MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO'S APPLICATION
FOR APPROVAL OF NEW ELECTRICITY RATES
FOR 2010/11 AND 2011/12

Before Board Panel:

Graham Lane - Board Chairman

Robert Mayer, Q.C. - Board Member

HELD AT:

Public Utilities Board

400, 330 Portage Avenue

Winnipeg, Manitoba

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Pages 3970 to 4170

APPEARANCES

Bob Peters		)Board Counsel
Anita Southall	(np)	)
Patti Ramage		)Manitoba Hydro
Marla Boyd		)
Byron Williams		)CAC/MSOS
Myfanwy Bowman	(np)	)
Antoine Hacault		)MIPUB
Michael Anderson	(np)	)MKO
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Denise Pambrum		)City of Winnipeg
Gavin Wood		)Independent Experts

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EXHIBITS

UNDERTAKINGS

--- Upon commencing at 9:32 a.m.

THE CHAIRPERSON: Okay. Good morning, everyone. Ms. Ramage, do you have something? You seem to be reaching for your mic.

MS. PATTI RAMAGE: No, I -- I -- we don't have anything this morning. I think we're -- I believe there'll be some undertakings filed at the break. That's what we're targeting right now.

THE CHAIRPERSON: Very good. Back to you, Mr. Peters.

MR. BOB PETERS: Yes, thank you.

MANITOBA HYDRO PANEL:

DAVID CORMIE, Resumed

VINCE WARDEN, Resumed

HAROLD SURMINSKI, Resumed

CONTINUED CROSS-EXAMINATION BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, when we left off yesterday you were explaining to the Board that it is a condition precedent of Manitoba Hydro's pending term sheets with Wisconsin Public Service and Minnesota Power that there be transmission constructed in the United States, correct?

MR. DAVID CORMIE: Correct.

MR. BOB PETERS: And the plan is that that construction will be done by either the counterparties, that is Minnesota Power and Wisconsin Public Service, or alternatively, a regionalization -- a regionalized process that you explained to the Board yesterday.

MR. DAVID CORMIE: Correct.

MR. BOB PETERS: And right now, the path being followed is to regionalize the costs, which I think you also used the word, "socialized the cost," amongst all of the transmission carriers in the MISO region.

MR. DAVID CORMIE: We -- we are proceeding down that as one (1) option, Mr. Peters. The other is protecting the option of building a private transmission line.

MR. BOB PETERS: And when you say, "building a private transmission line," that is Minnesota Power and Wisconsin Public Service building a transmission line.

MR. DAVID CORMIE: They would arrange for the line to be built.

MR. BOB PETERS: Would they pay for it?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Would Manitoba Hydro pay

any amount of it?

MR. DAVID CORMIE: We're not responsible for any costs in the US.

MR. BOB PETERS: I understand that, but would Manitoba Hydro pay any of the costs associated with the US transmission leg?

MR. DAVID CORMIE: No. No.

MR. BOB PETERS: When you say -- so -- so you're protecting both aspects then. You're -- you're looking at an option of -- first choice is have the regional optimized upgrades done and paid for by all transmission carriers in the MISO region, and the fallback position is to have a private line built by Minnesota Power and Wisconsin Public Service.

MR. DAVID CORMIE: Yes.

(BRIEF PAUSE)

MR. BOB PETERS: How do you protect on both sides of the -- the equation on that, Mr. Cormie?

MR. DAVID CORMIE: The -- the usual process for acquiring transmission service is to put in a transmission service request with the MISO. And Manitoba Hydro, Minnesota Power, Wisconsin Public Service, and Great River Energy, WPPI Energy, and -- another Wisconsin

utility, and several others put in a group reque -- put in separate requests to interconnect with Manitoba Hydro.

Those transmission service requests were combined into a group study by the MISO. And an initial transmission study was done, and that initial transmission study was the screening study that determined what options could best meet the entire needs of all the transmission customers.

From that screening study came a detailed facility study that identified the costs of the top two (2) options. That transmission service request process is still active, and the transmission customers have -- have not walked away from proceeding with that option.

At the same time though, in conjunction with the CapX utilities we came up with a variant on the -- the preferred option, and that's the variant that the CapX utilities requested the -- be included in the Minnes -- MISO transmission expansion plan in October of 2010, and that is now -- is now part of the -- the MISO transmission expa -- expansion plan.

So we are -- we are trying to protect both -- we're trying to proceed down both paths. There are obstacles in both paths, and -- and neither of them is a -- is a certainty. The -- proceeding with the CapX utilities is our preferred option because it involves all

the transmission-owning utilities who -- who would be affected. It -- it allows for an optimized transmission network in -- in the -- in the region.

Building a private line by Manitoba Hydro and its counterparties would involve building transmission through service territories of other companies. That's not necessarily the best way to get things done. And so we are very confident that our plan to work with the CapX utility will result in -- in getting the line -- line built.

The extent to which the line actually receives multi-value project status is still yet to be determined. A portion of it or all of it could be categorized as that -- that project. To the extent that it's not all declared a multi-value project, then Minnesota and Wisconsin Public Service would be responsible for funding the balance of the project.

MR. BOB PETERS: You were telling the Board about the obstacles to each of the methodologies. For the variant or the private build by Minnesota Power and Wisconsin Public Service it appeared that the obstacle is you have to -- you have to put a corridor through the service territories of other utilities. That seems to be the major obstacle?

MR. DAVID CORMIE: Yes. And for -- I

think the main obstacle is that for Mi -- Minnesota Power and Wisconsin Public Service to pay a hundred percent of a $2 billion transmission line is -- is huge. And we need to -- at the end of the day this transaction from their customer's perspectives has to be the best -- bring them -- bring them value. And if they have to bear the entire cost of the new interconnection, there's some risk to the project because of -- of those costs.

MR. BOB PETERS: Are you able to tell the Board which process appears more likely to proceed and why?

MR. DAVID CORMIE: Well, we've -- we've -- we've put the transmission service request path on hold now because we are of the view that we will be most successful working in cooperation with the CapX utilities. And -- and having everybody win from the -- the construction of the new interconnection.

And the CapX utilities already have a transmission line planned for Minnesota. If they were to proceed on their own it would cost them more than if they were to work with Manitoba Hydro and its counterparties in finding a -- an optimized transmission expansion plan.

So I think everybody is in favour of the new interconnection. They feel that there's a savings to be made by working together. The CapX utilities have a

proven record of getting new transmission built in permended -- permitted and built in -- in Minnesota. Manitoba Hydro and its counterparties want to leverage that experience and capability, and that's the path that we're proceeding down today.

MR. BOB PETERS: Has Manitoba Hydro been made aware of any transmission costs, Mr. -- Mr. Cormie, in excess of the $2 billion number?

(BRIEF PAUSE)

MR. DAVID CORMIE: The only facility study that we have -- well, we have done two (2) facility studies, one (1) for the -- the preferred private option and one (1) for the -- the second option. The preferred one (1) has the cos -- estimated cost of 1.46 billion US plus additional costs. So we have no other cost estimates at this time.

Those ultimately will be determined once the inter -- integrated transmission project is fully defined and -- and cost shares are determined.

MR. BOB PETERS: That 1.4 or $1.6 billion number, Mr. Cormie, doesn't include financing costs during construction?

MR. DAVID CORMIE: No, that was just the

-- the 2010 costs.

MR. BOB PETERS: And so when you add in the financing costs, that's what gets it up closer to the $2 billion?

MR. DAVID CORMIE: Yes, and -- and I think at the time that we put the $2 billion on record, that included conversion to Canadian dollars as well, so.

MR. BOB PETERS: Now, we might get a break the other way.

MR. DAVID CORMIE: Well, it's going to be paid for in the US, Mr. Peters, in US dollars. It doesn't really affect Manitoba Hydro except that if -- if it gets too expensive, the project is at risk.

MR. BOB PETERS: And the -- the $2 billion figure doesn't include the capital escalation costs since the estimate was prepared, does it?

MR. DAVID CORMIE: No, but I'm -- I'm -- I'm thinking -- my view is that the costs will actually go down. If we were to build the 500 kV line as is proposed from Winnipeg to South Dakota, down the Red River Valley, and without changing the transmission projects that the other CapX utilities are planning, the interconnection would have a capacity of about up to 1,800 megawatts of firm transfer capability.

That's more than Manitoba Hydro and its

counterparties need, which indicates to me that that would be an overbuild.

So because that's an overbuild, and that overbuild would cost that $2 billion, an optimized transmission project will -- should come in at -- at something significantly less than that because there aren't customers for 1,800 megawatts of firm transfer capacity.

So I'm -- I'm -- you know, I -- I don't have a final number, but I'm -- everybody is pursuing the -- the regional plan because it is -- it makes -- it just makes sense.

MR. BOB PETERS: All right. Let's just take a few minutes on the regional plan then. The essence of it yesterday that you explained was that the costs of the regional plan would be shared pro rata amongst the transmission utilities based on their share of the transmission in the MISO market. Is that correct?

MR. DAVID CORMIE: Well, the -- the costs will go into the -- will be paid thr -- in accordance to the MISO tariff. It'll be -- yes, it'll be spread over the entire MISO footprint according to how all transmission costs get allocated. So it gets -- it gets allocated to load, Mr. Peters.

MR. BOB PETERS: All right. So there

will be a tariff on the load that is transferred over the -- over the line to pay for the line.

MR. DAVID CORMIE: Yeah. Right now all transmission assets in the MISO region are paid for through -- through the tariff. This project would then get added into the total cost of -- annual cost of transmission in MISO, and it will be allocated back to load through -- through the tariff.

MR. BOB PETERS: Who pays for the initial out-of-pocket expense to build the -- the transmission line?

MR. DAVID CORMIE: Generally what happens is that the companies through whose service territories the line gets built will invest in that line, and they -- they make the investment and they recover their costs on an annual basis through the tariff.

(BRIEF PAUSE)

MR. BOB PETERS: And I suppose then that, to the extent that there are other regionalized multi-value projects in the MISO region that maybe aren't expressly needed by Minnesota Power or Wisconsin Public Service, those utilities will end up picking up some of those costs in future years on future projects.

MR. DAVID CORMIE: Yes, and I -- that -- that's the idea, is that everybody will -- you know, regardless of where you are in the MISO footprint, you'll pay for -- you pay your fair share of regional transmission upgrades, the backbone of the transmission system.

MR. BOB PETERS: There's no free transmission to the counterparties in the term sheets then.

MR. DAVID CORMIE: No, there's no free transmission service.

(BRIEF PAUSE)

MR. BOB PETERS: Mr. Cormie, can Bipole 3 be submitted as a multi-value project to be optimized on a regional basis in MISO?

MR. DAVID CORMIE: I guess we could submit it, Mr. Peters. Unfortunately, Manitoba Hydro is only a coordinating member. We're not -- our assets and our -- our load are not in the MISO. We -- we have a coordinating tariff, but our -- we can't recover our transmission costs through -- through -- from the MISO footprint.

MR. BOB PETERS: If Manitoba Hydro was a

full member of MISO, would it be more likely you could recover those costs through a regionalized process?

MR. DAVID CORMIE: You know, I'm not that certain of that, but it -- because the DC is generation only transmission, it's not part of the network transmission, Mr. Peters. Usually, DC lines are not shareable like others. Anybody's not entitled to use it. It's only -- has only a single purpose. That's to bring the generation from our northern station south, whereas in an AC network, power flows over all the lines and -- in -- in a network, and so network transmission is -- is usually eligible for that kind of cost recovery.

Lines that connect generators to the major transmission sign, the -- the generation outlet transmission is usually not included as part of -- of transmission costs. They are considered to be part of generation costs.

MR. ROBERT MAYER: Mr. Cormie, I think it was Mr. Rose -- I think the guy who called us the -- what is it the -- the north end of North America or something, did talk about reliability and extra transmission capability from Manitoba. And I re -- I would suspect then that the -- what is -- the transmission line that's going out of Riel south and the one I -- which I hadn't heard about before going down the Red River Valley would

-- would at least possibly comply.

But wouldn't the -- what I'm particularly thinking is the third bipole line, which, sir, of course increases the -- the reliability to transmit a significant -- a very significant portion of Hydro's power into the -- what -- to all intent and purposes, probably a distribution line?

MR. DAVID CORMIE: Yes, but what Mr. Rose was referring to was the -- the interconnection to the United States that -- that has that -- that fi -- the existing five hundred (500) line has a capacity on its own of over 1,500 megawatts. So from the region's perspective, that's the largest single contingency.

We consider the loss of both bipoles to be a double contingency and it's not something that -- you need to be aware of that, but it's not something that we protect for on a daily basis, whereas on a daily basis we have to protect for the loss of the 500 kV line.

If we put in a second five hundred (500) line into the US, the size of the contingency that needs to be protected for would go down, and so reliability, in effect, would be improved.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, if there was

a private build for this transmission line in the United States it would be Minnesota Power's obligation to come up with 250 megawatts of -- of capacity to be exported to Manitoba, and Wisconsin Public Service would have to come up with 650 megawatts of incremental export to Manitoba. Would that be correct?

MR. DAVID CORMIE: Except that you can't add the two together, Mr. Peters. The six fifty (650) includes the two fifty (250) from Minnesota Power. The -- there's already a hundred megawatts of firm transmission available between Manitoba and Wisconsin. So if you add the six fifty (650), the Wisconsin has to be involved. As to the hundred, tha -- that's seven fifty (750). Seven fifty's (750) the total of both sales. The two fifty (250) to Minnesota Power plus the five hundred (500) to Wisconsin, but they're -- they're, in effect, talking about the same interconnection.

MR. BOB PETERS: Okay. Well, then you've answered my next question. The -- the total capacity then that -- that is embedded in the term sheets is 650 megawatts?

MR. DAVID CORMIE: Yes, but the -- we have MOUs with other customers as well who are interested in participating in the line, and they were part of the -- the transmission service request, part of the joint

study. And so we're not looking at just building a line that has 700 and -- or 650 megawatts of capacity. We're -- we're looking at a bigger line, and -- but Wisconsin and Minnesota are the anchor tenants.

MR. BOB PETERS: But the preconditions or the prerequisites of the term sheets is 650 megawatts of --

MR. DAVID CORMIE: That's correct.

MR. BOB PETERS: -- capacity? Yeah. And the existing firm capacity, I think that's owned by NSP, is about 600 -- or 850 megawatts?

MR. DAVID CORMIE: We have 892 megawatts of -- of firm transfer capability.

MR. BOB PETERS: Is that held by NSP?

MR. DAVID CORMIE: Yes.

(BRIEF PAUSE)

MR. BOB PETERS: When you talked about the seven fifty (750) total, that's with the additional utilities that might be wanting to expand on the -- on the transmission line with Wisconsin and Minnesota?

MR. DAVID CORMIE: Well, the seven fifty (750) is the -- the amount of capacity that Manitoba Hydro wants to sell to Wisconsin and Minnesota Power.

However, to achieve that all we need is an additional 650 megawatts, because we already have a hundred (100) with Wisconsin.

So the net addition for the two (2) sales is at least six fifty (650), plus whatever additional firm transmission is required under the MOUs with the other counterparties.

MR. BOB PETERS: When it's privately built, the transmission rights are owned by the builder. Would that be fair?

MR. DAVID CORMIE: The firm -- the firm transfer capability will be assigned to the -- to the holder of the transmission service request. The builder is not necessarily the person that holds the -- the transmission service -- or the -- the transmission rights. The -- if the -- if the -- if the line is going through NSP's service territory then NSP will probably own the line.

But the transmission service rights may be assigned to a -- to a company like Minnesota Power or Wisconsin Public Service. So there's a difference between who builds it, who owns it, who has the rights to use it.

MR. BOB PETERS: That's in the example of a private build, correct?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: All right. If we turn over to the -- the regionalized process that we talked about in terms of the CapX, as you call them, utilities being involved, in those situations, who would own the transmission rights if the transmission line was built under that scenario?

MR. DAVID CORMIE: We would need to still have -- the - the companies still need to own -- own firm -- firm transmission on -- on the path in order to be able to deliver the capacity that Manitoba Hydro has contracted to -- to them.

MR. BOB PETERS: So Minnesota Power and Wisconsin would have to buy the firm rights to that transmission?

(BRIEF PAUSE)

MR. DAVID CORMIE: This is an area now we're not -- where we are -- we are still working on those details. How do we deliver capacity over a line that's built for the market, Mr. Peters. So it's -- it's an issue that needs to be addressed.

Right now the multi-value project lines -- multi-value project lines are -- are -- are -- are built

by the market and -- and the question is how do you -- how do you transfer private rights over those lines. It -- it -- for certain, Manitoba Hydro alone, they -- they -- the firm rights on the Canadian side.

And the question is how to meet our contractual obligations. And the normal mechanism would be for Manitoba Hydro to amend its coordination agreement with MISO to accommodate the multi-value project lines. And so we're starting -- just starting to work on those -- those details now. But how -- how we have a contract and meet our contract obligations on a -- on a -- on a line that is built by the market is -- is still to be determined.

MR. BOB PETERS: That's a significant risk, I guess, on the -- on the multi-value pro -- project side of the equation?

MR. DAVID CORMIE: Yes, it's -- it's still -- it's still an issue that we need -- that we -- that we need to deal with and we are dealing with it.

MR. BOB PETERS: Not yet resolved?

MR. DAVID CORMIE: No.

MR. BOB PETERS: And it would be fair to say that there's no assured transmission under either of the two (2) options that Manitoba Hydro has examined and has tried to protect itself on?

(BRIEF PAUSE)

MR. DAVID CORMIE: Yes, there is an assured option, and that is to build private lines. And -- and there's no reason man -- Manitoba Hydro and its -- its counterparties can't build -- build to -- to build to acquire those transfer capability.

That is -- that is certain. It's -- we -- we can -- we know how to do that. We've done that in the past, so we're -- there's no reason why we can't do that in the future.

MR. BOB PETERS: Except you'd have to build through the service territories of other utilities, and that may be problematic.

MR. DAVID CORMIE: No, that's -- that's pretty normal though. But you just can't -- you just can't bulldoze your way through. You need to negotiate, and -- but that's -- that's how transmission lines have always been built.

MR. BOB PETERS: And so the reason that that private build is on hold is that there may be a more financially beneficial offer to Wisconsin and Minnesota by going through the multi-value project proposal.

MR. DAVID CORMIE: Yes, and -- and, you know, from -- for -- for this transmission line to get a

certificate of need through the regulatory process in -- in Minnesota, Minnesota has to be assur -- has to be assured that this transmission line is the best line to be built, right.

So it has to get regulatory approval, and that transmission line is going to get recovered through rates, and I think building a -- a line that doesn't -- isn't the best possible line for the Minnesota ratepayer would be problematic.

MR. BOB PETERS: Does that last answer indicate that unless it goes through a multi-value project proposal, the deal is less likely with Minnesota and Wisconsin?

MR. DAVID CORMIE: No, it's just that we need to explore the options, Mr. Peters, and if -- if the multi-value project process, when all things are considered, is better than -- if it results in more transmission, a more robust regional transmission network, deals with reliability issues, those things have to be considered, not just the private benefits and costs of two (2) utilities.

MR. BOB PETERS: Is it a condition precedent to proceeding with the multi-value project methodology that the Manitoba Hydro to Wisconsin, and Manitoba Hydro to Minnesota Power, sales qualify as

renewable energy credits?

(BRIEF PAUSE)

MR. DAVID CORMIE: There's -- there is a linkage between achieving multi-value project status and -- and renew -- renewable energy in that multi-value projects are designed -- are -- are intended for regional upgrade transmissions -- regional transmission projects that -- that have a renewable component. And to the extent that -- that's one (1) of the tests that has to be -- has to be passed to achieve that -- that funding.

MR. BOB PETERS: Does that answer suggest to the Board that it would make the multi-value project build an easier -- an easier project to bring to fruition if Manitoba Hydro's energy qualified as renewable energy credit -- credits?

MR. DAVID CORMIE: Yes, if -- if new large hydro were deemed to be a renewable technology then -- then it would make it easier to achieve that MVP status.

MR. BOB PETERS: Is it a condition precedent in the sale to Minnesota Power or Wisconsin Public Service in those term sheets that are in effect, that Hydro -- Manitoba Hydro's energy must qualify for

renewable energy credits?

MR. DAVID CORMIE: The term sheets were written at a time before multi-value projects were an option, Mr. Peters, so there's no -- no reference in the term sheets to MVP status. The only requirement in the term sheet is that the US counterparties arrange for the construction of a new interconnection to the United States.

MR. BOB PETERS: And the interconnection would be easier if Manitoba Hydro's energy did qualify for renewable energy credits?

MR. DAVID CORMIE: Well, it -- it's more likely that we would qualify for funding under MVP if -- if the energy that was to flow over the -- over the line from Manitoba were to be declared renewable technology.

One (1) -- one (1) benefit of the proposal that is being made now for the Manitoba project is that it -- it facilitates the transfer of the transmission of renewable energy from North Dakota into Minnesota.

So the -- the combination of the 500 kV backbone line down the Red River Valley and the Manitoba Hydro's ability to regulate wind and act as a battery to store energy when there's more wind generation than the market needs and to provide regulation service is seen as a complimentary relationship.

And without the transmission, the Manitoba battery can't work -- doesn't work very -- as well as it could if we were to have a larger interconnection. And so in viewing the -- the interconnection, what it -- what it does, it fa -- facilitates the construction of more wind and it achieves an improvement in grid operability.

And so although at present new hydro from Mani -- new large hydro from Manitoba is not renewable, there's that -- there's that linkage. And it would be a much easier ca -- case to make if the -- the laws in Minnesota and Wisconsin were to recognize hydro as being renewable technology.

There's no doubt that they do recognize it as renewable energy, just -- it's not deemed to be one of the technologies that the companies can use to meet their RPSs.

MR. ROBERT MAYER: Mr. Cormie, the -- it's my understanding that those green designations are done state-by-state, and your indication that Minnesota and Wisconsin create a problem in that regard. What is the status of hydro type energy in the rest of MISO?

I mean, if MISO is talking about regionalizing the whole of the -- of the transmission system and if only Wisconsin and Minnesota were the problem, would Manitoba Hydro's power, and, therefore,

transmission lines used to transmit it have green energy status in -- in the rest -- in the rest of the MISO region, and thereby qualifying it for regionalization of the cost of the transmission lines?

MR. DAVID CORMIE: Mr. Mayer, you know, there's -- Hydro's not on the radar of very many states because it's not -- it's not a significant resource. I'm sure there's lots of small hydro sites available, but -- so it -- it's only on the radar in Minnesota and -- and in Wisconsin because Manitoba Hydro is -- has been a traditional supplier of those markets.

