REPORT

OF

THE BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

TO

THE HONOURABLE RON DAWE

MINISTER OF MINES AND ENERGY

GOVERNMENT OF NEWFOUNDLAND

ON

THE RATE PROPOSALS FILED BY

NEWFOUNDLAND AND LABRADOR HYDRO

ON MARCH 1, 1983.

NEWFOUNDLAND AND LABRADOR

BOARD OF COMMISSIONERS OF PUBLIC UTILITIES

St. John's, Nfld. P.O.Box 9188, A1A 2X9 Telephone 709 726-6432

1983 05 31

Honourable Ron Dawe,
Minister,
Department of Mines & Energy,
Eastern Canada Building,
95 Bonaventure Avenue,
St. John's,
Newfoundland.

Dear Minister:

Pursuant to Section 8 of the Electrical Power Control Act, the Board submits herewith a copy of its report on the rates of Newfoundland and Labrador Hydro which were referred to the Board on March 1, 1983, in accordance with Section 7 of the Act.

The Board of Commissioners of Public Utilities

J. A. G. MacDonald, P.Eng.,
Chairman

R. E. Good,
Vice-Chairman.

C. W. Earle, C.A., .
Vice-Chairman.

G. F. Lawrence,
Commissioner.

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PART I - INTRODUCTION

1983 REFERRAL OF NEWEOUNDLAND AND LABRADOR HYDRO

This is the fourth Referral by Newfoundland and Labrador Hydro (Hydro) to the Board of proposed rates for the supply of electric power to Newfoundland Light & Power Co. Limited (NLP) and the Board of Trustees of The Power Distribution District of Newfoundland and Labrador (PDD) since the Newfoundland House of Assembly passed The Electrical Power Control Act, hereinafter called EPCA, on June 17, 1977.

Following receipt of the report of the Board, dated July 29, 1981, on Hydro's third referral, the Lieutenant-Governor in Council, on July 30, 1981, approved:

(1) a rate of 23.97 mills per kilowatt hour (kwh) and a fuel adjustment charge to recover the cost of Bunker 'C' fuel in excess of a base price of $7.50 a barrel, for energy generated and supplied to NLP.

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(2) A rate of 8.14 mills/kwh for firming up secondary energy purchased from The Bowater Power Company Limited (Bowater Power) and delivered as firm energy to NLP.

(3) An energy rate of 23.97 mills/kwh, a fixed charge of $249,100 per month and the fuel adjustment charge for energy supplied to P.DD on the Island portion of Newfoundland.

(4) An energy rate of 3.7 mills/kwh and a fixed charge of $159,922 per month for energy supplied to PDD in Labrador.

The approved rates went into effect on August 13, 1981.

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Rates proposed for the supply of power and energy to NLP

On February 23, 1983, Hydro referred to the Board a proposal to charge NLP a monthly energy rate for all power and energy, other than for secondary energy supplied by Bowater Power, of 28.56 mills/kwh and a fuel adjustment charge per kwh which would pass on to NLP increases in fuel costs over and above $7.50 per barrel.

For secondary energy supplied by Bowater Power to Hydro and delivered as firm energy by Hydro to NLP the proposed firming rate is 9.81 mills/kwh.

Rates proposed for the supply of power and energy to PDD

In the same referral Hydro also proposed to alter the rates charged to PDD. Two rates were proposed for PDD; one for electricity supplied on the Island portion of the Province and another for Labrador.

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The rates proposed for the Island are a fixed charge of $338,760 per month, an energy charge at the rate of 28.56 mills/kwh and a fuel adjustment charge to be calculated in the same manner as that passed on to NLP.

Therates proposed for Labrador are a fixed charge of $94,210 per month and an energy charge at the rate of 3.7 mills/kwh.

Hydro have requested that the proposed rates become effective on July 1, 1983.

Procedural Order

Forthwithupon receipt of Hydro's referral the Board issued Order No: P.U. 5 (1983) dated February 24, 1983. In it the Board ordered that:

1. Phase1 ofthehearing will commence at 10:00 A.M. on March 21, 1983, at the Board's Hearings Room, 2nd. Floor, East Wing, Prince Charles Building, 120 Torbay Road, St. John's, Newfoundland.

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2. Hydro shall file with the Board on or before 4:45 P.M. on March 1, 1983, 25 copies of a typewritten submission and supporting exhibits, containing in detail the evidence to be submitted in support of the proposed alterations.

3. Hydro shall, in addition, provide copies of its submission and the supporting exhibits to each of its customers which retail power and to any other person upon request.

4. Any customer or other person wishing to make a submission to the Board or to participate in the hearing shall file with the Board and with Hydro on or before noon on March 18, 1983, notice of such intention, containing a concise statement of the facts from which his interest and the nature and scope of his intended participations may be determined, the name of his counsel, if any, and the address to which communications should be sent; such notice if delivered, shall be delivered:

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(a) to the Board at its head office, 2nd Floor, East Wing, Prince Charles Building, 120 Torbay Road, St. John's, Newfoundland.

(b) to Hydro at its head office, Philip Place, Elizabeth Avenue East, St. John's, Newfoundland.

and such notice if sent by registered mail shall be addressed:

(c) to the Board at P.O. Box 9188, St. John's, Newfoundland, AlA 2X9, and

(d) To Hydro at P.O. Box 9100, St. John's, Newfoundland, ALA 2X8.

5. The object of the Phase 1 hearing is to assist interested persons in better understanding the issues, to discuss any problems relating to the filing of interventions and the preparation of evidence, to fix a date on which to commence Phase 2 of the hearings and to establish the general procedures to be followed during the hearings.

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6. Notice of the Phase 1 hearing shall be published by the Clerk of the Board as a display advertisement twice in each daily newspaper published in the Province.

The Board's Consultants

The Board retained Noseworthy, Keating, Howard & Kung (Noseworthy), as Financial Consultants and D. W. K. Dawe, Q.C. as Director of Enquiry to assist the Board in its examination of Hydro's operation.

The Terms of Reference given to Noseworthy were generally to review the methodology and assumptions which underly Hydro's financial forecasts and evaluate the resonableness and prudence of the costs used by Hydro to determine their proposed rates for retailers. More specifically, they were requested to:

1. Determine if there has been any changes in Hydro's accounting Principles and Procedures since the last hearing.

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2. Examine the method of estimating revenues, expenditures and earnings for the years set out in their referral.

3. Compare the estimates made and assumptions used in the evidence at the previous hearing with the actual results for 1981 and 1982, and any estimates that were made for future years at that time.

