



Legislative Assembly of Manitoba

HEARINGS OF THE STANDING COMMITTEE

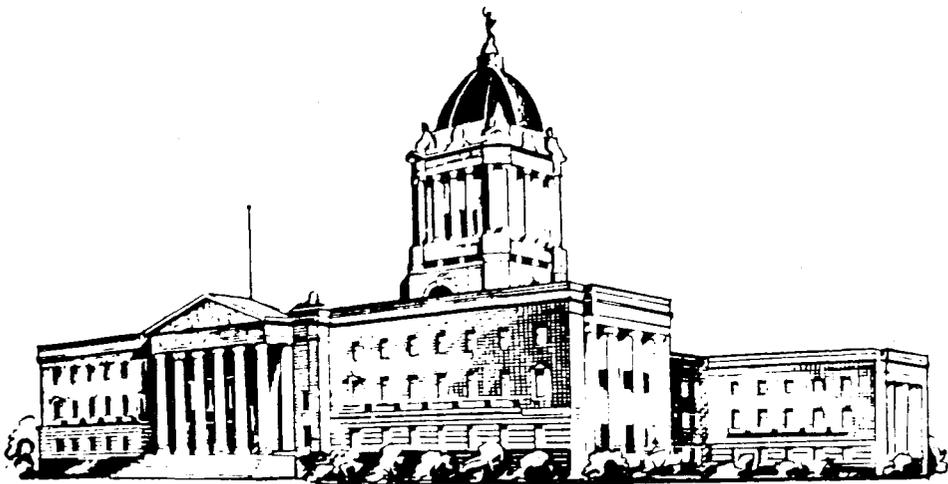
ON

PUBLIC UTILITIES

Chairman

Mr. Harry Shafransky, M.L.A.

Constituency of Radisson



10:00 a.m., Tuesday, April 20, 1976.

THE LEGISLATIVE ASSEMBLY OF MANITOBA
STANDING COMMITTEE ON PUBLIC UTILITIES
10 a.m., Tuesday, April 20, 1976

Chairman: Mr. Harry Shafransky.

MR. CHAIRMAN: Order please, we have a quorum, we shall proceed with the Annual Report for the Manitoba Hydro Electric Board. The last day we had a number of people indicating a desire to ask questions; I call upon Mr. Axworthy to lead off.

MR. AXWORTHY: Thank you Mr. Chairman, I just really wanted to come back to some of the questions that were being raised about the projected capital costs of the Hydro developments that we're presently undertaking, and as I understood Mr. Chairman, in the one line of questioning that was being followed previous was the question of the disparity between the original projection for high level flooding of South Indian Lake versus the low level which was eventually chosen. And I gather, Mr. Chairman, through Mr. Bateman, that the rationale for selecting the second alternative was that this would avoid an amount of resource loss in the north of timber, of wildlife, trapping, all the rest of it. I was wondering, Mr. Chairman, if Mr. Bateman could give some estimate of what the estimated costs were between the external savings or benefits that would come about between those two particular projects. In other words, what saving do we have by choosing the second in terms of what we saved in the way of resources and all the rest of those kinds of things.

MR. CHAIRMAN: Mr. Bateman.

MR. BATEMAN: That's a question that requires my memory to go back several years, but I think on the basis of the Underwood Studies that were done at that time, Underwood-McLellan, Consulting Engineers, who evaluated the resources, and I pointed out last week that those same resource values in today's marketplace would be much more valuable. So consequently you couldn't say that because energy prices have gone up the decision today is just as valid as it was then, and the evaluation of all of that resource information along with the stimulation of power system development produced an optimum for South Indian Lake of 850 feet above sea level.

MR. AXWORTHY: Mr. Chairman, I wonder, and if you're taking into account I assume that under the present development programs though there has still been an amount of resource loss and can you estimate what that is? I've heard estimates, for example, that some sixty-five million cubic feet of timber will be lost as a result of the present development. Have you put any dollar figures on the kinds of losses of resources that are going to be occasioned by the present development?

MR. BATEMAN: Well, in the matter of timber most of the merchantable timber was harvested. There are some low-lying areas where we're not clearing the shore of South Indian Lake, but where there were any resource developments or any habitations or potential resource developments the lake has been cleared up to elevation 815, or I should say 850.

MR. AXWORTHY: Mr. Chairman, Mr. Bateman, in your previous remarks you indicated that there was to be a number, I think of what you called "efforts of mitigation," which I assume was to offset problems that occur both in the actual construction of the present development, as well as in terms of the effects of a development upon communities and upon the surrounding environment. Can you describe or tell us what exactly those mitigation efforts are; what has happened in the course of development that's required some remedial work; and what kind of things have happened in terms of the direct consequences of the development upon the surrounding communities that are going to require this mitigation effort?

MR. BATEMAN: Well looking at South Indian Lake itself, the settlement in conjunction with the re-development of the community, we have provided new homes and consolidated the community around the new community centre which was developed on the east side, that work has been done.

Looking at the downstream portion of South Indian Lake, the lakes immediately downstream we know are going to be reduced in area because of the reduced flow that will result when the diversion of water occurs through the Notigi control structure and last year

(MR. BATEMAN cont'd) in co-operation with the resources people we sort of staked the fishermen from Ilford to an early harvest of fish from those lakes. We subsidized the payment of some of the freight out of those lakes into the Thompson area by air-freight which made it a very economic operation from the fishermen's point of view.

Going downstream in the Churchill, the next area where mitigation results in some problem to a community is the Town of Churchill, and we over the years have studied this problem and we're quite satisfied that while there may be some modest salt water intrusion into the upper part of the harbour, we are nevertheless taking steps to ensure that the water intake of the community is moved sufficiently far upstream in accordance with the consulting engineers reports that examined this problem to ensure that the water supply will be quite satisfactory. And in conjunction with that we're extending the intake therefore we're also putting a water treatment plant in because of the difference in water quality that may result from less Churchill River water coming down the Churchill River.

Now going down the route of the diversion the first community that's affected is the community of Nelson House which will have some land flooded under the worst diversion conditions of winter ice problems and so on, and we anticipate that we will be able to make settlement. We're currently in mediation with the Northern Flood Committee over this particular problem and I wouldn't like to prejudge the results but I'm rather optimistic that some settlement will result from the mediators report which is due in the next while.

That, going downstream still further, the first mine that is affected is the Birch Tree Mine, and we're putting in a changed elevation for the intake pumphouse for the Birch Tree mine and some treatment of the water there. Because of the early years there may be a little more in it until the water channel stabilizes.

And looking at the Town of Thompson we also are raising the elevation of the pumphouse at Thompson to ensure that under ice jam conditions we'll not have a back-up of water into the pumps which would affect the water supply or the integrity of the water supply to the Town of Thompson and the International Nickel's Mine at Thompson.

In order to offset some of these ice formation problems that we visualize in the reach of the Burntwood River by the Town of Thompson, we are also building a control structure, a weir, which is just a rock grain built out into the stream which will increase the elevation of water upstream of that particular falls and consequently reduce the ice generation at that point.

The air base, Lambair, Manitoba Government Air Services, Ilford Air all have docks just below Thompson Bridge, on the highway there, on that point of land and those will be moved back up to an elevation that's suitable.

Those are the principle mitigation works and, I think, those coupled with the collection of the trash in the forebay... Oh yes, there is one other very important one that I've just been reminded of, and that is the trappers, the relocation of trappers. We have worked out, in co-operation with the trappers, a program which offsets their loss of income by the loss of traplines which may be flooded, and this would increase - there would be an incentive program associated with this - which would insure that the trapper is going to do a meaningful harvest over the next five years, and his remuneration or his compensation is worked into the rate at which he produces harvestable furs over the next five years. This program, I might say, is quite an interesting one and it has received a great deal of enthusiasm from the trappers and we've worked it out in conjunction with the resource people.

MR. AXWORTHY: Mr. Chairman, there is then about nine different efforts of so-called mitigation. You didn't include, as well, any settlement on the Indian Reserve lands as well as part of that estimate I take it.

MR. BATEMAN: The mention that I made of the mitigation of the Nelson House will be an exchange of lands or some recompense for the lands that are flooded in the Nelson House Reserve. That's the one area where Indian Reserve land is affected.

MR. AXWORTHY: Mr. Chairman, I wonder, Mr. Bateman can you tell us what these variety of mitigation efforts are going to cost?

MR. BATEMAN: Yes, I think the difference between the estimate I gave last year and this year was some \$30 million. It was close to \$30 million, I actually used the figure in my presentation of \$27.2 million which we presently estimate for mitigation.

MR. AXWORTHY: Is that cost of mitigation included in these projected costs you gave us last week of \$204 million, or are they covered under other . . .

MR. BATEMAN: No, they are included in the current estimate for Churchill River Diversion which, I believe, I said was \$206 million, \$206.4 million.

MR. AXWORTHY: Okay. So out of the 206 about 30 some odd million is going in to cover the repair work really that's required as a result of development, is that . . .

MR. BATEMAN: Yes, there is some repair work in there associated with the various things that I have indicated to you.

MR. AXWORTHY: Mr. Chairman, I would then like to ask Mr. Bateman, in terms then of this 30 million for these mitigation efforts, plus the cost that came as a result of the problems you ran into in construction, what kind of estimate, or is it possible to give an estimate of what the consequence in terms of dollars was of the assessment or the failure in the channeling that you, I guess, ran into last year, because you say, because of climate reasons.

MR. BATEMAN: Well that, of course, poses some increase in costs all right, plus the fact that you have to keep the camp facilities open for another year because you've got contractor's men and our own men working there, so you've got the indirect costs as well as the direct costs associated with the contractor's operation. I would think the South Bay Channel will cost in excess of the estimate that we had last year it will be up by some, I would think \$10 million.

MR. CHAIRMAN: I'm waiting for you.

MR. AXWORTHY: Oh I'm sorry, I just thought that you were looking for figures. So the excess cost then of the problem with the channeling would be in the order of about \$10 million, is that . . .

MR. BATEMAN: I think I said about 9 last meeting, but I would think by the time you add these other items in it would probably be in the order of \$10 million.

MR. AXWORTHY: \$10 million over, run on that. Going back to the choices then that you had in terms of looking at the total costs and effects of the projects, were the two uses of South Indian Lake, the high level - low level flooding, both using the diversion technique, were those the only alternatives that were open to you at that time that you studied and came up with options upon?

MR. BATEMAN: Well we studied a number of alternative means of diverting the Churchill River.

MR. AXWORTHY: No, I'm asking were there other options other than through diversion in terms of supplying what you considered a . . .

MR. BATEMAN: Oh, in terms of using the Churchill River water for energy production. Is that what you mean?

MR. AXWORTHY: Yes.

MR. BATEMAN: Well yes, you could have built plants along the Churchill River which, the first one perhaps at Granville Falls upstream in Manitoba, you could have built - each of these plants would have required raising the water level and flooding some land. The next one perhaps at Missi Falls which would have required getting South Indian Lake up as high as you could get it to get an economic head development for that plant at Missi, plus the other plants down the Churchill River. Now to do that our estimate on the basis of the very limited amount of field survey data that had been compiled by that time, and I say very limited amount but it was in the order of several million dollars that had been spent on assessing the various means of developing power from the north, which was part of this programming board's study that I mentioned last week. Now our conservative estimate of the cost of developing power from the Churchill River by building plants and so on along it was in excess of \$400 million more than the cost of diverting the water down the Churchill River. And I'm sure that on the basis of what's happened to inflation that that is a very very low figure.

MR. AXWORTHY: Mr. Chairman, taking that figure, I believe the last estimate that you gave of the total cost of the power developments along the Nelson would be about \$4 billion. Is that the estimate that I recall you providing?