And as we talked about yesterday, we've now sold the renewable energy credits for all the energy that will go to Xcel Energy and at the new sale agreement. And we are hopeful that that will incent them to try and bring value to that and -- and to the extent that they can do that would be good for them and it would be good for us.

Wisconsin is in a -- in a situation where they have very few renewables and as a result they have a -- a relatively low RPS threshold, I think it's about 10 percent. The proposal is to increase that up to 25 percent, and that would be achievable with the purchase from Manitoba Hydro.

So -- but if they don't -- if they don't -

- if they don't purchase from Manitoba Hydro they're not -- they're probably not going to change the standard because it would be unattainable. It just -- it would create a goal that they could never achieve.

So there's incentive in Wisconsin to -- to -- to do everything that makes this transaction work. It allows them to have a -- a standard that's compatible with -- with most other jurisdictions. Even if Wisconsin were not to achieve renewable status for their energy, they still believe that this is their lowest cost option. And so it's still a good business case from their perspective, to the extent that they -- they are able to count those -- the RECs and that would be icing on the cake from their perspective.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, in terms of the legislation in Wisconsin and Minnesota, it will take legislation changes in each of those states for Manitoba Hydro's energy coming from Keeyask and Conawapa to be considered for part of renewable energy credits. Is that correct?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And in terms of those states, is it correct that in Wisconsin to become

qualified as a renewable resource under their legislation or under their requirements, hydro-electric power as a resource has to come from a facility of 60 megawatts or less?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And in Minnesota to qualify as a renewable resource the hydro has to come from a plant with a capacity of less than 100 megawatts?

MR. DAVID CORMIE: That sounds correct, Mr. Peters.

MR. BOB PETERS: And is it also correct that Wisconsin was going down a legislative track to try to change the law in Wisconsin such that the definition of renewable resource would specifically be expanded to include hydro-electric power generated in Manitoba, Canada?

MR. DAVID CORMIE: Yes, draft legislation was prepared last spring and -- however, it didn't reach the floor of the house before the house adjourned for the session, so it wasn't acted on last spring.

MR. BOB PETERS: The Wisconsin legislation, it failed to pass pursuant to a joint senate resolution where it was withdrawn?

(BRIEF PAUSE)

MR. DAVID CORMIE: I -- I stand to be corrected, Mr. Peters, but I understood that it just didn't -- it wasn't a priority and it didn't -- it -- it -- it just didn't get to the floor.

(BRIEF PAUSE)

MR. DAVID CORMIE: The -- but it -- that doesn't mean that it's a dead issue. It's -- it is still being actively pursued by -- in -- in Wisconsin, and I don't know the exact status as of today.

MR. BOB PETERS: And they've had some other issues in Wisconsin, but you're telling the Board that this one (1) is -- is on the backburner?

MR. DAVID CORMIE: Yes, it's -- it -- it -- it -- it -- it's important for Wisconsin to meet their future renewable standards and -- and I think it's a -- it is a priority.

MR. BOB PETERS: Can you tell this Board as to when, if at all, new legislation will be re-introduced?

MR. DAVID CORMIE: I -- I don't have that knowledge, no.

MR. BOB PETERS: Is Manitoba Hydro aware of any legislation revisions sought in Minnesota?

MR. DAVID CORMIE: It -- the status of large hydro is not on the radar screen in Minnesota at this time.

(BRIEF PAUSE)

MR. ROBERT MAYER: While we're waiting, I was just speculating, so every Winnipeg River generating station, with the exception of Seven Sisters, would qualify on the hundred megawatt rules that -- did you say Minnesota? They -- they aren't new hydro by any means, but, I mean, is -- is that the kind of stuff we're worried about?

MR. DAVID CORMIE: I think on the Winnipeg River, only McArthur would -- is -- would go under the size limit asset.

MR. ROBERT MAYER: Well --

MR. DAVID CORMIE: Well, depending whether it's 60 or 100 megawatts, Mr. Mayer.

MR. ROBERT MAYER: -- yeah, I -- I was using 100 megawatts, and the only one (1) bigger, as I understand it, is Seven Sisters.

MR. DAVID CORMIE: Great Falls is bigger than a hundred.

(BRIEF PAUSE)

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, can we tie this back then to the MISO construction of the transmission line? Would it be correct to understand that if there is -- there are renewable portfolio standards in both Wisconsin and in Minnesota, and if Manitoba Hydro's energy doesn't qualify to provide renewable energy credits to Manitoba Hydro's counterparties, that will make the construction project more difficult.

(BRIEF PAUSE)

MR. DAVID CORMIE: Yeah, I -- I think I'd rather put it the other way. Sh -- should Manitoba's energy be deemed a renewable energy supply will make the transmission project easier to justify as an MVP than not.

But there's the aspect of -- of the wind energy in North Dakota, and wind by itself is not necessarily the best resource. It needs to be regulated and firmed, and in conjunction with the Manitoba Hydro

project, there are significant -- significant benefits to the market.

And so when you view it from a broad perspective, and interpret the renewable requirements under MVP projects, you know, you can -- you can take that perspective.

And -- and I think that's -- that's the direction that we will be going down to show that, overall, more renewables are possible -- it's possible to bring more renewables to the market with an MVP project than -- with this line than -- than without, and, as a result, it would help achieve the MVP status.

MR. BOB PETERS: Does the MVP, or multi-value project status, fail if Manitoba Hydro's energy is not -- does not qualify for renewable energy credits?

(BRIEF PAUSE)

MR. DAVID CORMIE: Well there's -- there's -- there is a financial test where the benefits have to exceed the costs, and the benefit-cost calculation is defined in the tariff.

To the extent that the project does not ach -- achieve that, the project would have to be redefined to exclude certain portions of the

interconnection, or certain portions of the -- of the project in order that the balance of the project would achieve MP -- MVP status.

That would mean that some private funding would have to come to the table to -- to support the project as a whole. So it's not a matter of passing or failing. It's to the extent that we're not -- it doesn't a hundred -- qualify a hundred percent for MVP status. Well, then the question is: How do you close that gap? And that gap can be closed by private investment.

And that's -- that re -- that would be the responsibility of our counterparties in the US. And that may be a lesser expensive -- a lower cost option than building a private line and paying for it in its entirety.

MR. BOB PETERS: So I take it that then becomes even a third option in the -- in the options you've told the Board about this morning?

MR. DAVID CORMIE: Absolutely, and -- and that's why we -- we are working on this and trying to bring everybody to the table and finding a project that -- that is a win/win for everyone, and -- and then allocating the costs appropriately and defining which part of the project is to be regionalized and which part of the project won't be.

For example, you know, we -- we already know the Canadian portion of the interconnection will be paid for by Manitoba Hydro. The portion from the border south to Grand Forks may be -- end up being paid for by Wisconsin and Minnesota Power because that portion can be deemed to part of the interconnection to Canada.

Where the balance of the transmission from Grand Forks to Fargo down into Spilt Rock, South Dakota and east into Wisconsin, that could be part of the regional transmission upgrade. So you can cut the pie up however you -- however you want.

And -- and we're -- we're working with the CapX utilities and with MISO to find a solution that will be beneficial to everybody and that the benefits and costs will be properly allocated.

MR. BOB PETERS: And presently Minnesota Power has not agreed to pay for any extension from the US/Canada border down to Grand Forks, have they?

MR. DAVID CORMIE: Minnesota Power is committed to invest in transmission in the US, Mr. Peters. I -- that's as much as I can tell you about.

(BRIEF PAUSE)

MR. DAVID CORMIE: One of the -- one of

the problems is when you build a two thirty (230) line you get 250 megawatts. The next size line -- they come in huge chunks, and the chunks don't necessarily align with the amount of firm transfer capability that -- that you get when you build a new line.

And in addition, there are reliability benefits that everybody will enjoy. So our -- our counterparties in the US are saying: Why -- why should we pay a hundred percent for a line that's going to provide regional benefits? We're -- we need to have those costs properly shared by everybody in accordance to who gets the benefits.

And it would be unfair to have Minnesota Power and Wisconsin Public Service pay for a $2 billion line when they're only receiving a billion dollars in value, and -- and then everybody else would be a free rider. So this is the issue that is being addressed: what are the benefits, what are the costs, and how are they properly allocated.

And that process has been made easier now because we have this funding mechanism through the MVP that allows large transmission lines that provide regional reliability benefits and access to renewables to step in and -- and there's a mechanism there. You don't have to go and negotiate that. That's -- that's a

funding mechanism.

So we're in the process of exploring that and -- but there is a commitment by Minnesota Power and Wisconsin to build transmission one way or the other.

MR. BOB PETERS: The timeline keeps getting pushed back on that?

MR. DAVID CORMIE: The timeline is driven now by the -- the in-service dates of the -- of the term sheets, and we're working to those schedules.

MR. BOB PETERS: And Manitoba Hydro has pushed its term sheet deadlines back a year in terms of the construction of Keeyask and Conawapa?

MR. DAVID CORMIE: Yes, we had to delay in-service dates.

MR. BOB PETERS: Because of the transmission issues in the United States?

MR. DAVID CORMIE: Yes, because we're not prepared to build projects unless there's signed contracts in place, and those contracts have to have transmission associated with them.

MR. BOB PETERS: But Mr. Warden is prepared to fund a million dollars a day on Keeyask and Conawapa even though there is no firm agreements in place?

MR. VINCE WARDEN: Mr. Peters, the only

reason we're prepared to provide such funding is that it's necessary in order to maintain the schedule. And if we didn't do that we would not be able to meet the schedule that we're planning to meet for -- to serve these contracts -- these term sheets.

MR. BOB PETERS: And I appreciate it, Mr. Warden, but doesn't the timeline keep getting pushed back by -- the problem with the US transmission pushes the -- the -- the in-service date back in Manitoba?

MR. VINCE WARDEN: It does, but we've adjusted our spending accordingly.

MR. BOB PETERS: Well, at a million dollars a day, is that a downward adjustment?

MR. VINCE WARDEN: Well, it's downward from what it was previously, or what it would otherwise be, had not the in-service date been deferred.

MR. BOB PETERS: And yet there is no certainty of transmission as we've heard from Mr. Cormie, and that puts an additional risk on Manitoba Hydro and its ratepayers as to the costs being expended on Keeyask and Conawapa?

MR. DAVID CORMIE: Mr. Peters, there is certainty on transmission, transmission will be built.

MR. BOB PETERS: It's a question of when and who will build it and who will pay for it?

MR. DAVID CORMIE: The question is how the costs will get allocated, but transmission will be built.

MR. ROBERT MAYER: Mr. Warden, this million dollars a day, is that money that would otherwise -- if you -- if at some period in time you will build Keeyask and Conawapa, is that money that would have to otherwise be spent in any event?

MR. VINCE WARDEN: Yes, absolutely.

MR. ROBERT MAYER: Thank you.

(BRIEF PAUSE)

MR. DAVID CORMIE: You know, maybe, Mr. Peters, I can explain one (1) other factor. To -- to bring a large new hydro station into service takes eight (8) years of construction, six (6), maybe ten (10) years to work through the business relationships with the Aboriginal communities, do the environmental studies, it takes a long, long time.

It's very difficult for Manitoba Hydro to go to its customers and say, We need you to sign a contract for the delivery of power that will start fifteen (15) years from now. We would never find a customer who would help bear the costs of -- of a new

hydro project because of those timelines.

And that's different than it used to be. It used to be that it was, you know, construction times were shorter, the upfront study times were much shorter and we could -- we could negotiate a -- a contract in advance of -- of having to commit.

But the reality is is that -- that -- that in -- in order to help -- to -- to get a contract we have to -- we have to do a -- we have to make a pre-investment decision in -- and to fund the environmental studies, the -- the business planning that's necessary with the Aboriginal communities, and -- and -- and that's -- and -- and come to the table with a project that is ready to be built.

And that's where we are now with -- with Keeyask and Conawapa. We've -- we've made that investment and the investment hasn't been cheap, but we would have never been able to find a customer who -- in the United States who would have been prepared fifteen (15) years in advance of deliveries to -- to sign those contracts.

It just doesn't align with their -- with their timelines. So this is -- this is the -- the -- the -- the -- this is where this -- it's becoming more difficult to -- to -- to do that and we have to -- we

have to make that upfront investment.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: So, in essence, this pre-investment decision is you have to build partially on -- on -- on speculation that you're going to consummate these arrangements with Wisconsin and Minnesota Power?

MR. DAVID CORMIE: Yes, and I -- I -- I believe that at any time during the last four (4) years if -- if there had been any doubt in our mind that the term sheets with Wisconsin and Minnesota Power weren't going to go to fruition, we would have stopped.

We're only continuing down this path because we are making progress on all fronts, progress with our Aboriginal partners, progress with our -- our external customers, and -- and as we evaluate annually through our planning cycle, the -- the -- whether this is still the right direction, or on a day-to-day basis as we're interacting with all these stakeholders, we're convinced that we're -- we're going in the right direction and we're not blindly going down a path because of something that we decided to do four (4) years ago.

There's been definite progress being made in all fronts, and -- but ultimately the decision to build has yet -- it has to be -- it still has to be made.

We -- we have not got to the commitment stage.

MR. VINCE WARDEN: And, Mr. Peters, I might just add that while there is the spending that's taking place now, I -- I wouldn't label that spending "speculation."

We're doing so with the knowledge that we have these contracts that are being negotiated, firm power is required to serve the Manitoba load at -- at some point in the future, so we are making these expenditures with the knowledge that these facilities will be built.

And I -- I have some difficulty calling that speculative spending. In fact, I -- I would not call it that at all.

MR. BOB PETERS: It's not speculative in your mind, even though if these arrangements don't come to fruition with Minnesota Power and Wisconsin Public Service, IFRS may require them to be charged through against retained earnings, like we talked about yesterday?

MR. VINCE WARDEN: Well, there's -- there's a risk with any type of expenditure that we undertake, any forward-looking expenditure, and yes, we can't let the accounting rules drive good management decisions.

MR. BOB PETERS: Following up on Mr. Cormie's last answer, if Manitoba Hydro was to put a full stop to the Conawapa and Keeyask construction sites, what implications does that have, other than it may extend or terminate the agreements with Wisconsin and Minnesota Power?

MR. DAVID CORMIE: I don't -- I don't think Manitoba Hydro would -- would stop, Mr. Peters. We have a Manitoba load that needs to be served in the future, and the only reason we would stop if we felt that the -- the load forecast was indicating that we did not need new facilities in the future, and so I -- I don't agree with the premise of your question.

MR. BOB PETERS: Well, the premise is that you won't need let's say Conawapa for many decades to come, and the purpose of building it and having it in reserve may not make economic sense for Manitobans, correct?

MR. VINCE WARDEN: Mr. Peters, we do require new facilities, new generation facilities to serve the Manitoba load by 2022, therefore I am not sure how you could conclude that Conawapa would be deferred for decades to come.

I think in the alternative scenarios that we've reviewed, in fact Conawapa would be advanced if --

if -- in the no-sale scenario.

MR. BOB PETERS: Well, I was putting Keeyask ahead of Conawapa in my premise, but --

MR. VINCE WARDEN: Well, you were making an assumption there that isn't necessarily valid. Conawapa is the low-cost plant in the absence of the sales.

MR. BOB PETERS: So the Keeyask expenditures could be put off for decades to come?

MR. VINCE WARDEN: In the event that the sales did not proceed, the alternative development plan would put Conawapa first, yes.

MR. BOB PETERS: And -- and Keeyask would be some decades down the road.

MR. VINCE WARDEN: Keeyask would then, in that situation, be deferred, yes.

(BRIEF PAUSE)

MR. ROBERT MAYER: I -- I'm not sure I really want to ask this question, but now that you've raised the issue, we've read over the past several months about arriving at agreements with the downstream Aboriginal First Nation -- downstream First Nations with respect to the construction of, I believe, Keeyask.

I'm not sure that we've seen a lot of the detail of what's in those agreements, but would significant delay of Keeyask jeopardize those agreements with the First Nations people that are affected by those projects?

MR. VINCE WARDEN: My response to that, Mr. Mayer, would be that the First Nations are fully aware of the situation with respect to Keeyask, and that there is the potential for -- for deferment should the sales not proceed.

(BRIEF PAUSE)

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Warden, maybe to assist the Vice Chair, if we turn to Tab 50, 5-0, of PUB Exhibit 16, which is Volume II of Board council's book of documents. This will be the last tab in that book of documents, you'll find a response fro -- from Manitoba Hydro to a question on behalf of the Board, PUB Manitoba Hydro Second Round Question 7A and following.

This was Manitoba Hydro's response in terms of where the Keeyask joint development agreement stood together with its comparatives with the Wuskwatim development agreement, correct?

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: And is it -- would it be fair to say that in -- in many respects, the Keeyask agreement parallels the Wuskwatim agreement?

MR. VINCE WARDEN: In many -- many respects, that's correct, yes.

MR. BOB PETERS: Are you able to tell the Board any of the significant differences that you understand exist as between the Keeyask arrangement and the Wuskwatim arrangement?

MR. VINCE WARDEN: Mr. Peters, I believe that was the purpose of the table, Table 1, attached to the response to PUB-7.

MR. BOB PETERS: Fair enough. One of the differences in that table that -- and I'm looking at page 152 of the book of documents, which happens to be again in Tab 50 of PUB Exhibit 16, the -- the Wuskwatim deal provided a common equity option only to the investors, whereas with Keeyask there can be a choice between preferred equity or a common equity option. Is that your understanding?

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: Can you explain to the Board what the difference is between the preferred equity and the common equity option that is available in the

Keeyask arrangement?

MR. VINCE WARDEN: Well, the Keeyask arrangement with the preferred equity provision does allow for payments. The payments stream regardless of whether or not there may or may not be a threshold reached for which dividends will be paid in any given year.

So for the Wuskwatim partnership -- partners to receive dividends there is a payment test that has to be met before those dividends can be paid. That same test isn't there for the Keeyask agreement.

The Wuskwatim partners were provided with the opportunity to amend their agreement to incorporate the preferred option. And to my knowledge, they're -- they're happy with what they have, although I'm not sure that that's the ultimately -- or that's the -- been totally concluded yet.

MR. ROBERT MAYER: There is -- isn't there in the Wuskwatim release, some provision I thought I heard about, where Nisichawayasihk can borrow against future dividends, and thereby receive a cashflow of some sort?

MR. VINCE WARDEN: Yes.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: And in terms the preferred equity versus the common equity option, the preferred equity will -- will provide a cashflow regardless of how profitable the Keeyask generating station is?

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: And the preferred equity would be paid out and not subject to being repaid?

(BRIEF PAUSE)

MR. VINCE WARDEN: Mr. Peters, subject to check, I believe that is the case, yes.

(BRIEF PAUSE)

THE CHAIRPERSON: Mr. Peters, I think we're -- there's a lot of important information being shared at this point in time. I think we'll take our break now. Thank you.

MR. BOB PETERS: Certainly. I'll...

--- Upon recessing at 10:39 a.m.

--- Upon resuming at 11:05 a.m.

THE CHAIRPERSON: Okay. Welcome back.

Mr. Peters...?

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Just to tidy up on a couple of thoughts from this morning's discussion with Mr. Cormie, Mr. Cormie, we've talked that Minnesota and Wisconsin had been the victims, in some regards, of the -- the economic recession that has happened from 2008 to -- to maybe currently.

Is that correct?

(BRIEF PAUSE)

MR. DAVID CORMIE: Both utilities did see a decline in their -- in their load, yes.

MR. BOB PETERS: And not necessarily in amount, but similar to Manitoba, their load growth didn't -- didn't materialize as they initially forecast. Would that be fair?

MR. DAVID CORMIE: Yes, I think in the short term their loads are lower than -- than they had previously forecast. I believe Minnesota Power is back on track though.

MR. BOB PETERS: And -- and you say

Minnesota Power is back on track because Minnesota Power had a -- a record high peak winter day?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: What about Wisconsin? It hasn't hit a -- a new peak yet?

MR. DAVID CORMIE: I haven't talked to my counterpart at Wisconsin since November, but -- so I don't know the answer to that, no.

MR. BOB PETERS: Can you tell the Board how long the term sheets are in existence before they -- they lapse?

(BRIEF PAUSE)

MR. DAVID CORMIE: The -- the -- the term sheets are a -- a -- a living document, Mr. Peters. And as long as both parties to the term sheets feel that there's value in continuing to work on the issues that need to be considered before a -- an agreement to -- expressed in a contract, there's progress being made, then -- then we will continue them.

The -- the current term sheets have another -- have another year to go. And to the extent that they need to be extended because the parties feel that there's value in extending them, they will. If we

get to the point where they're no longer bringing value, they will expire.

MR. BOB PETERS: In the interim, not that Manitoba Hydro would/should or -- but Manitoba Hydro could terminate its relations with the counterparties?

MR. DAVID CORMIE: Is that -- is that a question?

MR. BOB PETERS: Yes. Could Manitoba Hydro terminate its -- its term sheets with Wisconsin Power and Minnesota Power?

(BRIEF PAUSE)

MR. DAVID CORMIE: Yes, we could terminate them, yes.

MR. BOB PETERS: Would there be any financial penalty to Manitoba Hydro if that was to happen?

MR. DAVID CORMIE: No.

MR. BOB PETERS: And likewise, Minnesota or Wisconsin could terminate without financial penalty for any reason at any time?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: They don't have to wait until the end of the year or wait until this term sheet

anniversary date to indicate an intention to -- to terminate the -- the discussions with Manitoba Hydro?

MR. DAVID CORMIE: There's no requirement in the term sheets.

MR. BOB PETERS: No requirements to wait until the end?

MR. DAVID CORMIE: That -- that binds them to the end, no.

MR. BOB PETERS: Mr. Warden, I was going to ask you these questions when Ms. Pambrum wasn't in the room, but somehow she must have seen my notes this morning and snuck in, so since we last chatted about City of Winnipeg issues, you told me that Manitoba Hydro and the City were embroiled in litigation at one (1) point in time, correct?

MR. VINCE WARDEN: Correct.

MR. BOB PETERS: And you're going to have to take me with baby steps here, I haven't reviewed the statement of claim, or the defence, if there was any filed, but is the -- is the gist of what the litigation was over is that the City of Winnipeg wanted Manitoba Hydro to be charging a tax on behalf of the City of Winnipeg on certain of the taxes on the customer bills that Manitoba Hydro sent out to its customers?

MR. VINCE WARDEN: Yes. The issues that

resulted in the statement of claim being filed related to a -- an audit conducted by the City of Winnipeg on the billings of Manitoba Hydro.