4. Comment on the reasonableness and prudence.of administrative and operating expenses in relation to sales of power and energy and check the allocation of any expenses incurred for purposes other than supplying power and energy to Newfoundland Light & Power Co. Limited and The Power Distribution Districts.

5. Comment on allocation of costs for service as recommended by the Board in the past.

6. Any other item that falls within the general Terms of Reference.

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Synopsis of the Hearings

The hearings were held in the Board's Hearing Room in St. John's on March 21, 1983, and April 19, 20, 21, 22, 26, 27 and 28, 1983.

The Board received interventions from NLP and the Newfoundland and Labrador Federation of Municipalities (FOM).

Frederick S. Bishop, LL.B. appeared on behalf of Hydro. H. Stanley Marshall, LL.B. and Douglas J. Black, LL.B. appeared for NLP and Joseph S. Hutchings, LL.B. appeared for FOM.

Evidence was given by the following officials of Hydro

V. L. Young, Chairman and Chief Executive Officer.
J. P. Henderson, Vice-President, Operations.
D. W. Osmond, Corporate Comptroller.
J. Baxter, Vice-President, Finance and Administration.

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Hydro also called as a witness:

D. A. Carmichael, Vice-President and Director of
McLeod, Young Weir Limited (McLeod).

The following witnesses were called by the Intervenors

For NLP

D. S. Templeton, President.

C. R. Vivian, Vice-President, Rates and Customer Services.

For FOM

R. K. House, President R. K. House & Associates Ltd.

The Board called as a witness

R. G. Noseworthy, C.A., of Noseworthy.

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Petitions opposing the application were received from:

(1) Citizen's of Curtis Drive, Cox's Cove, consisting of 22 signatures.

(2) St. Barbe Development Committee, Black Duck Cove consisting of 70 signatures.

(3) Ms. Donna Hancock, Mayor for The Forteau Community Council consisting of 204 signatures.

(4) The Town of Mount Moriah consisting of 323 signatures.

(5) Citizens of Wiltondale consisting of 56 signatures.

(6) Citizens of the Corner Brook area consisting of 142 signatures.

(7) Citizen's of The Town of York Harbour consiting of 140 signatures.

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(8) Citizen's of Benoit's Cove consisting of 82 signatures.

(9) Community Council of Daniel's Harbour consisting of 194 signatures.

(10) Citizen's of Trout River consisting of 25 signatures.

(11) Citizen's of Gillams, Bay of Islands consisting of 37 signatures.

(12) Citizen's of Hawke's Bay consisting of 135 signatures.

Letters opposing the application were received from:

(1) Kevin Wells, Pasadena.

(2) Mr. & Mrs. Harvey Wight, Pasadena.

(3) Melvin Eastman, Port au Choix

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(4) William B. Lovell, Corner Brook.

(5) B. Hunt, Corner Brook.

(6) Mrs. E. Quinton, no return address.

(7) Mrs. Grace Nichols, Deer Lake.

(8) Mr. & Mrs. Bruce Nichols, Deer Lake.

(9) Mr. & Mrs. Yvonne & Gerald McCarthy, Corner Brook.

(10) Mrs. Clara House, Corner Brook.

(11) Mrs. Winnie G. Bonnell, Foresters Point, Black Duck Cove.

(12) Kathleen O'Brien, Community Council of West St. Modeste, Labrador on behalf of the residents of West St. Modeste.

(13) Mr. & Mrs. Gordon George, Corner Brook.

(14) Mr. & Mrs. Lawrence Fortune, Corner Brook.

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(15) L. Janes, Pasadean.

(16) Mr. Leander Pilgrim, Mayor, on behalf of the Town Council of Main Brook, Strait of Belle Isle.

(17) James Hewlin, Cow Head.

(18) Ms. Margaret Rose, Lance au Clair.

(19) Ms. Bonnie Hann, Corner Brook.

(20) Mr. & Mrs. Stephen J. Jeddore, Sr., Deer Lake.

(21) Ms. Buelah Oake, President, Humber Valley Development Association, Deer Lake.

(22) Telex from the Town Council of Halfway Point, Benoit's Cove, John's Beach and Frenchman's Cove on behalf of the residents.

(23) Mrs. Rowena Miller, Corner Brook.

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(24) Mr. G. Gary Gushue, Secretary, on behalf of the Deer Lake Chamber of Commerce, Deer Lake.

(25) Mr. & Mrs. R. Janes and Mrs. H. Snook, Corner Brook.

(26) Mrs. Brenda Applin Poole, Shoal Cove West, St. Barbe District.

(27) Mrs. Katherine Penney, Corner Brook.

(28) Mrs. Tom Wortman, Pasadena.

(29) Mr. & Mrs. L. Maddock, Corner Brook.

(30) Mr. & Mrs. Wallace Davis, Jr., St. Anthony.

(31) Mr. & Mrs. S. Kenney, Corner Brook.

(32) Ms. Michelle House, Corner Brook.

(33) Ms. Margaret Rose, St. Anthony Ease.

(34) S. Gale MacPherson and James C. MacPherson, St. Fintans.

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(35) Mariah Walters and Gerald Walters, Robinsons.

PART II - SUMMARY OF EVIDENCE AND ARGUMENT

In compliance with Section 11 of EPCA, the following is the Board's summary of the #nformation and views submitted during the hearing.

Since the Board's last report on April 20, 1981, to the Honourable Minister of Mines and Energy, the 86 Megawatt (MW) hydroelectric generating facility at Upper Salmon in the Bay D'Espoir watershed region came into service (in January 1983). Construction activity continues on the 127 MW Cat Arm hydroelectric development on the
Great Northern Peninsula. It is expected to come into production in June 1985.

The transmission and terminal expansion program continued in 1982 with expenditures amounting to $6.6 million. Most notable of these projects was the completion of 27 kms of 230 KV transmission line

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from Holyrood to Hardwoods at a cost of $3.8 million and the completion of 74.6 kms of 138 KV transmission facilities from Deer Lake to Rocky Harbour at a cost of $7.6 million. Expenditures associated with terminal plant expansion amounted to $2.4 million during 1982.

On January 30, 1982, a "breach" occured in the power canal dyke of the Hinds Lake development. The plant was shut down for three months for repairs which cost $2.0 million.

Capital Requirements

Hydro's capital budget is approved by its management and Board of Directors.

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Section 37(1) of the Newfoundland and Labrador Hydro Act requires Hydro to submit to the Minister of Mines & Energy not later than the 30th day of November in every year a budget containing its estimated capital and operating expenses for its next succeeding fiscal year.

Section 37 (2) states that the Lieutenant-Governor in Council may either approve or disapprove any borrowing program reflected in the budget.