MR. BATEMAN: Last year I told you that that would be the order of magnitude of the Nelson River Development. I must caution you, of course, that that may be a low figure by reason of the continued escalation and inflation that we are experiencing, and as I pointed out last week, if this inflation is not brought under control then we can look for higher interest rates and higher interest rates are going to mean significant increased costs for Manitoba Hydro's developments. In fact it's going to mean increased costs in our way of life.

MR. AXWORTHY: Well Mr. Chairman, to Mr. Bateman, what would you then give as a more accurate estimate, taking into account the forecasting that you can do over the next couple of years. Let's say presuming that there is a moderation in the inflationary spiral to eight or ten percent that the national government wants to achieve. What are we talking about now in terms of total costs of all the, about fourteen generating plants, plus all the engineering work, plus all the mitigation efforts, what are we talking about in terms of estimated cost now of that total development?

MR. BATEMAN: Well I think it's important to remember that you can't turn the clock back. We are here today and the commitments have been made to develop the Kettle Plant which is complete, to develop the Churchill River Diversion; to develop Lake Winnipeg regulation and its associated generation project; and the commitment to develop the Long Spruce project.

Now the next decision that the Board of Manitoba Hydro has to make is what is the next source of generation? And we have made that decision last year that we will not bring Limestone into service any earlier than 1983. Now I hope that is early enough to meet the load requirements. We will be, according to our estimates, in a deficient position by 1983. So what we are looking at now, that Limestone plant would last us till 1985, so what we are looking at now is what we do after 1985. And the decision-making has to take place within the next two years. I would think within two years, and perhaps depending upon how the economy moves, we would be able to defer any other major expenditures until that point in time.

In our assessments of the future costs of next source of generation, we are still very fortunate that the Nelson River costs are showing us the preferred route. Now we have alternatives; we are looking at the prospect of nuclear; we are looking at thermal and so on, and at the present time I would think that the route would be hydro. Now you ask me, what is it going to cost for the full development of the Nelson River? You have to ask me also what year is it going to be developed? Because I can't tell you what the cost is going to be unless you define the years that you want the power. The costs are moving so rapidly these days that really an estimate today is obsolete tomorrow, just as we see the cost of some of the other projects that are going on across the country are rising at very rapid rates, so to quote figures today without knowing what the inflation rates are going to be and the interest rates are going to be is really meaningless.

MR. AXWORTHY: Well Mr. Chairman, then maybe perhaps Mr. Bateman could give us an estimate then what the cost will be, his estimated cost would be, in terms of those projects which are onstream now, Long Spruce in particular, finishing up the commitments that you've already made without projecting into the new ones, what estimated cost now do you have for the total development on the Nelson at this stage? You said that 4 billion would now be obsolete. What's the new figure?

MR. BATEMAN: Well I haven't got a new figure to give you that would relate to the 4 billion, but I also told you that in 1981 when we had planned to bring Limestone Rapids into production, our estimated costs - I think I was quoting last year something in the order of \$750 million. Now to defer that plant two years, and with the hope that we are going to bring inflation under control, and that interest rates will not rise above those that I have used in my sheets that I distributed last week, our present estimate for Limestone power is \$1,100,000,000. Now that's the degree of inflation that we're experiencing.

MR. AXWORTHY: Well Mr. Chairman, I still haven't got a . . . Are you saying now that it's not possible to estimate what the cost will be of the committed hydro projects along the Nelson so we don't know what kind of capital we're going to need?

MR. BATEMAN: The committed hydro projects I've already given you. I've given you the committed values in dollars and I've given you the committed value of Limestone. Now we haven't committed any other project and for me to tell you that it's going to cost

(MR. BATEMAN cont'd) 1.1 billion and then come back next year and tell you that because inflation has been still at the better than 10 percent double digit figure, you know, you'd logically raise a question, well why didn't I know the answer last year? I'm telling you that it's not possible unless we know what year we're going to commit that plant, to do a proper estimate. I can give you the estimates in 1974 dollars, and I'm telling you that the cost of Limestone is really going to be cheaper than the cost of Kettle because we have already installed a fairly significant infrastructure; we already have a lot of investments, some costs if you like, in the Town of Gillam which we're going to use. Now we can't anticipate that the cost tomorrow is going to be under control or not. I'm telling you that the present estimate for bringing Limestone in in 1983 and completing it in 1985, the estimate for that plant and over that period of time would result in a cost of \$1.1 billion.

MR. AXWORTHY: All right, so if the method - I'm trying to follow your mathematics and we're talking about the 4 billion that was committed plus another 1.1, we're now up around . . .

MR. BATEMAN: No, no, that's not correct, because the 4 billion . . .

MR. AXWORTHY: That's what I'm trying to find out, Mr. Chairman, is what are we talking about in terms of capital costs now, for the projects that are onstream or being planned by Manitoba Hydro, so we get some estimate of what it's going to cost in the way of borrowing capacity of the corporation and of the Manitoba Government.

MR. BATEMAN: Well to give you a figure of the 4 billion, I had used that as the overall estimate last year of what the cost of the full Nelson River Development would be. Now if we go ahead and develop this all by 1990 or '92 at the outside, then I would anticipate that those costs, you could just add your escalation rate, you know your escalating at 10 percent a year or better, in fact it's closer to 14 percent in some areas. The construction industries are going up at that rate. You'd have to add costs of that order of magnitude per year, compounded.

MR. AXWORTHY: Well I'm asking you what year it is, you must have some forecast of what it's going to cost on those . . .

MR. BATEMAN: No, I haven't got any forecast it's a meaningless figure. I don't think it's sensible to waste people's time asking them to estimate what the cost is going to be in 1992 when I don't even know that I'm going to build it yet.

MR. AXWORTHY: Well Mr. Chairman, to come back to the point though. We're standing at a point where we've made a number of commitments for facilities, there's plans being developed for the Limestone plant. Are you saying at this point we don't know what it's going to cost?

MR. BATEMAN: No, I'm not saying that at all my friend.

MR. AXWORTHY: Well that's what I'm asking. What is it going to cost?

MR. BATEMAN: I told you that the Limestone plant is going to cost Manitoba Hydro \$1.1 billion. Now I told you that last week and I told you this morning. That's what it's going to cost according to the present estimates that we have providing the inflation rate remains as we have indicated, coming under control within the guidelines, and that the cost of money will not exceed 10 percent. Now those are the assumptions.

MR. AXWORTHY: Those are the assumptions that you're working on. So it's the 1.1 now for Limestone plus what has been the cost of all the developments up to this point then? Let's have the addition that way.

MR. BATEMAN: Well the costs of all the developments are in our report plus the work in progress, the work in progress. . . -- (Interjection) --

Yes, the work in progress was the figures that I gave the committee over the last two weeks with Lake Winnipeg at 260 million part of which is now on our operating account so it's not all to come. And the Churchill River Diversion - \$206 million; the Long Spruce project \$501 million or thereabouts. These are the dollars that we're talking about adding to our accounts. Now if we commit Limestone, and we haven't let any major contracts for Limestone yet, we are getting ready, we have the major problem within the next few weeks of deciding upon whether we build the cofferdam or a portion of the coffer dam starting this year or defer it. We'd have to build part of it this year if we want the plant for 1983. The 1983 date is based on getting the U.S. interconnection, and if we don't get the U.S. interconnection then we've got to have Limestone for '82. I don't

(MR. BATEMAN cont'd) know how we're going to do it, these things are contingent upon each other. But the \$1.1 billion would be part of the additional financing. Now what we're going to need by way of additional financing is in the order of \$300 million a year for the next few years and increasing, as the program increases, with these increased costs. Now if the increased costs are brought under control then we will not need as much money.

MR. AXWORTHY: Mr. Chairman, just then on this one final question on the financing. We're now then talking about having to go into the money markets for additional \$300 million a year over the next several years. Is that right?

MR. BATEMAN: Not an additional, but that's the planned capital requirements.

MR. AXWORTHY: That's the planned capital requirement, about \$300 million per year?

MR. BATEMAN: In that order, yes.

MR. AXWORTHY: What, Mr. Bateman, will that do in terms of the proportion of a rate that is to be charged off to interest rates. You estimated last year, I think, at committee, about 40-some-odd cents of every dollar is charged off in interest. What's that going to do to those charges at this point?

MR. BATEMAN: Well it will keep those approximately in the same ratio. They may go up a little bit, they're going to go down likely next year. It depends on how fast you put these charges on your operating costs.

MR. AXWORTHY: But we are talking about a program, about \$300 million additional capital each year.

MR. BATEMAN: If we were going to go into thermal generation, for example, we would need some dollars to cover the interest to pay the cost of the plant that we'd build, and it wouldn't be cheap plants, but we'd also have a fairly significant fuel cost. Now you look at other utilities across the country you'll find that if they're not paying money out in interest charges they're paying it out in fuel. The proportion of their operating cost between fuel and interest is relatively within the same order of magnitude. Some larger than others.

MR. AXWORTHY: Thank you, Mr. Chairman, I just have some questions then in the comments made last week by Mr. Bateman, and concerning the export program to the United States. Can you explain, Mr. Bateman, the position taken by the National Energy Board in respect to the claim that they made that the price that you're charging, three mills per kilowatt hour, is really in effect a subsidy of the United States power user? To what degree are we subsidizing American Minneapolis Power and Light in terms of that particular proposal?

MR. BATEMAN: Well the fact is we're not subsidizing them now because the Energy Board didn't approve the subsidy. But the three mill power for the portion of the power that was surplus to Manitoba's requirements was a comparable price to what we could get in any other area. The fact that they now have told us that we have to sell it on a straight economy basis and not the three mill escalated to the fuel rates that the Minnesota Power and Light Company were going to pay, so it's not a subsidy because as I say, the Energy Board has ruled against it but we thought it was an interesting business arrangement to attract the Americans to invest some 20-odd million dollars in a transmission line. If you like, it's comparable to the same - you'd have to provide some incentive to Ontario Hydro for example, if you were going to sell them some of this power. They would want some good rate on it in order to invest the large capital cost to build the transmission line to take the power which is what we did back in 1968, after Kettle was committed in 1966. We did that with Ontario, we entered into an incremental capacity cost arrangement where they have the advantage of some relatively low-cost energy because they were building such a large investment in transmission lines. I don't think there's anything unusual about this type of an arrangement. You have to have some economic incentive to encourage these transmission lines to be built. Our assessment on the transmission line to Minnesota is that while the capital cost to Manitoba Hydro will be in the order of \$6 million, the annual revenue from it will be in the order of \$6 million or more. So we're, you know, we're quite convinced that it's an excellent business arrangement for Manitoba Hydro to be in. It will also permit us, in Manitoba Hydro, to keep our rates to our customers at a lower level because of the added revenue

(MR. BATEMAN cont'd)we will get from these sales of surplus power.

MR. AXWORTHY: Well, Mr. Chairman, two questions come out of that. One is then you're talking about this excellent business deal. Then are you planning to appeal to the National Energy Board in order to secure an excellent business deal and if not, how do you intend to retail your surplus power?

MR. BATEMAN: No, the National Energy Board were very kind to us. They gave us all of the licences that are necessary for us to complete the business transactions that we want to complete with the exception of the three mill power. We actually have the capacity sale provisions within the terms of the licences that they have granted to us. They are slightly different in form and were certainly misinterpreted when they first were announced by the Energy Board. But those licences give us the right to sell power and we are currently renegotiating these positions with MP&L, and I think we are going to reach a very satisfactory arrangement. They are still building the transmission line and we will undertake to build our transmission line, hopefully have it in service when we had planned to. But the thing we're appealing is the National Energy Board told us we had to move the transmission line from one piece of property to another. Now why we're appealing that is the fact that the people on whose land they are now asking us to build the line, we had rejected that route for economic and other reasons associated with municipal development, and we don't think the Energy Board has the authority constitutionally to tell Manitoba Hydro or the Government of Manitoba where they can build transmission lines in the Province of Manitoba. That's why we're appealing the decision. It's a constitutional matter. We're not concerned with the licences, we quite believe that the Act that the Energy Board operates under gives them all of the authority they need to set the transfer of power across international lines, so we're not concerned with that. We're quite happy with the rulings they gave us, but we're very unhappy with the ruling they gave us on moving the transmission line.

