hydro building is built when you walk inside and take a look at the lighting technology in that building you're going to want it for yourself.

MR. BOB PETERS: Thank you, Mr. Lazar. When you -- when you talk about the savings of electricity by Manitobans and then using that for export, have you given any consideration as to whether Manitoba Hydro has the current transmission inter-tie capability to export that kind of energy?

MR. JAMES LAZAR: Only in this sense; most of that electricity is already getting to Winnipeg. It doesn't really have very much further to go. I mean, this is -- this is where most of the -- you know, Southern Manitoba is where most of the consumption takes place. It's where most of the savings would take place and the electricity has already travelled the DC inter-tie.

MR. ROBERT MAYER: I think you missed the point, Mr. Lazar. I think the inter-tie Mr. Peters is talking about is the inter-tie between us and the States. We do have limited capacity and I thought the question was, could we use all of that -- could we, in fact, get

all of that $388 million that you talked about, in light of our inter-tie restrictions?

MR. JAMES LAZAR: And that is an absolutely legitimate question. I don't know the answer. But it's nowhere near as long a distance as it is from the north to here. So if transmission upgrades are required, and they may well be, you know, one would have to know the cost, but it might be modest.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: I take from your answer, if you're limited in your inter-tie capability just build another extension cord to the border because you're within an hour, a hundred (100) kilometres of the border?

MR. JAMES LAZAR: Correct.

MR. BOB PETERS: All right. And that will assume that our -- our counterparties would likewise have infrastructure or else build it south of the 49th Parallel to receive it?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: Mr. Lazar, what do you think Manitoba Hydro is selling its off-peak energy for right now? Do you have any idea?

MR. JAMES LAZAR: No. I -- I know the current on peak, off peak markets on the west coast. I

don't know how --

MR. BOB PETERS: What are they on the West Coast? What do you think is the off peak price?

MR. JAMES LAZAR: Well, actually I --

MR. BOB PETERS: Approximately, please?

MR. JAMES LAZAR: I -- I do have some data with me that's just a few days old of some of the eastern stuff, I believe. No, I guess, I do not. I'm sorry.

MR. BOB PETERS: Would it surprise you if Manitoba Hydro was selling off peak energy on the export market for less than a cent a kilowatt hour?

MR. JAMES LAZAR: Right now, in the spring, there's an awful lot of water flowing and not much load out there. I know that's what's happening on the west coast.

MR. BOB PETERS: Roughly the same price, you think?

MR. JAMES LAZAR: Yeah, a penny.

MR. BOB PETERS: If that -- if it's a penny a kilowatt doesn't that suggest then that Manitoba Hydro would be better off selling that in Manitoba and charging five (5) or six (6) cents to its consumers?

MR. JAMES LAZAR: In the month of May, yes. I mean, the May prices tend to be the absolute

bottom of the -- of the annual market because it's when all the rivers are in freshet and that prices -- prices decline.

There's not much load and there's lots of water flowing downhill that's not storeable.

MR. BOB PETERS: And then let's take it to -- to maximize the value to Manitoba Hydro at other times of the year, it's to their advantage to sell that electricity that's not used by Manitobans on peak hours, do you agree with that?

MR. JAMES LAZAR: Sure.

MR. BOB PETERS: Better price?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: Even at other times of the year, your on peak price you would expect to be better than your off peak price?

MR. JAMES LAZAR: You expect the on peak price to be better than the off peak price but, for example, looking ahead to next winter the January, February prices, forward prices both on the west coast and on PJM grid, the east coast, are in the 10 cent a kilowatt hour range.

And off peak prices are around seven (7). So if you look ahead out of the month of May, the price

relationship that we've been experiencing on average for many years -- for the last several years, looks to continue.

MR. BOB PETERS: What's the approximate US average cost of electricity per kilowatt hour?

MR. JAMES LAZAR: The wholesale or residential level?

MR. BOB PETERS: Residential?

MR. JAMES LAZAR: About 9 cents, 10 cents.

MR. BOB PETERS: And the highest jurisdiction other than Hawaii would be the eastern seaboard cities that were --

MR. JAMES LAZAR: Southern California -- Southern California Eddison's a five (5) block inverted rate. The cheapest is 11 cents. The tailblock is 33 cents.

MR. BOB PETERS: And in New York?

MR. JAMES LAZAR: I haven't look at New York rates for enough years that I don't think I'm current enough to be relevant.

MR. BOB PETERS: Back to our on peak questions. If Manitoba Hydro can get the better value on peak, how do you convince Manitoba consumers to give up their energy during on peak hours?

MR. JAMES LAZAR: You -- well, one (1) thing you do is you implement time of use rates that causes high industrial customers that can to shift their load.

One (1) thing that you do is you invest in conservation measures that are on peak oriented. And Manitoba Hydro is kind of working pretty hard to identify what those are.

And one (1) thing you do is try and manage the system so that the resources that don't need much transmission are available to run at full capacity on peak so that you can get more power to the market during those periods.

MR. BOB PETERS: So time of use rates would be a key to achieving that goal of selling on peak power for the best price?

MR. JAMES LAZAR: Yes, but I only think on peak -- I only think time of use rates makes sense for quite large customers. I don't think it makes sense to as some utilities have done to take it all the way down to the residential level.

The metering costs and the consumer inconvenience starts to be worth more than the savings.

MR. BOB PETERS: You acknowledge that residential consumers are also wasteful users of

electricity?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: You haven't been to my house have you? I'll withdrawn that last question. Why do you say that? Why do you say residential also can be considered wasteful consumers?

MR. JAMES LAZAR: I serve on the regional technical forum on the Northwest Power and Conservation Council. We've looked at conservation potential in every sector and look at the time of use load shape of more than a thousand possible conservation measures.

And we find savings every where we look. There's not a sector, there's not a customer, there's not an industry that we've look at that we haven't found significant savings opportunities.

So, residential customers are wasteful. Commercial customers are wasteful. Industrial customers are wasteful. Street lighting customers are wasteful. Irrigation customers are wasteful. Municipal sewage treatment plants are wasteful. It -- there's lots of opportunities out there.

MR. BOB PETERS: Mr. Lazar, back to being global citizens here. You can accept that aluminum is going to be a needed product in the world?

MR. JAMES LAZAR: It's a useful product.

We, you know, lived for almost you know a million years as homosapiens without it, so needed is sort of a pejorative term, it's desired, it's being used, people want it, it does a lot of useful things.

MR. BOB PETERS: If the choice was to put that aluminum smelter in a jurisdiction that uses fossil fuel or put it in a jurisdiction that uses hydro electric energy, what do you think is better for the environment?

MR. JAMES LAZAR: I don't think that matters. I think it matters what grid you put it in because it's what is the marginal fuel for the grid that matters, not what is the marginal fuel for the jurisdiction.

As long as we're an inter-connected grid the ultimate electricity demand doesn't really recognize the borders and the carbon dioxide emissions doesn't really recognize the borders. So you really have to look at it at grid level.

MR. BOB PETERS: And if the grid has -- has coal resources on it then whether it's coal in -- connected to the MISO area or in some third world country; it doesn't matter?

MR. JAMES LAZAR: Well, it may matter if the -- you know, depending upon the emission regulations and the efficiency of -- of different coal plants. You

know, the Chinese build coal plants with no sulphur dioxide scrubbers and North America requires sulphur scrubbers. So from a sulphur emissions perspective it would be better to put them here than there.

But the -- other than differences of emission controls and differences of efficiencies between power plants, the other thing you look at is where is the raw material and where is the market. Manitoba is close to a market but it's nowhere close to any raw materials for aluminum.

MR. BOB PETERS: While we're on that, you'd given an example earlier of Boeing because I take it you're familiar with the US northwest --

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: -- location of it. Boeing itself probably is one of the largest users of aluminum in the world?

MR. BOB PETERS: They used to be. The -- the 787 is a plastic airplane. It's, you know, a composite plane that's not going to have an aluminum fuselage and most of the wing structure is not aluminum any more and they just announced last week that they're going to build an all composite version of the 737 because the airlines just love the 787 because the fuel use is 20 percent lower for the same number of

passengers.

So aluminum is becoming an obsolete material apparently in aircraft manufacturing. You know, ten (10) years ago I would have absolutely agreed. But, it looks like the high cost of fuel is pushing aluminum out of that market.

The high cost of fuel plus technological innovation in composites is pushing aluminum out of the airplane market.

MR. BOB PETERS: When you're -- when you're considering the type of industry that you think is appropriate for -- for Manitoba, are you suggesting that high load factor industrial customers are now the -- the type of customer that is least beneficial to Manitoba?

MR. JAMES LAZAR: No. I -- not -- high load factor doesn't really tell us anything about the energy to employment ratio. Basically if you're selling your electricity at less than marginal cost you need to be looking at the energy to employment ratio.

And there are high load factor industrial customers, and Boeing is one, have very high employment energy ratios and there high load factor industrial customers, like aluminum and chlorine, that have very low ratios.

It's -- the load factor doesn't matter.

It's the energy to employment ratio that I think gives you some sense of whether they're a net benefit to the economy which most industrial customers certainly are or just shopping for cheap power and don't really care anything else about what Manitoba has to offer.

MR. BOB PETERS: Just to switch a couple of quick questions here that I have left for you, Mr. Lazar, Manitoba Hydro's current revenue is derived not only from the energy portion of the bill but from the demand charges that it levies to its commercial and industrial customers; you'd accept that as being correct?

MR. JAMES LAZAR: Yes. And also the customer charge to all classes.

MR. BOB PETERS: Although the customer charge is relatively modest?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: But the demand charges can be at least half the bill, maybe more for some customers?

MR. JAMES LAZAR: For a very low load factor customer it could be half the bill; yeah.

MR. BOB PETERS: Have you thought about whether or not there would have to be restructuring on the demand charges as well as energy charges for Manitoba consumers if we move forward with some of your

recommendations?

MR. JAMES LAZAR: I've thought about it and when this proceeding was originally conceived of as a rate increase proceeding and I was going to be looking at all the rate design issues I -- I thought about that and actually some of the work that Hydro has done in this case kind of leads to that which is de-emphasizing the demand charges for the large customers and moving to time of day energy charges to recover at least the production and transmission costs I think is -- is an improvement.

It's less burdensome for a low load factor customer who happens to have an off peak load use pattern who is now paying very high rates, but not imposing very high costs.

And would be, I think a useful way to move. California has gone to a fixed facility charge for the customer specific facilities on distribution system. And a time of use charge for most of the rest of the costs.

