CANADA

National Energy Board

Reasons for Decision

Hydro-Québec

EH-3-89

August 1990

Exports of Electricity

National Energy Board

Reasons for Decision

In the Matter of

Hydro-Québec

For Exports to the Vermont Joint Owners and New York Power Authority

EH-3-89

August 1990

Cat. No. NE 22-1/1990-8
ISBN 0-662-57812-0

This report is published separately in both official languages.

Copies are available on request from:
Regulatory Support Office
National Energy Board
473 Albert Street
Ottawa, Canada
K1A 0E5
(613) 998-7204

Printed in Canada

Nº du cat. NE 22-1/1990-8
ISBN 0-662-57812-0

Ce rapport est publié séparément dans les deux langues officielles.

Exemplaires disponibles auprès du:
Bureau du soutien de la réglementation
Office national de l'énergie
473, rue Albert
Ottawa (Canada)
K1A 0E5
(613) 998-7204

Imprimé au Canada

Table of Contents

List of Appendices

Abbreviations

Units of measurement

kV	kilovolt	(1 000 volts)
MW	megawatt	(1 000 kilowatts)
kW.h	kilowatt hour	(1 000 watt hours)
GW.h	gigawatt hour	(1 000 000 kW.h)
TW.h	terawatt hour	(1 000 GW.h)
$	Canadian current dollar	(unless otherwise specified)

Names

Coalition	James Bay Defense Coalition
James Bay Agreement	The James Bay and Northern Québec Agreement
EARP Guidelines Order	Environmental Assessment and Review Process Guidelines Order
Applicant	Hydro-Québec
Grand Council	Grand Council of the Crees (of Québec) and Cree Regional Authority
Act	*National Energy Board Act*
MoCreebec	MoCreebec and R. Kapashesit
NBR	Nottaway-Broadbock-Rupert Project
New England Coalition	New England Coalition for Energy Efficiency and the Environment
NPCC	Northeast Power Coordinating Council
NYPA	New York Power Authority
Board	National Energy Board
NEB	National Energy Board
VJO	Vermont Joint Owners

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* and the Regulations made thereunder; and

IN THE MATTER OF applications by Hydro-Québec for licences to export electricity to the Vermont Joint Owners and New York Power Authority, pursuant to part VI of the *National Energy Board Act*, filed with the Board under file No. 1923-Q1-18.

HEARD at Montréal, Québec on 19, 20, 21, 22, 23, 26, 27 and 28 February, and 1 March 1990 and at Ottawa, Ontario on 5 March 1990.

BEFORE:

J.-G. Fredette	Presiding Member
A.B. Gilmour	Member
C. Bélanger	Member

APPEARANCES:

B.A. Roy, c.r. J.G. Betrand	Hydro-Québec
S.H. Lockwood	FSC Resources Limited
R. Mainville	Grand Council of the Crees (of Québec) and Cree Regional Authority
J.F. Turmel	Groupe Au Courante
W. Lea, Q.C.	Maritime Electric Company, Limited
R. Kapashesit	MoCreebec and Randy Kapashesit
J. Higgins	New England Coalition for Energy Efficiency & the Environment
L.G. Keough	New England Power Pool
J. Prior	Ontario Hydro
R. Mongeau	Dennis Paradis
J. Robitaille	Attorney General of Québec
J. Wollock	The James Bay Defense Coalition
F.J. Morel S. Courtemanche Scott	National Energy Board

Chapter 1
Preamble

In July 1989, Hydro-Québec (the Applicant) submitted two applications to the National Energy Board (the Board) for authorizations to allow the export of electricity to Vermont Joint Owners (VJO) and to New York Power Authority (NYPA) respectively. Hydro-Québec submitted its applications in compliance with the *Canadian Electricity Policy*, announced in September 1988, and with the Board's Memorandum of Guidance, published in December 1988, which advised parties of immediate changes to the information[1] required to be provided to the Board in support of export and international power line applications.

At the time that Hydro-Québec's applications were submitted, section 118 of the *National Energy Board Act* (the Act) required the Board, in examining an application for an export licence, to have regard to all considerations that appeared to it to be relevant. Without limiting the generality of the foregoing, the Board was required to satisfy itself that the power to be exported was surplus to reasonably foreseeable requirements for use in Canada and that the price to be charged by the applicant was just and reasonable in relation to the public interest. Since that time, the provisions of section 118 have been modified by the coming into force, on 1 June 1990 of Bill C-23 (*an Act to Amend the National Energy Board Act and to repeal certain enactments in consequence thereof*). These modifications, which implement fully the September 1988 *Canadian Electricity Policy*, were passed by the House of Commons in December 1989. (Procedures in respect of electricity export applications under the amended *National Energy Board Act* (the *Amended Act*) are described in Appendix II.)

In their respective final arguments, the Applicant and the Grand Council of the Crees (of Quebec) and Cree Regional Authority (the Grand Council) submitted to the Board their views on the effect of the coming into force of the provisions of Bill C-23 amending the *NEB Act* during the proceedings, before the Board had ruled on Hydro-Québec's licence applications.

Hydro-Québec argued that the general rule of statutory interpretation is that all legislation produces its effects from the moment it comes into force and that Bill C-23's operational provisions must be given immediate effect as soon as it is sanctioned.

The Grand Council, for its part, while also raising the principle of the non-retroactivity of legislation, argued that repealing the provisions of section 118 of the *NEB Act* with respect to the export of electricity would in no way affect the application of the principles of section 118 to Hydro-Québec's licence applications. On the basis of abundant case law and doctrine on the interpretation of legislation, the Grand Council maintained that Bill C-23's coming into force would in no way affect pending law suits or legal actions, nor would it revoke vested rights, and that section 118 of the *NEB Act* as it stood before Bill C-23 came into force, and the provisions of paragraphs 6(2)(w) and 6(2)(z) of the National Energy Board (Part VI) Regulations should therefore continue to apply to Hydro-Québec's licence applications.

---

[1] Appendix I describes the information required to be furnished by an applicant to obtain an export licence pursuant to the Board's December 1988 Memorandum of Guidance.

The Board shares the opinion of parties with respect to the application of the principle of non-retroactivity of legislation to Bill C-23, and can only say that none of the provisions of the bill which apply to the export of electricity constitutes an express exception to this principle. The Board also believes that the provisions of Bill C-23 must begin producing their effects from the moment the bill came into force, on 1 June 1990, in accordance with the general principle of the immediate effect of legislation.

The substantive provisions of Bill C-23 dealing with electricity are essentially aimed at modifying the criteria which the Board must consider when authorizing exports, and the scope of the Board's jurisdiction in certain cases. Other provisions modify the procedure relating to applications for licences to export electricity. None of the provisions of the bill deals with the manner in which the Board should handle pending applications, nor do they suspend the immediate effect of the amendments to section 118 of the *NEB Act* or to any other rules previously applicable to the export of electricity.

The Board believes that procedural amendments should have an immediate effect, but that the immediate application of substantive amendments should not affect vested rights, obligations acquired or responsibilities incurred before these amendments came into force. Nonetheless, the Applicant is still required to obtain the Board's authorization to export electricity; it is only the criteria that the Board must consider in deciding whether to authorize this export which have been modified by Bill C-23.

The Applicant argued for the immediate application of Bill C-23 once it came into force, and did not demand that any rights or advantages it acquired before the bill came into force be maintained.

The amendments made to the *NEB Act* as a result of the bill did not in any way affect the right of the interested parties involved in the case to intervene, to give evidence of the interests or claims as they deem appropriate, or to object to Hydro-Québec's applications. The rights or advantages vested in them before the coming into force of Bill C-23 will in no way be affected, and the Board must therefore reject the Grand Council's arguments in favour of suspending the effects of the amendments contained in the bill and continuing the application of former section 118 of the *NEB Act*.

With respect to the public hearing procedure initiated by the Board, under the terms of the Act, prior to the coming into force of Bill C-23, the Board believes that it is compatible with the new provisions.

The new section 119.06 of the *NEB Act* allows the Board to make a recommendation to the Minister to the effect that the Governor in Council make an order specifying that an application for an authorization to export be subject to public hearings, pursuant to section 24 of the *NEB Act*.

In order to determine whether it should recommend that the Minister seek such an order, the Board is required, under section 119.06, to consider, among other things, the effects of the exportation on the environment.

The applications submitted by Hydro-Québec's were the subject of a public hearing. The Board therefore believes that the procedure initiated before the coming into force of the recent amendments to the Act is compatible with the new provisions of Bill C-23, and that it complies with the new rules applicable to the export of electricity.

Lastly, since the current applications have already been subject to the licence issuance procedure, including the aforementioned public hearing, the Board has all the information required under the amended Act.[1] Moreover, it also has evidence regarding surplus and price which was required under the provisions of the former section 118 of the Act. Consequently, if the amended Act is applied, only the removal of the provisions regarding surplus and price which the Board had to apply under section 118 of the Act could have an effect on the current applications.

[1] The requirements regarding the information to be provided under the amended Act were outlined in Appendix I of the Memorandum of Guidance to Interested Parties Concerning Full Implementation of the September 1988 *Canadian Electricity Policy*, which was published by the Board on 22 June 1990.

Chapter 2
The Applicant

The Applicant, Hydro-Québec, is a public utility producing and distributing electricity throughout Quebec. It was established in 1944 by an act of the legislature of the Province of Quebec and currently operates under the authority of the *Hydro-Québec Act (RSQ, Chapter H-5)*.

Hydro-Québec owns and operates an electric power system which serves nearly all the regions and localities of Quebec. Appendix III contains a map of the system's main features in 1989. The map also shows interconnections with systems outside the province.

At the end of 1989, the total generating capacity available on Hydro-Québec's system was 25 126 MW, subdivided as follows: 23 368 MW of hydraulic, 685 MW of nuclear and 1073 MW of thermal generation (see Appendix IV). In addition, the Applicant purchased, through contract, the majority of the output of the Churchill Falls generating station having a nominal capacity of 5428 MW.