MR. AXWORTHY: So you mean you're quite happy then with the NEB ruling about the sale of power. Now I assume that that still includes the fact that Manitoba Hydro will build the transmission line so that in a sense part of our capital costs will be the capital that goes into that transmission line so that, in effect, we are subsidizing the sale of the power to the United States.

MR. BATEMAN: I can't see how you could call that a subsidy, Mr. Axworthy, \$6 million of capital investment which is going to cost us about \$600,000 a year or a little better to carry on our books. Now that's the cost, and part of it's going into depreciation and part of it interest and operating and maintenance costs. Even if it's 750,000 a year and we make \$6 million a year on the sale of surplus capacity and surplus energy, you call that subsidy? I think they're subsidizing the Manitobans.

MR. AXWORTHY: Well, Mr. Chairman, I assume it's a subsidy, if in fact the price that's been charged the Americans is too low to in fact pay for the amortization cost of that capital, that if in fact the three mills does not pay for it but is simply when you get into accounting questions, you can take that lump sum of 6 million but say that it is the cost of the power itself. And I assume that the 3 mills would just barely add up to the actual cost of the generation of the power off the Nelson because it's got to be amortized as well. We're just not talking about transmission line amortization, we're talking about the total cost of the surplus power which in itself comes to three mills or perhaps even more than three mills. So in effect then we are subsidizing, aren't we?

MR. BATEMAN: I think you can forget about three mills, just forget about three mills.

MR. AXWORTHY: Well what kind of price are we talking about now?

MR. BATEMAN: Well I showed you the price last week and I'll show it to you again. The MAP rate for power over these facilities sold under the MAP contractual arrangements as peaking power will work out to 17.4 mills a kilowatt hour. Now that you can see clearly covers the cost of Long Spruce based on \$501 million, an annual charge of 50 million which gives us about 5.2 billion kilowatt hours at 9.65 mills a kilowatt hour. The transmission of all that power into the system, all the way down to Winnipeg here, is going to cost us about 3.85 mills a kilowatt hour. So our total cost including the transmission is 13.5 mills. Now this is really an unfair cost because when we haven't surplus power to sell we have to supply the Manitoba load, and we need that

(MR. BATEMAN cont'd) transmission line anyways to supply Manitoba Hydro's load, so I've concluded it here to show you that, you know, even if it was considered fully, in other words, the American sale under this MAP peaking rate which works out to 17.4 mills a kilowatt hour, that clearly is more than what we need to cover all the costs we have. Now we can't get 17.4 mills for all of it. Can I have the lights again, please?

MR. AXWORTHY: Well, Mr. Chairman, that's the question. What price are we asking for or are we going to be getting in terms of the sale of this power then if 17.4 is the break or let's say even 13.5 is the break even point, what kind of a sale price are we talking about for this surplus power, to cover all the cost, not just the transmission line cost?

MR. BATEMAN: We have, you see, a situation where when we sell to Ontario or to Saskatchewan or to the Americans, we sell it on the basis of displacing whatever we can displace. If it's surplus to our requirements, then any price is better than nothing, eh? Would you buy that?

MR. AXWORTHY: Hmmm.

MR. BATEMAN: Well, all right, then we'll spill it to the sea. Well you see now, the energy must be sold then under the Energy Board's interruptible licence that they've given us. We have to charge the conventional formula of interruptible power rates.

MR. AXWORTHY: Well what is that rate now, Mr. Bateman?

MR. BATEMAN: Well that depends upon the plant that we're displacing and it depends upon our incremental costs. Let's give you an example. Since we are no longer selling this three mill power and that seems to be the big concern, we're going to be selling power on an interruptible basis, and as I told you, it may not result in as high a power, could conceive as high a power rate, it could conceivably be sold at a lower rate than three mills. For example, we have sold energy to Saskatchewan as low as 1.3 mills and also into the U.S. market at 1.6 mills over the last two years. Now those are interruptible sales. And the way you arrive at the value of the interruptible sale is the cost of production, the incremental cost of production versus the incremental cost of the neighbour's production. Now if he has a plant that is generating power at, let's take a simple example, his cost is 16 mills, and we're say in the area where our cost is 8 mills, say we're burning coal, 8 mills. Then you would take and add 16 and 8 and get 24, and you would divide by two and get 12. You would sell that power to him at 12 mills. In other words, he's saved 4 mills because he's got an incentive to displace some of his higher cost generation, and you would make 4 mills. And that's the whole basis on which these transactions occur, to save the two parties money. And every transaction is dealt with on that basis.

MR. AXWORTHY: Well, Mr. Chairman, I thank Mr. Bateman for the explanation, we still don't know what we're trying to sell, not only the interruptible power but the firm power to Minneapolis Power and Light, for what kind of prices and costs are we talking about?

MR. BATEMAN: Well, as I tell you . . .

MR. AXWORTHY: I mean you showed us the slide. You said, that's what we have to get, and I'm saying what in fact are we asking for and what do you expect to get?

MR. BATEMAN: That 17.4 mills is what we will get for the peaking power that we're selling under the terms of the licence with the National Energy Board, the MAP peaking power rate, which is about \$1,667 a megawatt a month. Now if you're selling interruptible power, first of all there has to be a market for it, you can't sell it if there's no market. If they don't need it, you can't sell it. You can't give it away because they don't want it. So if there is a market then you have to know what his prices are, and his prices vary from hour to hour and from day to day. And at night now, on occasion, we are buying American power back into the Manitoba system to displace some of our own thermal costs, because it's cheaper for us to buy from them than it is to burn coal. It's strictly a market operation. I mean, I can tell you what the range is going to be all the way from 1.3 mills up to 30 or 40 mills. If he's really hard put and has no capacity and the only alternative is that he's going to run a diesel plant or a gas turbine, which may cost him 40 mills, and we happen to have surplus hydraulic, we would

(MR. BATEMAN cont'd) probably make a return on that of 20-odd mills a kilowatt hour.

MR. AXWORTHY: Mr. Chairman, the thing that still - we're not getting clear though. If in fact this is a conventional market transaction that takes place all the time, why do the National Energy Board, in effect, say that you were going to be subsidizing the American power system by 2.5 mills, I mean what is their explanation for it. I mean that's the reason why they wouldn't grant you the full licence . . .

MR. BATEMAN: Well, they have granted us the full licence. That's . . .

MR. AXWORTHY: Well they granted you the full licence, but said they want a different price, now why . . .

MR. BATEMAN: No, they've told us to sell it at economy, on the basis of economy transactions and I say that their staff didn't appreciate the fact that that may result in us getting less for it than the 3 mills on some occasions.

MR. AXWORTHY: On some occasions. What about the other occasions?

MR. BATEMAN: Well if we're going to get more for it, you see, the bulk of the energy, this 3 mill power, was a very small part of the total amount of power we were going to sell the Americans. The bulk of it was all going to be sold on economy transactions. Now the economy rate varies and they were prepared to accept the economy rate and weren't going to question the fact that it may result in the sale of less than 3 mills. They didn't question that, but for that small part of it that we were saying that we would provide an incentive when we had surplus water only, then we would sell to them at the 3 mill rate. And it was some 200 million kilowatt hours a year, I believe. Was that the figure? Yes. A relatively small amount. They've given us a licence to export 3 billion kilowatt hours a year.

MR. AXWORTHY: Mr. Bateman, how is this going to affect the proposed construction of the new transmission lines? You were planning to build about a 500 kilowatt line, an additional line and I believe a third.

MR. BATEMAN: 500 kV line.

MR. AXWORTHY: Yes, well how was this going to affect the development of those interconnections to the United States?

MR. BATEMAN: Well, I don't think it's going to affect it at all. I think that the terms and conditions under which we're building a 500 kV line, provide for seasonal diversity, which makes abundant sense, and I think it's within the general policy rules of the National Energy Board. Mitchell Sharp's policy of 1963 is still the policy that the Federal Government are following on export power and that 500 kV line falls within those power definitions and I have every confidence that when we apply to the Energy Board we will get our licence. As a matter of fact, we will be able to judge this a bit very soon because the Quebec Hydro are applying for a 765 kV line into New York, and their application is being heard on June 1st. Ours likely will not be heard until some time later this year or early next year. It takes several months after we get all of our information in for their staff to process the application. And these applications, you know, they are very voluminous documents. They stand about that high, in paper, that the National Energy Board wants to review, not only our system but our neighbour's systems and so on.

MR. AXWORTHY: So the application has now gone in for the new transmission lines, the new interconnections.

MR. BATEMAN: No, we haven't applied yet.

MR. AXWORTHY: You haven't applied yet?

MR. BATEMAN: We are preparing the application.

MR. AXWORTHY: You are preparing the application, and you believe you'll submit those this . . .

MR. BATEMAN: Some time later this summer, early fall.

MR. AXWORTHY: Late this summer, and is that application in any way contingent upon the satisfaction of these conditions of renegotiated price from the American power?

MR. BATEMAN: No, because it's with a different company, you see.

MR. AXWORTHY: A different company, okay. Thank you, Mr. Chairman.

MR. CHAIRMAN: Mr. Henderson.

MR. HENDERSON: One of my questions was on the total debt, and I presume by the answer that at the present time, that you're committed to slightly over \$4 billion.

MR. BATEMAN: No, we're not committed to that, Mr. Henderson. The answer I gave you was that our current report shows you the financial picture which is about 1.4 billion and we have since - work in progress, another 300 million - last year perhaps, no, we're committed to less than 3 billion at the present time, much less than 3 billion.

MR. HENDERSON: But your estimated costs is just slightly up. The total there at the present is just slightly over 4, isn't it?

MR. BATEMAN: Well, we anticipate if we keep getting the inflation, when you see the Limestone plant has gone from 750 million to 1.1 in the course of two years, we would fully expect that the Conawapa and Gillam Island sites to be correspondingly higher. So I would say that we're committed to something in excess of \$3 million now, but we don't want to commit any more than we have to because of its effect on rates.

MR. HENDERSON: Well whichever way you interpret it then, what would you say is the percentage of our money that's collected on hydro bills goes towards financing our total capital debt as of now?

MR. BATEMAN: Well when we deal with the report, Mr. Chairman, we will see that on this chart.

MR. HENDERSON: This is a year old though, isn't it?

MR. CHAIRMAN: Possibly we can proceed with the actual report, and come to that point, the questions dealing with the financial statement. Is it agreeable?

MR. HENDERSON: Well, Mr. Chairman, the report's a year behind, and I was just wondering if he could give me a figure that would be more up-to-date.

MR. BATEMAN: It's approximately. I gave the committee, in my opening remarks, quite a comprehensive inlook, or outlook - whichever you'd like to say - on the current year's operations and that have just ended, and we'll be within the same order, around 42 cents, I would think.

MR. HENDERSON: Around 42 percent?

MR. BATEMAN: Forty-two cents, not percent,

MR. HENDERSON: Well it's 42 cents out of every dollar, it would be 42 cents the same both ways, isn't it?

MR. BATEMAN: No, well you could argue that.

MR. HENDERSON: Well I was wondering, I've heard rural people asking this. There's a different way of charging hydro bills on curling rinks and public buildings out in the rural areas, now would you have a chart that showed the way you charge now and the way you used to charge - an illustration chart?