And I think that makes more sense given the way the market has evolved.

MR. BOB PETERS: Mr. Lazar, with Ms. Bowman you went through some of your Exhibits and you came to the final page where you talked about percentage increase in price.

That was on your Exhibit JL-6 corrected, do you recall that?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: Under the Manitoba Hydro recommended method you showed a percent increase in price of approximately 28 percent. Is that reflecting what the increase would have to be on average if the net export revenue was not credited back to the class in the cost of service study?

MR. JAMES LAZAR: Yes, I believe that's correct.

MR. BOB PETERS: And when you add CO2 adder at twenty dollars ($20) a tonne, then the rate would have to go up 60 percent to cover those costs and that was the point you were trying to demonstrate?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: But CO2 isn't the only environmental adder that you would say should be added to get the full costing?

MR. JAMES LAZAR: To me it's the big one (1). I indicated mercury is another but I think it's going to be regulated and priced in the market within a year or two (2). So I didn't really consider it.

MR. BOB PETERS: So you're not going to give us a range or an approximation as to what additional

percentage rate increases would have to be levied to take care of other environmental adders?

MR. JAMES LAZAR: No, as my testimony said, I've looked at one (1) I haven't tried to quantify any others. It's the big one (1). It's the one (1) that's going to I think change our lifestyle, change the shape and nature of our planet.

And --

MR. BOB PETERS: But only starting --

MR. JAMES LAZAR: -- lifetime of us, our children or our grandchildren. It's the one (1) that I think we need to be focussed on.

MR. BOB PETERS: Starting only after the next presidential election in the United States?

MR. JAMES LAZAR: Well, that wasn't my plan but I -- as I've said a couple of times today, I'm kind of a pragmatist.

MR. BOB PETERS: All right. And then when you look at the marginal generation costs being included the percentage rate increase goes up to 95 percent. And is it the -- is it the evidence that you have here that cumulatively those three (3) headings add to 127 percent increase in price needed to cover the costs?

MR. JAMES LAZAR: That was my estimate

here, yeah.

MR. BOB PETERS: But, and I'll give you the chance to say it again clearly to the Board, you're not here advocating any rate increase of the order of magnitude of 127 percent, are you?

MR. JAMES LAZAR: Absolutely not.

MR. BOB PETERS: What you're here to tell the Board is, can I put it this way, this is a wake up call and that we should be aware that these are costs that are being incurred that aren't presently being considered or recovered?

MR. JAMES LAZAR: Yes, if you're only concern was economic efficiency that would be the right number. But we've talked over and over again about how many other important things there are to consider in regulation. And that's only one (1).

And the use of these costs in the cost of service study ends up driving down the revenue to cost ratios of all customer classes, correct?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And the purpose of that, I suggest, is that you want to show the Board that at some point you're going to need rate increases and the cost of service study can help you decide how to apportion those rate increases?

MR. JAMES LAZAR: Yes.

MR. BOB PETERS: And is it your view that eventually Manitoba Hydro will have to include in its rate structure charges to recover the CO2 adder plus the marginal costs of generation plus the removal of the net export revenue credit?

MR. JAMES LAZAR: Well, you know, some of these savings I think are more or less perpetual. The cost of the existing dams is a fixed cost and less if the government expropriates the economic benefit of those Hydro would continue to have embedded costs that are well below marginal costs.

But, if you don't do something to stem the growth of electro-process industry you're going to be losing the -- initially losing the export market and therefore the export benefits.

And then you'll be acquiring, once that's exhausted, you'll be acquiring new marginal cost resources and charging everybody for them.

So you'll be getting a fair amount of the increase. Finally, on CO2 I expect it to be monetized, hopefully sooner. If not sooner, later. And then it will show up in the rates when it is monetized and I think you should be aware of what happens and prepare the public for that eventuality.

MR. BOB PETERS: Are you going to put a time horizon on when you would think rate increases of the magnitude shown in your Exhibit JL-6 corrected would have to be put in place to recover all these costs?

MR. JAMES LAZAR: The first big one will happen the day the aluminum smelter is connected to the hydro grid and that'll be a whopper. The carbon cost is obviously a political decision. It's not driven strictly be economic criteria --

MR. ROBERT MAYER: Well, on -- on that carbon cost, if it's done as you say with a carbon tax in the States we would, in fact, be a beneficiary then would we not? We're not producing any carbon. The rates would go up because of the carbon tax and we collect the rates.

MR. JAMES LAZAR: The revenues -- the revenues from export would go up and the value of the electricity in Manitoba would go up and it would be worth -- more valuable to encourage people here to improve their efficiency and reduce their use so you can export more and make more money.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Lazar, from those answers, and I'm not sure if you said it earlier, but rate design may be the more immediate solution that would

assist Manitobans more than embedding these costs in the cost of service study; would you agree with that?

MR. JAMES LAZAR: I agree with that with the exception of large new energy intensive load. I think every other customer class we can -- we can find ways to encourage efficiency through rate design.

But something different has to be done to large -- large new loads and large expansions of existing loads.

MR. BOB PETERS: And Mr. Lazar, in those rate design options, is it -- is it inverted rates or rolling baseline rates; is that the preferred method that the Board should consider?

MR. JAMES LAZAR: Well, those are the methods I've identified that the Board should consider. The goal is to get the price for incremental use more closely aligned with -- with -- with marginal cost and if other creative thinkers in this room or elsewhere come up with better ideas than I've got then you should follow their advice.

The goal is to get to that result.

MR. BOB PETERS: Thank you. One -- one piece here I'm checking my notes that I don't think you've given the Board your views on is the vintaging methodology used by Manitoba Hydro in its -- one of the

four (4) methods of cost of service study; you reviewed that?

MR. JAMES LAZAR: I did.

MR. BOB PETERS: And you actually recommended it at some point in time that the Board should -- and that Hydro should consider that?

MR. JAMES LAZAR: I did recommend it and I recommended it primarily in the construct of creating a identified pool of low cost resources that on a cost of service basis would support an initial low cost rate block of an inverted rate.

My -- my evidence was that if you give people cheap hydro from the older dams to meet their basic needs those basic needs also happen to have a high load factor that as they occur pretty uniformly through the day so the distribution costs are lower, you could have a very cheap first block.

My recommendation of vintaging was more in the context of rate design within classes than cost allocation between classes. When I looked at it as a cost allocation between classes approach it seemed like unnecessarily complicated step in cost allocation to produce a result that wasn't really meaningfully different from Manitoba Hydro's recommended method.

MR. BOB PETERS: Is the methodology used

in British Columbia of any guidance to Manitoba Hydro?

MR. JAMES LAZAR: I think as we established with Ms. McCaffrey, my -- I'm - I'm a little rusty on what they've done up there. I'm a little -- a couple of years behind the curve there so I probably should have no opinion on that.

MR. BOB PETERS: My last area of questioning to you, Mr. Lazar, was that you -- you've said on a number of occasions throughout your testimony that some issues are -- are for the government to decide and in that regard I understood you to be staying that it's for the government of Manitoba to decide what is included in the revenue requirement of Manitoba Hydro.

Have I understood your evidence correctly?

MR. JAMES LAZAR: Well, the main thing that I said was for the Government of Manitoba to decide is whether to reflect either CO2 costs or marginal generation costs in the revenue requirement.

The first is including what's been called a notional cost, a cost that's not paid in cash in the revenue requirement and to me that's a political decision. It's a fundamental change in how regulation has happened and probably isn't something the Board should do on its own.

And the other falls under the same

category, substituting marginal generation costs in the revenue requirement means charging customers at fair market value instead of depreciated original costs for resources that are providing service.

That's a very fundamental change in the way regulation has been done. Those two (2) issues I think would need some government guidance. It's -- they're very big steps.

The issue of taking the export credit and applying it to other things that would flow through Manitoba Hydro's books, applying it to beef up their equity ratio, to fund the uniform rates legislation, to fund energy efficiency, although that may be all being done, to fund low income energy assistance, I think those are things that fall within sort of the traditional purview of a regulatory commission and conventional regulation.

So the 28 percent increase, if you will from my JL-6 is sort of the limit of what I think this Board could be looking at within the sort of traditional role of regulation.

And anything to the right of that would, in my opinion, sort of have to have some government guidance to the parties to go forward.

MR. BOB PETERS: Are you suggesting the

government would have to change the legislation in Manitoba?

MR. JAMES LAZAR: I don't know, you know, I'm not a lawyer, I haven't looked at the legislation. It just seems to me that that's -- going beyond that in the cost allocation study, I think is fully within the Board's purview to say we want to do a cost allocation study that recognizes all the right efficient things to do, looking forward is fine.

But that deals with in my Exhibit, sort of the indexed revenue to cost ratio. To actually add it to the revenue requirement just seems so fundamental to me that's it's beyond -- it's certainly beyond what I would have the courage to do as a Board.

MR. BOB PETERS: How do you --

MR. ROBERT MAYER: We'll get that advice from you Mr. Peters as to whether we need a change in legislation.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: How do you see governments giving advice on those kinds of issues in other jurisdictions?

MR. JAMES LAZAR: Well, you know there aren't any other jurisdictions with rates as low as

yours, you know. Most other jurisdictions have rates that are pretty closely aligned to marginal costs already.

You know, where you're paying 10 and 12 and 15 cents a kilowatt hours US and 09 cents on average. They're sort of already there. And they're not attracting new electro process industry.

It's all searching the globe looking for little pockets like Manitoba where there's somebody with a big dam that's not being fully utilized that still has traditional ratemaking that will sell them some electricity cheap.

MR. BOB PETERS: From one (1) of your answers, just another -- last question. When you talked about the use to which net export revenue could be put in Manitoba if it was not in the cost of service study, you are acknowledging that whatever use is made of that money there's no new money, it's the same money that we have on the balance sheet of the Corporation.

MR. JAMES LAZAR: Yes, basically you would be directing Hydro to include things in its budget that then would become an expense in the cost of service study.

And rates would have to be increased in order to keep all the other bills still being paid.

MR. ROBERT MAYER: That jurisdiction I could pretty well assure you we don't have.

MR. BOB PETERS: Mr. Chairman, I'd like to thank Mr. Lazar for his answers and for keeping the pace with me this afternoon. And also thank Dr. Miller for producing him. Those are my questions.

THE CHAIRPERSON: Thank you Mr. Peters.

Professor Miller do you have any re-direct of Mr. Lazar?