Section 26 requires the prior approval of the Lieutenant#Governor in Council for Hydro to borrow or to secure the repayment of monies borrowed.

It will be noted that Hydro is not required to refer its proposed capital expenditures or its proposed methods of raising capital funds to the Board for a public hearing and recommendations thereon.

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Hydro estimated that in order to serve its forecasted electrical load growth, additions to its generation, transmission and terminal plant and equip-ment and general properties and environmental studies will call for capital expenditures of $162.2 million in 1983 and $131.4 million in 1984.

In its summation NLP pointed out that while it is stated as not being a set policy, Hydro has followed the general practice of issuing long ter# debt before all the proceeds are required to finance its capital expenditures and on-going operations. Until such time as the proceeds are required they are held in short term investments. While NLP agrees that there are instances where such pre#financing may be prudent, as where an increase in interest is anticipated, (such was the case with the $100 million U.S. issue) it should be more the exception than the rule. NLP argued that generally it is more advantageous to use short term bank loans as a form of bridge financing to delay funding of debt until the amount of borrowing is sufficient for an economic sized issue. Since funds are borrowed only as required, gross interest expense and therefore margin requirements will generally be reduced and the borrower retains greater flexibility to defer or cancel capital projects.

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Premature financing will generally have an adverse impact on gross interest coverages. Even if short term funds are invested at a rate higher than the cost of borrowing, NLP said there can still be a negative impact on coverage.

Hydro's decision to finance the $50 million issue in the fall of 1982 raises some concern for NLP when judged in the context of information available at that time. The evidence indicates:

(a) At the time the deal was made on August 18, 1982, medium and long term interest rates had been falling steadily for six weeks.

(b) There was no consensus that interest rates would rise in the near future.

(c) Hydro could have moved quickly with an issue if there was an indication that the downward trend in interest rate would reverse itself.

(d) There weren't any factors which, from the market perspective, would have created a sense of urgency to do the financing.

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(e) There was no indication that Hydro had any pressing need for the funds. Hydro had a cash surplus of $103 million in August 1982 and seven months later had not begun to draw down any of the proceeds of the $50 million issue.

Since the fall of 1982 interest rates have fallen dramatically and in February it should have been possible to finance in the Canadian market at an interest rate of 12 percent - 325 basis points lower than the September issue. If Hydro had deferred the $50 million issue until February or March of this year, the lower interest rate would have resulted in an annual saving of interest expense of $1.625,000 and an increase in the 1982 total consolidated interest coverage of approximately one full point.

Mr. Young testified that September, 1982 was quite a different situation than it is today. The feeling in the market place was that rates in Canada at 15% were good rates because they had previously been 16% and 17% or there had been no bond market at all and no one knew, nor was anyone predicting at that time, that rates would continue to fall.

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Hydro ordinarily would have undertaken an issue of $75 million to $100 million in the Canadian market. Because of the uncertainty as to where rates were going Hydro reduced the size of that issue to $50 million but not with any knowledge that rates were going down or up. At that time it was the best Canadian market Hydro had seen for some time and as Hydro did not know what was going to happen to rates it took advantage of that market.

NLP stated that Hydro have indicated that interest expense for the forecast test year, 1984, is based on issuing debt when its cash balances approach zero. Recognizing that the use of bridge financing can reduce gross interest costs, NLP submitted that the Board should direct Hydro to indicate what the effect on margin and revenue requirement for 1983 and 1984 would be if Hydro were to employ bridge financing until borrowing is sufficient for an economic size issue. Only the financing plan which results in the lowest margin requirement should be used for rate making purposes.

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Hydro replied, in its rebuttal, that it does not accept that conclusions on the advantage, or otherwise, of bridge financing can be drawn outside of a context of present and predicted long and short term interest rates.

Hydro have assumed bridge financing in eleven of the twelve months of 1984 to a maximum of $45 million. In past years, including 1981 Hydro have employed bridge financing whenever the circumstances indicated it to be advantageous.

NLP asserted that interest and depreciation related to Hydro's capital projects make up a significant portion of its total cost of service. The timing and magnitude of increases in Hydro's rates are directly tied to the size and timing of its capital expenditures. Where capital expenditures can be deferred there is a potential to defer increases in rates. It is therefore very important that the timing of and necessity for major projects be subject to on-going examination and review. To the degree possible Hydro should establish and maintain a flexible construction programme such that maximum advantage may be obtained from deferring or delaying capital expenditures.

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FOM asked the Board to recommend that the EPCA be amended to require referral of capital projects of Hydro to the Board subject to the same limitations as contained in the Public Utilities Act, but in a manner similar to rate referrals allowing a limited time for the Government to overrule the recommendations of the Board.

Mr. Hutchings asked Mr. Young what his reaction would be to the above recommendation.

Mr. Young replied, inter alia, that there are two aspects to Hydro's capital program. One is the on-going additions related to transmission lines or terminal stations. The other is the construction of generation facilities, which require a judgement respecting the ability to achieve a Labrador in-feed. He believes that the only final decision-making body with respect to a new generation source should be the Provincial Government because of the type of judgement required and the strategic and confidential nature of the information required to make the decision.

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Mr. Young added, however, that with regard to the other items in Hydro's capital account, some of which are also very significant. and with regard to a regular monitoring of the on-going capital program. Hydro have always been concerned that there is a gap in heprocedure that is used because capital expenditures affect the final rates. In his opinion it may be a very healthy process to have an on-going relationship with the Board in terms of the monitoring of thecapital program including projects like Cat Arm and including transmission and terminal stations, in terms of having to submit a budget to the Board similar to the way NLP does and be involved in the public hearing process prior to the approval of new projects other than the major generation projects. Hesaid this would be seriously considered in terms of putting before the Board on a regular basis as much of Hydro's total program as can possibly be put before them. The Public Utilities Board process could be strengthened, if the Government, either on recommendation from the Board or for whatever reason, decide that there should be a better on#going monitoring of capital, perhaps even a Board approval before a new generation source is committed. But as long as a decision concerning a new generation development involves so many confidential and strategic items he can't really see that as being part of the public process.

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Interest Coverage Ratio

In its report of May 14, 1978, to the Honourable Minister of Mines and Energy the Board recommended and the Lieutenant-Governor in Council accepted that an interest coverage in the range of 1.15 to 1.25 times gross interest would enable Hydro to maintain a sound credit rating. The Board used a coverage of 1.2 times gross interest in determining the rates recommended for retailers in the said report.