MR. BATEMAN: I'm sorry, but I haven't got such a chart, but we could make up an example for you. Actually these curling rinks are now charged on a peak demand basis, and we encourage them to control their use of our product over the peak period, and that's what - if a curling rink were to watch the use of power over the peak months when they - you see they're billed a certain percentage of the peak over the balance of the year. Now, if they watch how much they use over the winter months, in other words not have their ice-making plant on at the same time they have their electric heat on, or propane gas, as I've heard some people burn propane gas to contradict the cooling of the ice, which is a very unfortunate waste of energy, then if they don't do that, and then the facility is used for any other purposes throughout the balance of the year, you'll find that under our new rates they likely would be paying less than they would under the old rates. Why is energy management is what we are trying to teach these people.

MR. HENDERSON: Well all I know, Mr. Chairman, is that they're complaining about the bills going up on the curling rinks, and I was just wondering has there been adequate information sent out to these places so as to tell them how to . . . ?

MR. BATEMAN: We've sent information out; we encourage them if they're in doubt at all about energy management to contact our local district man; we are trying to do a very thorough education program with all of these people to try and make sure they do understand how the rates are based and what their bill is based on.

MR. HENDERSON: Well, Mr. Chairman, you made quite a . . .

MR. BATEMAN: I might say, Mr. Henderson, we're happy to send somebody out to any of these areas at any time, if they only ask. We're quite happy to. We'd

(MR. BATEMAN cont'd) be more than pleased to send somebody out to talk to them about how they could save money on their hydro bill.

MR. HENDERSON: Well, Mr. Chairman, I believe you would, but I was just wanting to go over one of the statements that you made there earlier. You said that in some cases they might be able to do it for less.

MR. BATEMAN: Well, I said . . .

MR. HENDERSON: I wonder is this really possible?

MR. BATEMAN: Well, if the rates hadn't gone up it would have been, but we've increased the rates as well. Other things being equal changing a person from an energy consumption user on some rate to a demand rate, if they wisely use the demand, conceivably they could get a lower rate.

MR. HENDERSON: Well, Mr. Chairman, when you're talking about peak loads at these curling rinks, as you know, the furnaces are automatic they cut in by thermostats and this sort of thing, and when the ice plant's on you wouldn't, you know, how would you control these things? Do the hydro people explain these type of gadgets that could control these things?

MR. BATEMAN: It is very simple, since the thermostat is automatic, you can have a simple time clock on it if you like to the limit, or a load miser to limit the amount of load that's demanded by the one system when the other system's working. These are all possible, electricity you can control it very effectively. Now, it costs a little money to put the control in, but it's worth it in the savings that are possible over the years, and again, we want people to use energy wisely.

MR. HENDERSON: Uh, hm. When you were talking about the National Energy Board and the ruling that they made this last time, did this affect the arrangement that you had made with the people in the United States earlier? Were you not to a stage where it put you into a difficult position, or were you . . . ?

MR. BATEMAN: Well, we thought it was going to put us into a difficult position, but the fact is that the Americans have been very, I should say reasonable, and anxious to continue the relationship, so I'm sure that we'll be able to salvage something out of this change in the Energy Board emphasis.

MR. HENDERSON: Mr. Chairman, you used the words, "salvage something" I had thought it was much better than that. It's pretty near comparable is it not?

MR. BATEMAN: Yes. Actually, it's - I shouldn't have used the word "salvage" then, but you see, we had thought that we would have to renegotiate the agreements. We may now find that the Americans are prepared to accept the existing agreements with letters of modification. If we can do that I think it's salvaged the present agreement. That's why I used it in that sense.

MR. HENDERSON: That's all I wanted. Thank you.

MR. CHAIRMAN: Mr. Schreyer.

MR. SCHREYER: Mr. Bateman, I think I perceive a general concern to the extent that it could be summarized in a few words. It would be that it would seem as though Manitoba Hydro has followed a schedule of putting capacity into place that is perhaps run a bit ahead of the load growth factor, run a little bit ahead of the demand, of the demand curve. And that therefore the extent to which Manitoba Hydro is incurring debt load to service, and also the extent to which it's required to look about for a customer for interruptible power and surplus power, is greater than it otherwise need be. Now I certainly don't share that prognosis or analysis, but I'm saying that this is what seems to be the nub of concerns being expressed, to the extent that I've heard any concerns expressed, about our particular utility in Manitoba.

Could you possibly comment as to what is the basic "mis-analysis", if I can put it that way, in that concern? And what particularly gives, I may add, would seem to give currency to it is the point that you have made that within a relatively short time there will be need to take a rather important decision with respect to the start-up of construction on the third Nelson River plant, which would, I believe, give rise to an even greater concern, that we are doing more of that wrong projection. I'd like either to have an opportunity to speak to it, because I believe this is the nub of some of the concerns that I've heard expressed.

MR. BATEMAN: Well, Mr. Chairman, the Premier has asked a very interesting

(MR. BATEMAN cont'd) question about where we are in these projections, and my main concern now, Mr. Premier, on the Limestone plant is that while we are making the decision to defer it, I am very concerned that this may be putting us into a negative position, just as you can argue that because we've had a light load growth last year, that we look like we are in a surplus position now. Now you must remember, if you go back into 1972, that Manitoba Hydro was faced with the situation where the corporation's load forecast was less than eight percent a year, whereas the actual rate of load growth that we were experiencing between 1968 and 1972 was at an annual rate of between ten and twelve percent, a rather poor position to be in in that if that kept up we would be short in being able to meet the contractual commitments for supply of firm energy to our Manitoba load.

Now we've also done some studies on what the projected annual growth rate would be at that time, and we assume that it would be in the order of nine percent, in the short-term anyway. Now with this potential for an increased demand, we were concerned about the capability of Manitoba Hydro System to meet the firm demands that were placed upon us. So we have two conditions to worry about here; one, we have to have some reserve capacity adequate to meet the potential forced outages that may occur on our generation plants and loss of head due to floods, and high water conditions and so on, so we looked at what could we do. Well now actually we did undertake to advance Long Spruce at that point in time by as much as we could and it was only a year that we could get out of it, but after having made the decision to advance the capacity for a year, then we said, all right, now that we've got this Long Spruce plant in, which will give us a little bit of surplus capacity and energy over the forecasts that we had, what can we do with it? So we looked at the markets that were available to us and Ontario Hydro had bought the surplus capacity out of the Kettle plant for something in the order of \$26 million of energy charges which expires within the next year or so, and they had made a significant capital investment in transmission up to our border to take this energy from us. So we looked at them as a potential customer to sell them some of the Long Spruce power that we were going to commit in case, if we needed it for our own system which we anticipated we would, we could also get a little surplus capacity in that we could sell. So we went to Ontario and we told them we would give it to them on the basis of the average cost of power for the Long Spruce plant and that turned out to be a deal - we haven't signed the agreements finally yet - but we have agreed to, they're going to buy some of the Long Spruce plant surplus power for the years '78 through 1982.

Now in addition to us getting some real hard cash for that, it provides a margin for any increased load demand that may occur on the Manitoba system between 1977 and 1980 and so we did accelerate, if you like, the contract with the contractor that's building Long Spruce, we accelerated it to get the Long Spruce plant in up to a year earlier than we had originally intended to have, and as a result of that we're selling the energy to Ontario Hydro. The surplus power that we sold to them on the basis of the Kettle plant was in the order of four mills a kilowatt hour, the surplus power that we're selling out of the Long Spruce plant is at 13½ mills a kilowatt hour which will bring us in a very substantial sum of dollars.

Now I think that I could illustrate that point, Mr. Premier, if I had a . . . the basis on which this evaluation was made would . . .

MR. SCHREYER: While you're looking for that, Mr. Bateman, I would like to make an observation which you can comment on if you see fit, and that is judging by your very last statement that you can see, if not already in place, very likely to be in place, a demand for sales; in other words, for all of the Long Spruce output at both domestic load and extraprovincial which will be more than sufficient to carry the cost of the Long Spruce plant. It's not as though the output of the Long Spruce plant is such and the sales are such as to be inadequate to carry its costs, its full loaded cost.

MR. BATEMAN: This is what this information provides really. Looking at this on the basis of whether you should do it or not, in other words, a sinking fund evaluation basis, you'll see that the accumulated net benefits from Long Spruce, the sales to Ontario, this accumulates over the years to a substantial millions of dollars benefit to Manitoba by advancing the plant the year, and being able to make the sale to Ontario.

Now the actual dollars that we get from the sale to Ontario are hard cash in

(MR. BATEMAN cont'd)the till or as the costs that we've put against this, of course, are you might say partially in charges, but they're in reserves, they're increased depreciation rates therefore we're paying the plant off earlier and so on. So I think that this graph illustrates the advantage to making the decision to sell power to Ontario. The effect of the little bit of added cost in the earlier years is offset largely by the very significant saving in escalation rates over the other years, and it results in lower costs in all future years. In other words, the Manitoba Hydro customers will benefit from this action to the extent of about, well \$8½ million a year for the life of that plant. Now in the early years it's more than \$8½ million. But remember that some of these decisions - in other words, this is an argument, if you like to build Limestone earlier rather than later, but nevertheless the fact that you have to build it or charge your customers for it early, if we were able to make a sales such as this on the Limestone plant that might be a good thing to do providing it did indeed pick up our costs. I think that illustrates the point, Mr. Premier.

MR. SCHREYER: Well, Mr. Chairman, I will then try and get this focused in in even more simple language. Would it be correct to say that if the analysis showed that the capacity of Manitoba Hydro, the installed capacity was fundamentally out of proportion with actual and anticipated domestic load and extraprovincial sales, that the conclusion to be drawn from that would be obvious, namely, the postponement of Limestone by X number of years. And the fact that there is serious preparation work being done with respect to Limestone is an indication that according to system planners, there is no fundamental disproportion as between installed capacity and requirements as we go along - a year later.

MR. BATEMAN: Well, we don't plan to build generation faster than we need it for Manitoba's firm load but the fact remains that when you look at a Manitoba system of roughly 2,500 megawatts, which it will be in a year hence as far as peak demand is concerned, and you look at the capacity of the Limestone plant, it's 1,100 megawatts. Now, you know, we find that quite an amount to swallow in the first year. You can't obviously swallow it in your own system, otherwise you'd be forced to build one of these each year. So to the extent that you can't swallow it in your own system, you are in a long position, temporarily long capacity position. Now if you can sell some of that capacity to your neighbours, then you are getting the advantage of being able to charge your own customers less and providing the cash inflow. It's important that you recognize that the cost of doing this, you know, you want to write depreciation against it, you're not deferring depreciation when you make this sale, so to that extent, you have to find more revenue. Now to the extent that you can find the revenue from the sale, you're better off; if you can't then, of course, you may present a different picture in your own books than for the first year or two because of the straight line depreciation method. In other words, it's a pretty heavy piece of capital to swallow, and on that basis, we'd like to defer these heavy capital expenditures just as long as we can.

MR. SCHREYER: Well, Mr. Chairman, I'm aware of that, of course, I just want it for the record. There is the inherent problem with any large capacity plant that is constructed in a system that is the size of the Manitoba Hydro system, I suppose what one could put in layman's terms as the descending staircase of surplus in the years and the immediate aftermath of the coming onstream of a new plant. Because there is this inherent problem, if it is a problem, it requires the sale extraprovincially of capacity and energy. I'm wondering though, Mr. Bateman, if this wouldn't be an appropriate time to ask just what is the alternative to facing up to this problem of descending staircase of surplus capacity. Is the alternative theoretically one of avoiding proceeding with the large Nelson River plant for that many more years and to build smaller plants further upstream on the Nelson or on one or two sites on the Burntwood? That has been suggested and I'm wondering what the juxtaposition on that kind of systems planning would be from your considered opinion.