In its 1989 Annual Report, Hydro-Québec reported that its sales of electricity to supply regular in-province loads rose by 6.5% over similar sales in 1988 (i.e., 127.6 TW.h compared to 119.8 TW.h). Because sales of surplus energy dropped dramatically by 96.5% comparing the same periods, the total amount of electricity sales in Québec in 1989 reached 127.9 TW.h or about 0.5% less than the 1988 figures. As for total sales outside Quebec, they decreased to 9.9 TW.h with 5.8 TW.h exported to the U.S. as compared to 16.9 TW.h and 11.9 TW.h respectively in the preceding year.

Interconnections between the Hydro-Québec system and neighbouring Canadian electric systems include, among others, the 735 kV transmission lines lining it to the Churchill Falls generating station in Labrador. There are also some 12 lines between Ontario and Quebec which link electrically isolated regions or generating stations. to each provincial system's network. The interconnections between these two provinces have a total transfer capacity of 1550 MW which can be used to its maximum extent only by reducing exports to New York State by 800 MW. There are two direct current ties between Quebec and New Brunswick, each of which has a nominal capacity of 350 MW. There are also several alternating current ties able to supply 350 MW of New Brunswick load through radial operation. The total power transfer capacity between the two provinces is therefore approximately 1050 MW.

Hydro-Québec's main interconnections with neighbouring American states are as follows:

- State of New York: a 120 KV double-circuit line owned by the Cedars Rapids Transmission Company Limited (a subsidiary of Hydro-Québec) and a 765 kV line. These interconnections have a potential transfer capacity of approximately 2675 MW, but receptions by that State are currently limited to 2495 MW.

- State of Vermont: two 120 kV lines, one with a transfer capacity of 100 MW between the Stanstead substation in Québec and the Border substation in Vermont, the other with a transfer capacity of 200 MW between the Bedford substation in Québec and the Highgate substation in Vermont.

- Other New England States: a ±450 kV direct current line -- Redisson-Nicolet-Des Cantons (Québec) - Sandy Pond (Massachusetts) -- with an initial usable capacity of 690 MW which will be upgraded to 2 000 MW in 1990.

- There are also some other international power lines fed by the Hydro-Québec system, but these are primarily low-voltage distribution circuits for border accommodation purposes.

Hydro-Québec holds 15 licences and 4 orders authorizing exports to the New England and New York markets.

Chapter 3
The Applications

In its applications to the National Energy Board dated 28 July 1989, Hydro-Québec requested all necessary authorizations which would permit the export of firm power and energy to two American utilities: Vermont Joint Owners and the New York Power Authority. Prior to making its request to the Board, Hydro-Québec had obtained all the necessary provincial authorizations in respect of these exports.

Vermont Joint Owners

The requested authorizations in this instance would allow exports of seven blocks of firm power and associated energy under terms of a contract signed on 4 December 1987 between Hydro-Québec and VJO. Each block would have different characteristics relative to the magnitude of power, from 19 MW to 200 MW, and the delivery period, from four years and 10 months to twenty-two years and four months. Delivery of the first block would commence on 1 May 1990[1] and terminate on 31 October 2012 while the delivery of the last block would start on 1 November 2000 and end on 31 October 2020. The requested authorizations would allow a total of 45() MW of power and 62 TW.h of energy to be exported.

The proposed exports to VJO would be delivered over the existing interconnections, namely the 120 kV between Bedford - Highgate line and the ±450 kV HVDC Radisson-Nicolet-Des Cantons-Sandy Pond interconnection.[2]

New York Power Authority

The requested authorizations would allow exports of two blocks of firm power and associated energy under terms of a contract signed 26 April 1989 between Hydro-Québec and NYPA. Each block consists of 500 MW to be delivered over a twenty-year period. Delivery of the first block starts 1 May 1995 and ends 30 April 2015, while the delivery of the second block commences and ends a year later. The requested authorizations would allow exports of 1 000 MW of power and 132 TW.h of energy.

The proposed exports to NYPA would be delivered over the existing Chateauguay-Massena 765 kV interconnection.

---

1 The Board, by letter dated 27 April 1990, authorized Hydro-Québec to export 57 MW of short-term firm power during the period from 1 May 1990 to 31 October 1990, in accordance with the term of the contract with VJO.

2 In order to take advantage of the flexibility provided in the contract with VJO in respect to the use of other transmission facilities Hydro-Québec has asked the Board to allow it to transmit the proposed exports over all of its international power lines, including those whose construction and operation would be authorized in the future by the Board.

Detailed information relative to the two contracts is provided in Appendices V and VI.

Chapter 4
The Applicant's Evidence

Hydro-Québec submitted its evidence in compliance with the new Canadian Electricity Policy announced in September 1988, and with the Board's Memorandum of Guidance, published in December 1988. Appendix I of this report provides details of the Board's information requirements to be furnished by Applicants for export authorizations.

With regard to the provisions relating to matters of surplus and the price of equivalent service in Canada, or the second price criterion, Hydro-Québec chose to adhere to the concept of "fair market access" and provided information designed to show that it followed the procedures set out in Annex 2 of the *Canadian Electricity Policy*.

4.1 Surplus

4.1.1 1989-1991 Development Plan Horizon 1998

Potential Energy Resources

Hydro-Québec's development plan is based on the premise that vast hydro-electric potential exists in Quebec. According to available studies, a portion of this potential amounting to 95 TW.h per annum and corresponding to about 18 000 MW is thought to be more economic than all other options taking into account all relevant factors including environmental, social and economic considerations.

An expert witness on policy stated that Hydro-Québec must develop this potential in order to meet the gradually increasing firm electricity loads in the province. He added that the utility is undertaking a major energy efficiency and economy program which will allow it to develop these resources in an efficient manner while maintaining the proper supply and demand balance.

Proposed Exports

As noted in Hydro-Québec's development plan, the proposed exports to VJO and NYPA form part of the long-term export objective coming within the scope of the energy development proposed by Hydro-Québec. To provide for the export of 3500 MW of firm power and energy and 800 MW of seasonal power by the year 2000 will require the advancement of the construction and putting into service of targeted facilities. This development strategy which encompasses the proposed exports has been reviewed and approved by the Québec government

Hydro-Québec has clearly shown that it must advance the in-service dates of several hydro-electric facilities (not only generation facilities but also several transmission lines) to deliver the total energy provided for under the terms of the two contracts with the exception of 3 TW.h to VJO. That is to say, Hydro-Québec must construct and place into service certain facilities earlier than otherwise required because of the two export contracts. However, none of the new generating stations is specifically allocated to supply the required power and energy under one or the other of the export contracts. Rather all the power and energy to be delivered will come from production by the integrated network and not from a particular station or stations.

Appendix VII provides a list of the new facilities required to meet the firm loads within and outside Quebec and the contracts with VJO and NYPA.

4.1.2 Supply and Demand of Electric Power and Energy

As part of its evidence, Hydro-Québec submitted monthly capacity and energy supply and demand balances over the duration of the two export proposals, that is, from May 1990 to October 2020.

The supply and demand estimates were based on the assumptions of the 1989-1991 Development Plan, which was published in March 1989 and updated in January 1990. The reference case used to prepare the development plan was based on an energy supply derived from average stream flows and an average 2.6 percent annual load growth rate for the firm electricity demand within Quebec over the period 1987-2006. The January 1990 update took into account all of the new circumstances in Québec, notably the temporary buy-back of the dual-energy programs and the installation of new aluminum plants in the 1990s.

Power

The power supply balance included estimates of the capacity available from Hydro-Québec network and firm purchases from Churchill Falls. The estimates of capacity were based on long term planning described in the development plan and on statistics in respect of Hydro-Québec's multi-annual storage reservoirs. In addition, the supply balance took account of the need for required generation reserves and of planned maintenance of generating facilities.

To ensure that supply and demand was in balance at all times, that is, to be able at all times to respond to the provincial requirements as well as honour its obligations under the terms of the firm contracts with purchasers outside Québec, Hydro-Québec has undertaken a certain number of measures to account for times when the peak demand is higher than forecast or when forced outages or unscheduled maintenance occur. These measures include the recall of certain amounts of interruptible power and of emergency or other power sources. Table a8-1 of Appendix VIII provides information on the annual capacity supply and demand for the period 1990-2020. This table shows that up to the year 2001, Hydro-Québec will have over 40 000 MW of generating capacity at the time of its integrated system peak load during the month of January. As for capacity surpluses, they will be generally small or zero and, in certain years even slightly negative. According to Hydro-Québec's witnesses, the annual supply and demand balance contains a generation reserve margin of about 4000 MW which is always available to meet deficits typically in the range of 30 MW. Thus, in their view, these forecast deficits are insignificant. Nevertheless, the same witnesses testified that in cases of emergency or capacity deficits, Hydro-Québec's could purchase amounts of power from neighbouring systems which are significantly greater than the quantities indicated in the supply balance. They stated that the information provided on the supply and demand balance represented a relatively conservative estimate of the capacity supply over the period 1990-2020.

Energy

Table a8-2 of Appendix VIII gives the annual energy supply and demand balance and shows that for the years 1990-2020 the major contribution to the energy production required to meet the loads both within and outside Québec, including the proposed commitments to VJO and NYPA, will come from hydraulic resources in Québec while the remaining production will come from the Gentilly 2 nuclear

power station and from Churchill Falls. The energy balance was based on average stream flow conditions. At the same time, Hydro-Québec, in its Development Plan, recognized that for the last five years the hydraulicity within its system and that of Churchill Falls has been below average. However, a witness stated that Hydro-Québec could withstand an additional four years of low water conditions based on the current reservoir levels and conservation measures it can take. In addition the utility has recourse to the thermal generation from the Tracy station, to purchases from neighbouring systems, and to other measures such as the recall of its commercial, industrial and institutional dual-energy programs. This last measure simultaneously reduces demand and increases supply thereby aiding in the filling of its reservoirs. For the year 1990, by using these measures and assuming average river flow conditions prevail, Hydro-Québec forecasts that the stored hydraulic energy will increase by about 28.3 TW.h. If lower than normal water conditions continue for several more years, Hydro-Québec could have recourse to all other measures at its disposal, but no decision has been made yet for these years.