The Board's report of February 28, 1980, recommended rates for sales to retailers that would give Hydro the opportunity to attain an interest coverage of 1.2 times gross interest for the period April 1, 1980, to December 31, 1980. The report stated, "The Board believes that this margin conforms with the provincial power policy and it falls within the range of 1.15 to 1.25 times gross interest recommended by the Board in its previous report". The Lieutenant-Governor in Council acceped this recommendation.

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The Board's report of July 29, 1981 recommended rates, that if effective August 1, 1981, would allow Hydro to achieve a 1.15 interest coverage in 1981 and a 1.2 interest coverage in 1982 with respect to its contracts with NLP and PDD. The Lieutenant-Governor in Council accepted this recommendation.

In its present submission Hydro proposes rates, to be effective July 1, 1983, that would give it the opportunity to achieve a 1.07 interest coverage in 1983 and a 1.15 interest coverage in 1984 from its sales to NLP and PDD.

In 1981 Hydro's interest coverage from its sales to NLP and PDD was 1.18 and in 1982 it increased to 1.22.

Hydro's submission on Interest Coverage Ratio

Mr. Young testified that Hydro's financial position has shown continuing improvement since 1980, as indicated by stable interest coverage levels, moderate improvement in its debt equity ratio and acceptable levels of reinvested margin as a percentage of the

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capital program. He said Hydro is demonstrating to investors that the electrical energy sector is being effectively and responsibly managed and that Hydro is not a burden on the Province's credit.

The margins achieved represent a direct contribution to Hydro's ongoing capital program and this reduces its borrowing requirements and the associated long-term interest costs. While the benefits of reinvestment of margin begin immediately, it will have its greatest impact in the future particularly as Hydro moves towards the implementation of a Labrador power development strategy. The borrowing requirements for a Labrador electrical interconnection are immense and include a transmission line costing in excess of $2 billion which is required to carry power from Churchill Falls or the Lower Churchill to the lsland.

A key element in any financial support package for Labrador power development, even with financial support from Canada, will be the ability of Hydro to pay for the energy produced and transmitted.

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Lenders will look extremely carefully at the financial position of Hydro as the major power purchaser and as a participant in the financial plan. Whatever future generation sources are, the capital requirement will be large and Hydro's overall financial position and performance will be a critical element in the financing of such future sources.

Hydro's long-term objective for rate stability lies with access to the energy from the Churchill River.

It remains absolutely critical that an interconnection to power and energy from the Churchill River be achieved as soon as possible to avoid the highly undesirable alternative of providing for future load requirements by becoming increasingly more reliant on thermal generation.

Based on presently projected load growth, Hydro has generating capability in place or under construction which is sufficient to meet the Island's energy needs until the Fall of 1988. After that

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date a new source of generation will be needed. A final decision is required on a new energy source by the spring of 1985, if construction of a new source is to be completed by the end of 1988.

Given the ongoing state of uncertainty surrounding the construction of a transmission line from Labrador to the Island, one of the options which has to be seriously considered is a fourth unit at Holyrood. There are also a number of small but potentially attractive hydro options.

The long-term prospects for the electrical energy sector in this Province, without an electrical interconnection with Labrador, continue to be grim. As pointed out in previous hearings, Newfoundland's attempts to gain access to Churchill Falls power or to begin construction of the Gull Island or Muskrat Falls sites on the Lower Churchill River, have been frustrated by the total lack of cooperation shown by the Province of Quebec with respect to Newfoundland's power development strategy in Labrador.

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There is no doubt that power from Churchill Falls continues to be a more economical long-term source of energy for the Island and Labrador than any other alternative. However, the uncertainties surrounding the timing of access to this energy source continue to dictate a prudert planning policy of aggressively pursuing other, albeit more expensive, short-term energy sources.

With the foreg-oing considerations in mind Hydro has taken a critical look at its financial objectives and the level of margin to be proposed in 1983 and 1984.

With the coming into being of EPCA, Government formulated the need for Hydro to be financially sound. It has been established through previous hearings before this Board that the appropriate level of margin for Hydro on its sales to retailers is a 1.2 times doverage on gross interest, within a range of 1.15 to 1.25. Hydro has achieved this targetted margin level since 1981. Based on experience in the international financial community, it is apparent that

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Hydro's financial position and its regulatory environment are key issues in Hydro maintaining investor confidence and accessing funds in capital markets. In 1982 Hydro was able to raise funds in the United States, for the first time in sixteen years, with a successful $100 million public issue.

These difficult economic times do not change the basic and fundamental premise that a financially sound utility industry is vital if the electrical energy sector is to be managed properly. However, in today's circumstances Mr. Young believes that Hydro should be attempting to strike a meaningful balance between the accomplishment of its financial objectives and the desirability for restraining the level of rate increases to consumers. Given Hydro's relatively weak credit standing (Baa-l/Moody's and A/Standard & Poors) and relatively weak financial structure (93:7 debt equity ratio), Hydro's room for responsiveness is extremely limited in terms of proposing 'margin restraint'.

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In this referral Hydro decided to seek rates from its retail customers, effective July 1, 1983, which demonstrate responsiveness to these difficult times. The referral has been delayed for as long as possible, electing to seek a single increase for 1983 and 1984, and targetted for the minimum of the approved margin range in 1984. As a result, proposed rates have been designed to allow Hydro to achieve a margin of 1.15 in 1984 on its sales to retailers. With these rates in effect for half of 1983 Hydro expects to achieve a margin of 1.07 from its sales to retailers in 1983.

Mr. Young stated that Hydro has struggled with the concepts and precedents inherent in requesting lower, short-term margin levels at this time. While Hydro is concerned about the adequacy of the level of its rate proposal, it feels that its generally improving financial performance allows it the opportunity to be responsive to restraint without detrimentally affecting its mandate under the EPCA.

He stressed that these proposed lower margin levels are not a permanent reflection of revised financial targets. Rather, they

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are a temporary response to the current unusual economic situation. In Hydro's next rate referral, which is expected to be in 1985, Hydro intends once again to seek an interest coverage of 1.2 on sales to retail customers.

Mr. Young asserted that Hydro is anxious for the Board to confirm that Hydro's long-term interest coverage range of 1.15 to 1.25 continues to be appropriate even though Hydro is proposing a coverage lower than 1.2 to its retail customers in 1983 and 1984. This confirmation would be of prime importance in demonstrating to lenders and credit rating agencies that Hydro is not introducing a permanent shift away from its previously accepted interest coverage levels.

Mr. Young submitted the following table which summarized the overall financial performance which Hydro has been able to achieve since 1980 and shows its projected financial measurements for 1983 and 1984.