MR. BATEMAN: Well the small plants on the Nelson or on the Burntwood River where you'd find as I think I told the committee last week or so, we'd have more than one of these under way at the same time, it would be more costly. But to the extent that you can afford to build the large Nelson plant, I think you'll find that on a cost basis, because if you can get any advantage from the economy of scale with the size of these

(MR. BATEMAN cont'd) plants, this is the place where you can get that. Other things being equal, your unit costs should be slightly less from the Nelson River plants. Now that doesn't always follow and that's why we have to keep re-examining these things. But if we were to look at the Burntwood River as an example, it has the advantage, of course, of the Churchill River Diversion being complete, and I think I told you on April 13 that we were pursuing what we hoped to be the most economic course of development, and while the Burntwood has been posed as an alternative, we still have a number of problems associated with it. For example, I told you that we must provide a very reliable power supply for the Province of Manitoba. I maintain, Mr. Premier, if we had gone ahead with the Burntwood River development site, we would not have been providing the reliability in the power supply that I think we need, and the reason for that is, this morning I told you about the mitigation works that are going on on the Burntwood River. We haven't yet reached agreement, for instance, with the Nelson House people, and I think that today you'll appreciate that the engineering of the Burntwood River sites is not a straight engineering job, it's wrapped up with a lot of social and other implications as well. For instance, the environmental aspects and the economic considerations are perhaps more overwhelming for those Burntwood River sites at the present time than are the engineering problems. So the process of ascertaining and evaluating all of these social and environmental factors is a very complex undertaking and, of course, we've had attempts made at doing that. I mention the Underwood McLellan Report of 1970 which was really part of the process. We've used some of that resource data very effectively since, and since that time, however, we've also undertaken a great number of additional studies to provide a more nearly complete understanding of what the impact of the Burntwood River development would be on the diversion waters that are going down the Rat and the Burntwood Rivers.

And, of course, you appreciate the fact that the Federal-Provincial study which was commenced in 1971 under the direction of the Lake Winnipeg, Churchill and Nelson Rivers Study Board was really to evaluate the social and the environmental and economic impacts of those projected projects on both the Nelson and the Churchill Rivers. Of course, that study was not completed until 1975 so we didn't have the information then upon which to make a proper assessment to properly use the Burntwood sites as an alternative source of generation until we had that type of information.

Now we also, as you know, Mr. Premier, in February signed this agreement with the Federal Government and the Northern Flood Committee whereby Mr. Leon Mitchell was appointed as a mediator. Now until we get the mediation problem resolved which is going to involve the social and the economic and environmental problems that are associated with the diversion, I don't think it would be prudent to undertake to develop those sites. However, we are optimistic that we will reach a resolution of these problems and consequently Manitoba Hydro is currently re-examing the Burntwood River as a source of capacity and energy and our objective is to undertake studies to determine the most economic way of developing the hydro potential on the Burntwood River and, of course, these are multi-purpose studies and they will be completed within perhaps the next 18 months. Now if the results of these studies indicate that the Hydro potential on the Burntwood River is still economic, it is our hope that we will be in a position to undertake development of this potential in the late 1980s, or at the latest, early 1990s; that would be after the development, of course, of the Limestone site. So, I don't think you could say, Mr. Premier, that we have inadvertently or unjustifiably deferred or delayed the development of hydro potential on the Burntwood River. We can't develop it until we know what the implications are and so on, and I think that we have to continue as we have in the past, to develop our system on the most economic, reliable basis that's open to us.

MR. SCHREYER: Mr. Chairman, I wasn't suggesting or implying that that wasn't the case, and I wasn't implying that it seemed to me that there should have been a different sequence followed than was followed, I was merely trying to probe away, and perhaps I'll rephrase the question; that the following trade-off considerations, if the assumption is accepted that in proceeding with the Nelson River plants in the sequence in which they are being developed causes a problem of having to contend with significant quantum of capacity and energy in the years in the immediate aftermath of completion of a plant, the descending staircase phenomenon, and if that is the concern then as a

(MR. SCHREYER cont'd) trade-off for an alternative, what was open presumably, was the fitting into the system of smaller plants upstream and on the Burntwood, and as an alternative, I suppose, did exist theoretically. But what is the trade-off, I mean the installed unit cost, the installed cost per megawatt on a smaller plant, is perforce higher is it not, and if higher then how does that higher cost compare with the fact that with the larger downstream Nelson plant - true, there are larger quantum that have to be sold extraprovincially, but of all of the information that you have to date, is not the price that is being received for extraprovincial sales, on average, sufficient to carry the cost of the larger plant, even though its output has to be sold, a good part of its output has to be sold extraprovincially for a few number of years?

MR. BATEMAN: Well, ideally, I think you could say if we had started off building the lower capacity plants initially, we would have been equipped with less surplus and so on, but we wouldn't have been developing necessarily the lowest cost generation first.

MR. SCHREYER: Well that's the whole nub of my question.

MR. BATEMAN: Yes. Now to the extent that we have moved into the lowest cost plant first, of course, that leaves some of these higher cost plants yet to develop, and that's why it is so important to keep comparing all of the economic, social and environmental considerations as they relate to those plants, and this is what we're trying to do. Now we aren't always successful in selling all of this capacity at cost or energy at costs that would recapture all of our costs, but at least we make the most that is possible to make.

Now in the case of selling to an interruptible customer, you can sell that on a day-to-day basis and you might do very well at it, but if you're asked to provide that capacity some period of time in advance of the commitment, like we have in the case of Ontario where they two or three years ago committed themselves to a very significant number of dollars for the energy out of the Long Spruce plant, you can fix a firm price for that, and in the case of the Long Spruce power we have fixed an average price for the plant which I think is a very good arrangement from Manitoba Hydro's point of view, but that therefore covers you on all the cost. But if you have a small surplus and you're looking around for a suitable customer to unload it on, you may not get your total cost that you'd like to get but you do at least get more than you would get by having that capacity sitting there just ready to serve the potential Manitoba load. In other words we're not building up earlier but once you've added some, as we have at Long Spruce, once we've added some dollars into accelerating the schedule we are then equipped with more surplus than we need just to meet the Ontario sale. So we can sell that then as surplus interruptible energy, and that's what we're presently planning to do, it gives us more surplus. But to the extent that we could sell some of that capacity we would sell it at whatever rates were available, and the current pool rate actually happens to be better than the cost of the Long Spruce plant which in this case you would get more than your cost, but I can't say that that would always be the case.

MR. SCHREYER: Nevertheless, Mr. Chairman, if it could be brought down to one succinct question, and again as I was saying the other day, looking back with the benefit of hindsight, in considering the trade-off considerations as between proceeding with the construction of a large Nelson River plant, 1,000 megawatts, so once you start construction you're committed, you can't build half a plant, so to speak, and that forces the utility into a situation of short run, diminishing extraprovincial sale. Now looking back with the benefit of hindsight, the basis of prices obtainable to date on those sales, is there any reason to think that perhaps it would have been better not to have proceeded with Long Spruce or in the short-run future with Limestone because the extraprovincial sale price is inadequate, and therefore to have proceeded with smaller plants that fit in with the size of system of Manitoba Hydro, the smaller plants with lower capital costs although with admittedly higher installant per megawatt costs.

MR. BATEMAN: Well, no, at the present time, Mr. Premier, I think that we've been doing very well on our extraprovincial sales and in fact, if you look at the average price or the average return on our total extraprovincial sales, I think, well it sometimes works out to more than our average cost, so as far as having the reserves, you have to have reserves because you don't want any more than you need, but you have to have reserves and to the extent that you have reserves and can sell the output from

(MR. BATEMAN cont'd) them, you're better off to do that because it helps you carry those reserves and improve the reliability of your system.

MR. SCHREYER: I wanted, Mr. Chairman, to pose one question while Mr. Axworthy was here, perhaps I could defer it, it has to do with . . .

MR. CHAIRMAN: He's here.

MR. SCHREYER: It has to do with the point about what is in it for Manitoba Hydro to want to proceed with the interconnection with a southern utility and whether or not we are not paying perhaps too high a price for the interconnection as such. I'd like to put this question to Mr. Bateman.

MR. BATEMAN: Well perhaps I could use the slide that I showed the committee on April 13th. (Mr. Mills could you turn that slide up, or Dick, do you know which one that is?) I think it's towards the end of the presentation. I think this is quite a good story. As I pointed out, if we look at the left hand scale, it's megawatts; in other words this is the size of our system and the size of the Northern States Power System that we're planning to interconnect with at 500 kV. We look at the year 1981, January 1981, and we predict that our load in January of '80 to '81 will peak at just over the 3,200 megawatt level. The following year will be about 3,400, 3,500 megawatts so in order to carry that load this is the installed capacity that we will need on our system, without counting reserve, we haven't included reserve in this particular line.

Now the Northern States Power Company system, they tell us that by that time their load curve will look like this, in other words they peak in July, they'll be just over 6,200 megawatts in July of 1980 and in July of 1981 they'll be about 6,700 megawatts. Now that's the installed capacity then to meet the load of that system without reserve capacity, in other words, without having any breakdown or any reserve capacity. In other words if you had a breakdown and only had that much installed capacity you'd be forced to shed a load, you couldn't carry this load. You have to carry load, not only for spinning reserve, but you have to have some contingency outage type reserve, and the American system is designed for about 22 percent reserve - I think it is currently - is that right. --(Interjection)-- A little less than 22 percent, but in that order, and we are designing for 12 percent reserve. Now if we put these two load curves together and we add this ordinate to that ordinate we get that red curve, so this is the shape of the combined system load curve, that's the demand curve, and this dotted red line is the installed capacity that the two systems need to meet that load without any reserve. Now the fact that if you add this green line to that blue line you get this top line here which is the total installed capacity that was necessary to meet the individual system loads; even though they didn't need this capacity here they had a surplus and we didn't need it here, but they did, the two of us have that much surplus. So what we're proposing to do here is to give them some of our capacity when we have it here and here, and take some of their capacity when they have it, we'll use it in our peaks you see, and therefore we will save capital investment on each of our systems to the extent that we can use the other fellow's capital installed capacity, his capacity, and we're talking here of \$1,000 a kilowatt to the extent that we can save 300 megawatts, that's \$300 million of installed costs on our system which amounts to roughly \$30 million a year of carrying charges. So this is a very excellent arrangement and now there is one other, I think, when I showed you this slide demonstration I had Mr. Craik ask one question about the size of the US capacity, the utility capacity, I don't know whether I have the projector slide control here or not, that's the slide here.

Now I showed you that the American system was, they have a peak this year of about 14 1/2 million kilowatts, 14 1/2 billion kilowatts, I guess it is. This orange bar is way off the scale, so this is the North-Western Ontario system capacity and this is their reserve, and this is the capacity of the interconnecting lines from Manitoba's system which is here, this is our reserve capacity, and this is the Saskatchewan system with their reserve capacity and the capacity of the interconnecting lines. Now we hope to get the licence to build a 500 kV line into the American system which would give us a capacity of roughly that plus our present interconnections, our two 230 kV interconnections, the one that we have and the one that we've just received the licence for, will give us an import or export capability of roughly 1,250 megawatts which is rather substantial related to the size; in other words, that plus the three or five hundred or more on these two lines would give us a total import capability of roughly 2000 megawatts on a system that will have a

(MR. BATEMAN cont'd) peak load of somewhere near 3,000 megawatts in that year. So this is why we are so anxious to get this interconnection because of not only the opportunity to share this seasonal capacity that we have, also to sell surplus that we have, but also to improve the reliability of the power supply to the Manitoba System. Now we're also talking to another American utility, Nebraska Public Power District, and with the object of building another similar line to this, only it would be in the DC mode probably into the Nebraska market, where we would then be able to extend or expand the benefits that we would achieve over this interconnection. Well I think, Mr. Chairman, that covers the point the Premier was wanting to make.