4.2 Price

4.2.1 Export Price and Revenues

The export prices will be established under the terms of article IV of the contract with VJO and article VI of the contract with NYPA.

Hydro-Québec estimated that the revenues generated from the exports under the two contracts had a value of over 24 billion dollars. The estimates provided were based on the relevant economic parameters outlined in each of the contracts and corresponding with the economic assumptions used in the cost-benefit analysis of each contract. Appendix IX gives a breakdown of the expected exports quantities and revenues for the two contracts.

4.2.2 Canadian Costs

Hydro-Québec's testified that Canadian costs would result from the costs of advancing generation and transmission facilities which, in all instances, would be otherwise required to meet the growth in electricity demand in Québec and the opportunity costs associated with a small portion of the deliveries to VJO (i.e., 3 TW.h).

Hydro-Québec stressed that the cost-benefit analyses demonstrated that exports to VJO and NYPA would allow for the recovery of all private and social costs incurred in Canada. Nevertheless it declined to provide the Board with estimates of the advancement costs for facilities, stating that divulging such costs would seriously prejudice its current commercial negotiations with neighbouring systems.

4.2.3 Cost-Benefit Analyses

Hydro-Québec did not supply the Board with copies of the cost-benefit analyses for the advancement of facilities required to meet its obligations under the two contracts. Nevertheless it did provide information on the methodology, assumptions and the revenues used in the private and social cost-benefit analyses. It also underlined that the costs and benefits associated with the environmental impacts of the advancement of production facilities had been considered, including the funds necessary to compensate, if required, the economic losses resulting from impacts on forests, trapping regions or even agricultural lands.

The Applicant provided additional proof to demonstrate that the export price would allow recovery of the appropriate costs in Canada while maintaining the confidentiality of certain of its financial information. To that end, Hydro-Québec hired a chartered accountant whose mandate was to undertake verification of the accuracy of the assessment based on the following objectives:

- certification before the Board that costs used in the cost-benefit studies of the two proposed exports to VJO and NYPA conform with the normal cost criteria established by Hydro-Québec for all its development programs; and

- certification before the Board that the results obtained from the application of the methodology presented in the same report corroborate the stated conclusions, both as far as the private and social cost-benefit analyses are concerned.

Within the scope of its mandate, the consultant did not pass judgement on the operational or economic assumptions used in the calculations of the social benefits and costs.

In his testimony, the accountant stated the following conclusions:

a) the costs used in the cost-benefit studies of the proposed exports to VJO and NYPA conform with the normal criteria established by Hydro-Québec in its own development program, and

b) the results obtained from the application of the methodology used corroborate the information supplied in response to paragraph 6(2)(z) of the Board's Part VI Regulations, namely that:

- the private cost-benefit analyses showed that the revenues generated from sales under the terms of the two contracts provided profits that at least met Hydro-Québec's internal rate of return of 13 percent. For the case of the VJO contract, the study was based on the contract as a whole and on each of the seven blocks of power and energy separately while the NYPA contract was assessed on the basis of the contract as a whole.

- the social cost-benefit analyses showed that the net social benefits remained positive at real social discount rates of 6, 8 and 10 percent.

4.3 Fair Market Access to Electricity Proposed for Export

Hydro-Québec adhered to the concept of fair market access to the electricity proposed for export.

1. According to Hydro-Québec, all interconnected Canadian utilities were made aware of its proposals on the basis of the continual communication between utilities in addition to the coordination and information sessions among the different operating committees. Moreover every year, all the utilities receive a copy of Hydro-Québec's Development Plan.

2. (a) For the case of the VJO contract, Hydro-Québec used the offer mechanism. In its letter of 15 July 1988 to NB Power, Cornwall Electric, Ontario Hydro and Churchill Falls (Labrador) Corporation Limited, Hydro-Québec offered the power and energy proposed to be exported under the contract. A copy of the contract was enclosed with each letter.

(b) In the case of the NYPA contract, Hydro-Québec forwarded to each of the above-mentioned utilities, on 31 May 1989, a copy of the contract signed on 26 April 1989.

3. Finally a copy of each application was provided to each utility at the same time that the applications were presented to the Board.

None of the utilities expressed an interest in either one or the other contract nor their intention to negotiate similar contracts.

4.4 Export markets

Vermont Joint Owners

VJO is a group of nine corporations which are joint owners of the facilities at the Highgate station in Vermont and are also members of NEPOOL. These corporations provide over 90 percent of the electricity supply in the State of Vermont. One of the corporation also serves 9100 customers in the State of New Hampshire. Each one is a participant in the contract.

New York Power Authority

NYPA is a state agency created in 1931 to provide electricity at the best possible price for consumers in the State of New York. It sells electricity to industries, a number of authorized public agencies and other utilities in the State of New York. To this end, it constructs, owns and operates electrical generating and transmission equipment, and purchases energy from outside the State. NYPA will resell the electricity purchased pursuant to the contract with Hydro-Québec to Consolidated Edison Company of New York Inc. (CONED), Long Island Lighting Company (LILCO), Orange and Rockland Utilities Inc. as well as to its own customers located in the south-eastern part of the State of New York.

CONED supplies electricity to 2.9 million customers, natural gas to 1 million customers and steam to 2000 customers, all located in New York city or in Weschester county.

LILCO supplies electricity to over 900 000 customers and natural gas to over 400 000 customers located in the Nassau, Suffolk and Queens regions.

Orange and Rockland Utilities Inc. distributes electricity to 170 000 customers and gas to 100 000 customers in the Orange, Rockland and Sullivan regions.

NYPA is a member of the New York Power Pool, which includes seven other companies providing almost all the electricity in the State of New York.

4.5 System ReIiabIity

According to the evidence, the quantities of power requested for both export projects, 1450 MW, when added to the quantities already authorized will not exceed the 2200 MW limit established by the Northeast Power Coordinating Council (NPCC). However, Hydro-Québec expects that this limit will be lifted in 1994 upon termination of the transmission improvement program.

This improvement program will require adding equipment to meet new design and operating standards in order to maintain quality of service on the Québec markets while eliminating certain constraints imposed on the exchanges with other NPCC members. The associated costs will be allocated to both internal and external markets, consequently a just and reasonable share of that cost will be attributed to the two export projects.

4.6 Environmental Impacts

4.6.1 Provincial Approvals (Production/Transmission/End Use)

The Applicant filed a detailed schedule of completed and outstanding provincial approvals for each future production and transmission project contributing to the exports. The Applicant further indicated that approvals *required under section 22 of Environment Quality Act (RSQ 1977, c.Q-2)* would be obtained.

Additional information was submitted on the procedures and requirements of *The James Bay and Northern Québec Agreement (the James Bay Agreement*) regarding projects north of the 55th parallel, and projects between the 49th and 55th parallels. The Applicant also filed information on provincial environmental requirements in southern Québec outside the area governed by the *James Bay Agreement*, and included several environmental assessment reports for projects in the north and south of Québec. These reports had been previously submitted in compliance with provincial environmental reporting requirements.

4.6.2 Environmental Effects of the Exports (Incremental/Advancement)

In submitting its evidence on the potential environmental effects of the proposed exports, the Applicant stated that the operation of its facilities to supply the exports would have only negligible incremental effects on the environment. In addition, the Applicant submitted that there would be no additional environmental effects associated with the early installation of future facilities to accommodate the exports.

The Applicant's information on environmental effects was supplemented with documentation on its own environmental protection policies and procedures.

Incremental Environmental Effects (Production)

The Applicant's assessment of incremental environmental effects was based on its design criteria for reservoirs. The Applicant stated that its reservoirs are designed to standards which dictate that water level fluctuations be kept within certain predetermined minimum and maximum levels. The quantity of energy available for export is only calculated once the reservoir itself has been designed. Thus, the reservoir levels are kept between the pre-established design parameters with or without the exportation of energy.

With respect to existing reservoirs, the Applicant submitted that any potential adverse impact associated with the proposed exports would be insignificant. The Applicant stated that the operating regime for existing reservoirs would not change as a result of the exports. In effect, the cumulative level variation during the period 1990-1994 would be between 30 cm and 80 cm for certain drainage basins, or an annual average variation of 6 cm to 16 cm. The Applicant indicated that, in total, its

system had average annual level variations between 140 cm and 770 cm, and concluded that the average annual variation owing directly to the exports would only represent a small portion of the total average. Thus, the Applicant concluded that the exports would not result in any significant incremental environmental effects for existing reservoirs.

In terms of specific environmental problems which might arise within reservoirs, Hydro-Québec indicated that it was not possible to specifically isolate the effects owing to the exports. However, general information was provided on certain problems relating to reservoir operation. On the subject of mercury contamination, Hydro-Québec indicated that there was no known solution to this problem. It was known that mercury levels could be high even in natural lakes and that controlling fish consumption was the only solution which had been found to date. The Applicant also provided further information on the James Bay Mercury Committee.

The Applicant further stated that the proposed exports would not affect the operation of its thermal generating station Tracy. Hydro-Québec indicated that Tracy is used to help maintain appropriate water levels in its system's reservoirs and that the need to use Tracy would not be affected by the proposed exports. The Applicant also stated that low sulphur oil (1.5%) is used to fuel the plant and that its operations comply with provincial environmental standards under *the Quality of Atmosphere Regulation (RRQ 1981, c.Q-2, r.20*). Plant operations at Tracy are monitored to verity compliance with those standards.

Incremental Environmental Effects (Transmission)

With respect to existing transmission facilities, Hydro-Québec provided the required information on all the international power lines which would be used to carry the energy for export. The Applicant did not anticipate any significant incremental environmental effects in connection with the operation of its existing facilities.