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OVERALL FINANCIAL MEASUREMENTS

Measurement	1980	1981	1982	1983	1984
				($ millions)	
Capital Program	$68.6	$97.2	$147.0	$163.3	$132.5
Gross Interest	43.6	52.6	75.7	91.0	106.0
Margin					
Utilities	3.8	6.8	12.3	4.5	11.2
Industrial	2.9	2.3	5.6	5.5	6.1
*IOC and PWC	1.7	1.7	1.8	3.7	4.4
Hind's LakePower-Canal	-	-	(3.2)	-	- Failure
TOTAL	$ 8.4	$10.8	$ 16.5	$ 13.7	$21.7
Reinvested Margin as % of Capital Program	12.2%	11.1%	11.2%	8.4%	16.4%
Interest Coverage Utilities	1.12	1.1	81.22	1.07	1.15
Interest Coverage Total	1.19	1.2	11.22	1.15	1.20
Debt/Equity Ratio	95/5	94/6	93/7	92/8	91/9

* IRON ORE COMPANY OF CANADA AND PUBLIC WORKS CANADA

The $3 million fuel costs and $250,000 insurance deductible associated with the Hind's Lake power canal failure have been absorbed by Hydro in 1982.

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Mr. Carmichael testified that McLeod acts as a managing underwriter for debt placements in Canada, the United States and Europe for both Hydro and the Province of Newfoundland. In addition. McLeod is the Canadian financial advisor to the Lower Churchill Development Corporate Limited (LCDC) and has testified on behalf of Hydro before the Supreme Court of Newfoundand with respect to the Churchill Falls (Labrador) Corporation Limited (CFLCo) power recall court case.

McLeod's forecast indicates that while economic growth will be achieved during 1983 such growth will be anaemic in its early stages. Its forcast also indicates that the recent rally in the bond market has run its course and the outlook for interest rates over the next two years is for a general increase over current levels and continued volatility within the marketplace. Mr. Carmichael believes that these circumstances should be considered by the Board in determining an appropriate financial position for Hydro over the 1983/84 period.

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In considering factors which determine an appropriate level of interest coverage and, therefore, profit for Hydro, the forecast for 1983 reflects an anaemic recovery during which time corporate profits will be well below their historic share of Gross National Product (GNP). In the face of such performance in the short-term, he believes that the capital markets will not react adversely to a planned short-term reduction in Hydro's interest coverage margin so long as the change in margin is clearly perceived not to be permanent. It is therefore imperative that, as the expected recovery in 1984 progresses, Hydro be allowed to earn a margin consistent with the improving economic circumstances.

With regard to conditions in the debt capital markets, Mc Leod's forecast indicates that conditions will remain volatile over the next two years. Hopefully, the high interest rates and shorter terms to maturity experienced during 1981 and early 1982 will not re-occur; however, this is not beyond the realm of possibility. Given Hydro's current credit standing, access to long-term funds on a consistent basis cannot be assured. It is his view, therefore,

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that the recent improvements in Hydro's financial performance and position must be continued on a longer term basis if it is to comply with the objectives set out in the EPCA.

On balance, he regards Hydro's financial risk to be marginally higher than other Crown electric utilities operating in Canada and only sustainable due to its relatively low level of operational risk and the treatment afforded through the regulatory process.

Hydro has a lower than average interest coverage than the eight provincially-owned electric utilities (including Hydro) and this has resulted in Hydro's higher than average debt to total capital position.

Mr. Carmichael believes Hydro should be provided the opportunity to earn a coverage of gross interest of not less than the current accepted range of 1.15 to 1.25 time and, as a by-product of this margin of profit, Hydro should be allowed to continue to improve its ratio of debt to total capital toward its long term objective of 80%.

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A number of factors led him to the conclusions reached above. Hydro is exposed to certain operational, regulatory and financial risks, all of which can influence the achieved level of interest coverage. In order to maintain Hydro's financial position, it is therefore necessary to provide an adequate margin of safety to protect against unforeseen events. The level of interest coverage is also influenced by the fact that, historically, Hydro's financial position has been marginally weaker than those of other provincially owned electric utilities. Additionally, the recommendation reflects the fact that, even though the Provincial credit has improved recently, it remains the weakest of the Canadian provinces.

The final factor of significance is Hydro's capital requirement over the next few years. Since 1976, Hydro has borrowed, on average, $118 million per annum. During the next two years, Hydro's external financing requirements will total approximately $300 million. In addition at some point in the future, Hydro may be required to take on substantial financial obligations in respect of either one of LCDC's proposed developments or a transmission system from CFLCo's

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facilities to Soldier's Pond which is estimated to cost in excess of $2 billion. These requirements are massive compared to Hydro's outstanding indebtedness of $710 million and in order to fulfill such requirements Hydro will require access to virtually all longterm capital markets as well as an adequate source of internally generated funds.

In his view, the next decade will be characterized by an intense competition for funds in all capital markets. In Canada, McLeod expects continued pressure on the debt market as a result of the federal government's external financing requirements and increased pressure from provincial governments. Additionally, the demand for funds by corporate borrowers should intensify as the expected recovery is sustained. Such pressure on the domestic debt market will result in lenders being very credit conscious and could result in adequate supplies of funds not being available to less financially sound entities.

In his opinion, the most prudent financial policy for Hydro to follow at this time is one which contemplates the circumstances just referred to. Therefore, he believes that Hydro should attempt to improve its financial position over the next two years thereby

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improving its position relative to other participants in the Canadian debt market. An improvement would also provide Hydro with greater access to the long term U.S. capital market which would provide greater financing flexibility.

He believes that prospective lenders to Hydro are mindful not only of the approvedlevel of interest coverage but also the range of 1.15 to 1.25 times previously accepted by the Board. Given current economic circumstances and the fact that the interest coverage target from the date of the decision onward will provide a margin at the low end of the previously accepted range for the balance of 1983, he does not believe that the capital markets will react adversely in the short run.

He continues to believe that the previously accepted target of 1.2 times remains appropriate for Hydro. He believes that the reaction of lenders and credit rating agencies would be adverse if a fundamental change in the regulatory environment was perceived. From this view point, he believes it is imperative that the Board in its decision, confirm the continued acceptance for an interest coverage target range of 1.15 to 1.25 times and acknowledge that if, in the shortterm, a downward adjustment to the current target of 1.2 times is justified, such an adjustment will not be acceptable on a longer term basis.

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FOM's Submission on Interest Coverage Ratio

FOM argued that the Board should recommend that rates for Hydro be set to earn revenue sufficient to produce a 1.10 interest coverage to be in effect up to December 31, 1983 when FOM purposes that a revised rate structure be implemented.
Its reasons are:-

1. That the credit of Hydro and the Province are "inextricably linked". Nothing that the Board does will significantly affect the overall credit of the Province. The question to be considered is when Hydro becomes a negative factor in rating the Province's credit.