(BRIEF PAUSE)

DR. PETER MILLER: I don't know if you folks have questions. I don't think I do -- have any further questions. I think Jim's positions are well laid out and --

THE CHAIRPERSON: I think that we were the recipients of a lot of information and views from Mr. Lazar. I don't believe we've got anything more at this point.

So thank you very much, Mr. Lazar, for making the trip again to Manitoba. We hope you have a good flight back and you're not late by the time you get to the airport and have to go through security. Thanks again.

We'll have a short break now and when we return we'll be back to Mr. Peters and Mr. Harper. Right, we -- the break took a while to reach and I'd forgotten that we'd agreed that Mr. Wiens was going to consult with Mr. Lazar, very briefly.

Okay, well, briefly. We'll be back in fifteen (15) minutes.

(WITNESS STANDS DOWN)

--- Upon recessing at 3:09 p.m.

--- Upon resuming at 3:25 p.m.

THE CHAIRPERSON: Well, welcome back, everyone. We're all mindful of the time. Now, I'm sure someone will correct me if I'm wrong but I believe we're back to Mr. Harper and Mr. Peters.

MR. BOB PETERS: We are.

THE CHAIRPERSON: And before that, Ms. Ramage was going to report on a, sort of, off to the side, conversation between Mr. Wiens and Mr. Lazar.

MS. PATTI RAMAGE: Yes. And I think it -- just to avoid it getting lost in the translation I'm going to let Mr. Wiens report so you get direct evidence.

THE CHAIRPERSON: Very good. Mr.

Wiens...?

MR. ROBIN WIENS: Yeah. The -- the question was to Mr. Lazar because you'll recall that he had recommended one of the uses of export revenue might be to deal -- net export revenue might be to deal with those unallocable distribution costs which we call in our cost of service study essentially are the customer related portion of the pole and wire.

And Mr. Lazar disagrees -- has in the past disagreed with our characterization of those costs as that. And -- and he refers, as you heard, back to Mr. Bonbright who calls them unallocable and his thought was that you could use some of your surplus export revenue to offset those costs.

And our question to him was simply do you understand that our recommended methodology for the allocation of export revenues would, in effect, and it takes about -- we use the number 20 percent, it's actually higher than that if you look at the net revenues in the recommended method, it's closer to 30 percent. It actually benefits -- functions below the level of transmission, which is largely distribution.

So we just wanted him to recognize that. And my conversation was yes, he did recognize it. He was thinking though more along the lines of benefiting things

through reductions.

I may be getting to the point where you'd be better off to bring him back and have him say it. But, reductions of customer related charges, relating to metering, meter reading, billing and that type of thing.

The very inelastic components of the customers bill.

THE CHAIRPERSON: Okay. Thank you Mr. Wiens.

MR. BOB PETERS: Thank you Mr. Chairman. I'd just indicate that in my brief discussion with Dr. Miller he was confident that the summation and the end result of the discussion between Messrs. Lazar and Wiens would be accurately communicated and certainly Dr. Miller will have a change to review the transcript, as will Mr. Lazar and if there's any further supplement to that we'll hear them.

But I'm confident that Mr. Wiens has captured the essence of the points. So with that I think it is back to me and Mr. Harper to conclude the questions that I have of this witness.

WILLIAM HARPER, Resumed

CONTINUED CROSS-EXAMINATION BY MR. BOB PETERS:

MR. BOB PETERS: So welcome back, Mr. Harper.

MR. WILLIAM HARPER: Thank you.

MR. BOB PETERS: Mr. Harper, on your resume you list a lot of your activities including some activities you've had with Hydro Quebec, correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And did you do any cost of service methodology reviews for that Utility?

MR. WILLIAM HARPER: Yes, I did. When Hydro Quebec distribution first came under regulation from the Regie they filed a -- they filed an initial cost of service methodology which I was involved in reviewing on behalf of a client.

And made a number of recommendations to the Regie then sort of established on the basis of that Hearing what they felt should be the going methodology that should be used by Hydro Quebec.

And subsequently and I sort of made further comments on the application of that methodology on the subsequent two (2) hearings after that, as well.

MR. BOB PETERS: When was that initial hearing?

MR. WILLIAM HARPER: It's probably -- it's specifically on my CV, but probably somewhere around

2002. I'd have to check that if it's particularly important, but it was a number of years ago.

MR. BOB PETERS: And can you tell the Board briefly, was that a cost of service study that used embedded costs?

MR. WILLIAM HARPER: Yes it was.

MR. BOB PETERS: And while we're at it, can you inform the Board based on your understanding as to what are the -- what is the export capabilities and how much is exported annually by Hydro Quebec?

MR. WILLIAM HARPER: I think as I mentioned previously and maybe if I didn't state it clearly I should have when I was responding to your questions. This was looking at a cost of service methodology for Hydro Quebec distribution.

Hydro Quebec distribution basically either obtains all of its power from Hydro Quebec production under a heritage contract or it buys it under specific power purchase contracts.

And within the context of that, really the issue of how much export Hydro Quebec production makes is not -- is not a subject that the proceeding actually gets into, actually Hydro Quebec makes quite a -- take great care to separate in terms of what items are under regulations, which is the distribution and transmission

parts of the business, and what items are not under regulation which is the production part of the business.

MR. BOB PETERS: So from that answer, you don't have accurate information then in terms of what are the exports and import by the Utility?

MR. WILLIAM HARPER: No, I mean other than I think I may have, you know, looked at their annual report in the past and know that they do have substantial amounts of exports.

But, it wasn't a matter that we had to deal with at all within the course of the cost of service study.

THE CHAIRPERSON: So their export revenues aren't playing a role in their cost of service study?

MR. WILLIAM HARPER: That's correct. That's correct. I think I said yesterday or when I appeared here earlier, that's purely a matter better Hydro Quebec production which is an unregulated entity and its shareholder, the Quebec government, as to how they wanted to dispose of those revenues.

THE CHAIRPERSON: But, those revenues in other words, are not a factor in rate determination for residents and businesses in Quebec.

MR. WILLIAM HARPER: Right. You're

correct they're not a factor, at all.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: To some extent they are, as Mr. Lazar had said you take the export revenues right out of the cost of service methodology and use them for some other purpose?

MR. WILLIAM HARPER: Yes, effectively you know, you've got a very different market structure in Hydro -- in Quebec, excuse me, than you do in any of the other Provinces.

And effectively, that's what they done is they've struck a heritage contract between the distribution entity and the production entity that guarantees the distribution entity, I believe, it's something in the order of 164 gigawatt hours of electricity at a fixed price.

And as long a Hydro Quebec production is responsible for delivering that whatever else they do is on the unregulated side of the business.

MR. BOB PETERS: And so the power purchase side, again, that's something that wasn't under your review because you just ended up with the distribution side of the business based on the heritage contract?

MR. WILLIAM HARPER: Well, you know, the heritage contract, I mean, the whole question of, now that they are starting to buy power from third parties, they've gone through tenders and they're purchasing wind power -- they're purchasing power from TransCanada.

They've got additional contracts with Hydro Quebec production. You've had to deal with how you treat those in the cost allocation methodology and how you allocate those purchase power contracts to various customer classes.

But that's the extent to which you've have to deal with it.

MR. BOB PETERS: Does Ontario Hydro allocate net export revenue through the cost of service methodology?

MR. WILLIAM HARPER: We -- we've switched now to Ontario?

MR. BOB PETERS: Stay with me.

MR. WILLIAM HARPER: Okay. No, no. That's fine. Because again, we have a very different market structure and within that structure the -- the commodity side of the market is competitive to the extent, you know, power is sold into the market, power is bought from the market.

Exporters and importers participate in

that market. You know, like I said, that's a competitive market. That's not part of the cost of service methodology.

(BRIEF PAUSE)

MR. BOB PETERS: You've also been further west than Manitoba and you had involvement with BC Hydro; correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: Also a mainly hydraulic resource?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And there, have you been involved in any cost of service reviews?

MR. WILLIAM HARPER: No, I haven't. Actually since they came under re-regulation all they've had is a -- they've had a revenue requirement proceeding which involved them basically establishing what was an average -- the average rate increase that was applied across all customer classes.

There is some expectation in the future that BC Hydro will be coming forward with a cost of service methodology to talk more specifically about how to allocate their revenue requirement to customer classes

and -- and following on that a rate design proceeding.

But those are filings that are yet to be made by the utility.

MR. BOB PETERS: Are you aware as to whether BC Hydro is a net importer or exporter of electricity?

MR. WILLIAM HARPER: I -- no, I have to -- what I'm struggling with in the answer is I believe within their supply plan they are self-sufficient. On a dependable energy basis I believe there could be periods of time when they have substantial amounts of -- when they have -- you know, like Manitoba Hydro, there are periods of time when your water flows are in excess of average where they could well be a net exporter of electricity.

It depends very much on their water conditions. It's not something that they would always be a net exporter.

MR. BOB PETERS: From your knowledge, sir, is there an allocation of net export revenue in the current BC Hydro cost of service study?

MR. WILLIAM HARPER: To be quite honest with you I -- I honestly don't know. The last BC probably formal hearing took place probably about the same time as Manitoba Hydro's hearing took place,

sometime in the mid to early '90's and I wasn't involved in that. So I'm not aware of how export revenues were treated back at that time.

MR. BOB PETERS: One thing you were involved with was the BC transmission open access transmission tariff application in 2004?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And that was for the BCUC to approve the open access transmission tariff?

MR. WILLIAM HARPER: Right. And that was an open access transmission tariff that's put forward by British Columbia Transmission Corporation which is a different company than BC Hydro.

Again, they have a slightly different market structure. BC Hydro is responsible for generation and distribution. The BC Transmission Corporation is responsible for transmission in the province and when they set up that structure then the BC Transmission Corporation had to establish a set of rates, the open access tariff rates, which were approved by the BCUC.

MR. BOB PETERS: Is that a hearing that's held annually or regularly or is it -- or do you know?

MR. WILLIAM HARPER: Probably the expectation is it will be held regularly. I'm not too sure if annually. We -- we've had one. There is not a -

- there has not been a subsequent application by the BCTC for another revenue requirement.

So I think my expectation is regularly. Whether regularly translates into annually or not we'll have to see. It's early days.

MR. BOB PETERS: And jumping back to Ontario, one thing that you were involved with was seeking a standardized cost of service methodology for some of the distribution companies?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And in that regard there's no standard methodology currently used?

MR. WILLIAM HARPER: Well, the -- no, I -- no, I think that's correct. There's no standard methodology that's currently used.