Environmental Effects Owing to Advancement (Production/Transmission)

Hydro-Québec's assessment of the environmental effects directly related to the exports was also premised on the argument that the energy to be exported would be supplied over the long term from both existing and new production and transmission facilities. It was indicated that certain new facilities would have to be installed ahead of schedule, but that this early installation would not result in unmanageable construction schedules. The Applicant maintained that all the planned facilities would be required eventually to fulfil domestic energy requirements and that all of the projects would go through the required review procedures.

With the proposed exports to VJO and NYPA, the in-service dates of certain base-load facilities would be advanced an average of three years. Individually, there would be certain base-load facilities for which construction would have to be advanced by up to six years. Hydro-Québec also indicated that the installation dates of certain peaking facilities would have to be advanced by two years on average.

The Applicant considered that the only potential long term environmental effect of the exports was the impact of advancing the construction dates of the generation and transmission facilities. Its position was that changing the schedule of project installation by advancing construction dates did not, per se, have any effect on the environment. The Applicant therefore did not identify or quantify any potential for environmental effects associated with the advancement of facilities installation.

4.6.3 Federal Environmental Requirements (Production/Transmission/End Use)

The Applicant also provided evidence that the proposed exports would not contravene relevant federal environmental standards and guidelines. Information was submitted to compare federal and provincial environmental requirements and to specifically outline the federal statutes which were applicable to Hydro-Québec's operations.

The Applicant also described the way in which it incorporates environmental concerns into its project planning phase so that its projects comply with federal standards. In conclusion, the Applicant stated that its existing and future facilities required in support of the proposed exports would be dealt with in the same way, and would therefore comply with all applicable federal standards and guidelines.

4.6.4 Negative Effects Outside the Sponsoring Province (Production/Transmission/End Use)

The Applicant did not anticipate any adverse environmental effects occurring outside the Province of Québec as a result of the proposed exports, since all of its facilities are, and will be, located within the boundaries of the province itself.

The Applicant did note certain beneficial environmental effects with respect to the end use of the electricity in the United States. It was indicated that the hydro-electricity exported from Québec would be displacing fossil fuel-fired sources in both the States of New York and Vermont. Hydro-Québec showed that the displacement of thermal generation with hydro generation would result in a significant reduction of SO_2, CO_2 and NO_x emissions. The Applicant provided estimates on probable atmospheric emissions based on information it received from VJO and NYPA.

Chapter 5
Interventions

5.1 Ontario Hydro

Ontario Hydro did not oppose the application and stated that it had been provided with fair market access in respect of the proposed exports under the contracts with VJO and NYPA According to Ontario Hydro, it had been provided with sufficient information in respect of the export contracts to conclude that the prices were not attractive to it and, therefore, that it had no interest in these particular export sales.

This intervenor added that, so as long as Hydro-Québec continued to obtain such high prices on the export market, the onus should be on Ontario Hydro and other Canadian utilities to approach Hydro-Québec and enter into negotiations to purchase electricity at those prices. However, if ever Hydro-Québec would export at lower prices which would be acceptable to Canadian utilities, then Hydro-Québec would have an obligation to notify all of the potential Canadian buyers.

5.2 Attorney General of Québec

The Attorney General of Québec stated that Québec supported Hydro-Québec's applications which were in accordance with the requirements of the *National Energy Board* and the *Canadian Electricity Policy*. He also maintained that the Applicant had complied with the concept of fair market access to the electricity proposed for export and therefore had demonstrated that the power and energy to be exported were surplus to Canadian requirements and that the price was just and reasonable in relation to the public interest.

According to this intervenor, the cost estimates submitted by Hydro-Québec take into account all environmental costs. Moreover, the Applicant will comply with all applicable environmental laws and regulations.

He also submitted that the government of Québec has issued all the necessary orders in respect of each application presented by Hydro-Québec.

5.3 Grand Council of the Crees (of Québec)/Cree Regional Authority

The intervention of the Grand Council detailed numerous concerns with respect to environmental and socioeconomic issues.

On the subject of provincial authorizations, the Grand Council was of the view that Hydro-Québec had not followed the procedures set out in the *James Bay Agreement*. While it was true that numerous environmental studies had been carried out, the Grand Council stated that the studies had been undertaken before the applicable directives and terms of reference had been issued, and that this had the potential to lead to serious deficiencies in the data. The Grand Council further emphasized that the *James Bay Agreement* did not apply to new projects such as Grande Baleine, but only to projects in the La Grande System which had been previously agreed to by the parties. For this reason the Grand Council believed that Hydro-Québec would have to obtain additional approvals prior to undertaking

any new projects in northern Québec. With respect to the environmental effects of the proposed exports, the Grand Council argued that there was a potential for significant adverse environmental impacts. This position was supported with information on the potential consequences directly linked to the exports and on the question of the advancement of construction.

The Grand Council identified several potential incremental environmental effects which could be linked directly to the exports. It was indicated that the proposed contracts could cause Hydro-Québec to increase its reliance on fossil fuel-fired generation and that Hydro-Québec had not undertaken an environmental assessment of this question.

The Grand Council further indicated that the operation of reservoir systems to supply firm energy demand, such as that contemplated for the export contracts, typically results in water level fluctuations which adversely affect fish and fish habitat.

Specifically, the Grand Council maintained that supplying firm energy results in a general pattern of increased water drawdown during the fall season. The low water levels in turn affect the fall spawning of certain key fish species.

The Grand Council also stated that reservoir level fluctuations of as little as 100 cm could result in the flooding of an additional several hundred square kilometres of land, depending on the topography of the region.

Regarding the associated advancement of facilities, the Grand Council argued that it was the overall requirement for new facilities that most affected the Cree communities. The Grand Council was concerned that the changes to its territory arising from the proposed system expansion had the potential to seriously affect the lives and livelihood of the Cree people. The Grand Council maintained that the requirement for new facilities was directly influenced by the proposed exports.

It was the view of the Grand Council that the requirement for additional facilities in the future could be reduced by various factors, and that Hydro-Québec’s proposed advancement amounted to a "pre-building" of facilities to support the exports. Among the factors cited as having potential to reduce Québec’s energy demands were demand-side management and the development of energy-efficient technologies.

The Grand Council believed that with the implementation of demand-side management and energy-efficient technologies, Québec’s energy demands could be reduced, thereby eliminating the requirement for certain future facilities. Noting that the future requirement for additional facilities is determined from estimates, and contending that energy conservation has not been emphasized in the Province of Québec, the Grand Council indicated that the advancement of certain installations to supply the export contracts could result in facilities being built which would not have been needed for domestic use with the implementation of conservation practices and technologies.

The Grand Council also identified several potential effects that could be directly linked to the advancement of a system expansion. It was the Grand Council’s view that the accelerated installation schedule would not provide sufficient lead time for completing the necessary comprehensive environmental impact assessments and review procedures, or for designing mitigative social programs. The Grand Council further argued that compressed construction schedules could lead to complications

in conducting environmental surveillance and increased problems in responding to emergency situations.

The Grand Council indicated that the advancement could reduce scheduling flexibility with respect to reservoir commissioning thereby necessitating rapid filling of reservoirs. Further, in the case of the proposed Nottaway-Broadback-Rupert Project (NBR), it was argued that the proposed advancement could limit opportunities for the recovery of timber. The Grand Council also stated that rapid flooding of lands has been cited as a contributing factor in accelerating the mercury methylation phenomenon.

With respect to the proposed exports and the requirement to comply with federal environmental standards, the Grand Council maintained that Hydro-Québec had not complied with the information requirements of the *NEB Act* and Bill C-23. The Grand Council was of the view that Hydro-Québec had not submitted sufficient evidence regarding the environmental impacts of the exports and that the question of advancing facilities had not been adequately studied. In addition, the Grand Council maintained that Hydro-Québec had not submitted sufficient evidence to indicate that the proposed exports would comply with federal environmental requirements.

For these reasons, the Grand Council considered that Hydro-Québec's proposals should be referred for review pursuant to the provisions of the *Environmental Assessment and Review Process Guidelines Order (Guidelines Order*). The Grand Council further submitted that the proposed new facilities in northern Quebec were not covered by the existing *James Bay Agreement* since it was intended to apply only to the Phase I facilities on the LaGrande System.

On the subject of negative effects outside the sponsoring province, it was the Grand Council's view that there was a potential for adverse environmental effects outside of Québec. Specifically, the Grand Council argued that the alterations in the river systems included as part of Hydro-Québec's proposed system expansion could result in disturbances to the marine environment, which in turn could affect territorial waters. It was noted that the reservoirs proposed for Grande Baleine and NBR have the potential to alter the estuaries and water salinity of Manitounuk Sound and Rupert Bay.

In addition to the potential consequences for territorial waters, the Grand Council identified the displacement of demand-side management and conservation in the United States as another possible adverse effect of the exports. While it was Hydro-Québec's position that the proposed exports would result in a significant displacement of fossil fuel-fired generation, the Grand Council believed that, particularly in Vermont, the exports would in fact be displacing the implementation of demand-side management by supplying a large portion of the state's energy needs.

5.4 James Bay Defense Coalition

The James Bay Defense Coalition (Coalition) intervened to put forward the views of interested citizens in New York State. The Coalition was of the view that insufficient consideration had been given to lower cost alternatives to Hydro-Québec's energy and that the importation of the energy into the United States would in fact undercut the development of energy-efficient technologies. The Coalition was further of the view that Hydro-Québec's export contracts were an indispensable condition of the system expansion, and that the feasibility of the proposal had been assessed without adequate regard to environmental and social costs.

In providing background information on its views, the Coalition indicated that the Hydro-Québec contract with NYPA had been presented to the citizens of New York State as a clean alternative to fossil fuel and nuclear-fired generation. On the subject of adverse effects of the exports, the Coalition argued that Hydro-Québec's proposal had the potential to seriously affect native peoples and their traditional way of life. It was the Coalition's view that without the consent of affected native peoples, the proposed system expansion should not go ahead.