Manitoba Hydro collects tax on behalf of the City on energy charges, both gas and electricity, and the issue -- the major issue, not the only one (1), but the major issue was with respect to the application of GST on the taxes already collected, so it was a compounding of taxes.

And, according to the reading of the Winnipeg Charter it does, in fact, provide for that, so it -- it was quite clear that there was provision to allow that compounding of tax, but Manitoba Hydro's point all along was that was never the intent of the legislation, and without getting into a lot of the details of that, we -- we refused to pay on that basis, hence the filing of the statement of claim.

It appeared that the only way for us to resolve this matter was through either some form of negotiation or retroactive leg -- legislation by the province, and ultimately we decided that negotiation was the best route.

MR. BOB PETERS: I told you I didn't understand it, and I really still don't, Mr. Warden, but the City of Winnipeg Charter allows the City to

apparently charge a city tax on top of the GST? Is that your understanding?

MR. VINCE WARDEN: Yes. In -- in the City of Winnipeg Charter, there is a definition of purchase price to which the tax is applied, and that definition of purchase price does include other taxes that may be applied. So the GST was part of the other taxes that may be applied.

MR. ROBERT MAYER: Mr. Warden, I was just discussing this with the Chair. Every time I leave the city I pay -- well, I don't, you eventually pay, I guess, a hotel bill for which there's the room fee, then there's the 5 percent accommodation tax, which I understand to be a city tax, and that's the cost.

And then GST and PST are added, so it becomes very obvious that the 5 percent accommodation tax goes in before the PST and GST, which sounds exactly totally opposite to what you are describing the City argues is the case, or at least in the -- in the position you were in, so that the 5 percent GST is a different number than the 5 percent accommodation tax, and the 5 percent GST is higher.

MR. VINCE WARDEN: Yeah, well, I -- I can't explain that, Mr. Mayer. I can explain the -- the tax that's been applied on electricity bills, but the

hotel bills I haven't -- I'm not in a position to comment, but -- but I think the -- the principle you're describing is similar.

MR. ROBERT MAYER: Well, it seems just the opposite, in fact. That the -- they wanted you to charge their tax after the PST and GST, whereas with the hotels the PST and GST is charged on the hotel bill itself, and the 5 percent accommodation tax, which sounds to be exactly opposite to what they were asking you to do.

MR. VINCE WARDEN: Yes, and it's consistent though -- it sounds like it's consistent with the way we were applying the tax, and it's the way, in fact, I -- really it -- it has -- happily, it has been resolved, so I -- I don't want to, you know, put Manitoba Hydro's case on the record. But nevertheless, it has been resolved, and I think to the satisfaction of both parties.

MR. BOB PETERS: And, Mr. Warden, the -- the tax on the GST portion of the hydro bills, what rate was that tax to be charged at. Do you recall?

MR. VINCE WARDEN: Well, there's a different rate for residential, commercial, whether or not the energy is being used for space heating, so dif -- different rates apply to different circumstances. The --

the rate -- the basic rate of tax though on residential was 2.5 percent.

MR. BOB PETERS: You told the Vice-Chair that the matter was resolved. It's a matter of public record as to what the resolution was. Is it not?

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: And how much was paid by Manitoba Hydro to the city of Winnipeg to resolve this litigation?

MR. VINCE WARDEN: Manitoba Hydro did pay $5.3 million. However, not all of that was related to the GST issue. There were other audit issues that -- that arose. And the application of tax, according to the Winnipeg charter, is extremely com -- complex and a lot of judgment involved, a lot of room for misapplication.

So one (1) of the -- one (1) of the provisions in the agreement we have with the City is that we are going to form a team, in fact that team has been formed already, to review the application of tax and streamline it. And hopefully these problems will not arise in the future.

MR. BOB PETERS: Is that audit a matter of public record, sir?

(BRIEF PAUSE)

MR. VINCE WARDEN: Mr. Peters, the -- the audit was conducted by the city of Winnipeg. The extent to which they put that information on the public record I'm not certain.

MR. BOB PETERS: Could you undertake to foo -- to determine if a copy can be provided to the Board and advise the Board?

MR. VINCE WARDEN: We can certainly undertake to do that, Mr. Peters. However, it mi -- might be more efficient for me to answer any questions the Board may have. I -- it's an extremely complex and convoluted exercise they go through, and I wouldn't want to impose that on the Board if -- if it's not necessary. I'd be pleased to answer any specific questions you might have though.

MS. PATTI RAMAGE: Mr. Peters, if I could just jump in here too. Insofar as Manitoba Hydro answered questions, we don't have access to the audit documents. We don't know if an audit report was produced. We just responded to questions, so I'm not sure we could accept the undertaking, in any event.

MR. BOB PETERS: In addition --

MR. ROBERT MAYER: Mr. Warden, Ms. Ramage, I know what the Chair and I really want to know. What are you committed to do in the future? Are you

going to charge a tax on tax to the Winnipeg consumers or no?

MR. VINCE WARDEN: No, definitely not. If you're looking for the -- what we've referred to as the minu -- minutes of settlement, which is a two (2) page document that summarizes the agreement between the City and -- and Manitoba Hydro, I would first confer with the City to make sure they have no objections, but I see no reason why that couldn't be filed.

MR. BOB PETERS: Then maybe that will be the undertaking, if you and your counsel would check to see if that can be provided, and if there's no objection, to provide it to the City -- or to -- from the City through Manitoba Hydro to the Board.

MR. VINCE WARDEN: Yes, we will do that.

--- UNDERTAKING NO. 84: Manitoba Hydro to provide the minutes of settlement that summarizes the agreement between the City and Manitoba Hydro

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: and the $5.3 million that was paid to Ms. Pambrum and her friends -- I'm

surprised she's not on holidays. But that said, in -- how much of that 5.3 million related to the -- I'm going to call it the tax on tax issue, Mr. Warden? Are you able to determine that?

MR. VINCE WARDEN: There -- whe -- when an amount of the statement of claim was derived, it was a total amount and negotiations proceeded towards a settlement of that total amount. So -- so, no, there is no real breakdown as to how much of the 5.3 million would have been applicable to the tax on tax issue.

MR. BOB PETERS: Where is Manitoba Hydro going to come up with $5.3 million, Mr. Warden?

MR. VINCE WARDEN: Well, it's a matter of -- like any other expenditure we have, we -- we have to find that funding somewhere. And so it's -- it's a question of where we -- if you're questioning where we will charge that amount to, it will be charged as a part of current operations on our income statement.

MR. ROBERT MAYER: You can't surcharge the City?

THE CHAIRPERSON: Mr. Warden, just one (1) question. The -- my understanding was that the -- what the City was seeking actually went back to a period in which the City owned Winnipeg Hydro?

MR. VINCE WARDEN: Yes, and that was

something we were questioning as well, but that -- that is correct. It went back to a time when the City -- City owned Winnipeg Hydro and they did not apply tax on tax during that period as well.

THE CHAIRPERSON: Mr. Peters...?

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: And the $5.3 million, Mr. Warden, is a compromise figure relative to the amount quantified through the statement of claim?

MR. VINCE WARDEN: Yes, it is. While the statement of claim was filed and then -- and then subsequently amended, there were negotiations going on between the City and the -- and Manitoba Hydro.

The -- the amount though, and just giving that a little bit further thought, the amount that was roughly related to GST would have been about -- of the five point three (5.3) would have been approximately $4 million, although that amount was not specified in the minutes of settlement.

MR. BOB PETERS: Just slowly processing the math Mr. Warden, if there was a one dollar ($1) customer bill sent out by Manitoba Hydro for energy provided to a residential customer, that one ($1) bill would attract 5 percent GST in the normal course?

MR. VINCE WARDEN: Currently, yes. As you know the GST was reduced, but -- so over the period of time we were talking about, it would have been at the higher rate.

MR. BOB PETERS: All right. Leaving that aside, at the current rate of 5 percent and the essential average residential tax that the City wanted charged on top of the GST, that was approximately 2.5 percent as I understood your previous evidence?

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: So that means the City was looking for -- on that one dollar ($1) invoice to a residential customer the city was looking for an additional one and a quarter (1 1/4) cents?

MR. VINCE WARDEN: Well, it would be --

MR. BOB PETERS: Two (2) -- that's 2 1/2 percent of five (.05) cents.

MR. VINCE WARDEN: 2 1/2 percent of five (.05) cents. That would not be one and a quarter (1 1/4) cents though.

THE CHAIRPERSON: It only becomes a big amount when you have the aggregate bills.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: There was no admission

of liability, I suppose, the usual lawyer's words, in these settlements?

MR. VINCE WARDEN: Yes. That -- that's right.

MR. BOB PETERS: And it's a one-time payment is what I understood your answer to be to Mr. -- the Vice-Chair?

MR. VINCE WARDEN: Yes.

THE CHAIRPERSON: Mr. Warden, if I recall the terms of the Purchase Agreement, I might be getting which -- Hydro has more than met the provision with respect to energy efficiency, has it not?

MR. VINCE WARDEN: Yes, we have.

THE CHAIRPERSON: Like you -- you exceeded the requirements that were within the contract itself?

MR. VINCE WARDEN: Yes, but that was contemplated at the time that was assigned.

THE CHAIRPERSON: And you've met all -- all other terms, like you built the new head office and -- and continue making the perpetual payments and things of that nature?

MR. VINCE WARDEN: We did, which I certainly made them aware of during negotiations.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Warden, I'm just trying to deal with this. You've told the Board that this 5.3 million will be charged to fiscal 2011 operations, as I understood your evidence.

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: And does that mean that Manitoba Hydro will find internally the monies that weren't budgeted for this settlement?

MR. VINCE WARDEN: Well, no. All other things being equal, as we -- a term we've been using, the $5.3 million will go directly to the bottom line of Manitoba Hydro.

MR. BOB PETERS: It'll mean that it may cause you to -- to not comply with the budget?

MR. VINCE WARDEN: Well, the net inco -- net income of Manitoba Hydro will be -- will be $5.3 million lower than it would otherwise be.

MR. BOB PETERS: And the operating budget will be $5.3 million higher than it would otherwise be.

MR. VINCE WARDEN: Well, the operating budget itself won't change, but the actual cost will change in -- in comparison to that budget.

MR. BOB PETERS: I -- I was -- just wanted to follow up on the Vice-Chair's question about

future impact on Manitoba Hydro's consumers.

I understood your answer to be that the consumers' bills for Manitoba Hydro will not increase going forward by the 2 1/2 percent on the -- on the GST portion --

MR. VINCE WARDEN: Yeah.

MR. BOB PETERS: -- for residential customers.

MR. VINCE WARDEN: Yes, that's right.

MR. BOB PETERS: Now, is that subject to review by this working group or this settlement committee?

MR. VINCE WARDEN: No.

MR. BOB PETERS: What is the purpose then of the -- of the settlement committee or the group that's going to now study the -- the tax issues?

MR. VINCE WARDEN: Well, as -- as I mentioned, the provisions of tax application are extremely complex, and we want to avoid any kind of future issues as much as possible by streamlining the application of that tax, making it simpler and more straightforward and less -- less open to interpretation.

(BRIEF PAUSE)

MR. BOB PETERS: What happens to the City's 2 1/2 percent tax on the tax going forward, Mr. Warden?

MR. VINCE WARDEN: Well, they will not be expecting to collect that tax, so...

MR. BOB PETERS: So Manitoba Hydro is not going to charge it, and they're not going to remit it to the City of Winnipeg, and they're doing that with the City's full concurrence.

MR. VINCE WARDEN: Yes.

MR. BOB PETERS: Okay.

(BRIEF PAUSE)

MR. BOB PETERS: Mr. Cormie, maybe let's turn to something really easy, like drought and the implications for what happens under certain drought conditions.

(BRIEF PAUSE)

MR. BOB PETERS: Mr. Cormie, I -- I want to use our time to have a full understanding of what Manitoba Hydro indicates is going to happen in certain circumstances of drought, and first of all, as a starting

point, would it be correct to consider a drought as any water conditions that are below average?

MR. DAVID CORMIE: You could take that definition, but I think there needs to be some significance to the -- the deviation from average before we would classify it as a drought.

MR. BOB PETERS: Is -- is there any written definition that is used consistently in the agreements that Manitoba Hydro has as to what a drought is or is not?

MR. DAVID CORMIE: No.

(BRIEF PAUSE)

MR. BOB PETERS: If the Board looks at a situation dealing with a drought that has -- the likes of which have never been seen in Manitoba before, according to Manitoba Hydro's historical record.

Can you explain succinctly to the Board of what is Manitoba Hydro's obligation under the new pending NSP arrangement?

(BRIEF PAUSE)

MR. DAVID CORMIE: To the extent that

Manitoba Hydro is able to fulfill its obligations to NSP, with its -- with the -- with its resources, without having to curtail supply to its Manitoba customers, Manitoba Hydro has an obligation to -- to supply Xcel.

A drought of the magnitude that you have described would be considered a -- considered an act of God. It would trigger a Force Majeure event, and under that Force Majeure event Manitoba Hydro would be relieved of -- would be allowed to curtail, and -- and that may result in -- in no deliveries to Xcel Energy under the contract.

MR. BOB PETERS: Would Manitoba Hydro have to pay a financial penalty under that circumstance that we're talking?

MR. DAVID CORMIE: No.

MR. BOB PETERS: Is relief available to Manitoba Hydro for only that portion of energy that Manitoba Hydro would otherwise have to deliver after conditions get to this point, where they're the worst on record?

MR. DAVID CORMIE: Manitoba Hydro is -- always has the right to curtail when the circumstances are such that the higher priority loads are at -- are at risk, and it doesn't necessarily have to be a drought worse than the record, it can be any circumstance.

And -- and drought is -- is one (1) of the reasons for which curtailment is allowed. And then you curtail to the extent that you have to in order to continue to serve higher priority loads, including Manitoba firm load.

MR. BOB PETERS: Would it be a drought in Manitoba Hydro's determination if Lake Winnipeg inflows available for outflows were less than 80 percent of average?

MR. DAVID CORMIE: According to that -- the -- the definition that it's below average, you could describe that as a drought, yes.

MR. BOB PETERS: And so if the below average level was 70 percent below average or 50 percent below average, that still would qualify as a drought definition?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: How would Manitoba Hydro know that the conditions are worse than anything on historical record starting in April of -- of a given year?

(BRIEF PAUSE)

MR. DAVID CORMIE: Well, we only know

what is actually happening. We can't anticipate the future precisely, Mr. Peters, but we do protect the supply of electricity in Manitoba such that, should there be a repeat of the worst drought on record, that there will be sufficient supplies available to ensure the needs of our customers can be met.

I remember in the drought of 2003, in June of 2003, we had lower inflows to the Manitoba Hydro system than had ever occurred before. That the -- that the river flows were low was not a surprise. That they were setting new lows becomes a surprise, but -- but we were already in -- in mode of -- of conservation doing everything possible to ensure the supply of power to our customers. So we don't -- we -- we don't anticipate those kind of events, but we do know that they can occur.

And -- and under those situations we are operating the system with the strategy that recognizes that worse events than are in the historical record can occur. And we do everything possible to mitigate them.

MR. BOB PETERS: Thank you for that answer, Mr. Cormie. I take it dealing with the new NSP arrangement, whether the drought conditions are worse than the historical record or not worse than the historical record are irrelevant in terms of how Manitoba Hydro deals with delivery to that customer?

(BRIEF PAUSE)

MR. DAVID CORMIE: If there is surplus generation capacity available beyond that, which is needed to serve the Manitoba load, that surplus is required to be used to serve the sale obligations to the extent that we can. And the contract doesn't require us to go to market to serve the sale, but it may be economic for Manitoba Hydro to do that.

So we could choose to continue to serve the sale because the revenue under the sale exceeds the cost of purchase power, and we have that option. But there's nothing that requires us to do that. And if we were to get into a situation where we had to curtail the last megawatt of deliveries to one (1) of our customers in order to protect the -- curtailing the Manitoba load by 1 megawatt, then we would exercise that and we would do that without penalty.

MR. BOB PETERS: And you would do that whether it was in winter or in summer?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Manitoba Hydro may be in the spring of a year, Mr. Cormie, exporting energy with the result that later on in the year there wouldn't be enough energy available to serve Manitoba load and the

firm export commitment. That could happen?

MR. DAVID CORMIE: Yes, that can happen because there is -- there could be a dramatic turnaround in water conditions, and when you start with -- let's say that you're anticipating a drought and you started, like Mr. Surminski plans, that you have your reservoirs full at the onset of the drought. You have no place to store any spring runoff and you may have to release that water from storage because the reservoirs are full.

And, subsequently, the drought continues and had you had more storage you would have stored that energy, but it was -- storage wasn't available, and so subsequently you may have to -- you have sold in a year that you needed to purchase as well. It -- it's the nature of hydrology as it can dramatically turn around in a matter of a few months.

MR. BOB PETERS: And in that situation, Mr. Cormie, can you still curtail the new NSP arrangement without penalty?

MR. DAVID CORMIE: We can curtail in order to protect the supply to Manitoba load regardless of the circumstances that led up to that situation.

MR. BOB PETERS: And that again is without penalty?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And in terms of making the decision whether or not to serve the new NSP contract under the circumstances you've just described, that would be a financial decision as to whether you could buy the energy and sell it for a profit back -- or sell it to NSP for a profit?

MR. DAVID CORMIE: Yes, we always have

(BRIEF PAUSE)

MR. DAVID CORMIE: Yes, we always have the right to serve a sale with purchased energy that doesn't come from Manitoba resources. And -- and if that was a -- an alternative that made financial sense to Manitoba Hydro that's what we would do.

MR. BOB PETERS: But again --

MR. ROBERT MAYER: So under those circumstances, I'm assuming you would have to run your -- the thermal units, because you don't have to curtail Manitoba power if you've still got the thermal units available. So when we talk about profit, I suggest that if you can buy the power cheaper than we could use our thermal units, Manitoba Hydro would be ahead, although certainly not in a profit position.

MR. DAVID CORMIE: Yes. And to the

extent that -- that we can purchase power to serve the Manitoba load, and that's less expensive to do than running the combustion turbines, we'll do that. But at some point, our hydraulic generation gets low enough that the tie lines are fully load as -- in an import mode, all your thermal generation is running, and you have no surplus resources available in Manitoba to export.

There's just -- but there is -- there is still the opportunity to go to market, and -- and fulfill your contractual obligations with purchased power in the market. And those -- the contracts allow us to serve our sale obligations from the market, and -- but there's no obligation to do so. We can curtail under those circumstances without penalty.

And Manitoba Hydro does not sell liquidated damage as power. It's -- it's not an LD product. We -- the -- this is a system participation product, and they are participating in the risks of our system, and they -- and we do that. And there are no penalties associated with that, as long as we have the contractual right to curtail, and we only curtail to the extent necessary to protect the higher priority loads.

MR. ROBERT MAYER: The weakness, however, is that -- that thermal generation is included in -- in your resources it -- to provide the power, and to meet

Manitoba's energy. I say "weakness" because of the cost.

MR. DAVID CORMIE: Yes. And -- and when we're doing the evaluations of the sale agreements, we look at the frequency at which we would have to run the expensive generation to serve the sale. And that's part of the economic analysis, and -- and that's generally a low percentage of the time.

MR. ROBERT MAYER: And, I guess, under those kind of circumstances, that becomes an emergency under which you could use your coal generation on Brandon 5?

MR. DAVID CORMIE: The use of coal generation at Brandon should not be driven by economic factors, Mr. Mayer. If there is an economic solution that can avoid the use of Brandon 5, we will take those steps first.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, what you're talking with the Vice Chair about is that to meet the NSP load, as well as the Manitoba Hydro load, Manitoba Hydro is required to use all of its dependable resources from its power resource plan?

(BRIEF PAUSE)

MR. DAVID CORMIE: Manitoba Hydro is required to use all its resources, not just its dependable resources. But I think in those circumstances, they're -- they're one (1) in the same.

There -- there is no exclusion of -- of generation. We have to be on the verge of curtailing load, and -- and to the extent that that's necessary, we have the right to curtail export contracts first, and -- and before we curtail Manitoba load.

MR. BOB PETERS: I understand one (1) of the Vice Chair's points; the additional costs for running the thermal plants in Bra -- in Manitoba would fall to the Manitoba ratepayers, not to the export customer.

MR. DAVID CORMIE: Yes. Economics is not a -- a reason for curtailment, but it can be a reason for continued delivery with purchased power.

MR. BOB PETERS: Again, only if profitable?

MR. DAVID CORMIE: Yes, exactly.

(BRIEF PAUSE)

MR. BOB PETERS: So with NSP, whether it is a situation that is worse than the historical record or within the bounds of the '94/'96 year historical

record, the remedies to Manitoba Hydro do not change in situations of drought?

MR. DAVID CORMIE: It'd be difficult to justify a curtailment for drought reasons that was within the historic range of -- of conditions, because Manitoba Hydro plans and operates a system knowing that river flows can be ranged from the lowest on record to the highest. That's -- we consider that normal. We expect to supply service to all our customers under those conditions.

The costs may vary with flows, but drought is not a con -- not a reason for curtailment unless it gets to the point where Manitoba load is at risk. Just because we're in drought and we still may have sufficient surplus that allows us to continue to serving sale, we cannot declare a Force Majeure event for an event that's within the historic record.

MR. BOB PETERS: All right. Mr. War -- Mr. Cormie, that answer suggests that the treatment of the NSP pending contract is different in situations that are -- drought situations that are within the historical record, compared to drought situations that are outside of the historical record?

MR. DAVID CORMIE: Well, you know, Manitoba Hydro -- there's a test having to do with good

utility practice, and for the utility to operate a system so that we are not able to serve our load, given the repeat of -- of a known condition in the past, wouldn't be consistent with good utility practice. It would say, you know, you've -- you're not operating the system as a prudent -- as -- as prudence would dictate.

MR. BOB PETERS: Let's leave the specific operations aside, if we can, or if you can. But in a situation where Manitoba Hydro is selling energy in the spring, even if it's not the highest of water problems, and subsequently in the year it finds out that it doesn't have enough energy to meet domestic load, but it still hasn't been -- it's still within the bounds of the historical record, is there a financial penalty for not serving under the new NSP agreement?

MR. DAVID CORMIE: Well, that would have to be determined through litigation, Mr. Peters. Clearly one (1) of our customers may disagree that we have met the terms and conditions of the contract. And -- but that's -- that is always a risk that -- that we curtail and the customer says, You had no right to curtail, and take us to court. But there are no -- that's -- that would be the only remedy.

MR. BOB PETERS: Well, I was hoping we were suggesting it -- hope it doesn't go that far. But

in understanding the arrangement with NSP, then the risk to the Corporation is that if there is a curtailment within the historical record, that exposes the Corporation to litigation. That's the risk -- the only risk to the Corporation.