MR. SCHREYER: Mr. Chairman, certainly those two graphs explained much of it rather well. I just wanted to pursue one additional feature of the graphs, if I may, and that is given the sort of long-term wisdom and long-term virtues of a hydraulic utility that candidly one must on the other side of the coin acknowledge that there are some disadvantages that have to be met, that are inherent in a hydraulic system, namely, that of - and those graphs don't really deal with it - exchanging summer to winter diversity is one thing, but the problem that faces any heavily oriented hydraulic system of seasonal or I should say cyclical fluctuation in water levels and precipitation. And in that context it would seem, would it not, that a hydraulic system does have to pay some extra premium or cost in order to have a larger interconnection capacity with neighbouring utilities than would be the case of a completely thermal system. Does that not follow, and could you comment on that?

MR. BATEMAN: Yes, Mr. Premier. You see when you install a thermal plant of 1,000 megawatts say, you can rely upon it to produce 1,000 megawatts of energy for somewhere between 85 and 95 percent of the time. In other words, the outage record of one of those plants is such that it does produce that much energy. Now if you install a corresponding hydro plant with 1,000 megawatts of capacity, you don't necessarily get 1,000 megawatts of capacity or energy for 95 percent of the time or 85 percent of the time, you only get the energy that's associated with the amount of water that's in the river that you've harnessed. And while we design our system to give us an average capacity factor or utilization of the plant about 70 percent of the time, the 30 percent you can't run it because there's no water to run it with unless you get a flood and then you can produce lots of surplus energy. But it's very important to recognize the basic difference between a thermal system and a hydro system. Now therefore when we negotiate with American utilities or Canadian utilities, if we can - and unfortunately the Canadian utilities up to now haven't been in a position where they can come to any significant support for our system with energy because they themselves are hydraulic or high-priced fuel, like Saskatchewan system has some gas turbine capacity which burns natural gas and that is very expensive in today's energy market - but the American utilities have a fairly substantial amount of thermal plants with coal at some mine mouth operation and some nuclear plants which provides energy at off-peak prices that are very competitive with our own, if not a lower cost than our own and consequently we can import it, and with the hydraulic system we can store that energy.

But the important point to remember, is that when we negotiate we want to have reciprocal rights to, in other words, to be able to import as much energy in a year as we export. If we got into a dry-flow condition, or a low-flow condition, where we needed the energy, then we would be able to import it and the National Energy Board in the ruling on the last line, by the way, gave us the benefit of the reserves in our own system to take into account the 500 million kilowatt hours that we insist on being able to import in a year over that share of interconnection. So this is a very important point on a system operation from an economy point of view, but the other equally important point, of course, that we can afford to pay a premium to get interconnections because it saves us installing other capacity on the system, it improves the reliability of the system. We are very dependent upon that single transmission line from the north and to the extent that we can increase the interconnection with other systems that have surplus capacity, rotating, instantaneously available for use in our system, it improves the reliability of power supply to Manitoba users. So I think those, Mr. Premier, really are the important points to relate to interconnections.

MR. SCHREYER: Mr. Chairman, just one last question, it's quite unrelated to

(MR. SCHREYER cont'd) the previous questions, and that has to do with the last meeting of this committee where there were some questions asked with respect to the licence that was issued with respect to the level of reservoir, in effect, at Southern Indian Lake. I would like to ask Mr. Bateman whether with respect to the reference to 847 or 847 1/2 feet, I've forgotten precisely which it is, whether the understanding in fact is not that we are proceeding empirically in that if, at 847, the anticipated diversion flow cannot be reached that there is room for proceeding to 850 as initially envisaged. And that part of the problem with respect to this matter of 847 versus 850, or ultimately 850 or whatever, has to do with the 1927 geodetic survey, and the fact that there is, perhaps not now anymore but a couple of years back, there was still some lingering doubt as to whether the geodetic survey was not out by plus or minus two or three feet.

MR. BATEMAN: Well, Mr. Premier, there were some errors in survey elevations that were established in the early days at South Indian Lake but I think, the basic information that we were relating to saw the 850 as the preferred elevation that we would like to have South Indian Lake established at. The licence that we received gave us 847 and while, I think, I understood that we could come back if we in fact needed the additional elevation to get the 30,000 through the channel that we were excavating because we won't know until we put the water through it and measure it whether the roughness coefficients are what we've assumed in our calculations and so on, we had hoped to be able to come back and I think you understood that and I think I understood it, I'm not so sure that the people working for Mr. Green understand it. But anyway, we'll deal with that through the normal channels.

MR. SCHREYER: Well hopefully it will now be understood, it will be on the record.

But if I may, Mr. Chairman, perhaps it's unnecessarily detailed to pursue on the committee, but is it not a case, not only of roughness coefficients being somewhat indeterminate at the moment but also some technical problems with respect to the reliability of the 1927 geodetic survey?

MR. BATEMAN: Mr. Premier, I'm sorry I was not able to research that 1927 geodetic survey elevation as it related to the South Indian Lake elevation which we were commenting upon at the last committee meeting. But I will undertake to review that and see what it relates to. The other fact, of course, is that if we had a little storage in South Indian Lake between 847 and 850, it would provide a little more reserve for riparian flows downstream in the Churchill River which we could take out of that storage.

MR. SCHREYER: Thank you.

MR. CHAIRMAN: Mr. Craik.

MR. CRAIK: Mr. Chairman, I have a few things I want to ask Mr. Bateman. I should say that with the line of questioning that's gone on, it's pretty clear that there is, not just this morning but over the years, that principally with the question and answer between the First Minister and the Chairman this morning that people's perspectives get changed, I think, by the urgencies of the moment.

I want to ask you some questions with regards to the same topic, with reference first of all to the Churchill Diversion, the plants on the Churchill Diversion. I gather from Mr. Bateman's comments this morning that he's not even sure that the right course of action would have been to build the smaller plants along the diversion route. I would want some time to look back into the history records to check that out and I can't at the moment but I assure you that we will do that because my sense of perspective on this is that the position being put forth by Mr. Bateman, at this point, is 180 degrees out from what was stated by Hydro back some time ago. I want to ask you though specifically on this question of saying that the diversion structures would have to receive all these other considerations at this point and that's why they may not be the right ones to proceed with because of the environmental problems, the land claim problems and so on, you made reference to the Churchill, Nelson, Lake Winnipeg Study Report, the environmental study. My recollection of that is that Hydro advised that group that the Wuskwatim Dam would probably improve the ice problem and relieve somewhat the problem at Nelson House. I want to check that out too as my recollection of reading that report said that there would in fact have been some improvement - possibly opened the question by others - but stated by Hydro to that study group that the situation there would have been improved by that. So I

(MR. CRAIK cont'd) question this statement. I even think Mr. Bateman said that at some point in time it would then have to be decided whether the plants on the diversion should even be proceeded with. Would you not be solving, not solving but facing both your problems at once. You have a problem on the diversion, if you avoid building the structures for another ten years or fifteen years or whatever it is - ten years - then you're going to face that problem all over again because then you're going to have a forebay flooding problem. Now you've got a problem of the increased flows of the river, you have to cross that bridge. Ten years from now you're going to have to cross the problem again of a settlement with regards to the flooding of the forebay. I just don't understand this new statement of perspective that the First Minister and the Chairman of Hydro are arriving at by saying that at some point in time, we may decide whether those structures will go ahead.

MR. BATEMAN: Mr. Chairman, if I could correct Mr. Craik's understanding, it was not my intention to leave you with the impression that the Burntwood sites would not be developed. I always believed, and still do, that the Burntwood sites are an excellent source of energy and all I'm telling you, at this point in time, that in hindsight we didn't know all the answers when we were first looking at those Burntwood River sites. We have learned a great deal in the period of time that we have been looking at the Nelson House Reserve, for example, the ice problems, we've had a lot of people that are experts in their field looking at some of these problems on how we're going to control ice on the Burntwood River. Now, these are major problems. I still believe that if we could get the Wuskwatim plant built at the elevation we'd like to have, the 810, we would largely stabilize, for all time pretty well, the water elevation in the Footprint and Threepoint Lake areas. There's still, oddly enough, some engineering views that don't agree with that 100 percent but by and large I think the solution to a lot of the ice problems on the Burntwood River will be solved when we get the Burntwood River sites developed. I agree, we are going to have some flooding, major flooding, on some of those reservoirs that's associated with the plants. And I'm like you, the sooner we get that over with the better, I mean it's a real problem. But it will certainly, if the mining activity in the Thompson area were to develop or the mining activity in this new resource that's been mooted in the northwestern part of the province were to develop, the uranium finds, then certainly these plants will be a very useful adjunct to the Manitoba Hydro System - putting energy where we can use it most. I hope I didn't leave you with the incorrect impression on that. But all I was trying to caution the Premier on was the fact that, and I think you were raising similar questions at the last meeting, I was trying to caution the Premier and yourself about the fact that there are still some major economic problems and social problems and environmental problems that we haven't got fully resolved yet on the Burntwood River, and we're certainly working towards resolving them.

MR. CRAIK: Those problem at the time that the development should have been proceeded with which was as the original scheme of development, as late as 1970 still with the plan for the development of the Burntwood site, the problems of environment and the social problems, the land claim problems were not as severe at that time as they are at the present time.

MR. BATEMAN: I don't think that I would agree with that. You see, the problems may not have been recognized as severe but they were just as severe, if not more so, than the problems that we're going to be up against in using 30,000 down that channel. Thirty thousand down the channel is going to provide a lot less impact on a community like Nelson House than the 50,000 would.

MR. CRAIK: Well, I'm not referring to the 50,000, I'm referring to the 30,000. The 30,000 or the 30-odd thousand that you would have had with the 854 level, you still wouldn't have been anywhere in the line of the 50,000 referred to from the Hydro.

MR. BATEMAN: I think the 854 level contemplated, if my memory is correct, flows as high as 40-odd thousand out of the diversion, but that's all history.

MR. CRAIK: I want to go back, I know it's history, Mr. Chairman, I want to go back to also do some further analysis of the comparison of the cost had that sequence been followed. The Underwood McLellan report that recommended the 854 level laid out projected costs of the different structures associated with it too, and in so doing I had intended to use a factor of two times the cost that they estimated for the plants on the

(MR. CRAIK cont'd) Burntwood and others, and I want to ask you whether I would be allowing enough escalation of costs if I took a cost of two times the cost that were estimated in 1974 given structures?

MR. BATEMAN: No, you'd be underestimating by a factor of at least 100 percent.

MR. CRAIK: Well you're saying that the costs would be four times as high?

MR. BATEMAN: At least, that's counting on getting the men in the early '80s.

MR. CRAIK: Well I made the statement or asked the question last week as to the escalation in costs of the Lake Winnipeg control in the order of 300 percent over what was originally estimated, as to whether this could all be attributed to inflation? I believe the answer was no, that the site had been changed and other factors had entered. Now I'm talking about the installation of structures that were as planned.

MR. BATEMAN: No, I think I'd have to say- you see I've just got a news bulletin here on nuclear costs, you're saying that inflation isn't going to be as rough as it is, but when you look at an estimate that was done in 1973 of \$466 million for the Pointe du Bois Nuclear Station and the estimate just released the other day indicates it's gone up to \$684 million, which is a 47 percent increase in three years, you know, that's rather startling and this isn't the end of these costs, I'm sure, we can anticipate that Now there may be some special circumstances surrounding that but the point that I think we should keep clearly in mind on the Burntwood River site is that we have not done the amount of engineering on those sites that we have done today. We have spent many many millions of dollars more on field investigations and site exploration work and some of this may turn up better ways of developing those Burntwood River sites with less impact on the environment, hopefully within the same price range.

MR. CRAIK: Well I would think that it would be more appropriate to compare escalation of construction costs in the north with the north rather than something like a nuclear plant that may involve new technology, and I think it would be more appropriate.

MR. BATEMAN: Well this, Mr. Craik, doesn't involve new technology, this is a duplication of two plants that are currently being built in Canada on this same design and two that are being built overseas on this same design. All I'm trying to demonstrate by quoting this increase in escalation rates is that escalation has been a fact of life. When I showed you the rates of consumer price index and other costs that are going up in our economy, I think we're doing very well to be able to hold our costs as close as we are doing.