In concluding, the Coalition requested that the export licences for both the VJO and NYPA contracts be withheld pending the completion of a full environmental review and public hearings.

5.5 Groupe Au Courant

The Groupe Au Courant is an organization concerned with the orientation adopted by the government of Québec with respect to the provincial energy policy and hydro-electric development in particular. Its general objective is to promote the development and implementation of an energy policy centred on rational energy utilization and productivity. This intervenor considered that the public interest of both Quebecers and Canadians will be ill-served if the Board agrees to issue the authorizations requested by Hydro-Québec. According to this intervenor, Hydro-Québec had not demonstrated that the proposed export projects were in the public interest.

5.6 Mocreebec end R. Kapashesit

The intervention of MoCreebec and Mr. R. Kapashesit (MoCreebec) primarily addressed the interests of the MoCreebec people, who number approximately 800 individuals and who are the indigenous residents of the James Bay area in the Province of Ontario. MoCreebec indicated that Hydro-Québec's proposals for hydro-electric development in northern Québec had the potential to affect their traditional way of life. Specifically, there was concern that alterations to the land and water ecosystems resulting from the hydro-electric developments could adversely affect mammals and migratory birds, which in turn would damage the traditional economic base of the MoCreebec people. It was further indicated that the Applicant had not carried out the necessary cumulative environmental impact analyses in relation to its facilities' expansion.

MoCreebec requested that, in view of the potential for serious impacts on its people, the export licences for Hydro-Québec be denied.

5.7 New England Coalition for Energy Efficiency and the Environment

The New England Coalition for Energy Efficiency and the Environment (the New England Coalition) intervened to address questions associated with the environmental and social repercussions of the Hydro-Québec's proposal to export electricity to Vermont. The New England Coalition was concerned that the export contracts had a serious potential to adversely affect native communities and Canada's northern wilderness. The group also called for a moratorium on further system development by Hydro-Québec.

The New England Coalition concluded that the Hydro-Québec contracts would serve to promote energy wastage and that, instead, utilities and government regulators should work together to promote energy conservation.

5.8 Letters of Comment

The Board received approximately 50 letters of comment from individuals and groups in both Canada and the United States. The majority of letters dealt with environmental and socioeconomic issues relating to the exports and expressed opposition to Hydro-Québec's proposals. Parties were concerned about the potentially adverse environmental impacts which could result from Hydro-Québec's proposed expansion of its production and transmission system. Parties were also concerned about the potential consequences of such an expansion on native communities in northern Québec, particularly regarding the potential for impacts such as mercury poisoning in fish stocks, and the loss of local resource bases which could in turn affect traditional economic activities.

Chapter 6
Disposition

Introduction

At the time that the application was filed, section 118 of the *National Energy Board Act* required that the Board satisfy itself that the power to be exported was surplus to reasonably foreseeable Canadian requirements for use in Canada and that the price to be charged by the applicant was just and reasonable in the public interest. The coming into force of Bill C-23 on 1 June 1990 has removed these considerations as explicit criteria to which the Board is obliged to have regard under the new review procedures applicable to electricity export applications. Nonetheless, under the *Amended Act*, there is nothing to preclude the Board from having regard to such considerations, either in making a recommendation to the Governor in Council to designate a proposed export application for licensing procedures or in deciding whether to issue a licence.

In view of the fact that the application was filed prior to the removal of the surplus and price criteria from the Act by Bill C-23, these considerations have been afforded some importance in the Board's examination of the application.

Applications for Export

The Board has given careful consideration to all the evidence and submissions presented and has reached the following conclusions.

6.1 Export Price

In assessing whether the price to be charged by an applicant is just and reasonable in the public interest, the Board has used the following two criteria: (a) the export price should recover the applicable costs incurred in Canada and (b) the export price should not be less than the price for an equivalent service to Canadian customers.

The second price criterion mentioned above is discussed further in section 6.2.2 of this chapter under the general title of *Second Price Criterion*.

6.1.1 First Price Criterion

The Board has concluded that the applicable costs in Canada to supply the proposed exports include all marginal production costs as well as the opportunity cost for a small portion of the exports, 3 TW.h to VJO, to be produced from existing facilities and the advancement costs associated with the construction of facilities earlier than would otherwise be required to supply the Hydro-Québec requirements without the applied-for exports. Hydro-Québec maintained that divulging detailed cost information would seriously prejudice its ongoing negotiations for additional sales on the export market.

The Board notes that Hydro-Québec did provide information on the magnitude of the revenues expected to be generated by the proposed export sales and that these would be significant, totalling

more than $24 billion over the total period of the two export contracts. In addition, Hydro-Québec provided some details on the methodology used in carrying out its feasibility study as well as on the economic, financial and other relevant assumptions underlying that analysis. The Board has examined this information and finds that the methodology and assumptions described are reasonable. Specifically the Board notes that, for export projects, Hydro-Québec's corporate financial criteria require that the projects yield an internal rate of return of at least 13 percent. The fact that the provincial government has concurred with Hydro-Québec by approving the export contracts with VJO and NYPA suggests to the Board that the exports are projected to yield net benefits to Québec.

Although Hydro-Québec did not provide explicit evidence on costs, it contended that the export projects will recover all social costs (including expected environmental costs) and net benefits will remain positive at real social discount rates of 6, 8 or 10 percent. Intervenors raised concerns with regard to potential adverse environmental impacts outside of Québec but any specific costs that might be associated with such impacts were not identified. There were no other identified costs associated with effects outside of Québec, such as the possible negative effect of the exports on system reliability. Furthermore, none of the interconnected Canadian utilities indicated an interest in the electricity proposed to be exported, thereby suggesting that the export price is higher than their projected incremental cost of alternative sources of supply.

Finally, the Board is convinced that the parties to these contracts have negotiated at arm's length and under free market conditions. The Board thus has no reason to believe that there would not be net benefits accruing from the proposed exports.

On the basis of the evidence discussed above, the Board is persuaded that the export price will recover the applicable costs incurred in Canada.

6.2 Fair Market Access to the Electricity Proposed for Export

Hydro-Québec adhered to the concept of fair market access to demonstrate that the electricity proposed for export would be surplus to Canadian requirements and that the export price would comply with the second price criterion.

6.2.1 Surplus

It is clear from the evidence that there is a significant undeveloped hydro-electric potential in Québec which is considered by Hydro-Québec as the energy source of choice taking account of environmental, social and economic factors. Based on studies carried out by the Applicant, 18 000 MW of this potential could be now considered for development. Based on Hydro-Québec's past performance, the Board believes that the utility has the knowledge, experience and the ability to develop such of this potential as it feels is necessary to serve its own load and its firm commitments. The Board also notes that it is Hydro-Québec's publicly-stated policy, endorsed by the Québec government, to use this potential for economic development and, in particular, to develop some of this potential to serve up to 3500 MW of long term firm sales outside the province while continuing to meet all its regular commitments.

The Board, having examined Hydro-Québec's generation expansion plans and load forecast, is of the view that Hydro-Québec has both sufficient hydraulic potential to supply both its domestic needs and the proposed exports and the expertise and ability to develop this potential. Demand-side management

may provide some flexibility to meet delay in the development of the required production facilities. The Board is also of the view that even with demand-side management, such production facilities would be required to serve the domestic load and the proposed exports at some point within the period of the requested authorizations.

The evidence also shows that provided that Hydro-Québec's development plans are not significantly delayed, for whatever reason, the utility will have the means to meet its commitments, including the proposed exports. This is likely to be the case even if its generating system capability is reduced because of an extended period of unusually poor hydraulicity. The means available to the Applicant include, in addition to increased hydraulic system development, relying on other demand/supply alternatives such as:

- increased use of thermal generation;

- increased purchases;

- increased use of programs such as its buy-back of dual-energy contracts; and

- increased use of conservation and demand-side management.

To demonstrate that the electricity proposed to be exported is surplus to reasonably foreseeable Canadian requirements, Hydro-Québec chose to adhere to the concept of fair market access. No interconnected Canadian utility expressed an interest in the electricity proposed to be exported.

In light of the Québec government's approval of and support for Hydro-Québec's long-term market objectives and because of the lack of interest of interconnected Canadian utilities in the electricity proposed to be exported to VJO and NYPA, the Board is satisfied that that electricity would be surplus to reasonably foreseeable Canadian requirements.

6.2.2 Second Price Criterion

The evidence has shown that Hydro-Québec complied with the second price criterion, namely, that the export price not be lower than the price of an equivalent service to Canadian customers, by adhering to the concept of fair market access. In addition, in the case of the proposed export to VJO, the electricity proposed for export was also offered to all directly interconnected Canadian utilities.

None of the directly interconnected Canadian utilities nor any other Canadian utilities expressed an interest in either of the proposed exports. For this reason the Board is satisfied that the second price criterion is met.

6.3 System Reliability

The Board has analyzed the impact of Hydro-Québec's proposed exports on the reliability of neighbouring interconnected systems. This analysis shows that in some scenarios of operation there could be reliability implications. However, this analysis also shows that it is possible for Hydro-Québec to adapt its mode of operation to avoid these reliability problems. In fact the evidence shows that the Applicant has made and continues to make large capital investments to improve the reliability of its system network so as to conform to the reliability standards set by the NPCC.

Based on its own analysis and on the fact that none of the neighbouring Canadian systems objected to the proposed exports on the basis of system reliability impacts, the Board is satisfied that the proposed exports will not affect the reliability of the neighbouring systems and that the Applicant will continue to comply with the reliability criteria set by the NPCC.