Is that understanding?

MR. DAVID CORMIE: Well, Mr. Peters, I -- I think I need to seek legal advice on this, because real -- really you're asking me to tell you what legal risk there are associated. As long as Manitoba Hydro's filling its obligations under the contract and follows good utility practice and exercises its curtailment rights according to the contract, we are not at risk. But the counterparty may mis -- disagree with that, and -- and their -- their recourse is -- is not to exercise some kind of clause in the contract that says we pay them; they have to take us to court for a breach of contract.

MR. BOB PETERS: Okay, let's not go there and avoid involvement here of Ms. Ramage, if we can.

But it's the -- it's the part, Mr. Cormie, that -- that I want the Board to understand, in terms of: Manitoba Hydro finds itself in a situation that is within the bounds of historical records that it is not able to meet Manitoba load. In those situations, is there relief

for Manitoba Hydro in its obligations to NSP in the new agreement?

MR. DAVID CORMIE: Yes, we have the right to curtail. Now, whether -- and we have the right to curtail without penalty. But if our customer disagrees that we had the right to curtail there could be litigation.

MR. BOB PETERS: Thank you.

MR. ROBERT MAYER: And you have said that if you operate your system in such a way that that happens, then it sounds to me like you're admitting you'd have been negligent because that wouldn't have been best practice, and I'm sure we don't want to admit that here right now, but that's the way it starts to sound to me if you operate a system under the -- under the circumstances Mr. Peters described and still couldn't serve Manitoba load.

MR. DAVID CORMIE: Well, you're -- you're absolutely right, Mr. Mayer. You could imagine a scenario where power prices were very high, it made sense for Manitoba Hydro to sell the energy to a third party and then not have sufficient energy supplies to fulfill its contractual obligations. You can imagine those circumstances could lead to litigation.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Does that suggest then that it is bad utility practice to curtail within the historical limits? That is curtail the --

MS. PATTI RAMAGE: I think again --

MR. BOB PETERS: -- the third party counterparty arrangement?

MS. PATTI RAMAGE: I think we're, again, getting into potential admissions of liability in the future that I wouldn't want Mr. Cormie to begin commenting on the record what would be examples of bad utility practice, but...

(BRIEF PAUSE)

MR. DAVID CORMIE: Drought is one (1) of the reasons for curtailment. There's -- there's many reasons. Generally, there are factors that are beyond the control of Manitoba Hydro that allow Manitoba Hydro to curtail, but there are -- there are other reasons for curtailment that are under the control of Manitoba Hydro.

For example, we have to do maintenance outage, we have to do maintenance on our units. We have to take transmission lines out of service. So there are reasons for curtailment that are defined in the contract,

and to the extent that we exercise our rights we will curtail.

There are reasons that are beyond Manitoba Hydro's control, those are covered off by the definition of Force Majeure, and -- but in all cases we have the right to curtail to serve Manitoba Hydro customers first in Manitoba.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Are there other provisions with the prospective NSP arrangement where Manitoba Hydro can reduce energy during the winter season by paying a penalty?

(BRIEF PAUSE)

MR. DAVID CORMIE: Manitoba Hydro has to fulfill its obligations year round, Mr. Peters. And there are no penalties in the contract.

MR. BOB PETERS: Well, rather than a penalty then, by paying monies to the counterparty, whatever you call that?

MR. DAVID CORMIE: Well, we have the option of -- we have a call -- we have a heat rate call option where we can financially settle the delivery of

the energy. We still have the capacity obligation, but we are going to provide the energy by buying down our obligation based upon the exercise of that option by September 15th. And again, that would be a -- a decision that will be made at that time, depending on the economics of the alternatives.

MR. BOB PETERS: Would that -- would that option only be exercised in periods of drought that are worse than -- than the historical record?

(BRIEF PAUSE)

MR. DAVID CORMIE: No, that option can be exercised at any time Manitoba Hydro declares adverse water conditions.

MR. BOB PETERS: Can you give the Board an example as to why you would declare adverse water conditions and use the heat rate call option to pay for the energy that would otherwise -- to be delivered by Manitoba Hydro to NSP, when it wasn't a situation of a drought worse than the historical record?

MR. DAVID CORMIE: Well, in -- in -- Manitoba Hydro includes the call option as part of its dependable energy sources. So under the repeat of the worse drought, it doesn't have to be the -- has to be --

doesn't have to be worse than that, but just under the worse drought, Manitoba Hydro is counting on exercising that right.

But there's no reason why we couldn't exercise that if conditions were -- were more favourable than that and that ended up being the most economic way of serving the sale.

MR. BOB PETERS: Would the use of that heat rate call option only be financially attractive to Manitoba Hydro if the market price was -- was exceedingly high?

MR. DAVID CORMIE: Well, the heat rate call option is tied to the price of natural gas, not to the price of electricity. And so we would look at the cost of exercising the call option based on the cost of natural gas, and comparing that to the cost of purchasing energy in the market to serve the sale, and utilize whichever makes more sense to -- which is every -- more economic to the company.

MR. BOB PETERS: Can you tell the Board, Mr. Cormie, if Manitoba Hydro can curtail its deliveries under the diversity export commitments in the pending NSP arrangement, to the same extent as it can under the long term firm contract?

MR. DAVID CORMIE: Manitoba Hydro has no

minimum energy sale obligations to -- under the diversity contracts. We only have an obligation to offer; we have no obligation to supply.

MR. BOB PETERS: All right. I hope I don't get caught up on this again. But there's an obligation to offer into the market. And if offered, then NSP mandatorily has to purchase it from Manitoba Hydro?

MR. DAVID CORMIE: No, that's not correct. If we, for example, were to offer it to the market at a thousand dollars ($1,000), the market cleared at a hundred dollars ($100), Manitoba Hydro -- its energy wouldn't be in merit, and so the offer wouldn't be accepted; it would be out of -- out of the money.

So we have an obligation to offer, and we have an obligation to have the capacity on the system, but we have no obligation to actually send energy south under the diversity contracts.

MR. BOB PETERS: And the obligation to offer, is it at the highest marginal cost of the Manitoba Hydro dependable resources -- or resources?

MR. DAVID CORMIE: It's at Manitoba Hydro's discretion in the offer price.

MR. BOB PETERS: Mr. Chairman, I'm going to turn to the Minnesota Power and Wisconsin Public

Service arrangements, but this might be a good time for the lunch recess, if it suits the Board.

THE CHAIRPERSON: Okay. We'll be back at 1:15. Thank you.

--- Upon recessing at 11:59 a.m.

--- Upon resuming at 1:18 p.m.

THE CHAIRPERSON: Okay, welcome back.

Mr. Peters...?

MR. BOB PETERS: Yes, thank you.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, to start the afternoon, following up on an issue with you and the Vice-Chair talking about resource commitment, how much by way of imports does Manitoba Hydro employ to fulfill the domestic and firm contracts to NSP?

(BRIEF PAUSE)

MR. DAVID CORMIE: Well, the imports, which are the -- the -- it's the amount of electricity that actually can come into Manitoba, is -- is restricted

by the tie-line capability. Assuming that there was a thousand megawatts an hour for a year, that would be about 9 terawatt hours.

In addition to that, Manitoba can purchase power and serve the sale without actually importing the power, and so there's also that additional amount that's available.

MR. BOB PETERS: That's the financially settlement option that -- that Hydro has?

MR. DAVID CORMIE: Yes, when we can serve the sales with purchased power, that doesn't -- that power doesn't need to flow into Manitoba.

MR. BOB PETERS: And, Mr. Cormie, is your answer in respect of a drought condition or just normal operating conditions?

MR. DAVID CORMIE: That would be in -- in the worst case drought conditions where we were utilizing the -- the interconnections to maximize imports into Manitoba.

MR. BOB PETERS: Mr. Cormie, I want to turn with you to the -- the term sheet. I may refer to them as contracts, but they're -- they're not yet binding contracts. I think we all acknowledge that, correct?

MR. DAVID CORMIE: Yeah.

MR. BOB PETERS: But the term-sheeted

agreements which I think this morning you characterized as living documents, just meaning that they're subject to change in the future?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And at the -- at the point in time when Manitoba Hydro was doing its financial projections, Manitoba Hydro had to consider what obligations it had under different water flow situations to Minnesota Power and Wisconsin Public Service. Would that be correct?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Can the Board understand or is Manitoba Hydro prepared to put on the record whether in respect of drought issues, the two (2) term sheets are identical? Is that something Manitoba Hydro can acknowledge or will not acknowledge?

MR. DAVID CORMIE: Identical in which way?

MR. BOB PETERS: Identical with respect to the obligations of Manitoba Hydro as to how to treat these counterparties, Minnesota Power and Wisconsin Public Service, in the event of a drought.

MR. DAVID CORMIE: The -- the terms of the term sheet are confidential, Mr. Peters, but they -- in -- in general terms, as this -- as with all the other

contracts, they have curtailment provisions in them consistent with our past practice.

MR. BOB PETERS: Well, the only past practice Manitoba Hydro would have would be with NSP and -- and existing counterparties, correct?

MR. DAVID CORMIE: Yes, and that practice is Manitoba Hydro gives priority to domestic load first, and to the extent that there's a shortfall, that shortfall will be borne by the purchaser of our -- of -- on the export market.

MR. BOB PETERS:

> "In the proposed contracts to the counterparties in the term sheets and in the event of a drought, Manitoba Hydro can decrease firm energy volumes by a certain percentage."

And I'm reading from the ICF Report, page 94. That percentage number is blacked out. Do you recall that statement, sir?

MR. DAVID CORMIE: Yes, under adverse water conditions there's flexibility that allows Manitoba Hydro to reduce the deliveries.

MR. BOB PETERS: Well, let's just stop there then. Can adverse water conditions be declared under the term sheets whether or not it is the worst

drought on historical record, or worse than the worst drought on historical record?

MR. DAVID CORMIE: Well, the -- the adverse water provisions are confidential, Mr. Peters, so I really can't comment on those, except that Manitoba Hydro in planning the supply for the system assumes that we will exercise our -- all available curtailment rights and plan for -- for whatever load is -- is -- is not curtailable. And -- and we will put in place facilities and we'll operate our system so that -- that those energy amounts can be met under the lowest flow conditions on record.

MR. BOB PETERS: All right. Let's take it to a worse situation, Mr. Cormie. I'm not sure if we should say Black Swan, but let's say a drought that is worse than the historical record. In those situations, is there an obligation on Manitoba Hydro to provide energy to the parties to the term sheets?

MR. DAVID CORMIE: Again, I can't be specific, but in principle, Manitoba Hydro has the right to curtail whatever is -- it can or needs to in order to serve Manitoba load first.

(BRIEF PAUSE)

MR. BOB PETERS: Can Manitoba Hydro curtail the delivery of weekend energy to Minnesota Power and Wisconsin Public Service when an adverse water condition is declared?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And that would be in a situation of a Saturday/Sunday or a -- a holiday?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: If it's -- if adverse water conditions are declared by Manitoba Hydro, can Manitoba Hydro curtail the delivery of weekday five (5) by sixteen (16) energy?

MR. DAVID CORMIE: Only to the extent that it can't serve a domestic load out of the resources that are specified in the contracts.

MR. BOB PETERS: So the term sheets will indicate the power resources that are to be employed to serve the domestic load, and only if those resources can't serve it will Manitoba Hydro be able to curtail delivery of weekday five (5) by sixteen (16) energy?

MR. DAVID CORMIE: The contracts -- all the contracts have definition of adverse water that -- that -- that create the context for in which curtailment can take place. And to the extent that curtailments are required, they have -- they are -- they are allowed to

the extent it's necessary to serve domestic load.

In all contracts to the extent that the -- an event that might be classified as Force Majeure isn't necessarily a requirement for curtailment. Curtailment is triggered by the need to curtail, not -- not the existence of a Force Majeure event.

And the need to curtail is driven by the fact that we have higher-priority loads that need to be served, and only to the extent that the higher-priority loads are threatened is curtailment allowed.

And whether that event is a drought, a flood, tornado, whatever, it's -- but those -- all those specifics are defined in each and every contract, and those create the conditions for curtailment.

MR. BOB PETERS: And so there is financial risk to Manitoba Hydro if it curtails under the term-sheeted agreements with Minnesota Power and Wisconsin Public Service if the curtailment is not related to the serving of domestic load.

MR. DAVID CORMIE: To the extent that Manitoba Hydro violates the terms of its contracts, it is -- it would subject to a legal challenge, and that would be the only financial risk.

MR. BOB PETERS: Is there seasonality in the ability to curtail related to Minnesota Power and

Wisconsin Public Service?

MR. DAVID CORMIE: Those would be specific to the contracts, Mr. Peter, and I can't -- Mr. Peters, I can't answer that question.

MR. BOB PETERS: Are you able to tell the Board the quantity of imports that Hydro must employ before curtailment of the Minnesota Power and Wisconsin Public Service contracts?

MR. DAVID CORMIE: Again, I can't speak in specific terms, but there are resources that are identified that constitute the supply portfolio that Manitoba Hydro will use to serve the sale. To the extent that those resources are not available, that may give us the right to curtail.

But in the case of the new contracts, Manitoba Hydro is putting in adequate hydraulic resources that don't rely on purchase power to serve the sales, so in that extent they are -- are less exposed to imports than -- or purchases than -- than previous contracts.

But I had talked earlier before lunch, Mr. Peters, that we still have the right to serve the sale if it's economically advantageous given that purchased power may be available at a price less than the sale price -- the sale price, and although we may have the right to curtail and we choose not to exercise it because we -- we

think it's economic for Manitoba Hydro to continue deliveries.

MR. BOB PETERS: But that economic test has to be weighed against all of the options Manitoba Hydro has at the time in serving the contract, and it would only be done if there was a profit in it for Manitoba Hydro.

MR. DAVID CORMIE: Well, in the event that we had a drought worse than record, Manitoba Hydro would do everything possible to ensure that the Manitoba load was served first.

To the extent that we would engage in market purchases to continue the sale, we would do that as a separate decision, and it would be based on economics as -- as one (1) of the considerations. We have the discretion there.

MR. BOB PETERS: Would it be correct in your last answer, Mr. Cormie, that you would purchase power to serve an export commitment, even if it meant Manitoba Hydro would lose money on the transaction.

MR. DAVID CORMIE: I didn't say that, Mr. Peters.

MR. BOB PETERS: Well, you said that economics would be one (1) consideration. What would be the other considerations?

MR. DAVID CORMIE: I don't know. It's -- it's a hypothetical question. We'd have to look at it at the time, but if -- if there were reasons to continue to deliver, we would have to -- beyond economics, they would have to be thought through at the time, and -- but there's nothing in the contract that requires us to make any deliveries.

We have the option of -- of purchasing, and that option is, at this time, I believe is only an economic option, but there may be other factors that I'm not aware of today.

MR. BOB PETERS: Is there a heat rate option clause available with the term-sheet counterparties?

MR. DAVID CORMIE: I can't discuss that, Mr. Peters. That's a detail that would -- is -- would be covered by the confidentiality clauses of the term sheets.

MR. BOB PETERS: Is adverse water condition one (1) aspect of what can be considered a Force Majeure under the term sheets, Mr. Cormie?

(BRIEF PAUSE)

MR. DAVID CORMIE: I can't speak about

the specifics of the term sheet, Mr. Peters, except that adverse water is -- is a known condition and it's relied on by Manitoba Hydro to determine what dependable resources need to be put in place to serve the sale.

And in -- in doing that determination, it requires Manitoba Hydro to exercise its adverse water rights in order to limit the sale quantities to the dependable energy amounts. Adverse water is -- so adverse water is activated within the range of historical flows.

MR. BOB PETERS: Would it be correct then to say that Force Majeure would be an unknown condition to Manitoba Hydro?

MR. DAVID CORMIE: Well, Force Majeure by definition is an event that's outside the control of Manitoba Hydro.

MR. BOB PETERS: And does a Force Majeure also mean outside the bounds of the historic water flow record?

MR. DAVID CORMIE: I can't answer that question. That's a legal interpretation.

MR. BOB PETERS: Is Force Majeure defined in the term sheets?

MR. DAVID CORMIE: Force Majeure is not defined in the term sheets, but it is a subject of

negotiations and will be defined in the -- in the ultimate contracts. The term sheets just define the major terms and conditions. And then all the legal issues are -- are subject to negotiation, and that includes the definition of terms and conditions.

MR. BOB PETERS: Can you indicate to the Board what is the latest date in a fiscal year in which Manitoba Hydro can declare adverse water conditions?

MR. DAVID CORMIE: I think the definition of adverse water conditions is -- differs from contract to contract, and I'm not -- I'm not able to give a single answer to that. And -- and I can't speak about the specifics of the -- the term sheets or the contracts that are being negotiated.

MR. BOB PETERS: Can you help the Board understand, Mr. Cormie, what would be the earliest day in the year in which Manitoba Hydro would know that it is experiencing an adverse water condition?

MR. DAVID CORMIE: Generally speaking, Mr. Peters, we would -- we recognize that we don't know. And in that context, we have to make assumptions about the future that are prudent. And under those prudent assumptions, if it appears that there's -- that the exercise of our adverse water rights is appropriate, we would exercise them regardless of the time of the year.

So as we've discussed -- we con -- earlier, we're continually planning and protecting against the worst case. And if protecting the worst case involves exercising adverse water rights under any of our contracts, we will do that, and -- and we will do that under the contracts consistent with what each contract allows us to do.

MR. BOB PETERS: Can you indicate whether then that decision could be made on virtually any day of the year?

MR. DAVID CORMIE: Subject to a contract not giving us that right, that -- that would be the case. I -- I don't believe there's any restrictions in the -- any of the existing contracts for -- that limit Manitoba Hydro's flexibility in declaring adverse water.

(BRIEF PAUSE)

MR. BOB PETERS: Can you indicate to the Board whether your existing contract with NSP, the one (1) that will expire in 2015, whether there is an adverse water clause within that contract?

(BRIEF PAUSE)

MR. DAVID CORMIE: I'll have to check on that, Mr. Peters, unless you already know the answer, you can inform me.

MR. BOB PETERS: No, I think it best if you determine if you can answer that question by way of undertaking I think would be the safest way to proceed, Mr. Cormie. Would that be acceptable?

MR. DAVID CORMIE: Sure.

MR. BOB PETERS: Yes, the undertaking is that Mr. Cormie will, on behalf of Manitoba Hydro, determine whether there is an adverse water clause in the contract that currently exists with NSP.

Is that correct, Mr. Cormie?

MR. DAVID CORMIE: Yeah.

MR. BOB PETERS: Thank you.

MS. PATTI RAMAGE: Subject to any confidentiality concerns because I -- I understand the document is on the public record, however, portions of it have been -- have been redacted as confidential, so.

MR. BOB PETERS: Thank you, Ms. Ramage.

--- UNDERTAKING NO. 85: Manitoba Hydro to indicate whether there is an adverse water clause in the contract that currently exists with

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: In the winter of 2002/'03, Mr. Cormie, Manitoba Hydro was aware that it had low winter precipitation? I guess that's from the October, November, December of 2002 and into January and February of '03.

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And in April of '03 Hydro also had relatively low energy in storage?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Did Manitoba Hydro declare adverse water conditions on April -- or in April of 2003?

MR. DAVID CORMIE: No.

MR. BOB PETERS: And into May of '03 the inflows were, again, relatively low in '03?

MR. DAVID CORMIE: Correct.

MR. BOB PETERS: And Manitoba Hydro curtailed opportunity sales in and around May of '03?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Did Manitoba Hydro declare an adverse water conditions in May of 2003?

MR. DAVID CORMIE: No.

MR. BOB PETERS: And in the summer of 2003 and into the fall of 2003, rainfall was relatively low. Is that your recollection or records?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And again, did Manitoba Hydro declare adverse water conditions in the fall before September 15th of 2003, adverse water conditions?

MR. DAVID CORMIE: No.

MR. BOB PETERS: And if I recall from the earlier evidence, only approximately eight thousand (8,000) -- no, 18,500 gigawatt hours of hydraulic generation was produced in that year. Is that correct?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And that would have been the lowest in probably the past thirty (30) years?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Can you indicate whether Manitoba Hydro declared adverse water conditions in the winter of 2003?

MR. DAVID CORMIE: No, we didn't.

MR. BOB PETERS: And to this date, from that time until today, has Manitoba Hydro ever declared adverse water conditions?

MR. DAVID CORMIE: No, we haven't.

MR. BOB PETERS: And rather than enter

into adverse water conditions or declaring adverse water conditions, am I correct in understanding that Hydro entered into gas contracts in an effort to try to have energy available to meet obligations?

MR. DAVID CORMIE: The issue of the gas contracts is independent of the adverse water right issue.

MR. BOB PETERS: But the gas contract was an option pursued by Manitoba Hydro?

(BRIEF PAUSE)

MR. DAVID CORMIE: Yes, Manitoba Hydro entered into some call options, yes.

MR. BOB PETERS: Did Manitoba Hydro use any gas contracts in Canada?

MR. DAVID CORMIE: Manitoba Hydro had to secure a fuel supply for the combustion turbines at Brandon and the thermal station at Selkirk, and so we purchased natural gas throughout the summer of 2003, put the gas in storage as a hedge against high natural gas prices during the winter of '03/'04.

MR. BOB PETERS: So Manitoba Hydro purchased natural gas contracts in Canada, but never used the gas.

MR. DAVID CORMIE: The winter of '03/'04 was one (1) of the warmest winters on record, and it was not necessary to use the gas because lower-priced electricity was available on the marcher -- on the mar -- on the market, and -- and we sold off our gas positions as the winter proceeded -- as -- as the winter progressed in order to -- as -- as the gas became surplus to our requirements.

MR. BOB PETERS: Did Manitoba Hydro also purchase, back in the '02 to '04 drought, gas contracts in the United States?

MR. DAVID CORMIE: We purchased some call options to supply our -- our needs should the drought, in combination with high winter loads, require us to -- or to manage the -- the uncertainty associated with the -- the supply demand forecasts for that winter.

MR. BOB PETERS: But in addition to those call options, do I take it Manitoba Hydro never had to take physical possession of the gas? Physical delivery of the gas?

MR. DAVID CORMIE: I was speaking about electricity call options. We also purchased natural gas, and put it into storage in -- in the US, again as a financial hedge against the cost of -- of high electricity.

And although it wasn't a perfect hedge, because there's not a perfect match between natural gas prices and electricity prices, it was an effective hedge.

(BRIEF PAUSE)

MR. BOB PETERS: To what percent was it effective in Hydro's calculation?