A lot of the utilities actually have never done a cost of service study.

MR. BOB PETERS: Is Manitoba Hydro's cost of service study the first cost of service study that you've been involved with that has net export revenues flowing through it?

MR. WILLIAM HARPER: To the extent we're seeing here, yes. I think it's fair to say that when I was working with Ontario Hydro sort of prior to the restructuring in the early 1990's, they had export sales

that were flowing through it.

And they were treated very much the same way that export revenues were treated in the 1990's here in Manitoba. They were basically brought as an offset against the bulk power function which included generation and transmission.

MR. BOB PETERS: All right. Leaving aside the export revenues, when you deal with most costs in the cost of service study, you're trying to assign or allocate those costs based on some principles of cost causation?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And you find that defensible and that's the best approach that you recommend when you testify?

MR. WILLIAM HARPER: Yes, that's correct.

MR. BOB PETERS: But when you are talking about all costs having been allocated according to some methodology you, too, acknowledge that there are a multitude of methodologies that are available to be used.

MR. WILLIAM HARPER: Yes, I'd agree with Mr. -- I heard Mr. Lazar talking to Ms. Bowman about that and I'd agree there are a multitude of methodologies that have been applied.

You only have to read the NERA manual and

they go -- they don't list one (1) a multiple of different methodologies.

MR. BOB PETERS: And once all the costs have been allocated and assigned and you're left over with a net export revenue you would consider that a cost offset, correct?

MR. WILLIAM HARPER: If you have already identified what are the appropriate costs to be associated with the export revenues then yes, I think what you've got is probably what I'd define as the true cost offset.

MR. BOB PETERS: And when I say net export revenues let's assume that that exercise has concluded --

MR. WILLIAM HARPER: And that's right, I just wanted to make sure we were both on the same wavelength there.

MR. BOB PETERS: And from what the Board is hearing, would it be correct for them to conclude that there is no hard and fast principles as to what do with such net export revenue or such cost offsets?

MR. WILLIAM HARPER: I would think so, yes, I think in terms of you've gone through the process of trying to identify, including exports, sort of, where you can and match up cost with cost causation and what

you have here is some additional -- luckily the revenues as opposed to costs that you -- that you're really -- sort of at a point in time where you're sort of left trying to sort them out.

But there are not sort of direct cost causation sort of factors that you bring to bear.

MR. BOB PETERS: What you bring to bear is the concept or principle of fairness, right?

MR. WILLIAM HARPER: I think it's a broader principle of fairness. And I think you can bring to bear, and I think in my evidence I probably indicated right at the beginning that you know, you had this primary consideration of cost causation but, then beyond that if you satisfy that there are secondary considerations of say, equity, rate stability, efficiency.

I call those secondary because as we talked about before your primarily focussing on the cost causation, but when you've got choices to be made and really the choices don't impact on cost causation, then these secondary considerations would come to bear.

MR. BOB PETERS: In terms of how it is treated in the cost of service study then really boils down to a policy issue?

MR. WILLIAM HARPER: You know, like I

said I think it's a policy issue. There are some things like stability and equity and even issues around efficiency that can help guide you.

But I think you know when you've got more than one (1), now that you've have more than one principle you're dealing with to some extent, it does become more of a policy issue, yes.

MR. BOB PETERS: And you can't bring guidance to this Board from any other jurisdiction because Manitoba Hydro is unique?

MR. WILLIAM HARPER: No and unfortunately I can't -- there may be a jurisdiction out there, but it's not one (1) that I'm familiar enough with that I can bring guidance.

So I think it's a matter of just trying to look at it from first principles and see what seems reasonable.

MR. BOB PETERS: All right. And there's no requirement to include net export revenue in the cost of service study in the first place, is there?

MR. WILLIAM HARPER: Well, I think there is, in a sense if you're trying to meet your first objective which is, sort of, recover the revenue requirement.

If you're trying to determine what's a

fair apportionment of the revenue requirement across customer classes, and that revenue requirement includes an offset which involves the entire export revenues, then in order to have your apportionment of costs across the customer classes add up to your total revenue requirement you have to include the net export revenues in your cost allocation.

MR. BOB PETERS: That's only a mathematical conclusion isn't it, Mr. Harper, because if it's a net export revenue, you've already taken into account the cost to generate the export and there's no requirement to put the surplus back into the cost of service study?

MR. WILLIAM HARPER: I think there is either -- I mean, if we're getting to the point of using pre or post RCC's, we can talk about whether it's an implicit inclusion or an explicit inclusion of the net export revenue.

But I think -- I think if at the end of the day you're trying to take your revenue requirement and determine how much of that revenue requirement I should collect from each customer class, then by necessity the revenue requirement you collect from each customer class should add up to the total revenue requirement you want the utility to get.

Otherwise the utility is going to either over earn or under earn the amount of money that you think is reasonable for it to collect from its customers.

MR. BOB PETERS: Well, and the only way in Manitoba that you can do that without massive rate increases is to include it, that's the conclusion you've reached?

MR. WILLIAM HARPER: Yes.

MR. BOB PETERS: And in terms of where the Board sits, you see the Board sitting here as having to set just reasonable rates that it concludes are in the public interest?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And that public interest is including players and stakeholders like ratepayers, like the utility itself and maybe even all Manitobans?

MR. WILLIAM HARPER: Well, I think you know there is, you know -- you say sir, yes I think first and foremost when -- I think this what I went through with Ms. McCaffrey, you're looking at regulation as balancing the interests of the utility and its consumers.

I think you realize that in public utilities sort of the impact step sort of, you know, the footprint of the utility is fairly large. And so therefore, you know, your comment about the broader

public interest is appropriate as well.

MR. BOB PETERS: You agree with me that the cost of service study is a tool that's available to be used should the Board decide to use it?

MR. WILLIAM HARPER: Yes, it's a tool in my mind if you're trying to meet the three (3) primary ratesetting criteria. One of which is fairness, the cost of service methodology is a particularly useful and accepted tool for trying to look at that particular criteria and see to what extent your revenue recovery from each customer class meets that fairness criteria.

MR. BOB PETERS: Mr. Harper, here's some questions that I don't think anybody has asked you and --

MR. WILLIAM HARPER: Heaven forbid.

MR. BOB PETERS: -- you've been before this Board, three (3) times now?

MR. WILLIAM HARPER: I believe this is my third time.

MR. BOB PETERS: And always on behalf of the Intervenors CAC/MSOS?

MR. WILLIAM HARPER: Yes I've been fortunate to have them as a client each time.

MR. BOB PETERS: And would you agree that if your testimony is accepted by the Board the results will be beneficial to your clients?

MR. WILLIAM HARPER: I think if you went through my evidence some of the specific recommendations would be beneficial to my clients, other ones would not.

MR. BOB PETERS: On balance --

MR. WILLIAM HARPER: On balance probably, yes.

MR. BOB PETERS: On balance, it would be significantly beneficial to your client compared to the ones that aren't beneficial to your client?

MR. WILLIAM HARPER: Yes, you know, if you take the puts and takes, yes.

MR. BOB PETERS: Okay. And there's not a tactful way maybe for me to ask this question, but we've heard that the cost of service study isn't precise and there's judgment involved and we've heard that from lots of people who have experience in it.

And yet we find the Board hearing evidence from different parties where there's not agreement. You're seeing that here correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And to that extent can you indicate how should the Board be considering the evidence of the witnesses that come before it, from your experience, where the evidence you're giving is beneficial more so to one (1) client group than another?

MR. WILLIAM HARPER: I'm glad no one has ever asked me that question before.

And I'm not too sure where to start on that one (1). I think you can look at the recommendations. I think one has to try and work through the logic behind the recommendations and understand the basis for them. You know --

MR. BOB PETERS: Well, you want the Board to accept that you're here as an independent consultant, correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And in that regard you are bringing forth your opinion in an area in which you have expertise?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: Would you agree with me that you could advance cogent arguments on the opposite side of the position you're taking?

MR. WILLIAM HARPER: Parties could advance cogent arguments on, sort of, other sides, other positions. I'm not too sure if I personally could sort of advance cogent arguments on the other side positions.

For some of them I could, for others perhaps I couldn't. I have had -- I believe the arguments that I put forward are cogent and it would be

hard for me to see how I could talk out of both sides of my mouth at the same time.

MR. BOB PETERS: I understand. I mean I could have asked you the question, why didn't Ms. McCaffrey engage you before Mr. Williams did, but how -- I'm just trying to help the Board out here in terms of how it hears the evidence.

Can the Board conclude that qualified people can have opposing positions on the issue, both of those positions may be reasonable?

MR. WILLIAM HARPER: I think that's correct and I think you'll find those precise words in Mr. Lazar's evidence as well, actually. I apologize that that doesn't help the Board at all.

MR. BOB PETERS: Did you consider any other methodologies for allocating net export revenue or for using it for other non-utility purposes?

MR. WILLIAM HARPER: Well, I -- I did not consider using it for non-utility purposes primarily because of the fact that I viewed it as being part -- part of the revenue requirement and therefore necessary to include in the cost allocation.

And once you do that it's part of the utility and therefore it's not what you consider outside and non-utility purposes. I must admit in going through

the -- in going through the filing and looking at the -- and I think I said in my direct, looking at this issue about whether one sort of use -- uses pre or post export allocation RCCs, I did think about the -- the position and the issue of using pre-export RCCs as has been presented here and sort of then basically indexing them all up to 100 percent to come back to some metric that might tell you which customer classes were over contributing and which customer classes were under contributing.

Sort of in working through that I came to the conclusion that was really equivalent to allocating net export revenues on the basis of the customers' revenue as opposed to the basis of the customers' allocated costs which one didn't seem to me to be that much different and seemed to be somewhat a little bit more capricious, the costs are the costs, the revenues to some extent depend on whether you're over or under costs at any point in time.

And so I thought, you know, between those two (2) methods, the Manitoba Hydro method was, sort of, the more appropriate one to pursue but beyond that I didn't, no.

MR. BOB PETERS: When you looked at the cost of service methodology for Manitoba, did you

consider whether there was some other use of -- some other costs that would be more appropriate than what is proposed by Manitoba Hydro?

MR. WILLIAM HARPER: I'm sorry, some other costs --

MR. BOB PETERS: Well, I asked the question --

MR. WILLIAM HARPER: You mean some other costs as the allocation base over which to allocate the net export revenue?

MR. BOB PETERS: No, let me rephrase the question. In the evidence that you gave Mr. Williams you said that -- did you say that embedded cost of service study was the right cost of service study methodology for Manitoba Hydro?