2. That a 10% margin is sufficient to deal with contingencies, including forecasting error.

3. That Hydro has had a good performance in attaining interest coverages relative to other publically-owned utilities.

4. That the factors which affect the Province's credit rating have shown a relative improvement.

NLP's Submission on Interest Coverate Ratio

In reply to FOM's submission NLP stated that Hydro's test year for the proposed rates is 1984 and the evidence was directed accordingly. The rates proposed for 1984 lead to reduced margins and coverages in 1983. This recommendation would not benefit NLP's customers and NLP asks the Board to reject the submission of FOM.

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Hydro's Capital Costs

In its report to the Board Noseworthy stated that:

> Noseworthy has reviewed the internal audit reports of Hydro for 1981 and 1982 and noted four reports which, in its opinion, indicate that: (a) funds have been expended when not required under the contract and (b) there have been serious deficiencies in the pre-planning and cost estimates.

These reports covered the followimg projects.

(1) Holyrood Project Stage II

(2) Transmission Line Stoney Brook to Buchans

(3) Upper Salmon Project

(4) Interim Report on Cat Arm Development

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Noseworthy has reviewed the replies given to the Internal Audit Department of Hydro by management and has held discussions with management but has not been able to form an opinion on whether these pre-planning deficiencies and cost overruns from budget have actually resulted in Hydro incurring capital costs which would not have been incurred if proper planning and budgeting had taken place.

Noseworthy said that it feels there is sufficient doubt cast upon the subject to warrant the Board to have a more indepth study made and recommended that in order for the Board to determine if costs of interest and depreciation are higher than they should be, that Hydro be required to advise the Board:

1. The amount of overexpenditure on capital projects in the past five years with reasons for such overexpenditures, and

2. If any of the overexpenditures are as a result of inadequate planning supervision and management, what measures have been taken to avoid a reoccurrence.

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In response Hydro filed with the Board a report on major capital projects from 1976 to 1985 which included replies to the specific items referred to by Noseworthy. This report was made available to the intervenors. Noseworthy's comments and Hydro's replies are as follows:

Upper Salmon Project

Payment of Progress Billings

Noseworthy's Comment

Direct cost escalation resulted from payment to three contractors for progress billings earlier than allowed for in the contract which resulted in additional interest costs of $278,025 from the first billing to November 30, 1981.

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Hydro's Response

The section relating to the payment of progress billings in Hydro's specifications is intended to convey to the potential supplier or contractor that Hydro will pay acceptable invoices promptly. Assurance to this effect, followed up by performance, contributes towards a good climate for obtaining the best possible prices at time of bidding and the best performance during the contract life. Prior to 1982 and during the time when the major contracts for Upper Salmon were let, the wording of this section read

> "payment shall be due and payable within thirty-five (35) days following receipt of an acceptable billing by Manager.....".

In the case of two contractors (three contracts), payments were made earlier than the latest date provided for in the contract but clearly not earlier than permitted by the Contract. This discretion was exercised by Hydro for the following reasons.

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The major contractors on the Upper Salmon project tendered the work at a time when interest rates were in the 11 to 12% range. Shortly after commencing the work, interest rates increased substantially and eventually reached levels in excess of 20%. This created cash flow problems for these contractors and impacted on their subcontractors and suppliers, and hence, on the overall momentum of the project.

The situation generated repeated requests for payment of invoices by Hydro as soon as they were considered acceptable for payment. In the interest of relieving, in part, this unexpected burden on the contractors, the requests were met. Such payments were considered a prudent step to ensure the contractors' performance was maintained and the work continued uninterrupted, since a failure to perform would have resulted in even greater costs to Hydro.

The amount of $278,025 does not represent additional interest costs to Hydro. This figure was a number developed by Hydro to illustrate the effect of "earlier than latest date" payments. It assumed the "from time to time" bank prime rate. The actual additional interest

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costs for Hydro as a result of payments before the latest date would have to be calculated using Hydro's average interest rates which were lower. The resultant amount is $193,000.

The comment made by Noseworthy that the payments made for progress billings resulted in additional interest costs assumes that all payments should have been made on the last allowable date rather than when the work was completed and a suitable invoice has been received and verified by Hydro and its Manager. Since payments were made within the terms of the contract and in accordance with prudent commercial practice, the time of payment did not necessarily result in higher costs to Hydro.

Policy Revision

In 1982 with interest rates at a much higher level, an assessment of the effect of this practice was made. It was the judgement of Hydro at that time that the cost of payments made earlier than the latest date permissible in the contract, if continued as a regular practice, could possibly outweigh the obvious advantages

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associated with maintaining a good construction environment. A new policy was issued in September 1982, which stated that all future contract billings would be paid on the latest date stated in the contract (35th day) and that all future contracts would omit the word "within" and substitute 30 for 35 days. Recognizing that in certain circumstances the earlier payments of billings might still be necessary, provision was included in the policy to allow such action with the joint approvals of the responsible Vice President and the Vice President of Finance and Administration.

Release of Surety Deposit

Noseworthy's Comments

Direct cost escalation resulted from the release of a surety deposit in the amount of $268,165 because the contractor experienced financial difficulties when the contract was 56% completed. He subsequently went into receivership/bankruptcy and could not complete the contract.

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Hydro's Response

During the early performance of the contract for the access road to the Upper Salmon project, the contractor encountered abnormally inclement weather conditions which adversely affected his progress. In certain instances, due to heavy rains, sections of the road had to be rebuilt at his expense. These conditions imposed unexpected financial burdens on the contractor and, in June, 1980, he indicated that he had immediate cash flow problems and requested release of the surety deposit in the amount of $268,165 to help alleviate this situation.

At the time, progress to date was deemed satisfactory, given the weather conditions that the contractor experienced; indeed he had completed 90% of the road to the powerhouse and the construction camp sites, representing 56% of the total access road requirements. The section of completed road represented the most difficult portion of the contract and progress on the remainder was expected to be such that the schedule would be achieved.

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More importantly, the completion of the access road to the construction camp site, powerhouse and power canal sites, prior to the 1980/81 winter, was essential for, (i) the mobilization of the major civil contractors, and, (ii) the protection of the project's in-service date of December, 1982. By this time, contracts aggregating $21.2 million had already been awarded and assurance had been given to these contractors that access to their respective work areas would be available as planned and as outlined in their contractual documents. A default by Hydro in this regard could seriously impact on the overall schedule and cost of the project.