MR. CRAIK: Well you had major construction projects which were quite similar to this at Kelsey and at Grand Rapids in the time not too distant before the undertaking of these other projects. Certainly the escalation of just costs for a structure could be projected from those costs, taking into account inflation.

MR. BATEMAN: Well we have Kettle which is even better you see. Now we completed Kettle, as I indicated to you, \$324 million, I think, is the final cost. Now the fact that we are building a plant for 1983 to '85 installation that we are currently estimating at \$1.1 billion, that's a four times price increase roughly and that, I maintain, is actually, if we were comparing the Limestone plant with the Kettle plant on the basis of 1970-74 dollars, we're actually getting a lower-priced plant at Kettle by reason of that, because we've made some improvements.

MR. CRAIK: Why do you say that it would be more costly to have built the Burntwood sites because you would have had to be working on more than one site at once?

MR. BATEMAN: Our experience is that on the basis of dollars per kilowatt, I can't be sure that the dollars per kilowatt on the Burntwood sites are as low as they are on the Kettle plant or on the Limestone plant or on the Long Spruce plant. It's just a straight case of

MR. CRAIK: But no, I gathered from your statement that it's more expensive to be working on more than one site than it is to be working on just one.

MR. BATEMAN: Precisely, our experience on the Churchill River Diversion where we are spread out over three sites, our experience on Lake Winnipeg Regulation where we're spread out over 80 miles of country with parts of the job - a channel here, a channel there, some dikes here, a dam there and a power house and a main regulating structure 80-odd miles apart - it has to cost you more; whereas you compare that with the single power house at one location, at Long Spruce, everything is all compact, your overheads, your camp facilities, you've only got one of them.

MR. CRAIK: But you were doing that when you were at Kettle, you were working on Long Spruce.

MR. BATEMAN: Oh, we didn't work them simultaneously with the same function, we finished the Kettle plant literally before we moved the camp down to do the Long Spruce job, and just on the same basis that as we free camp at Long Spruce and at Jenpeg and the Churchill River Diversion and so on, it's being moved into the Limestone plant. But if we were building these smaller Burntwood sites, to meet some of them, would not provide one year's load growth. You see, the total installed capacity at Manasan for example, I think, would barely provide one year's load growth, Notigi wouldn't provide one year's growth, First Rapids wouldn't, so with those sorts, you see, you'd be forced into an overlap position where you'd have simultaneous operation of camps, construction and so on at four sites on that river which you couldn't do as cheaply as you can do it at one site like Limestone.

MR. CRAIK: Talking about Limestone, what factors are going to determine when you go with Limestone?

MR. BATEMAN: Well we have outlined those factors to you and . . .

MR. CRAIK: I realize we've gone over them, I just want them in a nutshell. There's the case of the line to the States, there's the case of the Burntwood sites and whether you can go ahead with them and so on, I just want to get some order of priority of the . . .

MR. BATEMAN: Our hope is that we will get the licence for the 500 kV line, that will then say that we will not build Limestone earlier than 1983. Now if we don't get that licence, we are rapidly running out of time when we could get the plant in service by 1983, that's the other problem. Load forecasts, there is some uncertainty in that, if it carries on the way it is now and we exceeded our estimate this last winter, then we could conceivably be in a short capacity position, as a matter of fact, we will be in a short capacity position. I think we could get by that winter by being able to purchase some, but the big problem would be the energy supply. We just would not have enough energy to meet our requirements in 1983 if we had a severe drought, and while the U.S. interconnection will give us the assurance of being able to buy that energy, because that's part of the deal we're making with the Americans nevertheless if we don't make the deal then we haven't got the energy.

MR. CRAIK: Has the possibility of the Burntwood sites been considered as a replacement for Limestone?

MR. BATEMAN: We haven't ruled that out completely but there is still no settlement on the mediation report on the mitigation works associated with Nelson House and until we get that resolved, we can't count upon that as a reliable source of energy.

MR. CRAIK: Is not the National Energy Board, one of their major concerns apart from the price of the power and the environmental impact, isn't their major concern that these structures are being advanced for purposes of export?

MR. BATEMAN: No, I don't think the Energy Board had any comments about that in their report or in their questioning. The only thing, I think, that yourself and other interveners made that point and I don't think you made it successfully.

MR. CRAIK: So you don't think the NEB is concerned about the advancement of Canadian capacity to sell to the States.

MR. BATEMAN: No. They basically are not concerned about how we operate our system, the very fact that that's the ruling they gave, I think, when the Northern Flood Committee attempted to intervene with that as one of their principal arguments and the fact that it did not hold up before the Energy Board which is a court, I think,

(MR. BATEMAN cont'd) disproves that they are not concerned about how we operate our system. They are concerned about the sale of power across the line, that's their chief concern.

MR. CRAIK: Has any deferral of the Limestone plant been pursued along the lines of negotiating for firm imports?

MR. BATEMAN: Well we are negotiating firm imports, these seasonal exchanges are firm imports and we have, on the basis of successful negotiations of those, deferred the Limestone plant from when we anticipated needing it to 1983.

MR. CRAIK: And you're talking of these seasonal exchanges, a diversity exchange such as with NSP.

MR. BATEMAN: Right.

MR. CRAIK: But what about Saskatchewan and Ontario?

MR. BATEMAN: Well you see Saskatchewan is not prepared to install capacity to meet our requirements in the winter time when they are meeting their own peak requirements in the winter time.

MR. CRAIK: But do they not have large units coming onstream?

MR. BATEMAN: Yes, they have and they want more for that energy than the cost of our Nelson River power.

MR. CRAIK: Talking about the costs, you're suggesting here they want more for you to import - you can develop cheaper than import it. Also, Mr. Bateman, Ontario is exporting interruptible power at 20 mills.

MR. BATEMAN: We're exporting interruptible power at more than 20 mills.

MR. CRAIK: Well your average certainly is around, that is if you happen to displace a plant in their system that is operating at 20 mills, but that's not going to be the rule.

MR. BATEMAN: No, the same as Ontario, eh. Their price fluctuates all over the map, too.

MR. CRAIK: But their average is much higher than what we are selling it for?

MR. BATEMAN: They're exporting into a higher-priced market than we are. They don't have coal mines sitting immediately south of them.

MR. CRAIK: You've made reference also in the selection of the South Indian Lake level, the basic consideration was the resource costs of it. Is it not the case though that when the study was done at the 854 level, the projected costs there by that group which was the Underwood McLellan Report, also included the resource costs in it which in fact ended up being on the high side?

MR. BATEMAN: I'm sorry I'm not . . .

MR. CRAIK: The costs of the scheme, proposed by the Underwood McLellan Report 1970, included resource costs in it?

MR. BATEMAN: You're talking about the recommending for the elevation of 854?

MR. CRAIK: Of 854, yes.

MR. BATEMAN: Well as I pointed out that was the consultant's view, it wasn't our view. They did not do sufficient work to adequately demonstrate that to our satisfaction.

MR. CRAIK: The point I am making is the costs that they included in it were very high resource costs or considered to be very high resource costs.

MR. BATEMAN: Well, of course, they were using the simulation study that Manitoba Hydro has developed in order to test the mineral programming technique against the entire system. Now our greater use of that simulation program did not substantiate the three runs that they had made upon which they based their conclusions.

MR. CRAIK: Well just before I leave that, at the time their report was submitted and following, it was realized that the resource costs that they allowed for were quite a bit higher than actually would have been required which leads to the question as to why if the resource costs they projected were higher than what were necessary, why the level would be taken from 854 down to what it has been? Why would it not have been . . .

MR. BATEMAN: Well I think if you look at the Underwood McLellan Engineering Reports, as well as the system report you're referring to, their crews show the 850

(MR. BATEMAN cont'd) elevation as being the optimum. Now we certainly concurred with that, our evidence pointed to it as well in the system studies and we also factored in the resource costs which were included in their report. I don't think there is any basic difference in our work in that area.

MR. CRAIK: During the course of these hearings you've also stated upon occasion that the late Mr. Stephens indicated that Lake Winnipeg Regulation, if it were undertaken at an early date, would avoid opposition from residents of Lake Winnipeg. I'm curious to know why there would be opposition from the residents because from what we're being told by Hydro there would be benefits to the residents from regulation.

MR. BATEMAN: I think the facts are that there are benefits. They were misrepresented.

MR. CRAIK: Is the case not that when Mr. Stephens was referring to Lake Winnipeg Regulation, it wasn't the same as what has been undertaken?

MR. BATEMAN: Well like most engineering jobs they develop, but oddly enough the scheme we came up with is very similar to the one that was contemplated by the Flood Control Board Report.

MR. CRAIK: At 713.

MR. BATEMAN: No, they were recommending higher elevation. I think their range was 712 to 717.

MR. CRAIK: The range that was being considered back when it was originally looked at was, since Mr. Stephens has been used as a reference here, he was looking primarily at something in the order of 717, was he not?

MR. BATEMAN: I believe, you know, I won't contribute this distinctly to him because he was only one member of the Flood Control Board that was examining the problem, but that Flood Control Board Report, you know, is a public document, it's in the library, and it distinctly recommended purchase of all lands around Lake Winnipeg, if you remember, up to an elevation of 722 for foreshore protective purposes. Now the regulation range, I believe, that was assumed in that report was 712 to 717.

MR. CRAIK: What year was that report?

MR. BATEMAN: It came out in 1958, I believe it was.

MR. CRAIK: In '58.

MR. BATEMAN: Yes, 1958.

MR. CRAIK: But the report, the major report that was done by the Prairie Provinces Water Board, in '66, there was a '66 Federal-Provincial Report as well.

MR. BATEMAN: You're talking now about the Crippen Report that was part of the programming board study. You see, the difference between those two reports is one was looking at the problem from the flood control point of view - that was the Flood Control Board Report. It was appointed by the Campbell administration to look at Lake Winnipeg and Lake Manitoba, as far as the flood damage resulting from the 1950 flood. Now in the '60s, the early '60s, most people had forgotten about the dangers of the 1950 flood and, of course, the emphasis in the power field anyway was on Lake Winnipeg for power purposes. The report emphasized a structure at the outlet of Lake Winnipeg which would pump the water out under the low conditions; where you need the water most is when the water is so low. We didn't look at that with a great deal of favour because it didn't provide the flood control benefits that the earlier report did. Our review within Manitoba Hydro of all this engineering information looked at a compromised solution as being more advantageous to all the people of Manitoba, and therefore the Lake Winnipeg Flood Control concept of moving the structures down and increasing the channel capacity out of the lake so you could get more water out, that was our solution.

MR. CRAIK: I'm trying to get back to the reference to Mr. Stephens. Just in a nutshell, are you saying then that Mr. Stephens was in agreement with the 713 level, average level control on Lake Winnipeg?

MR. BATEMAN: I don't know what Mr. Stephens, what his views were about that specific elevation. I don't think I ever raised that specific question with him, all I know is what the records show. He was a member of the board that produced that report, and he as a member of that board didn't produce any dissenting view. But I think that it depends on what the objectives of the board were - either for flood control or for power. There were two different objectives. Our solution is a compromise one.

MR. CRAIK: His name was used though, I believe, by Mr. Bateman for some means of endorsement of Lake Winnipeg control.

MR. BATEMAN: Oh, yes. . .

MR. CRAIK: But my question is, did Mr. Stephens ever endorse the use of Lake Winnipeg as a control at 713?

MR. BATEMAN: Well, as I say, Mr. Craik, I don't know what his specific views were on the 713. I do know his advice to me and to several other engineers within Manitoba Hydro was don't leave Lake Winnipeg too long before you develop it.

MR. CRAIK: At 717 possibly?

MR. BATEMAN: No, I'm not going to say at what elevation. At that point in time, we were thinking in terms of the 715 range.