MR. WILLIAM HARPER: Yes, I did.

MR. BOB PETERS: Did you consider other measurements of cost such as marginal cost or replacement cost or inflation adjusted cost?

MR. WILLIAM HARPER: Well, I -- I'm aware of those particular types of costs exist. I'm aware that cost allocation studies are done using those. I -- it's my belief that, given that Manitoba Hydro's revenue requirement is based on embedded accounting costs for a forward test year that those are the costs that they

should be allocating.

MR. BOB PETERS: Well, and I took that from your answer that embedded cost of service is okay because the revenue requirement is based on embedded costs and therefore you're in a circular argument that, therefore, it should be an embedded cost of service study?

MR. WILLIAM HARPER: Yeah. You know, and I think also just from a point of view of sort of -- and I may take a bit of exception with what Mr. Lazar said about, sort of, transparency and how much customers have to understand about what's going on in the cost of service methodology.

I appreciate they don't want to probably hear about it after an after supper drink, if anything, but I think there should be sufficient logic to it that if they said, well, how do they come up with these rates? If you could explain it to them in, you know, three (3) sentences or less or something, that at least it made enough sense that they'd say, oh yeah, I don't understand why you didn't create more questions in their mind.

And if you're saying, well, you know, we've got the cost that you've actually imposed on the system and we're trying to figure out what's a fair apportionment of the costs you've actually imposed on the

system by the usage you're currently making and charge you a fair apportionment of those, that makes sense.

That's probably a lot easier for them to accept than saying, well, we're going to charge you based, not on the costs you've imposed on the system, but on what you might impose on the system if you change your use tomorrow.

You know, they say, but that's not what I -- that's not what I'm using now and that's not the costs I'm imposing now. So I guess I just sort of take it from a sort of a little bit more pragmatic view in terms of if I was just logically trying to explain it to the person on the street what might make the most sense to them.

MR. BOB PETERS: In terms of other methodologies, one of the methodologies that Manitoba Hydro took the pains to produce for the Board was a vintaging methodology; correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And is that something that you would recommend the Board use going forward?

MR. WILLIAM HARPER: No, I -- I believe my evidence I said it wasn't something that was worth pursuing.

MR. BOB PETERS: And can you remind the Board as to what your rationale was for that?

MR. WILLIAM HARPER: Well, I -- I think, one, the -- the results weren't all that much different than what we saw coming out of the recommended method. And the whole issue of maintaining what you believe are the vintage assets versus the non-vintage assets could well end up changing over time.

I mean, I -- I think, you know, Manitoba Hydro, if I understand it correctly, and I -- I may be wrong, is that, you know, part of the industry in inquiring in Winnipeg Hydro was the fact there were a number of older stations there that perhaps they could, through time, spend some money upgrading, get some more power out of.

You know, if they spend -- you know, those are thought of as being part of the older vintage pool I would presume. At some point in time, if you started spending a lot of money on those, to upgrade them and -- and make them more efficient, what point in time do they now become part of the new pool as opposed to the old pool? So I could just see there being some complexities in this.

It's fine to take a snapshot in time but as you move forward the ongoing application of the methodology seems to me, from what I was getting in terms of the results at the end, not worth the complexity we

were getting into here.

MR. BOB PETERS: Mr. Harper, do you consider Manitoba Hydro as using full cost accounting in what they were presenting in their numbers to get into the cost of service study?

MR. WILLIAM HARPER: I'm sorry but I -- I'm probably not in a position to answer that question and understand, you know, how -- you know, I've participated in two (2) rate hearings here. That's probably not sufficient for me to understand the extent to which they apply full cost accounting, how it actually impacts on their costs and impacts on their revenue requirement.

So if -- if that's the question, I'm sorry, I -- I don't believe I'm in a position to answer it.

MR. BOB PETERS: Are you in a position to answer what externalities should be taken into account by Manitoba Hydro in their cost of service study?

MR. WILLIAM HARPER: You're talking specifically in their cost of service study. I believe, since the cost of service study is based on the -- on the revenue requirement, it should be the externalities that -- that they basically monetize and include in -- in their revenue requirement.

MR. BOB PETERS: So you're saying if it's not in the revenue requirement, don't put it in the cost of service study?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: You're aware, Mr. Harper, that Manitoba Hydro has deferred costs, I think they're somewhere in the order of $150 million, largely related to -- to DSM?

MR. WILLIAM HARPER: You know, they -- they've got costs that they spent and they've deferred in their amortizing I believe over -- over a period of time that's commensurate with the life expectancy of those DSM programs.

MR. BOB PETERS: Some of those are a fifteen (15) year amortization for the most part.

MR. WILLIAM HARPER: You know --

MR. BOB PETERS: And you're also aware that they have mitigation costs of about half a billion dollars that are charged to plant and depreciated over the life of the plant?

MR. WILLIAM HARPER: Right. And those are included in -- in the revenue requirement. I'm not too sure if I would characterize DSM as sort of an externality cost.

MR. BOB PETERS: Would -- would you agree

that the deferred costs and maybe some of the mitigation costs have a limited tangible benefit going forward?

MR. WILLIAM HARPER: I'm sorry, I'm not too sure if I understand. The -- you know, the -- the mitigation costs I presume were costs that were considered to be appropriate as part of the expenditures for obtaining the -- the resources they were associated with, whether it be a new hydraulic development or new transmission line.

So to some extent, as long as that new hydraulic development or new transmission line is providing -- is providing benefit to Manitoba Hydro, then the -- then the mitigation costs are sort of part of the cost of providing that benefit, and there's a benefit associated with them.

MR. BOB PETERS: You wouldn't consider writing them off and excluding them from the cost of service study?

MR. WILLIAM HARPER: Well, if you were -- well, I guess, one, if you were to write them off, that would be first and foremost it seems to me, you know, you have to address that issue long before you got to -- to the cost of service -- to the cost of study -- excuse me, cost of service study issue.

You're dealing with sort of Manitoba

Hydro's financial statements and whether or not from an accounting perspective it's appropriate to write those costs off or continue to amortize and defer them.

If the Board was to make -- was to make the decision that from a regulatory perspective it was more appropriate to write them off, then you would write them off and they would be no longer expensed against Manitoba Hydro's revenue requirement on an ongoing basis.

But it seems to me that's a different -- that's a different question than the cost of study question.

MR. BOB PETERS: And that's a question you're saying then would be considered at a general rate application, something like that?

MR. WILLIAM HARPER: That's correct. I assume that, you know, part of the general rate application is what are the accounting policies that the Utility is using and where those accounting policies are appropriate. And that could well be one of the accounting policies that were reviewed as part of a GRA.

MR. BOB PETERS: Mr. Harper, you -- you understand that Manitoba Hydro's DSM initiatives are to reduce domestic consumption?

MR. WILLIAM HARPER: Yes.

MR. BOB PETERS: And you understand that

with that reduced domestic consumption that will allow Manitoba Hydro to increase its export capabilities?

MR. WILLIAM HARPER: Yes. I think it also allows customers to reduce their bills as well. I think there is more than one benefit associated with DSM.

MR. BOB PETERS: Looking at it from the Utility's perspective, their benefit is they have more electrons they can ship over to the export market?

MR. WILLIAM HARPER: And to some extent they've got more contented customers as well. I think customer satisfaction is always -- is a consideration of utilities as well as just their bottom financial line.

MR. BOB PETERS: Fair enough. And would you agree with me then that if DSM is to reduce the domestic consumption and maybe make the customers happier and it increases the export capabilities that that might be sufficient reason to consider allocating or assigning those DSM costs to the export class?

MR. WILLIAM HARPER: I guess if -- you know, I guess you're sort of at a point now where you're saying are those -- we've freed up kilowatt hours on a normal year, yes, those freed up kilowatt hours we can export them.

There are other points in time whereby if we have problems on the system those freed up kilowatt

hours, it's a good thing we don't have to supply them because we may not have enough generation or transmission facilities in place and we're concerned about just meeting the load that does exist.

So I think that DSM effectively goes into the overall pot, if you want to put it this way, along with their other sources of generation. It's negative megawatt hours, negative megawatts but it goes into the overall pot along with other generation.

I'm not too sure how I would view that as being any different than other generation.

MR. BOB PETERS: Well, you're looking at it as an alternative for generation rather than as a source of additional export opportunities; would that be correct?

MR. WILLIAM HARPER: You know, and I think the other thing is if these are -- you know, if you're making -- hopefully you're effecting some sort of both fifteen (15) year change, maybe even culture change that goes beyond that. So I think to some extent hopefully the savings exist maybe even well beyond the point in time where you'd be exporting and the point in time where those savings may be pushing forward -- pushing backwards, which are the way I want to go, your need date for additional dependable energy and new

dependable capacity.

MR. BOB PETERS: So you think it's appropriate to tie DSM costs to generation costs?

MR. WILLIAM HARPER: I think there -- there's a similar linkage there between the two (2). Utilities are out looking at whether they can -- I think it's interesting, other utilities when they're doing their resource planning, and I think we saw a bit of this in the Wuskwatim review, resource planning involves places where I can buy additional sources of generation but also involves, to some extent, where I can buy the equivalent in generation from customers by buying DSM savings from them.

And so a lot of utilities will consider DSM just as part of their resource planning and if you look at their resource options, DSM is a resource option just like wind, hydro, or thermal is.

MR. BOB PETERS: Okay. Thank you for that. Turning to export classes, in 2002 you were recommending this Board approve zero export classes; isn't that right?

MR. WILLIAM HARPER: That's correct. I was expressing -- the idea came up during the hearing and I was expressing a concern about how the -- about how this export class was actually going to be used and the

ability to actually implement it.

There was a -- I think we were, sort of, early days in terms of understanding the concept of what the export class was and what it was going to be used for and I was having significant problems if it was going to be used in any way for setting export prices or deciding if exports were profitable or not.

MR. BOB PETERS: Well, from there we know that NERA has filed a report recommending one (1) export class. Manitoba Hydro is recommending two (2) and you're supporting Manitoba Hydro's two (2) export classes; would that be correct?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: Is there any magic to the number of export classes, if any, the Board approves?

MR. WILLIAM HARPER: Well, I think as I said, you're trying to, in setting up different customer classes, set up customer classes that are basically somewhat unique in terms of the nature of the service that's provided to each.