As a further caution, Hydro instructed legal counsel to conduct a search to ascertain whether any liens had been filed against the contractor. This search disclosed that no liens had been filed. Hydro then initiated a credit check on the contractors' financial position which failed to highlight any immediate problem. Therefore, to protect the overall project schedule and to mitigate against increased project costs, the decision was made to release the surety deposit on July 7, 1980.

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Despite Hydro's action, the contractor went into receivership and ceased all activity on the road construction. It then became essential to implement a plan of action to protect the project schedule. Tenders were called with dispatch for the completion of the road to the powerhouse and power canal sites and che contract was awarded to the lowest bidder in the amount of $803,251. The access road to the North Salmon Dam (18.5 km) was included with the tender for the construction of the North Salmon Dam and diversion channels. The projected cost of completing the access road, had the original contractor continued, is estimated to be $3,009,000, whereas, the actual cost of the facility due to the engagement of two additional contractors was $3,699,811. The additional cost of $690,811 was incurred as a direct result of the bankruptcy of the original contractor; indeed despite Hydro's attempt to avoid it. This cost was beyond the control of Hydro.

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It was recognized at the time of releasing the surety deposit that risks were involved in making such a decision and if the contractor did default on his contract it would result in an additional cost of $268,165 to the Upper Salmon project.

Policy Revision

In order to permit local contractors the opportunity to participate in Hydro projects, Hydro had adopted the practice of sometimes accepting surety deposits in lieu of bid bonds.

As a result of this experience, Hydro now requires performance bonding for all contracts in excess of $50,000.00.

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Reservoir Clearing

Noseworthy's Comments

A deficiency in pre-planning resulted in a tender called for the clearing of 36 hectares when the actual clearing amounted to 98.06 hectares.

Hydro's Response

During the preparation and issuance of the tender documents for the reservoir clearing in the Crooked Lake area, the quantity of hectares to be cleared was incorrectly stated to be 36. This arose when the area to be cleared was redefined just before tendering and although the drawing accompanying the tender document indicated a larger area, closer to 98 hectares, the quantity stated in the schedule of prices was not changed through oversight. The tender document required the contractors to bid a unit price per hectare which they did. The actual area cleared was 98.06 hectares and payment was

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made on the basis of actual units of work performed and at the bid price. One might speculate that the unit price tendered might have been too high,if in fact the contractor had prepared his bid on the basis of the 36 hectares. However, examination of this unit price indicated it was not high, since it wasn't out of line with other bids Hydro had received on the same project for clearing areas in the 100 hectare range.

It can be reasonably concluded therefore that there was no additional cost to the project as a result of this oversight.

230 KV Transmission Line

Grand Falls to Buchans

Noseworthy's Comments

Deficiencies in pre-planning resulted in a cost overrun on poles as a result of design faults, survey inaccuracies, inferior quality of poles and inadequate construction practices.

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This statement refers to the 230 KV transmission line # 232 between the Stoney Brook and Buchans substations that was built during 1979 and 1980 at a capital cost of $7.0 million.

Hydro's Response

Design

The transmission line was designed utilizing Class 4 poles for the majority of structures. The design conformed with standard industry practice respecting the basic parameters but insufficient emphasis was placed on eccentric vertical loadings caused by the weight of the cross arms, insulators and conductors. Following construction of the line, it was observed that pole top deflections, resulting from these forces, which had not been a problem in the past, was in excess of what Hydro could accept. When the problem became evident, remedial action was taken to ensure the integrity of the line at a cost of $440,000.

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Subsequent investigation and testing of similar structures revealed that, had Hydro used a stronger class of pole at an additional cost of $160,000, the problem would not have occurred. The design deficiency increased the capital cost of the transmission line by $280,000.

The experience has contributed to a greater awareness of the importance of pole top deflection calculations in finalizing design criteria. Hydro are also, as a result of the tests conducted, insisting on Class 2 poles or stronger for such applications.and in fact, Class 2 poles were used on the recently completed 230 KV transmission line between Holyrood and St. John's.

Survey Inaccuracies

Survey shortcomings are not uncommon to encounter when a transmission engineer commences structure plotting and locating in the field. An experienced transmission man can minimize the impact of these deficiencies by making judicious changes when field conditions are obviously different from those which the survey indicated.

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On this transmission line, there were more instances of deficiencies than Hydro has experienced on previous lines. The post appraisal of the situation indicated that during 1980, Hydro was engaged in an abnormally high level of work load in its construction program. The deployment of staff was such that the survey, structure locating and inspection of this line did not receive their proper share of attention.

A renewed emphasis has been placed on effective co-ordination of the design and construction divisions, particularly to ensure quality engineering in the survey and line profiling of the transmission lines and in right-of-way inspection to confirm survey data prior to locating structures. Hydro has also upgraded its requirements for field inspectors with an emphasis on experience.

It is difficult to quantify the cost of correcting these deficiencies but it is estimated that the cost was $100,000.

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Substandard Poles

Hydro did encounter a quantity of poles in the shipment from the supplier that were rejected as being substandard; and claims were registered and an amount of $78,200 was recovered from the supplier. This amount fully compensated Hydro for the replacement of the substandard materials and costs associated with the use of them. Consequently, there was no additional cost to the project because of this occurence. However Hydro has increased its quality assurance program including the inspection of materials before shipment from the suppliers plant. Qualified inspection services are engaged for this purpose.

Construction Practices

The deficiencies which arose during the construction of the line were basically design imposed. Commentary has already been given on the reduced level of attention the line received during construction and the attributable costs. Hydro is unaware of any other inadequate construction practices of this project.

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Grand Falls to Buchans

Conductor Estimate

Noseworthy's Comment

Deficiencies in cost estimating resulted in a cost overrun on conductors as a result of the budget being prepared based on outdated quotations.

Hydro's Response

The estimate for the conductor was prepared in July, 1979 based on an estimating price received from a supplier in January, 1979 and amounted to $1.195,000. The conductor was tendered in September and the lowest bid received was $1.410,000. In addition, the suppliers would no longer quote firm prices because of the fluctuations that were taking place in world prices for base metals. Instead, the bids were subject

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to escalation based on the suppliers' cost of purchases of aluminum and steel rod. Between the time of tendering and when final delivery of the conductor to the job site was made, several price increases occurred as a result of the escalation clause and some adjustments in final quantities. These cost increases formed part of the supplier's tender, were unavoidable and resulted in the final cost of conductor being $1,646,000.

The underestimate made at the time of preparing the budget, was the result of insufficient recognition of the rapid escalation that was prevalent at the time. It did not contribute to any additional costs. Nevertheless, Hydro is conscious of ensuring that current prices are solicited from suppliers and used at the time of budget preparation. Due attention is also being paid to the forecast of escalation from the time of budget preparation to the receipt of materials.