6.4 Environmental Considerations

6.4.1 Preamble

As part of its mandate under the Act to regulate exports in the public interest, the Board considers the environmental impact of electricity exports. The *September 1988 Canadian Electricity Policy* explicitly requires consideration by the Board of the environmental impacts of electricity exports. To conform with the policy to the extent possible pending its enactment, the Board, in December 1988, issued a Memorandum of Guidance. The Memorandum required that applicants provide evidence to demonstrate that a proposed export does not contravene relevant federal environmental standards and guidelines. With the coming into force of Bill C-23 on 1 June 1990, the Board is now required to specifically take into account the impact of the export on the environment (section 119.06 of the Act) in determining whether to make a recommendation to the Governor in Council to designate a proposed export for licensing procedures including a public hearing.

Also, the provisions of the *EARP Guidelines Order* apply to any proposal that may have an effect on an area of federal responsibility. This requires initiating departments to consider the potential environmental effects of such proposals, including social effects directly related to the environmental effects, and any effects external to Canada's territory. Initiating departments are also expected to consider the concerns of the public regarding the proposal and its potential environmental impacts. Where proposals are subject to other environmental regulations, departments are to avoid duplication.

In the case of the two Hydro-Québec export applications, the Board is the federal agency responsible for decision-making in granting export authorizations, and is, therefore, an initiating department as defined in the *EARP Guidelines Order*.

Following the recent decisions by the Federal Court of Canada in respect of the Rafferty-Alameda dam in Saskatchewan and other works on the Oldman River in Alberta, the Board has complied with the *EARP Guidelines Order* by carrying out an environmental screening of all export proposals. In conducting a screening of electricity export proposals, the Board examines the potential environmental and corresponding social effects in and outside of Canada, of the production, transmission and end use of the electricity proposed to be exported. The purpose of such a screening is to enable the Board to reach one of the conclusions required in section 12 of the *EARP Guidelines Order*.[1]

---

[1] Findings under Section 12 of the *EARP Guidelines Order* fall under the following categories:

a) the proposal would not produce any adverse environmental effects and thus would be automatically excluded from the Process in which case it may automatically proceed;

b) the proposal would produce significant adverse environmental effects in which case it would be automatically referred to the Minister for public review by a Panel;

c) the proposal would produce adverse environmental effects which are insignificant or mitigable in which case it may proceed or proceed with the mitigation;

In summary, for the purpose of evaluating the environmental impact of Hydro-Québec's export applications, the Board is faced with considering the requirements stemming from two different regulatory authorities; its own Act and the *EARP Guidelines Order*. In conducting its environmental assessments the Board is bound by its own Act and the *EARP Guidelines Order* to avoid the duplication of review measures taken by the government of the province from which electricity is to be exported.

6.4.2 Production of Electricity for Exports

According to the evidence, a small part of the electricity required to supply the proposed export to VJO would be produced from existing generating facilities which are, for the most part, hydraulic. The only environmental impact of the proposed exports from these system production facilities is the difference in the regulation of the system reservoirs and rivers for the cases with and without the proposed exports. Because these differences are expected to be insignificant and because the operation of the existing facilities complies with provincial environmental requirements, the Board is of the view that the environmental and corresponding social impacts of the operation of these existing production facilities to supply a portion of the proposed exports to VJO will be insignificant or mitigable with known technology.

It is the Applicant's position that the proposed exports will result in the earlier construction of certain facilities which will be eventually required for domestic needs in the province. In support of its application, Hydro-Québec provided information on the development plan required to satisfy its electricity needs without exports, its needs with the proposed exports to VJO, and its needs with the proposed exports to both VJO and NYPA. According to Hydro-Québec's evidence, to satisfy the export needs it will have to advance the in-service date of base-load facilities by three years on average, and the in-service date of peaking facilities by two years on average. Certain base-load facilities would have to be advanced by up to six years.

Even though Hydro-Québec acknowledged that the construction and operation of facilities required to support the exports would have definite environmental effects, its position was that early construction of these facilities would not result in any significant additional impacts, and that it was unnecessary to provide a comprehensive environmental impact assessment related to this early construction. Concerning the environmental impact of operating its system to supply electricity to satisfy the proposed exports, the Applicant stated that its existing and future reservoirs would be operated in the same manner, whether or not the exports took place, and that the overall operation of its system would only be slightly modified if its exports were approved. Thus, it was Hydro-Québec's position that the environmental impact due to the operation of its production facilities to satisfy the exports would be insignificant.

---

d) the proposal's adverse environmental effects are unknown in which case it may require further study and reassessment or be referred to the Minister for public review by a Panel;

e) the proposal would produce significant adverse environmental effects in which ease it would be referred to the Minister for public review by a Panel; or

f) the proposal would produce unacceptable adverse environmental effects in which case it would be modified and subsequently reassessed, or be abandoned.

The Grand Council, on the other hand, argued that the early construction of facilities required to support the exports would result in an accelerated construction schedule that would have the following negative consequences:

- insufficient time for the completion of the required environmental impact assessments;

- reduced likelihood of putting in place the required programs to monitor the environment and reduced reacting to emergency situations and likelihood of providing appropriate remedial actions; and

- reduced flexibility in reservoir commissioning, potentially resulting in adverse environmental impacts.

As to the operation of existing and future reservoirs, the Grand Council was of the view that changes in the reservoir levels due to the proposed exports, considering the size of the reservoirs and the proposed quantity of energy to be exported, would have significant adverse environmental effects.

Hydro-Québec argued only that the early construction and operation of facilities to serve the exports would not result in significant environmental impacts and consequently it provided no evidence on this point. Specifically, Hydro-Québec did not provide a comprehensive environmental assessment of the impact of the construction and operation of facilities required to support the proposed exports. In this regard, the Board is of the view that the issue of environmental impact does not hinge on whether or not it should consider the impact of the construction and operation of facilities or only the impact of their advancement. Sufficient evidence was provided indicating that major hydro-electric facilities such as those required to meet the proposed exports do have environmental effects. Hydro-Québec itself did not deny this. The issue rather is whether, on balance, the environmental consequences are acceptable or mitigable. This, the Board does not know at this time.

The Board recognizes that when electric utilities negotiate long-term system-to-system firm sales agreements, there can be circumstances in such arrangements that require capacity to come from generating facilities to be built at some future date and for which the necessary detailed environmental assessments have not been completed at the time of the export application. The proposed export contracts now before the Board have been negotiated on this basis. Nonetheless, for the Board to reach its decision on Hydro-Québec's applications, and at the same time meet its obligations under the Act and *EARP Guidelines Order*, it must take into account the environmental impacts arising from the construction of such future facilities.

The evidence presented to the Board at the hearing established that Hydro-Québec's future electricity generating and transmission facilities will be subjected to environmental reviews in accordance with provincial laws. For facilities located north of the 49th parallel, within the territory covered by the *James Bay Agreement*, Hydro Québec is subject to the environmental and social protection provisions described in chapters 22 and 23 of that agreement. Chapter 22 applies to developments located between the 49th and 55th parallels, and chapter 23 applies to developments located north of the 55th parallel. Under these provisions, any production or transmission development located in these regions is subject to a comprehensive environmental and social assessment and review process and is to be reviewed by panels including representatives from the provincial and federal governments and from the Cree Regional Authority or the Kativik Regional Government.

Both Hydro-Québec and the Grand Council recognized that the facilities to be located within the territory covered by the *James Bay Agreement* are subject to such a comprehensive assessment and review process. However, the Grand Council, because of the comprehensive requirements of both the *James Bay Agreement* and the *EARP Guidelines Order*, did not share the Applicant's contention that sufficient time existed to complete the necessary assessments and review processes.

Both the Grand Council and Hydro-Québec referred to correspondence recording discussions that had taken place between the government of Canada, the government of Québec, the Federal Environmental Assessment Review Office and Hydro-Québec. These discussions related to arrangements to conduct a joint assessment and review process covering the Great Whale project in accordance with the provisions of both the *EARP Guidelines Order* and the *James Bay Agreement*. The Board understands that these discussions have dealt with, inter alia, the question of how to avoid duplication of the assessment and review measures in applying the *EARP Guidelines Order* to the project in question.

During the Board's deliberation on these applications following the public hearing, the governments of Canada and Québec, through their respective environment Ministers, made statements about the efforts now underway to reach an agreement on a joint public review process to examine the environmental and social impacts of the Great Whale project in accordance with the provisions of both the *James Bay Agreement* and the *EARP Guidelines Order*. If such an agreement does not materialize, the Board then expects that, in any case, an environmental review under the *EARP Guidelines Order* will be undertaken by the Federal Government.

The Board further believes that all other projects, either inside or outside of the territory covered by the *James Bay Agreement*, that would have to be constructed to support, in some measure, the proposed exports, may fall in areas of federal jurisdiction, such as navigable waters and/or fisheries. For these reasons, the Board is convinced that in order to comply with the *EARP Guidelines Order* or any other federal legislation that might replace the *EARP Guidelines Order*, such projects will need to undergo public review processes similar to those which will be undertaken for the Great Whale project.

The Board is also of the view that, to the extent that Hydro-Québec's future facilities are subjected to the *EARP Guidelines Order* review process, or any equivalent review process, and are subsequently accepted for construction, the environmental and social impacts of these projects, as well as the related public concerns, will have been adequately addressed. As these reviews are expected to encompass future projects which will be needed to supply in-province needs, existing out-of province firm commitments, and the proposed exports, the Board believes that they will also provide an acceptable means of addressing the specific concerns expressed by intervenors in respect of the Applicant's facilities proposals. The Board is therefore satisfied that to the extent that such reviews take place and the facilities are accepted for construction, then the environmental impact of the construction and operation of the facilities required to support the proposed exports will be known and mitigable with known technology. The Board is thus assured that insofar as the proposed exports to VJO and NYPA are concerned, the electricity so produced will be supplied from facilities that will have been subjected to appropriate environmental reviews.