I mean, if I look at Manitoba Hydro's provided information in terms of the types of exports they make and there's a wide range of exports from, sort of, diversity exports to system participation sales to short term firm contracts, to sales into the MISO and the

Ontario market on either an hour ahead, day ahead or real time basis.

I mean, -- you know, I mean, if one wanted to one could go and try and identify export classes for all of those just like one could in the residential sector start making separate class for space heating and a separate class for water hearing customers.

I think at a certain point in time you want to make things workable and on that basis the recommendation of having a separation just between the firm and the opportunity sales, recognizing that there was a fundamental difference between those two (2) in terms of what they were -- one source is dependable energy and the other isn't, made sense to me.

I mean you could try and break it down a bit further. I think we're having enough trouble identifying and separating the appropriateness of costs between those two (2) customer classes.

As we introduce more customer classes and try to sort of shave the costs down even further, I think we'd have even more problems in terms of how we want to differentiate the cost allocation between those various export classes.

MR. BOB PETERS: Following your train of thought further, Mr. Harper, that might support an

argument for only one (1) export class as opposed to two (2), would you agree with that?

MR. WILLIAM HARPER: If you felt there was no fundamental difference between firm and opportunity sales, then yes, you know, there would be a rationale for combining those two (2).

Just like if you felt there was no fundamental difference between general service medium and GS-30 to 100 kilowatt you know, industrial customers, you could combine those two (2) customer classes.

I think you'd -- but I think in this case, there is sufficient difference between them to make the distinction.

MR. BOB PETERS: Do you agree that if costs are incurred specifically for export, those costs should be directly assigned to export?

MR. WILLIAM HARPER: I think as long as that allows you to make a reasonable allocation of the balance of the costs, yes.

MR. BOB PETERS: You recognize costs may have joint purposes?

MR. WILLIAM HARPER: Yes and I guess that's where I was getting back to that reasonable allocation of the balance of the costs.

MR. BOB PETERS: You recognize that the

purpose for which a cost was incurred may change over time?

MR. WILLIAM HARPER: Yes, you know I think that's -- that's fair. I think one (1) of the examples that Hydro cited about that is the Brandon GS station.

MR. BOB PETERS: Well, other examples can be that this utility has joint costs that are allocated as between the gas side of their business and the electric side of their business on some reasonable basis.

MR. WILLIAM HARPER: Yes, I'm sorry, you know if you step back and not even within the electric utility but joint costs even between the electric and gas utility, that's correct.

MR. BOB PETERS: The Manitoba Hydro building on Taylor Avenue may have been built for the electric utility but, there may be some -- some of those costs being charged through to the gas customers?

MR. WILLIAM HARPER: Yes, one would expect if part of the utility is being used by the gas business, it may be allocated some fair apportionment of the cost of the overall building.

MR. BOB PETERS: And you'd agree with me that exports use capital assets?

MR. WILLIAM HARPER: They use capital

assets, the extent to which they cause -- and this is the distinction I think I tried to make in my direct and in my evidence, the extent to which exports cause capital assets to be built and the cost of those capital assets to be incurred, maybe different from the extent to which they actually use the assets.

And I think since we're looking at cost causation we're trying to look at the second. And this is where I got to the point of saying sometimes usage may not be a sufficient or good enough measure if you're trying to look at cost causality.

MR. BOB PETERS: And you're understanding in terms of the export class as proposed is that the opportunity class would get now capital asset allocation to it?

MR. WILLIAM HARPER: That's correct.

MR. BOB PETERS: And is it your understanding the opportunity exports are now considered by Manitoba Hydro as part of the mix when its considering its generation planning?

MR. WILLIAM HARPER: My understanding is that when they're doing generation planning they would take both opportunity exports, firm exports and domestic load requirements into account.

You know, and it seems to me that if

you're building long-lifed assets clearly domestic load requirements get the lion's share of the consideration, the uncertainty associated with opportunity exports probably means they get the least weight in that consideration, I would expect.

MR. BOB PETERS: Does the least weight have to mean zero dollars of fixed costs allocated to opportunity?

MR. WILLIAM HARPER: No, it's probably something more than zero and I believe I've actually acknowledged that in my evidence.

MR. BOB PETERS: And in terms of exports, you would agree that the market is changing?

MR. WILLIAM HARPER: The -- you know the market has -- I think there's been fundamental changes to the market. You know, the market continues to change, I'm not too sure if the changes we'll see in the next three (3) years will be as significant as the changes we've seen in the last three (3) years, but yes the market is changing.

MR. BOB PETERS: Well, in fact, I'm not sure if it's evidence in this Hearing, but I'll have to check the transcripts. We understand that your home in Toronto runs on electrons generated in Manitoba now?

MR. WILLIAM HARPER: To some extent but,

unfortunately not enough. There's a lot of transmission constraints to get things down from the northwest Ontario to Toronto. But, you know, a few of them probably leak through but not enough.

MR. BOB PETERS: And you understand Manitoba Hydro's export sales are also changing in that the transcript may reflect Mr. Cormie indicating that there are thousands of summer sales now being done. It's not a -- it's not a specific transaction that -- put together over a period of time. A lot of it is more spontaneous now.

MR. WILLIAM HARPER: Well, I think that's probably a function, I would suspect, and I'm guessing here but I suspect that's a function of with the MISO market that's opened up, and the MISO market operates on an hourly basis, that they're basically participating in that market now on an hourly basis, whereas before they had to find specific counter-parties to enter into contracts with.

Whereas, you know, this thousands is probably now a function of the fact that, well, if you think -- if you participated every hour of the year, that would be eight thousand seven hundred and sixty (8,760) transactions.

MR. BOB PETERS: Well, those transactions

that we're talking about are becoming shorter in duration and more of them are becoming financially firm.

MR. WILLIAM HARPER: Yes. I think -- financially firm in the sense that when you're participating in these markets and you make a commitment to deliver there's an expectation that you will either deliver the kilowatt hours yourself, find somebody else to deliver them, or there will be a financial transaction that will hold -- that will hold the market whole.

MR. BOB PETERS: Do you agree -- do you agree that the firm exports command the same degree of reliability as to opportunity exports in the market?

MR. WILLIAM HARPER: It's my understanding -- I believe they command a higher level of reliability than the opportunity exports in the market.

MR. BOB PETERS: And certainly from a financial firm position opportunity exports can command a greater financial firmness than -- than maybe firm export contracts.

MR. WILLIAM HARPER: There may be individual ones that do. That's something that I'm not specifically aware of. And -- but I believe the evidence, you know, there's a matter of what's financially firm from a legal perspective and what you actually want to live -- to commit with.

And I think -- I think, if I recall, Manitoba Hydro testifying that on some of their longer-term contracts during the drought they were undertaking to meet those even though they did not have the specific obligation to do so, simply because they wanted to maintain their credibility as a long-term firm supplier.

MR. BOB PETERS: Is it your understanding that long-term capacity commitments are becoming somewhat antiquated and it's a lot more short-term deals on the -- on the horizon?

MR. WILLIAM HARPER: I think the -- excuse the use of the double word -- but I think the opportunity for opportunity exports has increased through the, you know, the introduction of things like the MISO market.

I think if you're looking at making commitments for long-term construction, like say Conawapa or even Wuskwatim, and looking to have the financial certainty that you're going to have the dollars coming in to basically cover the real capital costs associated with this, then it's my understanding that Manitoba Hydro would probably be more looking for long-term contracts to back that up with, as opposed to sort of, you know, forecasting forward and saying, Yes we expect those markets and MISO will give us enough dollars every hour

in order to pay for the plant.

But I think they're looking for the long-term mortgage as opposed to the short-term variable rate, if I can put it that way.

And so I don't think long-term -- I don't think long-term contracts are a sort of, you know -- you know, sort of antiquated dinosaur of the past. I think they've still got to -- I think they're still there. I think there's more opportunities arising in the opportunity market.

MR. BOB PETERS: From your evidence, is it -- is it your position that the distinction between firm exports and opportunity exports is really based on water flows and only water flows?

MR. WILLIAM HARPER: Well, I guess there's two (2) things. It's based water sourced out of the dependable energy, it's also based on the fact that the longer-term contracts do come more into play and start impacting more on Manitoba Hydro's resource plans and resource planning going forward. The short-term contracts are typically ones that are made, as by the name would suggest, on a very short-term basis.

You would never -- you would never build a new transmission line just to meet a short term contract. One, because you can never get the transmission line in

service in time to actually make the contract, you know. And I think that's a distinction that's made to a fair degree in the -- in sort of in the standard OAT tariff (phonetic) that's used by FERC in terms there is a distinction between long-term contracts which, really, utilities are required to incorporate into their planning and short-term contracts which they don't, they only sell the transmission capacity when it's there and they sell it on a short-term basis, and it's frequently sold at a discounted rate.

So I think it goes beyond just dependable water. There's issues around dependable transmission. There's issues around, you know, implications for planning. And if you look at it from the customer's perspective, I guess there's issue around terms of what's my -- what's my longevity and the reliability associated with this contract.

MR. BOB PETERS: But some of those comments also affect the opportunity side as well as the firm side, do they not?

MR. WILLIAM HARPER: Could you be more explicit in terms --

MR. BOB PETERS: Well, dependable transmission is needed for the opportunity export, just as much as it is for the firm export.

MR. WILLIAM HARPER: Except what you're doing is you're grabbing -- excuse the pun again -- an opportunity when you know because of a low demand on that particular day you're -- you can make the sale, there isn't -- you aren't making a long term commitment for that transmission capacity that it's going to impact on your planning and your thoughts in terms of what you'll need, in terms of future transmission capacity.

MR. BOB PETERS: Are you aware from this hearing that Manitoba Hydro incurs significant capital costs that do little to increase dependable energy?

MR. WILLIAM HARPER: Not precisely no. If there's a reference, we could --

MR. BOB PETERS: Are you aware of any of the SSE commitments of Manitoba Hydro and the rerunnering of the --

MR. WILLIAM HARPER: Oh, okay specifically I think if I recall on the SSE, there was one (1) which was the Kelsey, which was -- which didn't -- and actually I think if we turn up I think it's the CAC book of references --

MR. BYRON WILLIAMS: It's Tab 9, Mr. Chairman, Members of the Board.

MR. WILLIAM HARPER: Yeah, I think you're right there was -- you know -- looking at a $96 million

enhancement cost for Kelsey for 77 megawatt capacity increase. I think this probably goes to the discussion you were having with Mr. Cormie about, you know, when you're doing planning it's both capacity you need as well as energy. And you're planning to get both.