MR. CRAIK: With the level unspecified. Well we'll have to leave that.

You indicated, Mr. Bateman, that you assigned an average cost, unit cost of energy resulting from Lake Winnipeg Regulation of approximately 1 mill per kilowatt hour, that the average costs work out to this. Now in view of the fact that all of the water out of Lake Winnipeg is going through the plants, whether the control is there or not, I have difficulty in figuring out how you arrived at that.

MR. BATEMAN: Well that's the incremental costs of the control structures and the channels associated with the Lake Winnipeg job. As you control the water that is used at the two plants that we presently have committed - Kettle and Long Spruce - now that comes out to whatever it was, a little over 1 mill a kilowatt hour. Now, as we add more plants, the incremental costs because we'll get more energy, we get another five to six billion kilowatt hours from each plant, the incremental costs will decrease. So my contention is that the average cost for installed horsepower on the Nelson River, excluding inflation, will go down with time because of the fact that the regulation and diversion works are built now and the succeeding plants can take advantage of those as each plant is built. In other words, there's no additional cost associated with either of those structures. They're being carried by the two plants that are presently, well by the system, but the two plants that are presently on the lower Nelson, and I also pointed out when I showed that picture that the chap who had done it had omitted the Kelsey energy which should really be attributed to Lake Winnipeg because it benefits to some extent from Lake Winnipeg Regulation also.

MR. CRAIK: Well, are you saying that if Lake Winnipeg control was not there, you would have to spill a lot of water, without making use of it as an energy source, that amount. Is that how you calculate it?

MR. BATEMAN: No, I was just taking the total energy output of those plants and the total cost of Lake Winnipeg.

MR. CRAIK: But if Lake Winnipeg control was not there and you ended up spilling no water, you could as equally say you saved one mill by not building Lake Winnipeg control.

MR. BATEMAN: Well except that I don't know how I would generate power to supply your power requirements in the wintertime without Lake Winnipeg Regulation and the Churchill River Diversion. We've designed the system on the basis of the program in board recommendations of the 1966 agreement that require both these systems to meet the firm power requirements of this province.

MR. CRAIK: While we're on the Lake Winnipeg Control I think it was indicated last day that the structure is not on Lake Winnipeg, is in fact at this point not controlling because the channels are not completed with the exception of some flow, the flow out of Playgreen rather than the flow out of Lake Winnipeg.

MR. BATEMAN: The Two-Mile Channel is not complete. When it is, we'll have a different story on the flow out of the Nelson next winter.

MR. CRAIK: In that regard, is it not misleading to have stated in your prospectus for your bond issue, Page 12, I believe, that the Lake Winnipeg control is in operation.

MR. BATEMAN: No, it's not misleading. I think it's properly stated. We are very careful about making any comments in bond prospectuses that they had better not be incorrect or it affects your position in the bond market. I think the statements as they are worded, or the fact that the structure and so on has been placed, is a correct statement.

MR. CRAIK: I want to come back to that reference, Mr. Chairman, I'm just looking for it.

MR. CHAIRMAN: Mr. Enns.

MR. ENNS: No, Mr. Chairman, I had no . . .

MR. CHAIRMAN: Mr. Barrow.

MR. BARROW: Mr. Chairman, I'd like to just go back a few years where the Hudson Bay Mining switched over to hydro. Was that for the town proper and the plants and mines, or just for the town?

MR. BATEMAN: No, we bought the town's distribution facilities from the Churchill River Power Company, which was a subsidiary of Hudson Bay Mining and Smelting, in Snow Lake and in Flin Flon, so we are now distributing power from Manitoba's hydro system. We also have an interconnection with Hud Bay. We buy and sell power to Hud Bay.

MR. BARROW: If they have a shortage. . . and then you supply power to them.

MR. BATEMAN: And if they have a surplus, which they are presently in, we buy it from them.

MR. BARROW: I believe that the Island Falls are going out of operation. Is this true?

MR. BATEMAN: I haven't heard of it going out of operation. It's a very viable plant. I think it will continue to operate for a good many years.

MR. BARROW: Thank you, Mr. Chairman.

MR. CHAIRMAN: Mr. Axworthy.

MR. AXWORTHY: Mr. Chairman, I have a couple of questions that arise out of the previous statements. One of the questions that I have is this connection or negotiation that you say you've been having with Saskatchewan and perhaps Ontario about alternative interconnections with them as compared to the American interconnections. Now in letters written to Saskatchewan Power Corp. and Ontario Hydro in 1974, you suggest to them that you have concluded that because they could not supply the winter requirements that you have for winter capacity, plus store your dry year energy and benefits of reliability, that you're going to sell your surplus power and energy to the United States and you've asked for clearance for these interconnections. They obviously didn't give you that clearance cause they showed up at the National Energy Board hearing to oppose your application. Now it seems to me that there's a certain . . .

MR. BATEMAN: I think I'll have to correct you on that point, Mr. Axworthy. They did not appear to oppose the application. They appeared and they supported the application.

MR. AXWORTHY: To what degree did they - did they totally support your application on this?

MR. BATEMAN: I think if you look at the transcript you'll find that there is no evidence to indicate that they opposed it.

MR. AXWORTHY: Well did they support it?

MR. BATEMAN: Well to the extent that they didn't oppose it, I would conclude that they supported it.

MR. AXWORTHY: Well, Mr. Chairman, you spent enough time in this committee to realize that that is not always the case; that silence sometimes speaks louder than words. But the questions I would have on this is, Mr. Chairman, is that you say that Saskatchewan if they were going to supply your surplus would be doing so out of different forms of thermal heat energy supplies. Now it is my understanding that your agreement with the American Power Companies is that when you import your power you have to take their power from their last line facility and in one case, for example, of Minnesota Power and Light, that would be the plant at Hibbing.

MR. BATEMAN: That's not the case though.

MR. AXWORTHY: What is the case then, what . . .

MR. BATEMAN: The case is that all these plants through the various dispatchers send the information into a central position and we know what the incremental and decremental costs of each plant is. that has power available to sell. We will pick the one that is most advantageous from our point of view.

MR. AXWORTHY: So your agreement is that they do not select the power source for import, that you select it, is that the agreement?

MR. BATEMAN: We agree or disagree to buy it from that particular plant.

MR. AXWORTHY: But they will only put certain plants on the line for you if they have surplus power coming out . . . ?

MR. BATEMAN: Well they may not be the ones we'd buy it from. You see it's a big interconnected system, there are lots of power companies in the MAP pool from whom we can buy power.

MR. AXWORTHY: That would be the questions I have then. That if you're faced with a choice then say by purchasing surplus power when your capacity on the Minnesota Power and Light Plant at Hibbing which was using, in fact, Canadian Petroleum to supply its energy as compared to using a coal powered plant in Saskatchewan, why wouldn't we be able to make those kind of choices, or can we make those choices now, or the lack of interconnections prevents that kind of choice being made.

MR. BATEMAN: I think that your statement is incorrect that they are using Canadian oil, they are actually using American coal.

MR. AXWORTHY: Well we could perhaps check that, Mr. Chairman. They are using petroleum sources for some of their power . . .

MR. BATEMAN: Well they may have some petroleum, don't forget they're pretty close to the Great Lakes and they have access to tankers there, but my understanding is that they are not burning Canadian petroleum. That was some of the misinformation that was presented to the National Energy Board.

MR. AXWORTHY: Well, Mr. Chairman, leaving that further point because I think we could check the record on that, it still comes back to this question of what is the present state of your negotiations say with Saskatchewan and Ontario, have you pursued the possibility of developing interconnections with those two provinces to provide a wider option of imports into this province?

MR. BATEMAN: Oh, yes, we are continually . . . in our agreements with those two provinces we have a joint planning committee that meets periodically and we're currently discussing a third interconnection with Saskatchewan at this point in time.

MR. AXWORTHY: Where might this interconnection take place?

MR. BATEMAN: Well there are several locations for it, and I don't think I would prejudice any negotiations by indicating where it might be at this point in time.

MR. AXWORTHY: Mr. Chairman, if that's the case, would they be then hooked into the same kind of agreements we are now making with the Americans in terms of - would it be coming off the transmission line that's coming down the east side of the lake and . . .

MR. BATEMAN: There's no transmission line . . .

MR. AXWORTHY: Well being planned or being proposed . . . That's not until 1985. Well, I presume though, Mr. Chairman, that the plans for an interconnection with Saskatchewan would take some time to develop and that would be the coincidence.

MR. BATEMAN: If we decided we need a third interconnection which there is some good economic justification for, with Saskatchewan, we could have it in place by 1978.

MR. AXWORTHY: So that you'd really need then just about two year lead time for development?

MR. BATEMAN: Well it depends on where it's going to be and how far apart it is and how many miles of line you have to build, those are sort of the economic justifications that have to be overcome, and what you're going to do with it once you've got it.

MR. AXWORTHY: When do you expect to have a decision on it, Mr. Bateman?

MR. BATEMAN: Oh, maybe next year at the committee meeting I might be able to tell you a little bit more about our purpose.

MR. AXWORTHY: Okay. Just one final set of questions, Mr. Chairman, Mr. Bateman indicated that he's still anticipating about 9 percent growth and demand over the next decade or so. I was wondering to what degree does price have an effect on that growth and demand, the Phillips curve in economics always indicates there's a trade-off between the two and I'm wondering is there any estimate that that demand will decrease as a result of the increase in prices of 20 percent that we're facing at least.

MR. BATEMAN: Well we thought that it might, but I didn't project a 9 percent increase in that, I said that back in the '72 period when we were looking ahead we thought

(MR. BATEMAN cont'd)the short term would be over 9 percent, it actually turned out to be higher, but our projection now is between 6½ and 7 percent. And you know with the increase in rates that went in a year ago the fact is that our domestic and rural system has grown in this last fiscal year by 14 percent, so price hasn't apparently much to do with it. We hope some day it will.

MR. AXWORTHY: Mr. Chairman, just a question in association with that. Could you . . .

MR. CHAIRMAN: It is now 12:30, I just wonder if it is the desire of the committee to proceed and conclude the annual report of the Manitoba Hydro or do we adjourn? I have one more person to ask questions, and if the committee is so inclined we can conclude the meeting today or put it over to another day.

MR. CRAIK: Mr. Chairman, I suggest that we adjourn. I wonder before doing it if I could - I don't want to leave in the air this statement I was looking for, Mr. Bateman, may wish to refer to it, and I wonder if I could just read the statement I was referring to, and I couldn't find at the time. It's on Page 12 of the . . .

MR. AXWORTHY: Pardon me, Mr. Chairman, I think I still have the floor on questioning this . . .

MR. CRAIK: I just wanted to clean up the remaining item. Page 12 of the prospectus says "construction of the control structure which forms part of the works required for Lake Winnipeg Regulation and the related Jenpeg Generating Station has been completed and water flows from Lake Winnipeg down the Nelson River can now be regulated." I contest, Mr. Chairman, that's misleading, that water flows are not controlled at the Jenpeg . . .

MR. BATEMAN: It's true, we can close the gates. . .

MR. CHAIRMAN: . . . please, Mr. Craik.

MR. BATEMAN: We can close the gates and then stop the flow but we aren't doing that. What you're implying here is that there is almost some natural control in Playgreen Lake which is also affected.

MR. CHAIRMAN: Is that all the questions, do you have any more questions, Mr. Axworthy?

MR. AXWORTHY: Mr. Chairman, I prefer to come back to them, if we're going to adjourn today I'll come back at the next session with them.

MR. CHAIRMAN: Well I say as if you do not have too many questions possibly we can carry on and finish the report today, if it's the will of the committee.

MR. AXWORTHY: I think the wish of the committee from this side is that they have an adjournment, I have several more questions to ask, yes.

MR. CRAIK: I suggest we adjourn, Mr. Chairman.

MR. CHAIRMAN: Committee rise? (Agreed)