In order to satisfy itself that the electricity to be exported will originate from facilities which have been subjected to environmental reviews, the Board will include a condition in any licence it might issue, to make the generating facilities related to any authorized exports subject to the completion of

the necessary environmental reviews prior to the construction of the said facilities. In addition, to satisfy itself that Hydro-Québec complies with the environmental assessment and review process and necessary authorizations, the Board will condition the licence to require that a summary of the environmental assessment, a report on the conclusions and recommendations of the review panel, as well as the environmental authorizations in respect of the said facilities, be submitted to the Board following each review.

Finally the Board notes that while an export licence permits the holder to export electricity, it does not require the holder to do so. Nor does the permissive nature of an export licence oblige the holder to construct any additional facilities which may be required to give effect to the export. It remains the licence holder's responsibility to seek and obtain all the requisite authorizations prior to the construction of any such additional facilities.

Turning now to thermally-generated exports, the evidence shows that it is Hydro-Québec's intention to supply the proposed exports from its integrated system, principally from future hydro-electric generating facilities. However, in the event of an extended period of low water conditions or in other exceptional circumstances, it is conceivable that a portion of the exports could be supplied by thermal generation. In this regard, there is evidence that the operation of Hydro-Québec's thermal stations complies with the provincial standards applicable to thermal emissions as set out in the *Quality of the Atmosphere ReguLation (RRQ 1981, c.Q-2, r.20*). The Board will include a condition in any licence it might issue to require that any thermal generation of electricity for export not contravene any relevant federal environmental standards and guidelines.

Although federal standards and guidelines currently in effect apply only to new thermal generating stations, the Board has considered them and acknowledges that they constitute only useful indicators for the assessment of the above mentioned provincial standards. From its review, the Board is satisfied that the operation of Hydro-Québec's existing thermal facilities would be in compliance with the guidelines applicable to thermal emissions into the ambient air for new stationary sources.

6.4.3 Transmission

According to the evidence, Hydro-Québec would make use of its existing provincial transmission system as well as its existing international interconnections in order to transport the electricity proposed to be exported. In addition, it was the Applicant's position that the proposed exports will also result in the earlier construction of a number of major provincial transmission facilities which will be eventually required for domestic needs in the province. Finally, the Applicant requested that any licence that might be issued in respect of the proposed export to VJO be conditioned to permit the export of electricity over any authorized international power line, including any such facility that might be authorized in the future.

The Board notes that the Applicant's existing transmission facilities, including international power lines, have already been subjected to environmental reviews by the appropriate provincial and federal authorities prior to construction and operation. The Board is of the view, therefore, that any environmental and corresponding social impacts related to the continued operation of such facilities to supply the proposed exports have been mitigated. The Board also holds this view with respect to the existing transmission lines in the United States linked to those of the Applicant that would be used to transmit the electricity to the American load centres.

The Board notes that future provincial transmission facilities, whether or not used to support the exports, will be subjected to provincial environmental reviews prior to being approved for construction. The Board believes that the provincial review process established for transmission facilities adequately addresses environmental impacts and public concerns. Accordingly, to avoid the duplication of provincial review measures, the Board believes it is not necessary to apply the condition regarding future production facilities as described in section 6.4.2 upon future intraprovincial transmission facilities.

If Hydro-Québec proposes, in the future, to construct a new international power line to transport the electricity proposed to be exported to VJO, it will be required to obtain the Board's authorization in accordance with Part III.1 of the Act. At that time, the Board will consider the environmental impact of the construction and operation of such a line and will undertake an environmental screening in accordance with the *EARP Guidelines Order*. Finally, the Board is satisfied, based on its knowledge of the regulatory process in the United States, that any new transmission line required to be constructed in the United States to transport the electricity to the load centres would be subjected to a thorough environmental review, including provisions for public participation, prior to any authorization.

6.4.4 End Use

The Applicant provided information, supplied by VJO and NYPA, that addressed the environmental and corresponding social impacts related to the end use of the proposed exports in those utilities' respective markets. According to the evidence, the electricity to be produced for export from Hydro-Québec's hydro-electric facilities would replace electricity which would otherwise be generated by thermal-electric sources in the United States such as coal, oil and natural gas. Estimates of the probable atmosphere emissions of SO_2, CO_2 and NO_x so eliminated in the U.S. markets by the proposed Hydro-Québec exports appear to the Board to be reasonable. Consequently, the Board is persuaded that the proposed exports will result in significant reductions of SO_2, CO_2 and NO_x emissions in the United States. The Board therefore believes and is satisfied that the downstream environmental effects and corresponding social impacts related to the end use of the electricity to be exported, would be positive.

In summary, therefore, the Board is satisfied that in regard to the production, transmission and end use of the electricity proposed to be exported, by conditioning any export licence it issues in the manner previously described and to the extent that future facilities used in part for export purposes are found to be environmentally acceptable, the requirements of the *EARP Guidelines Order* will have been fulfilled.

6.5 Number of Requested Authorizations

In its application, Hydro-Québec has requested the necessary authorizations to allow it to export the individual blocks of firm power and energy as provided for under the two export contracts. There are seven blocks of power and energy provided for under the contract between Hydro-Québec and VJO and two blocks provided for under the contract between Hydro-Québec and NYPA.

The Board is not constrained under its Act from issuing more than one licence to authorize the export of electricity under a single contract and, indeed, on at least one occasion, for administrative convenience, has issued more than one licence to authorize exports under a single contract. In the

Board's view, however, it is not appropriate to issue more than one licence to authorize an export if in so doing the thirty-year limit for electricity export authorizations provided for under the Act is circumvented.

In this case, in authorizing the proposed export to VJO, the Board would, for administrative convenience, issue six licences to cover the separate blocks of electricity provided for under the export contract. However, in so doing, it would ensure that the overall duration of the individual licences so issued not exceed the thirty-year limit.

6.6 The Board's Findings

The Board, having had regard to all other considerations that appear to be relevant including the matters of surplus and price, on 24 August 1990 has issued to Hydro-Québec, subject to Governor in Council approval, licences EL-179, EL-180, EL-181, EL-182, EL-183 and EL-184 authorizing the export to VJO of seven blocks of firm power and energy according to the terms of the 4 December 1987 firm power and energy contract between Hydro-Québec and VJO. The licences cover a total of 450 MW of power and approximately 62.5 TW.h of energy and extend from 1 November 1990 to 31 October 2020. The Board has also issued to Hydro-Québec, on this same date, subject to Governor in Council approval, licence EL-185 authorizing the export to NYPA of two blocks of firm power and energy according to the terms of the 26 April 1989 firm electricity contract between Hydro-Québec and NYPA. The licence covers a total of 1000 MW of power and approximately 132 TW.h of energy and extends from 1 May 1995 to 30 April 2016. The applicable terms and conditions for the above licences are set out in Appendices X through XVI.

The foregoing constitutes our Reasons for Decision in the matter of the present applications of Hydro-Québec pursuant to Part VI of the *National Energy Board Act*.

J.G. Fredette,
Presiding Member

A.B. Gilmour,
Member

C. Bélanger,
Member

Appendix I

Information required to be furnished by applicants for export licence pursuant to the December 1988 Memorandum of Guidance

1) General

a) Pursuant to subsection 6(2) of the Part VI Regulations, parties will be relieved of the need to furnish to the Board the information required in paragraphs (a) to (aa), with the exception of the provisions relating to surplus and price. Until the proposed amendments take effect, parties are required to continue to comply with paragraph 6(2)(w), which required the filing of evidence to demonstrate that the electricity proposed to be exported is surplus to reasonably foreseeable requirements for use in Canada, and with paragraphs 6(2)(z), which required the filing of evidence to demonstrate that the export price is just and reasonable and satisfies the price criteria.

b) In place of the information for which an exemption has been granted in item (a), parties are advised that, pursuant to subsection 6(1) of the Part VI Regulations, the Board requires the information set out in the proposed amendments to section 6 of the Part VI Regulations with the exception of the proposed paragraphs (m) and (n) relating to surplus and price. The information required for these particular items is detailed in item (a) above.

2) Concept of Fair Market Access

Henceforth, the Board will use the concept and procedures as set out in Annex 2 to the Electricity Policy document to assist it in satisfying itself that Canadians have been afforded fair market access to the electricity proposed for export and that the export is in the public interest.

In particular, the Board has advised parties that if they wish, they can satisfy the Board as to the second price criterion by demonstrating that they have adhered to the concept of fair market access, rather than by offering, as was previously the case, the electricity proposed to be exported to interconnected Canadian utilities.

3) Environment

The proposed amendment to the Part VI Regulations also sets out the environmental requirements: a description of provincial approvals and relevant provincial review procedures; an assessment and a statement of the measures that will be taken to mitigate any probable environmental impact of the proposed export; and evidence demonstrating that the proposed export does not contravene relevant federal environmental standards or guidelines.

Note: The proposed amendments to the Part VI Regulations is provided in Appendix I to the Memorandum of Guidance to Interested parties Concerning Implementation of the *Canadian Electricity Policy,* published in December 1988.

Appendix II
Procedures respecting electricity export applications under the amended National Energy Board Act [1]

Under the Amended Act, electricity exports will ,normally be authorized by issuance of a permit without a public hearing, unless the Governor in Council, upon the recommendation of the Board, designates a proposed export for licensing procedures. In determining whether to make a recommendation to the Governor in Council, the Board shall seek to avoid the duplication of measures taken by the applicant and the government of the province from which electricity is to be exported and shall have regard to all considerations that appear to it to be relevant. Those considerations shall include:

(a) the effect of the export on provinces outside of the sponsoring province;

(b) the impact of the export on the environment;

(c) whether Canadians interested in making purchases to satisfy their own domestic requirements have been afforded fair market access[2] to the electricity proposed for export; and

(d) such other considerations as may be specified in the regulations.

Before issuing a permit, the Board will examine the application and its supporting information, the submissions of other parties, and any other information that the Board might require to be furnished by the applicant. Permits issued by the Board are not subject to Governor in Council approval. However, the Governor in Council may, up to 45 days following the issuance of a permit by the board, issue an order revoking the permit and requiring that a proposed export be designated for a licensing process.