MR. DAVID CORMIE: I don't remember that, Mr. Peters.

MR. BOB PETERS: Okay. And in addition to those options, Manitoba Hydro also financially settled with its US counterparties?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And if we fast forward to -- to today with the term sheets that Manitoba Hydro has with Wisconsin and Minnesota Power, if the 2002/''03 and 2003/''04 situation were to exactly repeat itself, can you indicate to the Board how the adverse water clause would differ, and -- and what Manitoba Hydro would do differently than it did in 2003?

MR. DAVID CORMIE: Mr. Peters, although the -- those contracts have adverse water clauses in them, it also has a -- a clause that sets the price for that electricity, and in effect we would be required to

pay 110 percent of market price if we purchased the energy under the adverse water clause, so it was never an attractive alternative.

Why would we pay 10 percent more than market? So we went to -- went to the market and bought the electricity under separate contracts. Those clau -- those contracts were written in 1990, 1991, at a time before Manitoba Hydro had market access.

And -- and in 2003 we were -- we were into -- we could -- we were into an -- an open market in the US where we could buy from anybody, and it wasn't necessary for us to purchase under the adverse water provisions and -- and based on that company's costs of generation.

I think if you look in the seasonal diversity contracts it says they will supply us adverse water energy at their incremental cost after having served their firm and their non-firm sales obligations. Their non-firm sales obligations are those spot-market sales that they're making at the time, and they would require us to pay 110 percent of the spot market sales, which is, in effect, 110 percent of market price.

So although we had that as a backup if we couldn't go to the market and buy it at a -- at a lesser price, we were always able to go to market and -- and

purchase the energy at market rather than at a premium to market. So those why -- that's why we didn't exercise the adverse water rights in -- in 2002/'03 because it would have been -- it would have been a more expensive option than what we -- what we did do.

In the current climate, Manitoba Hydro again has access to market, and -- and all the new contracts are written such that Manitoba Hydro can purchase energy from the market at market price. And there is -- there are -- there's no requirement for us to -- there's not a similar pricing premium required under the new contracts because both our customers and Manitoba Hydro realize that we wouldn't pay more than market price. And so those contracts are -- are not really relevant to today's situation.

We can settle all our obligations under all our existing contracts. And I anticipate under the term sheets you'll -- when we finally negotiate those, all the market mechanisms that are available will give Manitoba Hydro access to market-priced energy, and -- and so we don't need a special pricing provision associated with pricing adverse water energy.

MR. ROBERT MAYER: Mr. Cormie, Mr. Peters' question, if I recall, is: If you had exact same conditions as the 2002/2003, what would you do? And

we're -- I think we're talking about if the term sheets are turned into contracts.

MR. DAVID CORMIE: M-hm.

MR. ROBERT MAYER: You would have, am I correct, sixteen (16) new turbines online in Conawapa and Keeyask if those things are turned into contracts? If you had the same amount of water flowing down the Nelson River you would -- would you not be in a much better position than we were in 2003/2004?

MR. DAVID CORMIE: Clearly we would, Mr. Mayer, because we have put in sufficient hydraulic generation that it would be -- it -- it would be less necessary to purchase energy from the market. All I'm saying is that in 2002 and '03 we bought energy at market prices. Today we still buy energy at market prices. In the future we'll buy it at market prices.

So the question was: Why didn't we exercise our adverse water rights in 2002? Because we had mar -- access to market prices, and we have them today, and we will in the future. So there won't be anything different in the future than today if we go to the market. We will -- we will buy at market price.

So that -- that was my point, is that -- is that although it -- we have access to adverse water under the existing contracts, in the Heritage contracts,

we don't exercise those rights because they're expensive. And they also have enduring obligations where we're obligated to return it to the seller in a five (5) period. And so we would then, having to -- there's the risk that now we have to supply that energy back to them and pay them a premium. So there was -- there was risks associated with taking adverse water energy, and -- and for those reasons, we chose not to in the drought of 2003. We could get it less expensively and at a lower risk than we -- than by taking it under the contract.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: The less expensive part was the 10 percent premium over and above market?

MR. DAVID CORMIE: That -- that's right. There's -- you'll see that in the pricing provisions for the diversity. The -- it -- it's 110 percent of their cost of serving their load, including firm and non-firm sales. And that -- and that -- that was pretty standard pricing at the time. It was always at, you know, cost plus 10 percent.

(BRIEF PAUSE)

MR. BOB PETERS: Mr. Cormie, I want to

just discuss a little further the Force Majeure clause to the extent that we're able to do that on the public record.

MR. DAVID CORMIE: Sure.

MR. BOB PETERS: Are you able to indicate whether there is or is not a Force Majeure clause in the NSP proposed contract as well as the term sheets with Minnesota Power and Wisconsin Public Service?

MR. DAVID CORMIE: There is a Force Majeure cont -- clause in the -- the new NSP sale agreement and, although I can't speak the details, there will be -- there'll be a Force Majeure provision in the new sale agreements. That's a pretty standard provision that's in almost every power purchase agreement in the industry.

MR. BOB PETERS: And the interpretation will be what's key is I think is what you told the Board earlier this afternoon?

MR. BOB PETERS: Right. We spend a lot of time negotiating the -- what Force Majeure means for each company and -- and the negotiations may settle on a different definition.

Again, all depending on who's willing to bear the risk and -- and the individual circumstances of the -- of the -- of the relationship.

MR. BOB PETERS: I suppose then with that answer, you know, for whose benefit is the Force Majeure clause inserted? It may be on the face of it for Manitoba Hydro's benefit, but you can expect the counterparties to try to negotiate away some of the protections. Would that be what would be expected?

MR. DAVID CORMIE: The Force Majeure provisions generally are symet -- symmetrical for both part -- and they apply to both parties. We don't have a Force Majeure definition that applies to Manitoba Hydro and -- and a different definition that applies to its counterparty.

And so that definition applies for their benefit as well because there may be a circumstance where they can't take delivery of the energy. Remember, we must sell and they must buy, but there are circumstances when they can't buy, the transmission system has gone down, it -- and that -- and that -- that event is beyond their control.

So they need -- they need to be able to protect themselves against act of God -- acts of God, and -- and every company looks at its risks and -- and there's a negotiation so that at the end of the day we have a balance between the companies needs and that's reflected in the definitions.

MR. ROBERT MAYER: So if Fargo and Grand Forks end up under water during the spring, I'm assuming that -- somebody might call that a Force Majeure and they wouldn't be required to take any power?

MR. DAVID CORMIE: Yes, because generally the power is delivered over a transmission system that's not controlled by the seller or the buyer. There's a -- somebody in the middle, a transmission system operator, and if they declare the line is out of service, either for forced maintenance or for floods, there's nothing that the buyer and the seller can do to avoid that.

And so that would be a circumstances of -- of Force Majeure. And -- and then parties are excused of their obligations under those circumstances.

MR. ROBERT MAYER: It's generally a good idea not to run power lines that weren't designed to be under water, or to use power lines that weren't designed to be under water when they are in fact under water, I imagine?

MR. DAVID CORMIE: I think in the flood of '97, I remember some of the power line were under -- un -- very close to being under water, Mr. Mayer, so it does happen. We keep telling them to make the towers taller.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, following up on the example from the Vice Chair, if Jenpeg goes down due to a turbine problem, would -- would that be considered a Force Majeure in the general sense?

MR. DAVID CORMIE: In -- in the general sense, unit outages aren't -- aren't a Force Majeure. They are identified separately as -- as a reason for curtailment.

So there has to be a -- an event, the loss of a generating unit, and -- and that loss has to -- if it -- if it leads to a shortage of electricity, and rationing between Manitoba customers has to -- Manitoba Hydro's customers has to occur, to the extent that Manitobans are at risk, the -- the -- the curtailment will take place on the export market. The export customers will curtail first.

So you determine that -- if there is a reason for curtailment, and then the magnitude of curtailment is determined by how much -- what's the size of the shortage, and whether that shortage has an effect on Manitoba Hydro's customers, and then it gets allocated to the customers according to our priority stack.

MR. BOB PETERS: Maybe help me with the last part of that answer, Mr. Cormie. If -- if there is

a loss of a unit as we've been giving in this example, and it results in a shortage to the Manitoba load, is the amount Manitoba Hydro would be -- would -- would consider -- it would be able to curtail would be equal to the amount that the Manitoba load would otherwise have to be curtailed?

MR. DAVID CORMIE: That's the si -- that would be the size of the curtailment.

MR. BOB PETERS: And -- and if we know the size of the curtailment, and we could pick any number, but how is the size of that curtailment then allocated amongst the three counterparties being NSP under its new contract, Minnesota Power under its term-sheeted arrangement, and Wisconsin Public Service also under the term-sheeted arrangement?

MR. DAVID CORMIE: Right. All customers who are being served with the same product type, let's say it's system participation and power, will get allocated the curtailment in proportion to -- on a pro rata basis.

So if there were three (3) customers, and they were all -- they were all purchasing the same quality of electricity, and there was a 30 megawatt curtailment, each customer if the size of the contract was exactly the same would get a 10 megawatt curtailment.

It's a -- once -- having gone down the stack, you then allocate it on a pro rata basis within the stack.

MR. BOB PETERS: And the arrangements with -- the new arrangement with NSP, and the MP and WPS arrangements, are considered system participation contracts?

MR. DAVID CORMIE: Yes, we -- that's the only product that we're selling long-term today, Mr. Peters.

(BRIEF PAUSE)

MR. BOB PETERS: Mr. Cormie, I want to turn to something else, and give you the -- the last word on merchant sales. I thought we were done with this, but would the Board's understanding be correct that Manitoba Hydro does not deliberately enter into a merchant trading transaction to lose any amount of money?

MR. DAVID CORMIE: That's correct.

MR. BOB PETERS: And Mr. Warden, that's much the similar to the capacity management that happens on the gas side of the business, is that Manitoba Hydro won't pull the trigger on a capacity-management deal unless it guarantees itself a profit.

MR. VINCE WARDEN: I agree with that, yes.

MR. BOB PETERS: All right. In Manitoba Hydro's merchant trading transaction that we have discussed, what aspect of the transaction is subject to Manitoba Hydro's speculation?

MR. DAVID CORMIE: Mr. Peters, there's a response to Undertaking number 4, I think it's Exhibit 23.

MR. BOB PETERS: It is, and I've got a copy in front of me, sir.

MR. DAVID CORMIE: And the first two (2) rows are the trading activities, the purchasing of -- or the sale of electricity, and the purchase of the power. That's the -- that's the purchase and sales transactions that we're talking about.

And those are done in the day-ahead markets with MISO and with Ontario, and you'll see over the eight (8) year period there is about $46 million of profit that was realized in the trading -- in the buying and selling of electricity. That's where there -- there is some risk that a transaction would -- could ultimately not turn out as expected. And -- and there's the potential for the sale price to be less than the purchase cost and there could be some losses.

Approximately, of all the transactions, I -- I would judge abo -- about over 90 percent of them actually make -- make a profit, the -- the revenue from the sale exceeds the -- the cost of the purchase.

There is a risk associated with those transactions, that there can be some after-the-fact charges. And the record up to 2008 included some resettlement charges where MISO, several years after the transactions were completed, recalculated what the charges were associated with dispatching these types of transactions in the market.

And Manitoba Hydro was initially issued a bill for $5 million. And, ultimately, that -- some of that was claw -- clawed back, but, ultimately, we were -- almost a thousand days after the transactions occurred we were sent a bill for $2 million that are reflected in these results.

So the resettlement charges that have -- have been built into that 45.9 million, the -- the trading profits that were realized on a day-to-day basis were $47.9 million, but we've -- we've gone back and -- and readjusted those.

In addition to those activities, there are other costs associated with merchant trading, and those include the purchase of transmission service on a term

basis. And so once those transmission positions are bought, those costs are sunk, and -- and -- but they don't affect the -- the amount of money that can be made in the -- in the market that we've already committed to those costs.

Similar to MISO setting -- sending us a subsequent bill for costs, they've also, in the past, sent us -- changed the price of the transmission service that we purchased. We originally purchased the first hundred megawatts of firm transmission between MISO and Ontario at what was called a discounted tariff. And we made the decision to purchase the transmission based on the economics of the discount.

Several years into that transaction they took the discount away. We appealed to the FERC that this was unfair, that we bought it at a certain price, and after -- after the fact they changed the price.

So the transmission costs have some risk associated with them, and -- and, in effect, they -- they make the -- the transmission the -- there -- there's risks associated with that, that, again, after the fact changes to the transactions can affect the profitability.

The losses that you see in tho -- on that table, the 1.8 million in 2007, is mainly as a result of those after the fact changes, where MISO in -- after the

fact, sent us a bill for $1.7 million that accounts for the majority of that one point eight (1.8).

But in addition to that, there's also the after the fact adjustment to the purchase cost of the transmission service. So it's -- there are -- there are risks associated with the trading, but the risks are more about how the mar -- where the market rules are going to change not whether we have any skill in buying and selling electricity in an arbitrage fashion.

Most of those changes occurred in the early years of the MISO market, and, since then, the market has stabilized. I -- I believe that everybody realizes that it's not very fair to market participants to come in after the fact and -- up to two (2) years after the fact and send them for bills, especially when they're market participants who have left and they're no longer capable of absorbing their fair share of costs and those costs get assigned to the people who are left behind.

So I -- I would suggest that some of those initial losses were associated with the opening up of the MISO market, not with Manitoba Hydro's skill in buying and selling electricity.

MR. BOB PETERS: Wow, I forgot what my question was. But I think --

MR. DAVID CORMIE: I've been -- I've been waiting to say this for a long time.

MR. BOB PETERS: Well, I -- I was hoping you wouldn't come over the back row at me when ICF was here or over the table at a Vietnamese restaurant or anything like that, but the -- the -- the -- you -- you've said a lot to the Board, so let's make sure that I understand it and the Board probably is well ahead of me.

But you've told the Board -- and I'm not asking about the skill, I'm not suggesting otherwise, but there are certain aspects of merchant trading that pose an immediate risk for Manitoba Hydro and there are certain aspects that pose a risk longer term for Manitoba Hydro?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Now, the immediate risk issues are Manitoba Hydro knows its internal labour costs, those costs are known?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: Manitoba Hydro will know the volume it wants to purchase. There's not a volume risk, is there?

MR. DAVID CORMIE: There's no volume risk because we know exactly what we're going to buy and what we're going to sell. So that won't change during the

term of the transaction.

MR. BOB PETERS: And you know exactly what your buy price is on the day you pull the trigger?

MR. DAVID CORMIE: Yes, because the MISO market you get to set the price. If the market clears above that price you don't -- you don't purchase that energy. If it clears below that price then you're okay.

MR. BOB PETERS: And that leaves the transmission costs, but you buy those on a term basis so you expect those to be fixed, correct?

MR. DAVID CORMIE: A portion of the transmission costs are term -- term purchase. And the real-time transmission costs are built into the costs associated with the purchase. So if transmission is purchased at that -- on -- for that particular hour, for that particular day, that's part of the -- the -- the trading decision to, you know, what your -- what your cost associated with -- they're the transaction costs. They're not sunk costs.

MR. BOB PETERS: All right. But if it's not a real-time transaction that is part of the merchant transaction being done at that particular time, it could be a transaction out for a day or two (2), a couple days ahead?

MR. DAVID CORMIE: I -- generally we buy

it -- we can buy it by the month. It could be a -- a monthly transaction or a season trans -- a season purchase of the -- of the transmission, yes.

MR. BOB PETERS: All right. But when the purchase of the transmission is done it's expected to be fixed for that period in which you've purchased the transmission rights?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: All right. And so that leaves the sell price -- the -- the selling price as the variable that could move against Manitoba Hydro. Is that correct?

MR. DAVID CORMIE: That's right.

MR. BOB PETERS: And regardless of the skill level involved there is a risk in the market turning against Manitoba Hydro's expectation of the market?

MR. DAVID CORMIE: That's right.

MR. BOB PETERS: And in addition to the market turning against Manitoba Hydro on a transaction, you've also brought to the Board's attention that the market rules were at best in a state of flux, and maybe worse were -- were somewhat retroactively punitive against Manitoba Hydro's actions in the marketplace?

MR. DAVID CORMIE: Yes, and many other

market participants.

MR. BOB PETERS: Did you win or did you lose when you went to FERC about the transmission complaint?

MR. DAVID CORMIE: We lost.

MR. ROBERT MAYER: That -- that's -- that's interesting. And -- and I want to get back to the co-op analogy again, as I understand your explanation, price -- or somebo -- some people didn't pay their bills. The rest of the co-op members who were still around got to pick up the difference. Is -- is that a fair explanation of what happened, because I don't find that as quite unfair as somebody just changing the price on you after the fact.

MR. DAVID CORMIE: On the resettlement charges the -- that's what happened is that those people who were still left in the market were -- were -- were forced to pick up the -- those costs. But with regard to the transmission charges, it would be like renting a cottage for the summer.

And then in -- on the 1st of August the owner comes to you and said, I've changed the -- the -- the re -- the monthly rental rate. Instead of five hundred (500) a month it's now a thousand a month, take it or lea -- and you have -- and -- and you have no

choice, you bought it and you now have to pay the new rent.

So that's -- that's -- that's what we appealed. And -- and there were many of us in the -- the case before FERC appealing that -- that -- that decision.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Can you explain to the Vice-Chair the basis on which Manitoba Hydro lost that argument?

MR. DAVID CORMIE: We believed we have a cont -- we had a contract to purchase transmission service and -- I don't know the reasons ultimately why FERC -- but apparently the tariff allowed them to do that and the discounted tariff was discontinued.

MR. ROBERT MAYER: This is the prices may change without notice plan?

MR. DAVID CORMIE: Yes.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, does Manitoba Hydro purchase transmission rights on a longer-term basis, that is, longer than week or a month basis, for these merchant transactions?

MR. DAVID CORMIE: Yes. The initial

purchase starting in 2004 was for a five (5) year period at the discounted tariff, Mr. Peters.

MR. BOB PETERS: Sorry, when that initial agreement expired in 2009, has Manitoba Hydro gone shorter term, or have you taken another long-term arrangement?

MR. DAVID CORMIE: We rolled -- we had the rights to roll it over, and we did.

MR. BOB PETERS: You rolled it into another five (5) year --

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: -- term? And in addition to that right of transmission, Manitoba Hydro can also do real-time transactions on other transmission?

MR. DAVID CORMIE: Yes, on a -- on a -- if -- if we wanted to saw -- sell more than the firm transmission that we hold at the time, we can buy hourly or -- or short-term transmission.

Those short-term transmission purchase decisions are -- the costs associated with those are built into the cost of purchases shown on the second line of exhibit number 23.

(BRIEF PAUSE)

MR. BOB PETERS: Is it correct, Mr. Cormie, that the real-time transactions are not subject to the same risk as are the -- the longer-term transactions that you conduct on a merchant sales basis?

MR. DAVID CORMIE: The -- they're -- they're exactly the same, Mr. Peters. Our management control plan limits Manitoba Hydro's activity in this market to three (3) days. However, because there is only a day-ahead market in practicality, we only ever enter into day-ahead transactions, so they are only one (1) day in duration.

So they are all of the same risk. You buy power and sell it for one (1) day, and -- and they are by the hour, and so because the volume in terms of megawatt hours is -- is very -- very small in -- in relative terms, the -- the amount of -- that's at risk for any particular transaction is small.

MR. BOB PETERS: If for some reason Manitoba Hydro doesn't consummate a merchant transaction, Manitoba Hydro is still stuck with the transmission costs. Would that be fair?

MR. DAVID CORMIE: Yes. The transmission costs are a sunk cost.

(BRIEF PAUSE)

MR. BOB PETERS: When I looked at the transmission costs on Manitoba Hydro Exhibit 23, Mr. Cormie, I was struck by the fluctuation in the amount, ranging from a low of three hundred thousand (300,000) in 2004, all the way up to 8.5 million in 2007.

What caused the fluctuation in the amount expended on transmission when Manitoba Hydro acquired the rights under a five (5) year agreement?

MR. DAVID CORMIE: Well, we were only -- the -- the five (5) year agreement was -- was only for one (1) piece of the transmission. There were other term transmission purchases in addition to that.

We -- we put them in the transmission category because they are sunk costs. If we buy them on a -- on a month-ahead or a season-ahead basis, they -- they -- they're not associated with the trading decision, the power traders. To the extent that they incur costs at the time of the decision, those go into the -- the purchase item because they're -- they're part of the cost of making that transaction, so they're transaction costs.

To the extent that we hold other transmission, the -- those -- is generally purchased in advance, and that is put in the -- in the third line. The amount has gone up because of the -- we lost the -- the discount to the tariff, and so that caused the

transmission costs to go up over that period of time.

And then in the -- and then in several of those years there was additional transmission purchased throughout the year that wasn't done at the time of trading.

MR. BOB PETERS: All right. You explained that the resettlement on the after-the-fact charges from MISO as well as the transmission discount tariff being removed, happened in the early years of the MISO market, meaning the -- I guess the '04 to '07 years?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And so when Manitoba Hydro lost money on its merchant transactions in 2010 was it due -- it was not due to either resettlement or a change in the transmission tariff, was it?

MR. DAVID CORMIE: No, in -- in 2010 we were suffering under the soft markets, both in MISO and in Ontario, as a result of the recession, and in that year we -- we just barely broke even.

MR. BOB PETERS: No, you lost money that year.

MR. DAVID CORMIE: Okay, we just barely lost money.

MR. BOB PETERS: Okay. But -- but -- well -- sorry, Mr. Cormie. I mean, what I was trying to

get at is, is that where the market turned again on the sale price? That was the explanation for why the loss in 2010?

MR. DAVID CORMIE: Well, there -- there were 4.6 million in trading profits, and we had $4.8 million in fixed costs. So the -- the four hundred (400) -- or the two hundred thousand dollars ($200,000) is associated with the -- with the sunk costs.

MR. BOB PETERS: And you also had four hundred thousand dollars ($400,000) of internal labour charged to that account?

MR. DAVID CORMIE: Well, what we've said on the exhibit is that a lot of those internal staff costs were probably going to be there anyways, but out of -- out of a conservative perspective. We put them in at that amount. We believe that we need these people to be available as -- to give depth to the trading department, and this is an activity they can do that can generate money and at the same time give us the robustness.

If Manitoba Hydro isn't able to go to the market on a day-ahead basis because we have -- we don't have the people on staff, that's $3 million a day in lost revenue. There's no way of recovering that. And the -- so the risk of not having adequate staff justifies having these additional two (2) positions on staff, and we -- we

make good use of them in this activity. But ultimately, they're -- the staffing is dictated by our MISO market requirements, not by the trading requirements.