I think I'd also note the fact that, you know, the money they're spending there you've got an internal rate of return of over 20 percent which is pretty good when your capital is costing you 5 to 6 percent.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Harper, turning to the export classes that Manitoba Hydro has put forward, your evidence suggests that Manitoba Hydro got the allocations incorrect because they allocated too many costs to the firm export class and not enough to the opportunity, is that correct?

MR. WILLIAM HARPER: I hate to do this to you, but could you repeat that again, sort of the beginning, I just want to make sure whether you said, I thought Manitoba Hydro got it correct or incorrect, I wasn't too sure which of those two (2) you said.

MR. BOB PETERS: I'm suggesting from your evidence that one could conclude that Manitoba Hydro got

the export allocations wrong because they allocated too much to firm exports and too little to the opportunity exports?

MR. WILLIAM HARPER: I think that's one (1) conclusion you could draw from the evidence. I think if you read the evidence on a more complete basis you would conclude that what I'm saying is that to actually identify the costs associated with the firm exports is probably impractical.

The costs are probably something less than the costs of meeting domestic load. So if you treat them the same as domestic load, you may be over allocating to them. I think that's something you have to accept in the fact that we have neither the information nor the ability to specifically identify the costs attributable to exports.

The reverse applies on the opportunity class side. They're probably are some fixed costs associated with those. I know for sure if I include both opportunity costs and excuse me -- opportunity exports and fixed exports and include them both in the allocation on a similar basis to domestic customers, I am definitely going to be over allocating costs to the export classes.

And I think I got the 's' in there that time, Mr. Mayer, instead of missing it.

MR. ROBERT MAYER: And you also said that those two (2) -- the over allocation to firm and the possible under allocation to --

MR. WILLIAM HARPER: -- opportunity --

MR. ROBERT MAYER: -- basically set each other off.

MR. WILLIAM HARPER: Well, you know and I don't know for sure they set each other off, but it seemed to me, you know I knew that having one (1) class with both of them in there was probably definitely wrong.

This is probably a better move. It's not precise, this is not a precise science in any sense but, I feel comfortable that it was a better move and it was an improvement over having one (1) class.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Just a few more questions along that line, Mr. Harper.

You also say that Manitoba Hydro omitted some allocations to the export class, such as some O&M expenses, salaries and marketing costs?

MR. WILLIAM HARPER: Well, I think there was a question there, yes, in terms of there's a marketing function which I think is involved in both marketing exports, as well as arranging imports for -- to

serve domestic load. And if one wanted to, one could -- one could try and ascribe a portion of those.

I believe the total was about $7 million, if I'm not mistaken to the export class. I think actually Manitoba Hydro in its rebuttal has acknowledged that and said it's maybe worth reviewing in the future.

MR. BOB PETERS: Fair enough. And I think Mr. Weins has also said that in his evidence, that they didn't attempt to do a line-by-line allocation.

MR. WILLIAM HARPER: No.

MR. BOB PETERS: But you also flagged the MISO and MAPP membership dues as something else that could be assigned to the export class; correct?

MR. WILLIAM HARPER: Well -- I'm trying to -- I believe they currently are assigned entirely to exports, if I'm not mistaken. And this is where I'm having my pause in the --

MR. BOB PETERS: And if they -- if they aren't, they should be and if they are, they're where they should be. Is that what you're telling the Board?

MR. WILLIAM HARPER: Can you hang on just a minute.

THE CHAIRPERSON: Mr. Weins could probably clear it up very easily.

MR. WILLIAM HARPER: That's quite

possible.

MR. BYRON WILLIAMS: I may be able to assist Mr. Harper, just with -- refresh his memory through his notes.

(BRIEF PAUSE)

MR. WILLIAM HARPER: I'm sorry. I think the way the question was worded, it's because it sort of confused me as to what I thought was the...

(BRIEF PAUSE)

MR. WILLIAM HARPER: I apologize. Just a minute.

THE CHAIRPERSON: Take your time, Mr. Harper. It's not a question that we can't up at some point.

(BRIEF PAUSE)

MR. WILLIAM HARPER: Yeah. I believe it's currently allocated entirely to -- to the export class, fifty-five forty-five (55/45), if I'm not mistaken. And -- and then the -- and then the 55 percent

that's firm is allocated as part of the generation costs. I think I was proposing some of that should be assigned to -- to domestic.

So it all goes to exports now and I think -- I believe I was saying that some of it should be allocated to the domestic class. Again, this is a small amount of dollars, 5 million, and I thought, sort of, what's going on now is acceptable for an interim solution and perhaps if they're looking at the marketing costs they could re-look at this at the same point in time.

They tend to balance each other off. There's the $7 million which is all in domestic and maybe some should go to export. And $5 million that's all in export, maybe some should go to domestic. So, you know, on an interim basis the puts and the takes maybe average out.

But if you're looking forward and trying to do refinements to this methodology over time, this may be something that's worthwhile trying to refine.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Harper, we've heard evidence that during the drought of 03/04 Manitoba Hydro purchased some energy but not all of it was delivered into the Manitoba delivery zone.

Are you aware of that?

MR. WILLIAM HARPER: Yes. It's my understanding that they had firm -- they had export commitments and it was cheaper to meet those export commitments by purchasing power in the US and arranging that that power delivered to meet their export commitment as opposed to, say, running thermal units in Manitoba and actually exporting the power across the border.

MR. BOB PETERS: Should the cost of those gigawatt hours that were purchased but not delivered to Manitoba be charged entirely to the export class?

MR. WILLIAM HARPER: Well, those costs are -- those costs show up as purchase costs, I believe. And I think in the -- and in the recommended method that Manitoba Hydro has, they are all initially allocated to exports.

In the recommendation I was making, I was -- I was saying that a part of the total purchase power costs should be allocated to the domestic class. And actually when I was doing my arithmetic to come up with my fifty fifty (50/50) split, the 3,000 gigawatt -- I believe it was 3,000 gigawatt hours -- somebody correct me if my units are wrong -- that were purchased, that was part of the 50 percent that would be on the export side.

So, you know, in the approach that I took

those 3000 -- in coming up with my fifty fifty (50/50) split, those 3000 gigawatt hours were considered as purchased power for export.

MR. BOB PETERS: Mr. Harper, you had a concern about the water rental calculations and how those would change under your allocation of import costs; correct?

MR. WILLIAM HARPER: Yeah. It really wasn't a concern. It was just a matter of the fact that the way -- the way water rentals are assigned to exports is you identify your total export kilowatt hours, you identify how much of that is being met by purchased power, and then the balance is effectively coming from -- from hydro power. And on that basis that's how Manitoba Hydro does its allocation of water rentals.

If you -- if the Board was to adopt my recommendations, it would to some extent change the amount of purchases that was attributed to exports and, therefore, it would change the amount of exports that the calculation deemed were attributable to water and it would therefore change the amount of water rentals.

I had no problem with their methodology, it's just that when you change the amount of purchases, the arithmetic means you end up changing the amount that comes from water which means you end up changing the

amount of water rentals that then get assigned directly to exports.

So it's just a matter of -- I think you know, Ms. Myfanwy (sic) used the expression, following the logic through the food chain of the arithmetic, that's all I was doing here. Was trying to just make sure -- just put that note on the record so you recognize that that would have to change, as well.

MR. BOB PETERS: Could you, through an undertaking, provide the actual numbers in the Manitoba Hydro recommended methodology in what you're suggesting just so we can see it numerical form?

MR. WILLIAM HARPER: Unfortunately I can't. And maybe I couldn't find it. But in going through the record I was unable to find sort of precise numbers that would allow me to duplicate Manitoba Hydro's calculation in terms of total kilowatt hours of exports, how much came from purchases, how much came from water, so I could go through that calculation.

So unfortunately, no Mr. Peters, I can't.

MR. BOB PETERS: All right. Thank you.

(BRIEF PAUSE)

MR. ROBERT MAYER: Mr. Harper, while Mr.

Peters is busy. I have only one (1) question for you.

You mentioned the -- how imprecise the assignment of these costs are and how imprecise this whole methodology is. It's not a science, there's an awful lot of judgment calls made in here.

MR. WILLIAM HARPER: Yes, there are some judgment calls.

MR. ROBERT MAYER: And you mentioned the zone of reasonableness and the zone of reasonableness as I understand it as been approved by the Board, is plus or minus 5 percent.

MR. WILLIAM HARPER: That's my understanding too, yes.

MR. ROBERT MAYER: Can anybody, we keep talking about moving to zero. Is that a useless exercise or can we really logically get any closer than plus or minus 5 percent? Or are we just going to be guessing?

MR. WILLIAM HARPER: Well, I think maybe there's two (2) ways to answer your question. And you know from electric utilities, you know, there's different zones of reasonableness used.

I think plus or minus 5 is about the tightest zone I've seen used. You know, I think as I tried to explain in my direct, I think even if you were to move -- even if you were to believe the science -- you

thought you had science there, and you wanted to move to zero, I think the -- generally accepted view, sort of, about the need for stability in rates in electricity and the fact that trying to follow zero every year, would necessarily end up with gyrations in bills, is something that you wouldn't want to do

So I think there's a couple of reasons why in my mind, you probably don't want to try and track 100.0 for every class. I think it's particularly important, you know, and you've had different customer classes appearing here that if there is a -- for a protracted period of time they seem to be outside of the zone then there's -- there's a problem that needs to be addressed.

Perhaps as people get down to the 97, 98 level then you know, then you're -- you're probably well within the accuracy of the study that we're dealing with here.

MR. ROBERT MAYER: Thank you.

THE CHAIRPERSON: Mr. Harper, you just said something I want to follow up on. I notice Mr. Peters is still conferring with his associate.

You said this is one (1) of the tightest ranges that you've seen. How wide have you seen?

MR. WILLIAM HARPER: Well, I think you

know the --

THE CHAIRPERSON: And what is the general practice?

MR. WILLIAM HARPER: You know the two (2) common numbers I've seen used are 95 -105 and 91 - 10, I mean those are the two (2) general numbers that I've seen.

THE CHAIRPERSON: Thank you. Mr. Peters...?

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Yes, Mr. Harper, I'm still at a bit of a loss in terms of how to explain your position on the water rental calculations that you would change in the allocation of imports.

And perhaps the best way is that I confer with Mr. Williams and we see if we can piece together the information. We may have to ask Ms. Ramage to employ some information from Mr. Wiens if we need it.

But I'd like the Board to see the actual numerical information on the methodologies that we're talking, just so we can drive home what you're suggesting?