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Cat Arm Project

Permanent Access Road

Noseworthy's Comment

Deficiencies in pre-planning and cost estimating resulted in the budget for the Cat Arm permanent access road to the Cat Arm site being developed from aerial photography and topographical maps. The actual cost to July, 1982 was $27,443,100, compared to the tender price of $11.977,710.

Hydro's Response

The contract for the construction of the Cat Arm access road was tendered in May, 1981 and was awarded to the lowest bidder for $11,977,710 in June. The contract award on the road was based on "unit prices" which were then applied to the actual quantity of material removed as is normal for all such work in the construction industry. The schedule provided for completion of the road to the powerhouse and Cat Arm dam sites by early December, 1981 and June, 1982 respectively.

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In preparing quantities for the tender documents, Hydro's engineering consultants relied on the interpretation of aerial photographs and topographic mapping. The rock quantities actually encountered during construction were substantially higher than those indicated in the tender documents. The tender document estimated rock quantities for the entire road to be 840,000 cubic meters. However, by December 1981, the contractor had already excavated 700,000 cubic meters of rock, some 83% of the amount originally estimated for the entire contract. Subsequent experience has shown that the total quantity of rock required to be excavated was 1.4 million cubic meters.

One of the reasons that the rock quantities proved to be underestimated was that a complete ground survey was not conducted on the road prior to issuing the tender documents. This was a decision made in the Fall of 1980 due to the high cost of the survey and due to the significant uncertanties respecting whether or not construction would actually begin on Cat Arm in 1981. In fact, during the Fall of 1980, Hydro's

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efforts were being concentrated on proceeding with a Labrador interconnection to avoid a further generation source on the Island. At that time there was renewed optimism respecting the Lower Churchill since project recommendations had been received by both the Government of Canada and the Government of Newfoundland in June of 1980. In addition, the environmental acceptability of the Cat Arm Project was still not proven. The decision not to proceed with a survey must be put in the perspective of spending $350,000 to finalize a survey of a road associated with the project which was not environmentally approved and which was a sub-optimal alternative to Lower Churchill.

The substantial increase in quantities in the difficult terrain sharply reduced the contractor's rate of progress and it became apparent that the work could not be completed within the original schedule which contemplated a shutdown during the winter months.

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The completion of the road was on the critical path in the overall project schedule. It was essential to provide access for the major civil contractors to the remainder of the work sites. Therefore, every action had to be taken to ensure its earliest completion. It was evident that work would have to be continued during the Winter at much higher cost and this was arranged under the force account provisions of the contract. During the winter period, the contractor excavated a further 340,000 cubic meters of rock.

Hydro determined that the road contractor may not have had the financial capability to carry out the remainder of the road at the bid unit prices. In view of the significant difference in the quantities now estimated, Hydro felt obligated to re-tender the inland portion of the road rather than to press the contractor to do work under conditions that might force him into insolvency, considering that Hydro's underestimate of rock quantities would have been a contributing factor and there would have been a further loss of schedule.

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The remaining section of the road, which was the inland portion was removed from the existing contract and re-tendered. The tender was called in April, 1982 and a contract was awarded on May 14, 1982, to the lowest bidder, who subsequently excavated approximately 380,000 cubic meters of rock.

The final cost of both the coastal and inland sections of the access road is currently forecast to be $27.1 million, excluding any impact from claims by contractors. This includes $9.2 million for the work to the end of December, 1981, $8.4 million for the winter work and $9.4 million for the inland road. The increased cost is attributable to increased quantities, a very difficult construction environment and a sharply reduced rate of progress, necessitating working through the Winter of 1981/1982.

In summary, Hydro underestimated the rock quantities and this substantial variance meant that, (i) unit prices quoted by the original contractor could no longer be relied on for the entire

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road and, (ii) the project schedule was detrimentally affected. As a result work had to be carried out through the winter and the inland road was re-tendered.

In December, 1981, Hydro outlined to the public the revised cost of the road and the reason for its decision based on the situations it faced.

In retrospect, a ground survey of the road route would have provided more accurate information for developing the contract quantities and capital cost estimate. It is difficult to quantify whether or not this additional information would have resulted in unit prices different from those which were actually incurred, although it cannot be argued with certainty that some cost reduction might not have occurred.

Access was completed to the Cat Arm dam in early October, 1982 enabling the contractor for the dam to mobilize his forces and begin work on the diversion of the Cat Arm river; the first requirement being the construction of a large rock tunnel 7.8 meters high and 235 meters long. The meeting of this critical date meant that the project was on schedule for an on-power date of June, 1985.

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Construction Camp Services and 69 KV Transmission Line

Noseworthy's Comment

Deficiencies in pre-planning and cost estimating resulted in the construction camp services contract and the 69 KV transmission line at Cat Arm costing significantl# more than budgeted because of insufficient and inaccurate information when tendering commenced.

Hydro's Response

Construction Camp Services

This contract was for the preparation of the 850 person construction camp site. Hydro carried out a ground survey of the site including a test pitting program and determined the plan for development and the quantities to be tendered. The work was tendered in August, 1981 and awarded in late September.

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Completion of the work was scheduled for the end of the year with final clean-up and demobilization in January. This schedule was developed on the basis that satisfactory road access to the site from Jackson's Armwould be achieved by the end of October.

Despite the results of the preliminary work actual subsurface conditions encountered resulted in a much higher rock profile than anticipated. This became evident after the site was cleared of the timer and stripped of the surface material. The identification of these extremely uneven and rocky conditions required a change in the original plan and the site had to be constructed with rock fill from quarry. It would not have been practical for Hydro to obtain more pre-tender information than it already had. The quantities of materials moved and the changes in scope would have taken place whether or not more information was available and therefore did not have an impact on the final capital cost.

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Due to the poor progress being made on the main coastal road, the contractor did not obtain this access until December 18, 1981 and in the interim period, he was required to mobilize for the work through Little Coney Armwhich was only accessible by water. The late access also meant that the contractor would have to carry out most of the work during the winter months at an additional cost of $780,000. This is a good example of the type of "Domino" effect that can influence interdependent contracts for a major project being constructed on a tight schedule. If the first contract falters, the other contracts following are affected and steps must be taken to gain back the schedule by a concentrated effort on the balance of the work.

69 KV Transmission Line

This 69 KV transmission line from Jackson's Arm to Little Coney Arm was required to supply construction power to the project site and ultimately to be integrated into the operational mode for the generating station. Before its construction, power was being supplied by diesel generation sets.