MR. BOB PETERS: I'm sorry, the $3 million a day loss isn't related to merchant trading, is it?

MR. DAVID CORMIE: No, but Manitoba Hydro has to offer all its energy into the market on a day-ahead basis. And if we miss that because we don't have the experienced staff, we're able to take that energy to market, that's the risk. There are only two (2) day-ahead traders. We need to have more than two (2), and so we have four (4). The people who man the merchant desk are also capable of manning the day-ahead base -- the day-ahead desk.

So it's -- it's a way of keeping people gainfully employed and at the same time managing the risks of being in the market.

MR. BOB PETERS: And just back to my question. The loss in 2010 then was attributed to the sale price being lower than what Hydro expected at the time it purchased the energy in MISO market?

MR. DAVID CORMIE: No, the -- the -- we still made $4.6 million in buying and selling electricity. We just didn't make enough to offset the

sunk cost of the transmission that was bought five (5) years in advance.

MR. BOB PETERS: But my point, Mr. Cormie, is you knew in advance what your transmission costs were, correct?

MR. DAVID CORMIE: Right. And the margins weren't sufficient in 2010 to offset those costs, yes.

MR. BOB PETERS: But don't you build in the margin for the -- the cost of the transmission into the margin that you expect to clear when you make the tra -- when Manitoba Hydro makes the sale?

MR. DAVID CORMIE: No, because those are sunk costs, and all -- all -- what the power traders are trying to do on a daily basis is maximize their profit. And -- and we hope in the long-run -- we expect in the long-run that -- that we will recover fully the cost of the long-term transmission positions, and -- and in the long-run we expect to make a profit, and -- and we do.

MR. BOB PETERS: Well, on a -- on a $340 million expenditure after the better part of eight (8) years, Manitoba's made $8.9 million cumulative.

Is that correct?

MR. DAVID CORMIE: That's correct, yes.

MR. BOB PETERS: And on a percentage

basis that's probably less than a 3 percent profit on the -- on the $340 million investment?

MR. DAVID CORMIE: It's still $9 million, Mr. Peters.

MR. BOB PETERS: Mr. Cormie, the book of documents, Volume III, at Tab 52, and this is PUB Exhibit 18 for those who have a paper copy, it is a report from Dr. N. Bhattacharyya, and I'll spell that again, B-H-A-T-T-A-C-H-A-R-Y-Y-A.

You've seen the report?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: When the Board looks at page 71 on the report and 70 -- this, by the way, Mr. Chairman, does come out of Appendix -- I'm sorry, out of Manitoba Hydro Exhibit 31B, I believe. But turning to page 71 of the third book of documents circulated today, or maybe it was yesterday, there's a -- information about how the consultant engaged by Manitoba Hydro looked at the merchant trading activity.

You're familiar with that, Mr. Cormie?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And is it not correct that Dr. B., as I will call him, determined that in the fiscal year, certainly from April 2006 through to March of 2007, the trading activity was mostly a loss making

activity?

That was his conclusion?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And in the graph that is provided on page 71, found under Tab 52 of Board council's third book of documents, for some reason not in colour, but the graph demonstrates many months settlements of the merchant trading took place below the profitability level -- or below -- they lost money in many months.

Is that correct?

(BRIEF PAUSE)

MR. DAVID CORMIE: Yes. And unfortunately, Manitoba Hydro didn't have an opportunity to review Mr. -- or Dr. Bhattacharyya's report before it was issued for -- for accuracy. And -- and this is the issue where Manitoba Hydro was charged 5.5 million in RSG charges after the fact. And those charges end up distorting the numbers that Mr. -- or Dr. Bhattacharyya looked at.

And, ultimately, Manitoba Hydro received 3.5 million of those charges. And -- so his chart is not an accurate representation of the profitability of the

transactions and -- and it's unfortunate that we weren't able to explain that to him before he drew his conclusions.

MR. BOB PETERS: Well, when he drew his conclusions would he have known, or would Manitoba Hydro have even know that there was going to be resettlement charges put back to Manitoba Hydro?

MR. DAVID CORMIE: Yes, but this was a situation where the doctor asked for some information and drew conclusions without asking Manitoba Hydro whether he fully understood the circumstances. And -- and I -- I wish that we had had that -- had had that opportunity.

MR. BOB PETERS: And so you're telling the Board that the difference between Dr. B.'s conclusion and Manitoba Hydro's is that Manitoba Hydro's would adjust for the resettlement charges that were subsequently reversed to the extent of 3 or $3 1/2 million by -- by MISO?

MR. DAVID CORMIE: Yes, and that -- that adjustment, had we known what those RSG charges -- that -- those RSG charges were going to be retroactively applied.

Had we known that the rules weren't fixed with regard to RSG and the MISO would come back up to three (3) years after the fact and -- and resettle, we

would -- may have -- may have made a different decision on -- on buying and selling electricity. But the numbers that -- that Dr. Bhattacharyya was provided with were the all-in numbers at the time, because we had to show the $5 million payment to MISO into the operating statement of the company. And ultimately 4 million of that was -- I'm sorry, yeah, 3 1/2 million of that was refunded, and we -- we have shown the accurate information on the Exhibit 23 reflecting all the charges that occurred retroactively.

MR. BOB PETERS: All right. Thank you for that explanation, Mr. Cormie. I think maybe you deserve a break, and it's time for Mr. Surminski to -- to grab the microphone.

And we'll turn to historical flow database information, Mr. Surminski. Would that be an area you're comfortable to at least start the discussion on?

MR. HAROLD SURMINSKI: Yes, we can start there.

MR. BOB PETERS: Prior to the Kelsey generating station coming into service, would -- would Manitoba Hydro agree that there was actually very little actual recorded flows on the Nelson River?

(BRIEF PAUSE)

MR. HAROLD SURMINSKI: Mr. Cormie may be more familiar with it.

MR. BOB PETERS: I was trying.

MR. DAVID CORMIE: Mr. Peters, the -- the Kelsey station was put into service in the late '50s, and we have a continuous flow record at that site since then. Prior to that there were no continuous flow record stations on the Nelson River.

(BRIEF PAUSE)

MR. BOB PETERS: And those flow conditions that you talk about in terms of the record at Kelsey, that would have been created somewhere in the, like you say, the early '50s, employing Lake Winnipeg water levels at Berens River, together with Winnipeg River flows, Red River flows, and Saskatchewan River flows?

MR. DAVID CORMIE: Well, we -- we do have a history of Lake Winnipeg levels that go back to 1912. And through that level history and the relationship between level and outflow of Lake Winnipeg into the Nelson River, there's what's called a rating curve. So if you know the level of Lake Winnipeg, you know the time of year, you can determine what the release out -- what

the outflow from Lake Winnipeg was prior to the construction of the dams.

The rating curve changed throughout the year. In the wintertime, it was less efficient than it -- than it is in the summertime because of ice restrictions, but then in the summer weed growth in the Playgreen Lakes, and in the channel -- the outlet channels of Lake Winnipeg also retarded the flow. And so -- but there have been sufficient meterings of the Nelson River at Warren Landing under a natural condition, that there was a well-defined rating curve that can be used back to 1912.

So we know what the outflows from Lake Winnipeg were with some certainty back to that date. That -- so we know what the outflows are, and because we have a level record on the lake we know what changes in storage occur on lake, and so then we can take the outflows, adjust it for whatever came in at -- or came out of storage. Now we have a -- a record of inflows into Lake Winnipeg going back to 1912.

Downstream of -- of Lake Winnipeg, there were no direct measurements of tributary flows until the -- until the 1950s, and with the development of -- of the northern mining industry there started to be more and more gauged streams. But the -- on the Churchill River

we have a history of flows going back to 1928 at Island Falls. And so with that -- with the combination of Lake Winnipeg outflows, and the -- and the -- the history of flow at -- at the Manitoba border with Saskatchewan, in effect we have probably 90 percent of the flow catchment area of -- of Manitoba Hydro back to 1928. Prior to that there are less records on the Churchill River, so.

On the Winnipeg River we have full records going back to 1892, but the main gauging station at Slave Falls starts in 1912. And so we have a good record on the Saskatchewan River -- or on the Winnipeg River. And at the Saskatchewan River at -- at Grand Rapids, that record started in 1912, and ultimately it was moved to The Pas, and we have a very long-term flow record at -- at The Pas.

So we do have very good records based on measured flows on the main stream tributaries, for the most part, completely going back to 1928, and, for the most part, to 1912.

MR. BOB PETERS: Would it be correct that the Lake Winnipeg levels were -- were defined by taking the flows and water levels certainly at Berens River, and then also together with the Winnipeg River flows, the Red River flows, and the Saskatchewan River flows, Mr. Cormie?

MR. DAVID CORMIE: No, that -- that's not correct, Mr. Peters. The Lake Winnipeg outflows were determined based on the average of the water levels that were measured at the recording gauges around Lake Winnipeg.

Initially Lake Winnipeg was measured at Winnipeg Beach, and -- and then it was moved to -- to Gimli, and ultimately a gauge was set up at Berens River. And now we have nine (9) gauges on the lake that give us an accurate estimate of the lake.

But we do have a record of daily levels of Lake Winnipeg going back to 1912.

MR. BOB PETERS: Well, in terms of the inflows that didn't include the major rivers that we've talked of, Mr. Cormie, were those estimated using the smaller gauged tributaries into Lake Winnipeg?

MR. DAVID CORMIE: No, because we can determine the -- the total inflow based on the total outflow and the change in storage.

And -- so let's say that there was -- the rating curve said there was a 100,000 cubic feet per second going out of the lake in a particular month. And let's say the lake changed level by -- it dropped by half a foot, which would be 50,000 CFS came out of storage. That would mean that the total inflow to the lake would

be fifty thousand (50,000).

So we know what the total supply is. If we know that the Winnipeg River was ten (10) and the Saskatchewan River was ten (10), that mean -- means that there's thirty (30) coming from the local tributaries where -- whether -- wherever they are, whether it's the Barens, the Pigeon, the Red.

So through the process of -- of subtraction you can -- you end up with what's called the unregulated inflow to Lake Winnipeg, which is the -- some of the all the natural inflows from all the tributaries, plus the input that comes from direct precipitation, less the evaporation and any groundwater that leaves the lake and doesn't leave through the outlet.

MR. BOB PETERS: In those early years where Manitoba Hydro was using the flows on the Nelson River, what updates have been done and which agency carried out those -- those updates or those derivations of levels?

MR. DAVID CORMIE: For the main part, the record of water levels and river flows in Manitoba and across Western Canada has been the responsibility of the Water Survey of Canada. It's a department of Environment Canada.

And -- and so it's based on those official

records that Manitoba Hydro derives its stream flow records.

In addition to that, Manitoba Hydro has its own gauging network that was mainly put in during the period of Lake Winnipeg regulation and Churchill River diversions. So we have our own extensive network that's -- that we've been managing since about 1970.

MR. BOB PETERS: Prior to 1970, would Hydro agree that when Lake Winnipeg regulation and Churchill riven -- riv -- River diversion were designed, you were relying on the data derived during the 1950s era, supplanted -- or I guess supplemented by some fifteen (15) years of actual recorded flows to define the Nelson River situation?

MR. DAVID CORMIE: At the time that the Lake Winnipeg regulation project and the Churchill River Diversion projects were being designed, the Nelson Churchill Basin Board did a study that -- of Western Canada water supply that included the -- all the gauges, the important mainstream gauges that Manitoba Hydro relies.

There's a -- there's a very large report that documents the -- the history of water measurements across Western Canada including Manitoba. And it -- to the extent that there were gaps in that record, those

gaps were filled using standard static -- statistical techniques. And that formed the basis of the development of the Manitoba Hydro historic flow record.

Since that time we have been -- we have built many of the hydro stations and we rely on the flow records at the hydro stations to fill in those, to -- to add to the official Water Survey of Canada record. But there is an extensive record based on actual measurements by Water Survey Canada on the maj -- on the vast majority of the -- of the major rivers going back to 1912, with the exception of the Churchill River where that river was only gauged starting in 1928.

MR. BOB PETERS: Who did the Nelson River flow redevelopment?

MR. DAVID CORMIE: The Nelson/Churchill Basin Board Study. It was a study that was funded by the federal government and I'm not sure if the Province of Manitoba had -- and the Province Saskatchewan and Alberta may have cost-shared in that, but it's a -- a major work and it's the basis of the historic stream flow record and -- across Western Canada used by many agencies.

MR. BOB PETERS: What was the year in which that was developed for the Nelson River?

MR. DAVID CORMIE: Yeah, the -- I believe the report was probably published in -- around 1970, and

-- because the flow records that they -- that they have, I think end in about 1966. So they were able to -- they produced a report that brought flows from 1966 back to 1912 across Western Canada.

(BRIEF PAUSE)

MR. BOB PETERS: Can you indicate to the Board in terms of the current system, Red River would be a hundred percent measured, or gauged as you've been calling it?

MR. DAVID CORMIE: There is a gauge at Lockport that captures probably 95 percent of the basin. There is some ungauged flow downstream of Lockport towards Lake Winnipeg, but it's -- it would involve streams like Netley Creek and those, and it -- they're a small percentage of the drainage area.

MR. ROBERT MAYER: Small problem with the floodway.

MR. DAVID CORMIE: The -- the floodway doesn't change the flow in the river, Mr. Mayer, it just moves it around Winnipeg. It -- the flow splits upstream Winnipeg and it comes together downstream of Winnipeg. The total flow is --

MR. ROBERT MAYER: Down -- downstream of

Selk -- down -- oh, sorry, downstream of Lockport.

MR. DAVID CORMIE: Yes.

MR. ROBERT MAYER: You said Selkirk. Sorry.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: And the Winnipeg River is also gauged virtually 98 to 100 percent?

MR. DAVID CORMIE: Well, the main -- the main stem has been gauged at many locations, but the early official record was at Pointe du Bois starting in, you know, about 1908. And some of the upstream lakes like Lake of the Woods, those records started in 1892.

We have a record of -- of Lac Seul levels and a rating curve that start around 1921. So there's a -- there is a -- at least from the perspective of power, on the Winnipeg River we have a -- we have a -- a complete record of flows starting in 1912 on the Winnipeg River. And as the basin is developed and as more gauges were put in place, it added to the detailed knowledge of the water shed, but we've always had a long reliable record at -- at the Winnipeg hydro plants just inside the Manitoba/Ontario boundary.

MR. BOB PETERS: And so currently the Winnipeg River is virtually 100 percent gauged?

MR. DAVID CORMIE: Yes, because the downstream gauge at Pine Falls is essentially at the mouth of the Winnipeg River.

MR. BOB PETERS: And the Saskatchewan River would also be 100 percent gauged at Grand Rapids?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And what about --

MR. DAVID CORMIE: Well, I have to qualify Grand Rapids because approximately 5 percent of the flow that goes down the Saskatchewan River leaks underneath the -- through the -- through the limestone below the Grand Rapids Dam, and -- under the Grand Rapids Dam, and -- and it's not measured.

MR. BOB PETERS: So 95 percent of the Saskatchewan River is -- is gauged.

MR. DAVID CORMIE: We have a gauge there. There's some groundwater flow that's not accounted for.

MR. BOB PETERS: And what about Lake Winnipeg local measurements? You say you have nine (9) gauges on the lake?

MR. DAVID CORMIE: We have nine (9) gauges that are -- that are smoothed, and it's -- we -- we can determine the average wind eliminated level of the lake based on those gauges, but at the outlet we have the Jenpeg Generating Station that measures 85 percent of the

flow of the Nelson River.

The balance of the flow, it goes down the east channel, and there is a water level gauge and a rating curve near Norway House that is used to determine that flow.

MR. BOB PETERS: And the Lake Winnipeg precipitation and evaporation measurements, is that accounted for?

MR. DAVID CORMIE: Those are included in the calculation of inflow available for outflow because we know what the outflow is from the lake because of our measurements. We know what the change in level is, and so we know what the total inflow.

That total inflow is comprised of the tributary inflows plus the net of evaporation and participation in ground water. So it's -- it's all accounted for. We -- we just don't have a detailed record of what the actual components are, and that's not necessary for our operation, to know how much is evaporating versus how much is being added to from precipitation.

We would never really know that because we don't have precipitation gauges at the density that would be necessary to know exactly what the water balance would be for the lake.

MR. BOB PETERS: What was the size of the lake that you had put on the record before? Was it 40,000 square kilometres?

MR. DAVID CORMIE: It's approximately 10,000 square miles. I'm not sure what it is in metric.

MR. BOB PETERS: Mr. Cormie, in terms of the lower Nelson River, are there mea -- measured flows to a high degree on -- on that river?

MR. DAVID CORMIE: The major tributaries downstream of Lake Winnipeg are metered. The Grass River, the Odie River, the Taylor River, the tributaries to the Burntwood are metered, and we know what the Burntwood River is, so I would judge that 80 to 90 percent of the -- of the flows on the main stem are -- the tributary flows are known.

MR. BOB PETERS: And the Burntwood River would be 100 percent measured?

MR. DAVID CORMIE: The Burntwood River is -- the vast majority of the flow in the Burntwood River is what's released at Notigi, and that's measured on an hourly basis, and we have rating curves along the river. The main gauging location is at Thompson, and we have an estimate of the flow there.

MR. BOB PETERS: All right. If we can just run down a few of the rivers in terms of what is

regulated. The Saskatchewan River is fully regulated, is that correct?

MR. DAVID CORMIE: I'm not sure what you mean by regulated. There are dams on the Saskatchewan River, and there is regulation, but not every stream on the -- that feeds the Saskatchewan River is regulated, so -- but I -- I would, yeah, consider it a regulated river.

MR. BOB PETERS: And would you consider the Red River totally unregulated?

MR. DAVID CORMIE: Essentially, yes.

MR. BOB PETERS: And the Winnipeg River would be maybe as much as 50 percent regulated. I think you mentioned Lac Seul and was it St. Joseph's Diversion?

MR. DAVID CORMIE: A hundred (100) percent of the Winnipeg River at Kenora is regulated, and 50 percent of the English River is regulated at Lac Seul, so how about 75 percent of the Winnipeg River is regulated.

MR. BOB PETERS: The St. Joseph Diversion. Is that a form of regulation as well on the Winnipeg River?

MR. DAVID CORMIE: Yes, Ontario Hydro regulates the Lake St. Joseph Diversion, and those flows are metered.

MR. BOB PETERS: And in those situations,

water is diverted into the Winnipeg River, and in exchange for that water, Manitoba Hydro pays money to Ontario Hydro or returns the energy?

MR. DAVID CORMIE: Half the energy that's generated from the diverted water is returned to Ontario.

MR. BOB PETERS: The local inflows to the -- Lake Winnipeg would be considered unregulated. Would that be correct, maybe with the exception of the Fairford River?

MR. DAVID CORMIE: Yes, there are several major tributaries on the east side of Lake Winnipeg: the Berens, the Pigeon, the Poplar, the Gunisao, the Bloodvein, Manigatogan. They are unregulated, but they are metered, and Manitoba Hydro has access to those flow records in real-time, and so we -- we included those as forecasting locations in our water supply forecasting process.

MR. ROBERT MAYER: You missed Little Black, Wanipigow, and Rice.

MR. DAVID CORMIE: I'm sorry, Mr. Mayer?

MR. ROBERT MAYER: You missed Little Black, Wanipigow, and the Rice River.

MR. DAVID CORMIE: we -- we have a very extensive gauging network in a forecasting system, and so the extent that there is a re -- a river out there, no

matter how big or small it is, we include it because it always improves the accuracy of our -- our flow forecasting.

So we don't ignore any available information, Mr. Mayer. And if -- even though you might think it's a small river, we think it's all important.

MR. ROBERT MAYER: I know that because I've taken advantage of checking the water flows on the Manigatogan, which I quite enjoy canoeing and I've done several times, but, yeah, the information is really interesting.

MR. DAVID CORMIE: Those rivers on the east side of Lake Winnipeg have lots of storage upstream. And so if you know what the current flow is, it allows you to use that current flow to predict how much flow will come over the next month or two (2) months. It's -- there's -- to the extent that there's lots of storage, our forecasting process takes advantage of that.

MR. ROBERT MAYER: When you call for -- when you call "storage," I mean, the Bloodvein isn't regulated. I know there are a bunch of lakes upstream and all the way into Ontario. If I recall correctly, the Berens and the Pigeon come out of -- I forget the name of the lake. Little Grand Rapids is on it, but the -- there's one (1) lake where both -- are -- are those kind

of lakes we're talking about as storage?

MR. DAVID CORMIE: Well, they do. They -- all those lakes are linked together like bathtubs, and so it takes time for water to flow from one into the next. And a rainfall event upstream may take months for it -- for that water to work its way downstream, and that's the bathtub effect, and that's the effect of storage. It's a natural storage basin. It's the beaver dams and the -- the waterfalls. They all act to attenuate the stream flows.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: In terms of Lake Winnipeg, Mr. Cormie, does Manitoba Hydro rely substantially on Lake Winnipeg total unregulated monthly inflow data that it's collected?

MR. DAVID CORMIE: No, because we know -- we know where the co -- the -- the main components of the unregulated inflow are -- are coming from. They're coming, in the most part, from the tri -- from the -- from the tributary streams, like the Berens and the Pigeon.

So as I described earlier, through a back calculating process of using the change in storage and the outflow, we know what the total inflow is. And from

that, we can start subtracting off the gauged flows, like what's on the Red, what's coming from the Fairford, what's on the Pi -- Pigeon.

And -- and then the -- the residual ends up being the -- the local inflow or the residual inflow. And to the extent that we can reduce that down to the smallest component possible, that will reflect just the evaporation and the precipitation and the groundwater components.

MR. BOB PETERS: Does Manitoba Hydro rely substantially on Lake Winnipeg total unregulated monthly inflow data for the Winnipeg River and the Saskatchewan River?

MR. DAVID CORMIE: No, the -- the -- from an operation perspective we have detailed forecasting programs that look at all the inputs to the major reservoirs in Northwest Ontario, the Rainy/Namakan system, the tributaries to Lac Seul, those all form forecast locations, and then our modelling routes that water down through the regulated reservoirs and we end up with a -- a flow forecast at the -- at the -- for the Winnipeg River at the Manitoba border.

And on the Saskatchewan River, upstream reservoirs are regulated by the Saskatchewan Water Authority in Saskatchewan and by the Alberta authorities

and so we rely on our contacts with them and through their published forecasts to indicate what stream flows can be expected from those upstream jurisdictions.

Some of the modelling is very detailed and extensive, especially in Alberta, having to do with flood management objectives, and some of it is long-term water supply forecasting consistent with the things that Manitoba Hydro does.