MR. WILLIAM HARPER: Well, you know, I guess if Manitoba Hydro's is willing to assist we could

probably work through it if they're willing to help out.

MR. BOB PETERS: All right. Let's leave it at that --

THE CHAIRPERSON: Mr. Peters, if I could inquire how much longer do you think you'll take?

MR. BOB PETERS: Five (5) minutes.

THE CHAIRPERSON: Five (5) minutes, please continue. And then Mr. Williams will be doing some re-direct?

MR. BYRON WILLIAMS: I don't anticipate much if any, but I'll confer with my client.

THE CHAIRPERSON: Very good, but if you require more time than that we're going to probably have to adjourn no later than quarter to 5:00.

Okay, Mr. Peters.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Harper, is it your understanding that the Selkirk generating station is now being used for planning and operating reserves and to increase dependable energy available for firm exports?

MR. WILLIAM HARPER: Yes, I think I -- you know, not -- not specifically in terms of the evidence that I've read. But an understanding that the Selkirk plant is a gas-fired plant. It's not something

that you would actually probably be operating to make opportunity sales into the market given the prices of gas.

But it's something that you probably could be keeping in your back pocket and not operating knowing you could turn it on if necessary in order to help firm up sales that you would, in say in nine (9) years out of ten (10) make out of surplus hydro.

So to the extent that it's probably being used -- not being operated at all, just the fact that you've got it there, not operating but you've got it there means you can probably firm up additional sales that -- sourced out of hydro that otherwise you would not be able to.

The fact that you've got it there means that it can be used, if necessary, and called up on to sort of provide you know, to provide part of your planning -- that 12 percent planning reserve margin that the utility requires.

So I think, you know, not from the evidence but just from my understanding of the role of the station I think I'd agree with both of those.

MR. BOB PETERS: And then would you agree that the costs of that generating station should then be directly assigned to export?

MR. WILLIAM HARPER: Well, I think they're -- from a reliability perspective it's there basically to provide reliability to all the load commitments that Manitoba Hydro has on the system.

Both the firm export loads and the domestic loads, it's part of the overall reserve margin and the way the methodology works, the fixed costs go into the generation pool and are allocated to both firm exports and domestic.

So I think the methodology treats those costs appropriately.

MR. BOB PETERS: The suggestion I think you've made is that opportunity exports draw on cheaper incremental power than average cost of generation; would that be fair?

MR. WILLIAM HARPER: Well, I -- the suggestion I made is that I believe that the investments that are probably being made and, sort of, the evidence that Manitoba Hydro has given is that the investments that have been made for opportunity -- to achieve opportunity sales are -- are less than the average embedded cost that they have in their generation and transmission system.

MR. BOB PETERS: And do you recall there being a review of the hypothetical example of Canawappa

being built with a five (5) unit generating station and then a ten (10) unit station?

MR. WILLIAM HARPER: Only to the extent that I was walked through it by Ms. Ramage yesterday, I believe.

MR. BOB PETERS: And to that extent did you conclude that there is really no -- there is really no benefit in terms of dependable energy in adding the five (5) extra units?

MR. WILLIAM HARPER: I concluded that the -- my understanding is, sort of, just in that conversation yesterday that the benefit of adding the five (5) units was primarily the additional capacity you were getting out of the -- you would be able to get out of the station and that as we said earlier both capacity and energy considerations are important when you're doing planning.

And from that perspective sizing the station with ten (10) units and the capacity that gave you was -- it was better from a long-term planning perspective.

MR. BOB PETERS: But that additional capacity isn't needed for the domestic load in the foreseeable future?

MR. WILLIAM HARPER: Well, I -- I think

if you're talking about a planning for -- I -- I would presume and I guess what I'm struggling with here is you're either A, talking about planning for Canawappa when you would put it in service at an in service date when you actually did need it and then you've got a choice, yes, I may not need that additional capacity the first year I build it but as the loads grow on the system I will need additional capacity energy and does it makes sense when I'm building this station right at the beginning to build the station with five (5) units or to build the station with ten (10) units.

And from the incremental investment I'm getting in those extra megawatts it makes sense to build the station. The problem we have with hydraulic stations is they come in lumps. I guess, just like limestone came in a lump back in the 1990's.

You can't bring -- you could bring -- hydraulic stations aren't like thermal stations, you can sort of build wee little ones and match the loads exactly. You have to take the sites and take the opportunities as they come and try and maximize each of those opportunities as you develop them.

I think beyond that, as I said before, I'm not a system planning so this is more just from a first principles perspective. But my understanding is they

were planning this because that was what seemed the best optimization of the design for the use of the system.

MR. BOB PETERS: Would you expect there to be a reduction in the incremental imbedded costs for the additional capacity beyond dependable -- beyond dependable flow?

MR. WILLIAM HARPER: Well, we're mixing two (2) uses here, because dependable flow relates to dependable energy, capacity relates to the amount of -- which is the dependable gigawatt hours you have on a system. Dependable capacity relates to the amount of megawatts you're putting in place on the system. And what you need is a plan that addresses both of those.

And so I have a problem with, you know -- and so what you're doing is you're trying to plan not just so you have enough dependable energy on the system but also so you have enough dependable capacity on the system, i.e., megawatts, and that the operation of those two (2) can meet the load on the system.

MR. BOB PETERS: Would you agree that the unit cost per gigawatt hour for the first five (5) units is the -- the same as the unit costs per gigawatt hour for the last five (5) units?

MR. WILLIAM HARPER: If that's what the calculation shows, then, you know, I can't question the

numbers. I thought the issue was in the last five (5) units was we're getting additional capacity, which was also what Manitoba Hydro needed.

I'm sorry. We're sort of -- it would probably be much better if you were actually asking all these questions of Mr. Cormie and Mr. Surminski because they're the ones that actually know -- know this a lot better than I do.

MR. BOB PETERS: And in your evidence you -- you somehow conclude that Manitoba Hydro's approach is reasonable as an interim step forward, and those would be --

MR. WILLIAM HARPER: Could you show me that particular part of the evidence because I want -- you know, there's the whole approach, I just want to make sure I understand where you're getting that particular quote from.

MR. BOB PETERS: Sorry. I think it might have been what you said to Mr. Williams in your direct evidence, but I can't show you the transcript, but you may not recall saying it.

Do you consider Manitoba Hydro's recommended approach as a reasonable interim step forward?

MR. WILLIAM HARPER: Well, I think there

are, as we identified and talked about, I think there are places where fine-tuning can be done. We've talked about a couple of those already, but -- so if you want to consider that as an interim step at this point in time, yes.

MR. BOB PETERS: Well --

MR. WILLIAM HARPER: I think I used the word "interim" in my direct primarily in terms of looking at probably the treatment of the -- of the MISO and MAPP charges and the treatment of the marketing charges, and the fact that -- sort of that, like I said, both of those tend to balance each other off. And the proposed treatment is fine.

And if we look at them going further -- I think cost of service methodologies aren't something you carve in stone. There will probably refinements to this methodology that Manitoba Hydro will likely bring forward in their next GRA hearing.

Sorry if that means we have to talk about this all over again but I'm sure there will be some refinements going forward.

MR. BOB PETERS: So in terms of how and when you would fix whatever deficiencies may need fixing, you see that as a regular occurrence at -- at the Phase 2 hearings for this Utility or the GRA hearing?

MR. WILLIAM HARPER: I -- yes, I would expect that even Manitoba Hydro itself, as -- as it applies this methodology and perhaps its own circumstances start to change or evolve, we'll sort of look at fine-tuning it.

I think if we look at the types of changes that were made through the early 2000's, there were a number of fine-tuning changes that Manitoba Hydro made to its cost of service methodology, even before it got to the major changes we're talking about here. So I would expect those sorts of things just to continue as a natural course.

I know in -- sort of the Hydro Quebec distribution, we had that major hearing, they were sort of established. We've had some fine-tuning gone on. And each of the hearings after that there's been a few things brought forward and fine-tuned as better data was available or they realized they could do things a little bit better, and the methodology gets improved.

MR. BOB PETERS: Thank you.

With that, Mr. Chairman, I'd like to thank Mr. Harper for his answers to my questions. Those conclude them.

THE CHAIRPERSON: Thank you, Mr. Peters.

(BRIEF PAUSE)

THE CHAIRPERSON: Mr. Williams, do you have any re-direct?

MR. BYRON WILLIAMS: I'd like to contemplate that for about three (3) minutes. I don't expect that I do but I'd just like to ponder that if I might just take a couple minutes. I'm mindful of your 4:45 --

THE CHAIRPERSON: That's fine. If you do --

MR. BYRON WILLIAMS: -- I don't expect I will --

THE CHAIRPERSON: -- if you do have to do re-direct we can consider returning to it --

MR. BYRON WILLIAMS: Okay.

THE CHAIRPERSON: -- tomorrow, because I believe Mr. Harper is still here.

MR. BYRON WILLIAMS: Yeah.

THE CHAIRPERSON: Okay.

MR. BYRON WILLIAMS: He's stuck with us for another day.

THE CHAIRPERSON: Okay. We'll sit down for three (3) minutes then and at least determine what we're going to be doing tomorrow.

(BRIEF PAUSE)

THE CHAIRPERSON: Mr. Williams...?

MR. BYRON WILLIAMS: No questions. I guess we'll -- I'll confer with Mr. Peters and Ms. Ramage in terms of what, if any, undertaking he may request of us and we'll provide our position tomorrow morning.

THE CHAIRPERSON: Thank you, Mr. Williams. And thank you very much, Mr. Harper. You've been very patient with us with the interregnum before we got you back here and you've had, I think it would be fair to say, a very thorough grilling today --

MR. WILLIAM HARPER: Thank you for the opportunity.

THE CHAIRPERSON: I'm sure you're quite steeped in our Manitoba issues by now. So I wish you a good night and return to your assistance to Mr. Williams and --

MR. WILLIAM HARPER: Thank you.

THE CHAIRPERSON: -- CAC/MSOS.

(WITNESS STANDS DOWN)

THE CHAIRPERSON: Now, tomorrow we are going to have MIPUG's witnesses and the cross-examination

then, and that'll lead to closing statements beginning on Monday and then through to Friday.

So we stand adjourned. Thank you.

MR. BOB PETERS: And we stand adjourned, Mr. Chairman until 9:30?

THE CHAIRPERSON: Yes. And tomorrow we cannot begin until 9:30 because of other commitments.

--- Upon adjourning at 4:40 p.m.

Certified Correct

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Ryan Pickering