Saskatchewan has to regulate Lake Diefenbaker on a seasonal and an annual basis. On the Churchill River they regulate Reindeer Lake and they provide us with their forecasts of what they intend to do with those waters and we rely on those as inputs into our forecasts.

MR. BOB PETERS: Are the local inflows to the Nelson River virtually 100 percent unregulated, Mr. Cormie?

MR. DAVID CORMIE: No, because there are gauged streams downstream of Lake Winnipeg like the -- like the Grass River, the tributaries to the Burntwood River, the Odie River, the Kettle River at Kettle Generating Station.

So there's a -- there is a portion of the basin that is ungauged. And by prorating local stream flows using area adjustment factors we can estimate what

the runoff from the ungauged portion of the --

MR. BOB PETERS: What portion of the -- of the inflows to the Nelson or from the local inflows would be un -- ungauged or un -- unregulated?

MR. DAVID CORMIE: Well, in the wintertime I'd suspect that 99 percent of the flow is -- in the -- in the river is gauged or is the release from Lake Winnipeg and Notigi. In the summertime the -- the percentage is much higher. At times it can be -- 15 percent might be un -- from ungauged runoff.

MR. BOB PETERS: In turning to the -- the Burntwood River, which I think you told the Board was approximately 100 percent measured or gauged, it would only be approximately 70 percent regulated?

MR. DAVID CORMIE: Well, the -- the mean flow in the Burntwood River prior to regulation was around 3,000 CFS. The mean flow now is thirty-four thousand (34,000). So, you know, 90 percent of it is -- of the flow down the Burntwood is regulated by Notigi.

At the time of the peak spring runoff it is probably less than that and in the wintertime it's probably much more than that. The local inflows would be a -- a very small percentage of the total flow.

MR. BOB PETERS: All right. And then lastly, the -- the lower Nelson River flows would be

virtually 100 percent regulated by way of the generating stations Hydro has on the -- on the river?

MR. DAVID CORMIE: Yes. There's some gauge tributaries that -- like the -- the -- the in -- the local inflow to the Long Spruce forebay and the Limestone forebay, we have gauge tributaries, but there is additional flow there.

But again, as a proportion of the total flow in the river it's a tiny, tiny fraction.

MR. BOB PETERS: Mr. Chairman, perhaps this might be an appropriate time for the afternoon recess if it suits the Board.

THE CHAIRPERSON: That's fine.

MR. BOB PETERS: Thank you.

--- Upon recessing at 2:59 p.m.

--- Upon resuming at 3:23 p.m.

THE CHAIRPERSON: Ms. Ramage, you have a couple more exhibits it would appear.

MS. PATTI RAMAGE: Yes, I do. Let's see. I'll get the right order. The first is Manitoba Hydro Undertaking 55, and that was ICF's providing a list of reports, presentations, and articles reviewed subsequent to preparation of the ICF report of September 2009.

And if I could just add that I believe the -- the undertaking asked for reports. In putting it together, we expanded to presentations and articles because it appeared that that was what was being sought, and things like PowerPoint presentations had been referred to as reports.

And by way of an additional comment, Mr. Rose had indicated he had reviewed IR responses and the materials general -- generally, but that wasn't included in here because it was -- unless it was the specific report that he zoned in on.

--- EXHIBIT NO. MH-66: Response to Undertaking 55

MS. PATTI RAMAGE: The second document is Manitoba Hydro Undertaking 83, which we've assigned Exhibit 67, and that was Manitoba Hydro was to inquire whether there was an update to the June 2010 filing by Xcel Energy.

--- EXHIBIT NO. MH-67: Response to Undertaking 83

THE CHAIRPERSON: Thank you.

Mr. Peters...?

MR. BOB PETERS: Thank you, Mr. Chairman.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: If I could ask Messrs Surminski and Cormie to turn to Tab 41 of Board counsel's Volume II book of documents, PUB Exhibit 16, please. That would be Tab number 41 in Board counsel's Volume II book of documents, Exhibit 16.

MR. DAVID CORMIE: We have that, Mr. Peters.

MR. BOB PETERS: And is Manitoba Hydro able to confirm that that document summarizes Hydro's, I guess first of all, their April 1st energy in storage information?

Is Manitoba Hydro comfortable with the accuracy of the information provided or does it have any corrections?

(BRIEF PAUSE)

MR. DAVID CORMIE: Mr. Peters, this chart is not -- does not represent actual conditions in the Manitoba Hydro system prior to 1992. It's a restatement of conditions had the Limestone Generating Station been in service at that time, so...

MR. BOB PETERS: So with that qualification, you're comfortable with the information

that has been restated?

(BRIEF PAUSE)

MR. ROBERT MAYER: There are a number of footnotes for -- a number of footnotes, in any event, on the annual hydraulic generation.

I take it that's the stuff that might -- oops, I lost Mr. Cormie -- I take it that's the ones that had to be recreated because Limestone wasn't in place at that time? Or those footnotes must refer to something, and I don't know what it -- what it is.

MR. BOB PETERS: No, the -- the footnotes, Mr. Vice-Chair, relate to the eight (8) lowest years of hydraulic generation numerically in terms of the lowest to the highest of the eight (8).

MR. DAVID CORMIE: Yeah, and Mr. Peters, Manitoba Hydro restates those numbers, so that we can compare current conditions to those conditions that we've experienced since the regulation of Churchill River diversion and CRD in 1976.

And -- and we've normalized it as if the -- as if Limestone had been in service. And -- and subject to that qualification, we accept the -- the numbers for discussion purposes.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: And -- and that goes with all the numbers on the page. There's no -- there's no -- nothing that jumps out at you as being inappropriate or incorrect?

MR. DAVID CORMIE: Well, let's see where it goes.

MR. BOB PETERS: It may not go very far, Mr. Cormie and Mr. Surminski, but let me turn to Hy -- Hydro explaining to the Board how Manitoba Hydro looks to apprehend an impending drought.

Is it deteriorating or adverse conditions? Does Manitoba Hydro look at the hydraulic energy from inflows as an indicator?

MR. DAVID CORMIE: No, the water in storage is not a leading indicator of drought, it just reflects the state of the watershed at that time. What is a leading indicator of drought to -- to the extent that it provides any information, is accumulated precipitation over the winter.

If at the end of the winter you have 60 percent of average winter precip you can expect that the snowmelt runoff will be below average. So as leading indicators of drought we use -- we monitor precipitation across western Canada. We look at the published

precipitation long-range forecasts to the extent that they have any value.

But, ultimately, neither of those provide enough information that Manitoba Hydro relies on them to ensure that there's an adequate energy supply. Our skill at forecasting is no better than anyone else in the world, which is -- which is very low, so Manitoba Hydro has adopted as a strategy to protect against the worst possible condition at all times, and -- and that's our practice.

And as I've indicated previously, last spring we were faced with the situation where there was going to be a very poor spring snow melt runoff, exactly the same condition that we had in the spring of 2003. And we put together a power -- a plan for the power system operation based on a worst-case situation that recognized the amount of energy that was in reservoir storage at that time and protected the supply based upon those two (2) factors.

But precipitation is -- is not an indicator of -- current precipitation, not an indicator of what is to come in the future. It's just an indication of what has happened. And weather forecasts beyond a few days have very little value when you're trying to manage against a risk that will take a year, or

two (2) years, or even five (5) years to mature, so we have to guard against the worst case.

MR. BOB PETERS: In looking at Tab 41 of the book of documents, Volume II, Mr. Cormie and Mr. Surminski, if we go down to the -- I suppose the 2003/'04 year, that was a year in which the energy in storage was amongst the lowest -- lowest, at about 4.2 terawatts?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And, likewise, this is where the hydraulic generation had the -- the lowest on recorded record of Manitoba Hydro, at 18,500 gigawatt hours that year?

MR. DAVID CORMIE: It's the lowest since Limestone came into service.

MR. BOB PETERS: That's fair. And even with the restatement, as Manitoba Hydro has done pre-1992, it's the lowest on -- on record?

MR. DAVID CORMIE: Yeah, and if we had extended this table back to 1912 you would have seen it was the third lowest on -- on record and -- Manitoba Hydro, because its criteria is to protect against the lowest on record, we were -- we had planned for the lowest, and it came in at the third lowest, and I think we did a good job in protecting against that situation.

We were fortunate it wasn't the worst on

record and -- but we had planned for that.

MR. BOB PETERS: And the spring pre -- the spring precipitation in the watershed was actually above average in that year?

MR. DAVID CORMIE: No, that's not true. The spring precipitation in the spring of 2003 and '04 was much below average, and there was no spring runoff. And -- and, ultimately, June was the -- had the lowest inflows since 1912 for the month of June, so.

(BRIEF PAUSE)

MR. BOB PETERS: Sorry, the -- the winter precipitation then would have been amongst the -- the lowest on record is what the -- what the table with sta -- will say?

MR. DAVID CORMIE: Yes, and then what -- what happens is that if you have -- there's no -- no snowmelt runoff, because the -- there's no snow to melt. The ground dries and to the extent that you have average rainfall it just soaks in. There not enough to create any runoff. So as the chart indicates, March and April was 109 percent, but that wasn't enough to offset the deficit that accumulated over the winter.

And so there may not have been a

agricultural drought, but there clearly was a -- a water supply drought.

MR. BOB PETERS: And then on a winter and spring combined basis the precipitation was only 75 percent of average, so it was significantly below average?

MR. DAVID CORMIE: Yes. And when you start looking at events that are at 75 percent of average, these are, as a percentile, probably 1 or 2 percentile events, so they're -- they're extremely rare compared -- and you don't get the sense of how infrequent they are by just looking at the percent of average.

(BRIEF PAUSE)

MR. BOB PETERS: When we talked about apprehending a drought situation, you indicated that a -- the hydraulic energy in storage wasn't a major factor considered, correct?

MR. DAVID CORMIE: In formulating our plans to respond to the situation, the amount of water that's in reservoir storage is a key component. And for example, going into the spring we have 6 million megawatt hours more than average.

So clearly we're much better off in being

able to manage a drought than we were in the spring of 2003 when we probably had 3 terawatt hours below average.

MR. BOB PETERS: But in terms of apprehending whether there's a drought or no drought, the amount of energy in storage isn't used as an indicator by Manitoba Hydro?

MR. DAVID CORMIE: No, storage is -- ends up being where it is because that's how it was managed. You can draw reservoirs down and that may be independent of the hydrologic condition.

MR. BOB PETERS: And what about a precipitation index, is that -- while you say you -- you look at the forecasts, is that -- is that a factor that is used by Manitoba Hydro to consider whether a drought is at hand?

MR. DAVID CORMIE: Well, yes, we do monitor the precipitation across Western Canada daily as a -- from a system perspective we can express that in percentile terms and that is an indicator of how severe the lack of precipitation has been.

If -- if -- for example, I think for the system as a whole this winter we're at a 34 percentile event. So in spite of the fears of flooding on the Red River, the basin as a whole is experiencing quite dry condition from a -- from a winter snowpack perspective.

MR. BOB PETERS: If you take the Board back to 2006/'07, Mr. Cormie, how was the factors that we've talked about, being the hydraulic energy from inflows, the energy in storage and the precipitation index, how were they put into play by Manitoba Hydro in the summer of 2006/'07?

MR. DAVID CORMIE: Well, the -- the -- in the spring of 2006 reservoirs were essentially full. There was a -- a high flow event came down the Red River. Most of the Red River water and the spring runoff from the Winnipeg River watershed had to be spilled down the Nelson River because of -- there was no room in the reservoirs to store it.

The spring melt wasn't followed by normal spring rains and river flows quickly deteriorated. And it wasn't until the middle of August that we finally were able to get the river flows at the lower Nelson River plants down to a point where we weren't spilling and selling off-peak energy just because of the time lags involved in making flow reduction and our licence restrictions on Lake Winnipeg.

But all through that summer we were monitoring conditions, we were adjusting our release schedules to the extent that it was possible, given our licence restrictions, and by the -- by August the flows

on the Winnipeg River were getting down into the very low percentile levels.

We were affected by the effects of upstream regulation. We lost the use -- full use of our capacity on that river. It caused us to have to purchase on-peak to meet our summer load obligations.

But there was a constant process of monitoring and forecasting, and adjusting based on the conditions. And -- but to the extent that we had water in storage in Lake Winnipeg, that was used, and the storage was used to ensure that there was adequate supply through the winter.

And -- but we can only manage the reservoirs that we have control over. Those who are upstream, we're at their mercy, and -- and during the winter of '06/''07 those reservoirs were -- didn't release the water that we would liked to have had in order to meet our requirements.

MR. BOB PETERS: Those -- excuse me, those reservoirs that are regulated by others amount to about 30 percent of the Manitoba Hydro flow?

MR. DAVID CORMIE: Well, in a -- in a normal year the water that comes in from northwest Ontario and Minnesota provides eighty (80) -- or 40 percent of the hydro-electric production in the system,

so a critical -- it's a critical issue when the flows on the Winnipeg River dry up. It has a huge effect on the power system.

MR. BOB PETERS: Can you tell the Board in what point in the year did Hydro realize there was a supply shortfall? Was it in August?

MR. DAVID CORMIE: Well, there was never a supply shortfall, Mr. Peters. We always had adequate sources to serve the -- the sale obligations and -- and meet our customer needs.

It just became more and more expensive to -- to serve them, but we always had adequate supply.

MR. BOB PETERS: Well, then let's call it, when did Manitoba Hydro realize it had a hydraulic shortfall?

MR. DAVID CORMIE: Well, as the -- as the summer progressed and the -- the normal rainfall didn't arrive, and -- and the fall rains didn't arrive by -- by the time we put together our final forecast for inclusion in the IFF, it was pretty certain that there was no or very little chance of a recovery.

And so we really don't get certainty until -- until late in the -- in the fall of -- of the year when it starts to snow, and at that point water conditions can't improve anymore.

MR. BOB PETERS: So it was well into November before Manitoba Hydro realized there was a -- going to be an issue supplying hydraulically the energy that was needed?

MR. DAVID CORMIE: No. As -- as I think I've said before, we prepare an operating plan each week. So each week we know what our supply and demand plans are for every week and month of the future until the end of the year.

And as we go by, and there's another week of no rain and the hydraulic forecast gradually diminishes, it -- it becomes more and more apparent that alternative supplies of energy will be required, and so it's a gradual process.

We would have first prepared a -- an initial estimate for the IFF in July. We probably would have updated it early in September. And -- and probably updated it again just before the -- the final estimate was approved by the Board in October or November.

So there's a constant monitoring of the conditions and adjusting the financial expectations of the Corporation around those updated forecasts.

MR. BOB PETERS: Do you recall, Mr. Cormie, at what point did Manitoba Hydro cut off the -- the peak exports, seven (7) by eight (8) exports?

MR. DAVID CORMIE: Well, I think the off-peak exports, if that's what you're referring to, the seven (7) by eights (8s) would have -- we would have been out of that market probably by the end of August, and it wasn't that we wanted to be in that market, it was that Lake Winnipeg was full, and we had to release the water.

In spite of what was coming into the lake, the lake was above the full supply level, and it had to be brought down and -- to the maximum level allowed by the licence at which power production can be considered. And the forces us to release water from storage that in spite of the lack of inflows, we have no choice; that's a requirement of our licence.

So the last water -- the -- the point in time when Lake Winnipeg dropped below seven fifteen (715) would have been the first point in time that Manitoba Hydro could actively reduce the flows and store water, and that was probably about the -- sometime in July. But it then takes several weeks for the flows that had been released prior to that time to work its way down the river and ultimately arrive at the generation stations.

And we got out of the off-peak market as soon as it was possible, although it wasn't apparent -- it's not apparent from the sales record because of the time delays between reservoir releases and the time it

takes the water to arrive to the stations.

MR. BOB PETERS: How many months is that time delay? Is that a month and a half?

MR. DAVID CORMIE: Well, the time it takes the full effect of a change from Lake Winnipeg is five (5) -- fo -- four (4) to five (5) weeks. So if you were to cut the flow at Lake Winnipeg by let's say 25,000 CFS, for the full 25,000 CFS to show up downstream, probably five (5) weeks.

MR. BOB PETERS: At what point in year in 2006/''07, for the fiscal year of the Corporation, did Hydro cut off the opportunity sales?

MR. DAVID CORMIE: I'm sorry, Mr. Peters.

MR. BOB PETERS: No, I apologize, as well. I didn't realize you were otherwise engaged.

But do you recall at what point in time in '06/''07 Hydro shut off their opportunity sales?

(BRIEF PAUSE)

MR. DAVID CORMIE: I -- I don't think we ever -- we ever actually shut off opportunity sales, Mr. Peters, because there's -- there may be very, very short-term opportunities that are -- are possible. And -- and it may not be possible to -- given the high flows in the

system on the Nelson River in the wintertime, to -- to avoid selling in the shoulder hours or on weekends.

Because it wasn't the Nelson River that was short of water in the winter of '06/'07; it was the Winnipeg River. And there -- there was no -- there was never a declaration that they should not sell. They -- the power traders look at the supply demand situation on a daily basis, and they maximize Manitoba Hydro's revenues or they minimize the costs for the current -- current day and -- and given the outlook for the next few weeks.

So there's -- it -- it's an optimization that occurs continuously, and it doesn't involve just saying, We're -- we're not selling anymore. There may be opportunities to buy a little bit more and to sell a little bit more if it's a profitable activity.

MR. ROBERT MAYER: Mr. Cormie, just a little clarification. When you say five (5) or six (6) weeks after you release the water from Lake Winnipeg something's done. Where -- when -- the five (5) or six (6) weeks -- after that five (5) or six (6) weeks are over where is that water? Is it gone past Limestone, or is it just into the lower Nelson?

MR. DAVID CORMIE: It -- it would be -- gone past Limestone. Just imagine the Nelson River as

being a series of bathtubs. There's Cross Lake, Sipiwesk, Split, and even though you turn off the tap, these lakes take time to drain. So if you reduce the outflow by 25,000 CFS for the full effect of that flow reduction, all else being the same, it takes many weeks for that full effect to -- to work its way downstream.

CONTINUED BY MR. BOB PETERS:

MR. BOB PETERS: Mr. Cormie, when Jenpeg was shut down did Manitoba Hydro manage to get the Winnipeg River flows reduced?

MR. DAVID CORMIE: I think by that time the -- the Winnipeg River flows were already essentially at their minimum flows, Mr. Peters.

MR. BOB PETERS: Manitoba Hydro didn't request of the regulating authority to reduce the flows?

MR. DAVID CORMIE: I'm not sure what Manitoba Hydro's recommendations were to the Lake of the Woods control board at that time, and so I can't -- I can't -- I can't answer that. But usually in the summertime the power interest is not the predominant interest in the regulation of the -- in the regulation of the reservoirs, although, we would have had some input; whether we were acknowledged or not, I -- I don't know the answer to that.

MR. BOB PETERS: Back in 2006, Mr. Cormie, when the situation was below average in terms of water, as you've indicated, you were aware -- aware of that, you said at least by July when you were doing an IFF draft?

MR. DAVID CORMIE: Yes.

MR. BOB PETERS: And would the middle office have been aware at that time as well? Or was there a middle office back then?

MR. DAVID CORMIE: The middle office is not involved in the hydraulic operation of the power system. They do sit in on our weekly planning meetings as observers, but I'm not sure if they were at the meetings in the summer of 2006.

MR. BOB PETERS: And the decision, Mr. Cormie, to continue opportunity sales into June and July and August of '06, were those made by -- by the front office?

MR. DAVID CORMIE: The -- there are two (2) types of opportunity sales. There's the real-time and the day-ahead sales, and there's the term transactions. Subject to check, I believe that we were not in the business of entering into any term transactions during the summer of 2006 for the subsequent months.

And so, any transactions that were made were made by the power trading office in response to the conditions that were available at that time, based on river flows.

So the front office just manages the -- they're in effect a salvage operation. If there's extra water in the system they take it to market. If they're short they buy the energy back. The front office activities are independent of the water management activities.

MR. BOB PETERS: So the power trading office or the front office would have made the decision on the real-time and day-ahead opportunity sales throughout the summer of 2006?

MR. DAVID CORMIE: Yes, because they -- they have -- if they have surplus they have to take it to market or they have to spill it. They -- they -- there's no way of making the water go back into storage.

MR. BOB PETERS: And after September of 2006, the curtailment, if not the cessation as we've talked about, of opportunity sales, was that decision likewise made at the front office?

MR. DAVID CORMIE: Well, no the -- the -- as I said, the front office manages around the resources that are available from the hydraulic generation, and

that's -- that's an outcome of a water management process. And in effect, the front office people are just managing the water that's in the river. They don't influence the reservoir releases. The reservoir releases are determined from the HERMES modelling and the operations planning process that is independent of the -- of the power trading activity.

MR. BOB PETERS: In 2003/''04, Mr. Cormie, do you recall when Manitoba Hydro initially realized that it would be a below average flow year?

MR. DAVID CORMIE: Well, there's not really a day, Mr. Peters, where we actually say, A-ha, there's a drought. It's a progressive development. It -- as the winter of November and December of 2002 there was no snow on the ground, the condition persisted; the executive was notified in -- in December and -- that this was -- if this trend continued it would likely mean that there would be very little snow melt runoff in the spring.

As we got into January, continued to monitor: no change in conditions. The potential for a poor spring runoff increased, and -- and Manitoba Hydro put in place a -- a plan to deal with that. The plan wasn't activated until some time in May when it was clear that no matter what happened that year, there was going

to be a -- a poor hydraulic -- there was going to be poor hydraulic generation, and that significant activities needed to be undertaken to manage the supply and demand portfolio for the year.

That's exactly what happened last year, with the exception that on the long weekend of 2010 it rained huge amounts and the situation was completely the opposite.

We never know for certain if -- if it's going to rain after a period of dry. I remember in the spring of 1993, the -- it's exactly the same conditions, dry conditions across the water shed. And we went home on the weekend to news reports of forest fires and evacuations caused by forest fires, and then by Monday morning the news reports were of flooding and bridges being washed away. And we don't know whether those things are going to happen, but we have to protect against the continuation of the drought, and not try and guess when it's going to rain, but assume that it's not, and make sure that there's enough supply available if that situation were to persist.

And that's what we did in the spring of 2003, that's what we did in the spring of 2010, and -- and that's what we will continue to do, because there are no accurate long range precipitation forecasts available

that we can rely on to give us a heads-up.

MR. BOB PETERS: And between those two (2) years, the '03/'04 year, and the -- the ten (10) -- 2010 fiscal year, there was a significant difference in the energy in storage, as of April 1st of those years.

Is that correct?

MR. DAVID CORMIE: Yes, because in the years up to the Spring of 2010, I think, as -- as I testified earlier, we've been at maximum discharge out of Lake Winnipeg 63 percent of the time for the last three (3) years. We've been in a high water period. And Lake Winnipeg is -- is at the highest level it's been since we began regulations.

So there's lots of carryover occurring from year to year, and -- and that's in spite of the fact that we were at maximum discharge. We just can't get the water out of the system to -- because of the ice restrictions in the wintertime.

We weren't in that -- we didn't have that situation leading up to 2003/'04, where we were suddenly in a period of average flows, plunged into a -- a deep drought. And this -- this year we were fortunate to -- to have lots of carryover water from the previous years. And although the winter was dry, we had 6 million megawatt hours more last spring than -- I think it was

six (6) -- we had much car -- significant carryover from the previous year that would hedge against the financial costs if drought were to occur this year.

MR. BOB PETERS: Can you tell the Board, Mr. Cormie, what specific parameters Hydro looked at in deciding to curtail, firstly, the off-peak exports back in '03/'04?

(BRIEF PAUSE)

MR. DAVID CORMIE: I don't believe we were in the off-peak export business in '03/'04 at all. As we went into the winter of '02/'03 conditions were already below average, and -- and we weren't exporting in the off-peak in winter. So I don't believe there were any off-peak exports in the -- in '03/'04 at all.

MR. BOB PETERS: What about the on-peak opportunity sales? When -- when -- or what parameters did Hydro look at in deciding to curtail the on-peak opportunity sales?

MR. DAVID CORMIE: Well, the on-peak opportunity cur -- were -- opportunity sales were curtailed because there was no surplus indicated in our -- in our forecasts.

And we weren't concerned with managing

surplus energy supplies. We were concerned about dealing with a potential drought of record, and that was the farthest thing from our mind as whether we should be exporting. There were a few exports that occurred, but they were -- they were very minor in nature. But the focus of our activities was mainly about ensuring that there were sufficient resources to meet the load demands.

MR. BOB PETERS: Mr. Cormie, at Tab 42 of the book of documents, the second volume, on page 100, specifically, would the Board be correct in interpreting Hydro's answer as indicating the 2002 to 2004 experience was of no value in defining Manitoba Hydro's forecasting and operational capabilities?

(BRIEF PAUSE)

MR. DAVID CORMIE: I believe the fundamental issues that Manitoba Hydro faced in 2003/'04 are no different than the fundamental issues that we face today. And our tool set is essentially the same except that we've had to modify it because of the evolution of the markets.

But the issue of the importance of meeting Manitoba load with a high level of confidence, of

creating a robust supply plan so that, should unforeseen events occur, we're capable of managing them without creating an emergency situation. The nature of flow forecasting and the ability of foreseeing -- or anticipating drought hasn't changed.

So computers may have got faster in the last seven (7) or eight (8) years, but the fundamental problem is -- is that we don't have a forecast of -- of when drought will start, how long it will last, and how deep it will be. And we haven't changed our situation in that we're still energy constrained. We are not infinitely tied to the North American grid and we can become energy short.

And -- and -- so our fundamental problem hasn't changed. And we have -- we're better able to manage the financial aspects of a drought because of the evolution of the mico -- MISO market and we've evolved with that. But from a water management perspective, the issues are still identical to what they were in 2003.

MR. BOB PETERS: So that suggests that Manitoba Hydro's drought-preparedness plan won't be any different this year than it would have been in 2002 to 2004?

MR. DAVID CORMIE: The fundamentals of our drought-preparedness plan had to do with the level of

risk that the Utility was prepared to take on behalf of its customers. What's the risk of not being able to serve our customers in the manner that doesn't involve emergency actions? And our criteria at that time is that there should be something less than a 1 percent chance that we would face an emergency. To go much beyond that risk tolerance would be asking the power system to produce power for which it wasn't designed, and it would be inconsistent with Manitoba Hydro's long-term planning criteria.

During the drought of 2003 and '04, management and the executive reviewed those tolerances and it was agreed that those were appropriate for the circumstances, and -- and those risk tolerances were built into the -- into the operationing -- operation plan of the Utility.

And we needed to have a high level of confidence that -- that domestic demand for electricity would be met. And although it's not the same level of risk tolerance that you -- that you might expect for the -- the supply of a critical public service, like flood protection or those things, that's consistent with Manitoba Hydro's long-term view of the reliability that should be there in serving its customer's demands. And -- and management and the executive reviewed those

tolerances and they concurred with what management was suggesting, and we operated according to those criteria.

Since that time there's been additional thinking around those criteria and -- and would -- and -- and -- and when we were talking about the potential for drought this year we were talking about the same risk tolerances, the same issues that needed to be dealt with.

And I think the Company is still confident that those were the -- our -- our appropriate tolerances. Again, to ask the -- the power supply system to produce a level of reliability greater than that would be asking it to do something that it wasn't designed for. And -- and it would cost much more than Manitoba Hydro had planned for financially.

So we thought that those were appropriate tolerances then, and I believe that they're still appropriate. So to the extent that we were to update our drought-management plan, it would be to restate those numbers, get a -- bring them forward to the EPRMC that has executive responsibility for reviewing those, but in -- in effect it would be to reconfirm the tolerances that had been re-established previously.

There are additional risks and issues that need to be managed having to do with the operation of Brandon 5 and the declaration of an emergency. The EPRMC

has already dealt with that issue. We know where we stand when and we can use Brandon 5.

So I think the Company is -- knows what the issues are, knows how to manage them, and there may be some benefit in -- in putting that in a document, but I don't think it will result in a change to our -- our strategy in managing droughts.

MR. BOB PETERS: Is 100 percent of the current plan then dependent on institutional knowledge, Mr. Cormie?

MR. DAVID CORMIE: No, there are processes in place that -- that are -- have been established that are not reliant on any one (1) individual.

(BRIEF PAUSE)

MR. BOB PETERS: Did that knowledge exist back in '03/'04 to the same extent it exists today?

(BRIEF PAUSE)

MR. DAVID CORMIE: In '03/'04 the people that were managing the -- had the responsibility for drought management had been in the -- in that area

through the drought of -- several previous droughts, had built on those experiences, and it was those experiences that led to the successful implementation of the drought plan that was put in place in 2003/'04.

And I think we've -- we've all benefited from that. I think that -- that is -- I always describe 2003/'04 as our most successful year. Not financially, but in -- as organizationally in -- in -- in -- in being able to in -- in the presence of the threat to the power supply to be able to confidently and responsibly manage the crisis and not create an emergency for our customers.

And the people and the tools that we have in -- we have -- we had in place at that time delivered on that and -- and -- and -- and with that learning and -- and those capabilities we've continued to deal with the risk of drought in a very confident and very professional way that -- that has received the support of the executive and -- and I -- I think that 2003 was a -- a very significant event from that perspective.

MR. BOB PETERS: Would it be correct, Mr. Cormie, that then the -- the risk by not having a written drought-preparedness plan really now rests in the execution of it, to make sure that it's executed the way that you and the rest of management thinks it should be executed?

MR. DAVID CORMIE: Yes, and that's why we have quarter -- at a minimum, quarterly reporting on our -- our drought risk to the executive, having to demonstrate every quarter that we've looked at the risk of drought, raising all the significant risks that the Corporation is facing. And -- and demonstrating that we are prepared at -- at all times, and that the EPRMC will meet as frequently as required once -- if we are faced with that situation again.

So to the extent that we formalized that process and -- and are required to engage with the executive on these very critical issues to the Company, that has been an improvement.

MR. BOB PETERS: Can you confirm, Mr. Cormie, that Hydro withdraws at least 6,000 gigawatt hours from storage in the October to March winter period, as a typical year?

MR. DAVID CORMIE: That's not an -- an objective that Manitoba Hydro has, Mr. Peters. All that is is an indication that, on average, reservoirs across western Canada are drawn down by 6 terawatt hours.

We don't have an objective. Our objective is to optimize the use of storage in combination with the runoff that is forecast so that net revenues of the Corporation are optimized. We don't have an objective of

drawing water from storage.

MR. BOB PETERS: Well, do you have an objective of not drawing down the energy in storage below 4,000 gigawatt hours effective April 1st in any given year, but rather to have hopefully double that?

MR. DAVID CORMIE: No, we don't have that as an objective. Our objective is to have -- for every year have sufficient water in storage, whatever that amount is, given the availability of alternative resources.

And to the extent that we have to have storage in addition to those other resources, we will do that. Holding water in storage of and in itself is -- is expensive. Water held in storage ultimately gets spilled.

And -- and there was a good example of that this last summer, to the extent that we held back water in April, May, and June of -- April and May of last spring, that water was ultimately spilled. It's a very expensive activity. So our objective is not to hold back water in storage.

And I think in the last thirty (30) years there's probably only been two (2) winters when we haven't been at maximum discharge out of Lake Winnipeg each and every winter.

And so our -- our objective is to optimize the use of storage, not to draw it down to any prescribed level, or to hold it at any prescribed level. To find that balance of -- of storage that provides the best balance between summer sales and winter sales, and winter purchases.

MR. BOB PETERS: Mr. Cormie, in terms of your math, would four (4) -- would 14,000 gigawatt hours in storage in Lake Winnipeg equate to an approximate level of 713 feet above sea level?

MR. DAVID CORMIE: No. I'm -- I'm not sure what that -- that 14,000 gigawatt hours is -- there are a lower level of -- the minimum level of Lake Winnipeg is seven eleven (711), the average -- the -- the level that you talked about is seven thirteen (713), that's 2 feet. That's about 4,000 gigawatt hours in storage, not fourteen thousand (14,000).

(BRIEF PAUSE)

MR. BOB PETERS: Is it then, in light of your second-last answer, Mr. Cormie, is it coincidental that drought years have almost always been experienced in years following October Lake Winnipeg levels being below 713 feet?

(BRIEF PAUSE)

MR. DAVID CORMIE: Well, to the extent that Lake Winnipeg is a barometer of hy -- hy -- hydraulic conditions, you know, wet year Lake Winnipeg will probably get up to seven fifteen (715), in a -- in a low-water year it'll be --it'll be lower.

Seven thirteen (713) is kind of the average level of Lake Winnipeg, so if you start out with the average level, sometimes it's followed by high water years and sometimes it's followed by low water years. That -- that may just be coincidence. I haven't looked at that statistic.

MR. BOB PETERS: Mr. Cormie, can you confirm that, historically, Lake Winnipeg regulation was designed to provide additional winter flows and generation for Manitoba's native load?

MR. DAVID CORMIE: Yes. And the issue there was that the outlet channels of Lake Winnipeg in a state of nature choke with ice, reducing the outflow capacity by 50 percent. So Manitoba Hydro built three (3) major channels that increased the outflow capability of Lake Winnipeg by 50 percent. And that outflow capability is now -- allows us to have higher hydraulic generation in the wintertime, and that's when our peak

load demands are, and -- and so that was the -- that was the driving factor in increasing the outlet capacity.

MR. BOB PETERS: And if the Lake Winnipeg regulation was designed for the native load, then exports were really a byproduct of excess hydraulic resources?

MR. DAVID CORMIE: Yes. And I think when the Lake Winnipeg regulation project was designed, that it wasn't anticipated that Manitoba Hydro would be so strongly interconnected to the North American grid. And -- and I think if we look at the -- the system expansion plans at the time, rather than selling the water, the surplus water, the water was stored in -- in the lake until the lake was full, and -- and lake levels under the planning scenario were relatively high.

However, because Manitoba Hydro has now become strongly interconnected, there's -- there's an option to storing the water, and that's take the water to the export market and -- and extract some value from the surplus rather than just storing it and subjecting it to spill.

MR. BOB PETERS: Well, in fact, now circumstances, Mr. Cormie, have evolved where Hydro will commit to firm exports which can frequently mean importing to meet the domestic load shortfalls.

MR. DAVID CORMIE: Yes. And when we

enter into those long-term firm export contracts the production costs of the system need to be calculated, and those incremental costs associated with those imports are built into the cost of making the sale. And ra -- the operation of Lake Winnipeg regulation is considered in determining those production costing estimates.

And -- and we look at the revenues from the sale and the incremental costs associated with serving the sale, including the need to have imports, and -- and the economic evaluation is -- is appropriate given that we're looking at all the revenues and all the costs.

MR. BOB PETERS: Mr. Surminski, I tried to keep Mr. Cormie off the microphone earlier. Let's try again. In terms of the SPLASH model, that's a model that -- that you personally have operational responsibilities for within Manitoba Hydro?

MR. HAROLD SURMINSKI: Yes, generally. I was involved in development of the model also.

MR. BOB PETERS: And Ms. Flynn also is involved in the operation of the SPLASH model?

MR. HAROLD SURMINSKI: As is Mr. Miles.

MR. BOB PETERS: Thank you that cameo reminder. It's a forecast model for long-range planning, Mr. Surminski. Would that be fair?

MR. HAROLD SURMINSKI: Yes, correct.

MR. BOB PETERS: Would the Board understand the first year inputs are approximately six (6) months of actual and six (6) months of projections based on actuals?

MR. HAROLD SURMINSKI: We're -- we're talking planning, so can you describe -- I don't understand your question.

MR. BOB PETERS: I'm talking about the first year out in the planning cycle.

MR. HAROLD SURMINSKI: The first year out is -- is Mr. Cormie's responsibility, first and second years, but it's -- it's correct. What you're saying there is actuals in that period.

MR. BOB PETERS: Well, in the second year it starts with some assumed actuals based on the prior year. Is that -- is that an appropriate understanding?

MR. HAROLD SURMINSKI: It's based on the storage levels that occurred from the previous year, and median inflows in all river tributaries from that point on.

MR. BOB PETERS: And is it after the second year that SPLASH uses the mean flows for the long term?

MR. HAROLD SURMINSKI: After the second year, SPLASH uses all possible flow conditions, all

ninety-six (96) flow conditions.

MR. BOB PETERS: Is it the actual ninety-six (96) flow conditions?

MR. HAROLD SURMINSKI: They are -- the historic records that have been modified for present use conditions, meeting regulation under today's usage or -- or controls by -- by man.

MR. BOB PETERS: That -- that really means to the Board restated to reflect what has developed subsequent to, for example, using Limestone as an example, the results would be restated as if Limestone existed prior to 1992?

MR. HAROLD SURMINSKI: Yes, but not only that, it's -- it's also the regulation upstream. Regulation of the Lake of the Woods, of the Winnipeg River upstream could have been different in earlier years, so it's been modified or restated for today's operating rules.

MR. BOB PETERS: Is it correct that SPLASH assumes perfect foresight, Mr. Surminski?

MR. HAROLD SURMINSKI: That terminology has been used only for -- in -- in a certain context that would be correct, and making decisions on -- on a window of one (1) year it assumes that it knows perfectly well what the flows for each of the next twelve (12) months

will be, that's correct.

MR. BOB PETERS: The definition of perfect foresight that you're giving the Board is that Hydro will know what will happen in the following year respecting lake levels and flows. Would you accept that?

MR. HAROLD SURMINSKI: Only in inflows. The inflows coming in the next twelve (12) months result in the elevations. So the model -- all the model utilizes is the -- the inflows for the next period.

MR. BOB PETERS: And that perfect sor -- foresight is based on the ninety-six (96) years of data, which Hydro has?

MR. HAROLD SURMINSKI: Yes, each one (1) of those flow conditions is modelled separately as -- as being one (1) of the possible next twelve (12) months.

MR. BOB PETERS: And Hydro assumes that one (1) of those flow conditions will repeat itself in the upcoming year?

MR. HAROLD SURMINSKI: It assumes that it's equally possible that any of those flow conditions could -- could occur and the composite of all of them is utilized in our estimates.

MR. BOB PETERS: Can you explain to the Board how in a specific year SPLASH would determine the starting energy in storage?

MR. HAROLD SURMINSKI: The energy in storage is -- is just a running average. In the beginning, in -- in the first year we have to assume -- we could assume today's levels and -- and from that point on is just a running series of operation. So in -- in one (1) year out from now we use the ending point for the modelling of the first year and it just continues on.

So it depends on -- on whether you're in a low-flow sequence or a high-flow sequence. The elevations of that storage vary with the magnitudes of the inflows.

MR. BOB PETERS: Well, then how does SPLASH determine the system water inflows or energy inflows?

MR. HAROLD SURMINSKI: I don't quite understand your question. It's...

MR. BOB PETERS: In a specific year, Mr. Surminski, would it be correct that SPLASH will give Manitoba Hydro a determination of what the system water inflows will be?

MR. HAROLD SURMINSKI: It provides the outflows at all regulation points at all our stations, at our reservoir controls. So SPLASH is a simulation of system operation and provides all the outflows given the assumed inflows that we are modelling.

MR. BOB PETERS: But how does -- how does SPLASH get those assumed inflows?

MR. HAROLD SURMINSKI: It is each of those ninety-six (96) possible flow conditions. Present-use flow conditions as the starting point.

MR. BOB PETERS: And how does SPLASH determine the water level compliance to the licences that Manitoba Hydro has on -- on some of its reservoirs?

MR. HAROLD SURMINSKI: They are -- SPLASH doesn't determine those. It obeys the -- the requirements -- fulfills the requirements of the licences. They are constraints that are input into the modelling process, so any reservoir constraints, or maximum or minimum flow constraints, those are all constraints in the modelling.

And the model attempts to -- to simulate actual operations based on -- on the constraints that exist.

MR. BOB PETERS: And then it -- this process repeats itself for each of the ninety-six (96) flow years that Manitoba Hydro has data for?

MR. HAROLD SURMINSKI: Yes, you could think of it in that way. The more appropriate way to think of it is you start with a particular load year and just chronologically follow through. If you're -- if

you're modelling up to 2045, so you start in -- in 2010, or '12, and -- and just chronologically follow your flows through because it's the chronological aspect that's important because you need a end-of-period storage level to start from for your next period. So by starting -- and then we -- we do all the flow cases after that by chronologically shifting by one (1) year, and chronologically maintaining the sequence of -- of history.

MR. BOB PETERS: How, Mr. Surminski, is the energy pricing incorporated into the model?

MR. HAROLD SURMINSKI: We have relationships for each month of the year and for each -- for various quantities of on-peak and off-peak sales. So there's a -- there's a relationship. The first increment that you would be selling would be a highest price because you could capture your highest-priced hours. The second increment would be the -- the second-lowest, and we have several increments in that way.

Depending on the volume of sales that you have, you capture high -- highest prices first and lower prices as you have more and more volumes. So basically you could call it a price-volume type of relationship, but that's based on -- on picking and selecting your highest-priced hours and -- first, and just filling up

your hours as you have more and more volume.

MR. BOB PETERS: You're not using then an average price, you're using specific prices for -- for virtually every situation as peak, off-peak, opportunity --

MR. HAROLD SURMINSKI: Yes.

MR. BOB PETERS: -- peak, opportunity off-peak.

MR. HAROLD SURMINSKI: Yes, very much so. And that's the complexity when we were requested to -- to fix prices in our model when -- when there was the request to say run a model with specific prices.

Well, we'd have to develop a whole relationship. We can't just take an annual on and off-peak price, and just input that. We have to develop a whole family of curves, and it changes over the years, it changes over the months, so it's a complex process to develop that family of -- of relationships.

MR. BOB PETERS: How many different base price forecasts are tested in SPLASH?

MR. HAROLD SURMINSKI: I think your question is -- we use normally three (3) scenarios: an expected, a high, and a low.

MR. BOB PETERS: Are those scenarios commercially purchased or are they derived by Manitoba

Hydro?

MR. HAROLD SURMINSKI: Yes, they are purchased. We asked our -- our consultants to -- to provide these as a starting point.

MR. BOB PETERS: But the consultants provide all three (3) of those forecasts is what my -- what I'm trying to get at.

MR. HAROLD SURMINSKI: Yes.

MR. BOB PETERS: Okay. Thank you. And when you were telling me that repeating the process chronologically you start with a load year and you follow through, and you -- you gave the examples chronologically.

That -- does that mean that Manitoba Hydro is assuming that history will repeat itself chronologically?

MR. HAROLD SURMINSKI: Yes, that's implied. It's better than -- than trying to arbitrarily select something else. There's a large sample that's there, so it's assumed that -- that be so -- '96 year sample is -- is representative of possible things that could happen.

MR. BOB PETERS: Just to conclude on this thought, Mr. Surminski, back in '03/'04, would the Board

be correct in its understanding that Hydro did not take Lake Winnipeg down to the licensed limit of 711 feet above sea level?

MR. HAROLD SURMINSKI: Is your question in the modelling that we did not take it down?

MR. BOB PETERS: No -- no, my question is in operations it -- it didn't get taken down. Or did it?

MR. DAVID CORMIE: No, we ended the winter of 2003/'04 with Lake Winnipeg above seven eleven (711).

MR. BOB PETERS: And that was to maintain a reserve in case the droughts continued -- the drought continued into the following year.

Isn't that correct, Mr. Cormie?

MR. DAVID CORMIE: Yes, we may have been in the first of a multi-year drought, and it's -- was necessary to have energy in reservoir storage should the drought persist into a second, third, or fourth year.

MR. BOB PETERS: Mr. Surminski, on its own, would it be correct that the SPLASH model would have assumed that Lake Winnipeg could have been taken down to 711 feet in the '03/'04 water conditions?

MR. HAROLD SURMINSKI: No. In fact, our modelling does not get down to -- to the minimum elevation either. There are the -- the physical

constraint. You just cannot get enough water out in the winter months in order to meet the loads, so -- it's because of the ice restrictions at the outlet.

MR. BOB PETERS: What -- what is the -- the modelling limit on the lower end?

MR. HAROLD SURMINSKI: It's often in the seven eleven and a half (711 1/2) --

MR. BOB PETERS: And the high end?

MR. HAROLD SURMINSKI: At the high it'll -- it'll go above seven fifteen (715) if -- if there's too much water.

MR. BOB PETERS: All right. Thank you for those answers.

Mr. Chairman, this would be a --

THE CHAIRPERSON: Thank you to the panel and Mr. Peters. And we'll see you back tomorrow at 9:30.

And tomorrow, you'll recall our comments on January 31st, so we were looking for the submissions of the parties on the question of potential and other interim rate change for April 1st. So we'll start with that in the morning. And we'll start with Manitoba Hydro, and then we will go to the Intervenors and return to Manitoba Hydro. And when we're done with that we'll go back to the cross.

Thank you and goodnight.

(PANEL RETIRES)

--- Upon adjourning at 4:31 p.m.

Certified Correct,

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Cheryl Lavigne, Ms.