If, on the other hand, it appears to the board that any of the above considerations, or any other considerations that appears to it to be relevant, has not been adequately dealt with by the applicant or by the appropriate provincial regulatory agency, the Board may delay issuing a permit in order to make a recommendation to the Governor in Council that a proposed export of electricity be designated for a licensing or certificating process requiring a public hearing.

Following the issuance of such a recommendation, which would be made public, if the Governor in the Council does not make an order designating the proposed export for a licensing process, the Board shall issue a permit. Any permit issued by the Board is subject to such terms and conditions respecting any of the matters prescribed in the Electricity Regulations as may be imposed by the Board.

In the event that the Governor in Council does make an order designating a proposed export for a licensing process, the Board, in deciding whether to issue a licence, shall hold a public hearing and have regard to all considerations that appear to it to be relevant. Any licence that it issued by the

---

1 On 25 March 1990, Bill C-23, an Act to amend the National Energy Board Act and to repeal certain enactments in consequence thereof was assented to and became law. It came into force on 1 June 1990.

2 As described in subsection 119.06(2)(c) of the Amended Act.

Board is subject to the approval of the Governor in Council, and to such terms and conditions as the Board may impose.

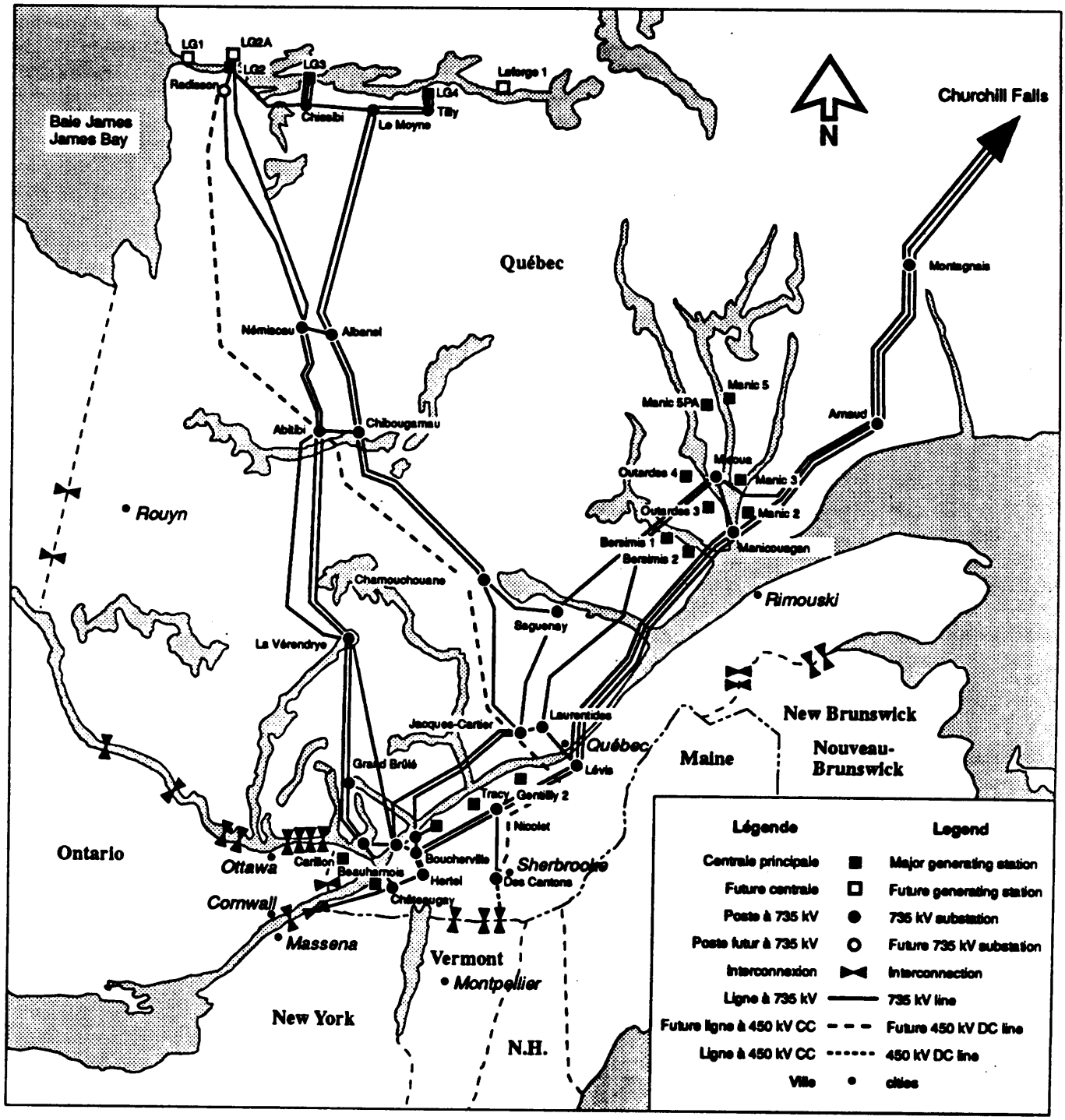
The maximum period of any licence or permit to export electricity is 30 years from a date to be fixed in the respective authorization.

Appendix III
Map - System Main Features in 1989

Figure a3-1
Hydro-Québec
System Main Features in 1989

Hydro-Québec
Les principales installations en 1989

Hydro-Québec
System Main Features in 1989



Appendix IV
Generating Stations in Service as of 31 December 1989

Table a4-1

Hydro-Québec

Generating Stations in Service as of 31 December 1989

Hydro-electric Stations

		MW
1.	LG 2	5 328
2.	LG 3	2 304
3.	LG 4	2 650
4.	Beauharnois	1 646
5.	Manic 5	1 292
6.	Manic 3	1 183
7.	Manic 2	1 015
8.	Bersimis 1	930
9.	Outardes 3	756
10.	Bersimis 2	712
11.	Carillon	654
12.	Outardes 4	632
13.	Manic 5 PA	532
	Others (less than 500 MW)	3 734
	Total hydro-electric	**23 368**

Thermal Stations

1.	Gentilly 2 (nuclear)	685
2.	Tracy (oil)	600
3.	La Citière (gas)	201
4.	Cadillac (gas)	162
5.	Internal Combustion	110
	Total thermal	**1 758**
	Total of Generating Stations in service as of 31 December 1989	**25 126**

Appendix V
Summary of the Contract with Vermont Joint Owners

Firm Power and Energy Contract (Summary)

The Firm Power and Energy Contract between Hydro-Québec and Vermont Joint Owners took effect on 4 December 1987, the date of its execution, and will terminate when all parties have fulfilled their obligations, but not later than 31 October 2020.

The contract, as amended 31 August 1988, stipulates, among other things, the conditions which govern the delivery schedules, the establishment of prices for firm power and energy and the mechanism for adjusting the quantities and prices if there is a deficiency in deliveries.

Contractual quantities and delivery periods

Hydro-Québec will make available to VJO seven blocks of power and energy. Each block has distinct characteristics of duration, amount, delivery schedule and load factor.

Power

Article 3.1 of the Contract stipulates that VJO may change the amounts of capacity of Schedules C1 to C4, provided written notice to this effect is given to Hydro-Québec no later than 31 August 1988; this deadline was deferred to 30 November 1988 by agreement between the two parties. On 30 November 1988, VJO gave written notice for the purpose of changing the capacity to be made available under Schedules C2 to C4. The following table shows the maximum quantities of capacity to be made available and the delivery periods corresponding to each schedule, in accordance with the changes made 30 November 1988.

Table a5-1

Maximum Amounts
(MW)

Period		Schedule							
Start	**End**	**A**	**B**	**C1**	**C2**	**C3**	**C4i)**	**C4ii)**	**Total**
May 90	**Oct. 90**	**-**	**-**	**57**	**-**	**-**	**-**	**-**	**57**
Nov. 90	**Apr. 92**	**50**	**-**	**57**	**-**	**-**	**-**	**-**	**107**
May. 92	**Oct. 93**	**50**	**-**	**57**	**58**	**-**	**-**	**-**	**165**
Nov. 93	**Oct. 94**	**50**	**-**	**57**	**58**	**-**	**-**	**-**	**165**
Nov. 94	**Aug. 95**	**50**	**-**	**57**	**58**	**-**	**-**	**-**	**165**
Sep. 95	**Oct. 95**		**200**	**57**	**58**	**-**	**-**	**-**	**315**
Nov. 95	**Oct. 96**	**-**	**200**	**57**	**58**	**77**		**-**	**392**
Nov. 96	**Oct. 2000**	**-**	**200**	**57**	**58**	**77**	**39**		**431**
Nov. 2000	**Oct. 2012**	**-**	**200**	**57**	**58**	**77**	**39**	**19**	**450**
Nov. 2012	**Oct. 2015**	**-**	**200**	**-**	**-**	**77**	**39**	**19**	**335**
Nov. 2015	**Oct. 2016**	**-**	**-**	**-**	**-**	**-**	**39**	**19**	**58**
Nov. 2016	**Oct. 2020**	**-**	**-**	**-**	**-**	**-**	**-**	**19**	**19**

In the memorandum of understanding dated 30 November 1988, VJO indicated that they reserved the right to make further changes to the amounts of capacity available under Schedules C2 to C4, subject to notification of Hydro-Québec on a date prior to the start of deliveries.

The following table gives the minimum amounts Hydro-Québec could be required to make available to VJO.

Table a5-2

Minimum Amounts
(MW)

Period		Schedule							
Period	**End**	**A**	**B**	**C1**	**C2**	**C3**	**C4i)**	**C4ii)**	**Total**
May 90	**Oct. 90**	**-**	**-**	**57**	**-**	**-**	**-**	**-**	**57**
Nov. 90	**Apr. 92**	**50**	**-**	**57**	**-**	**-**	**-**	**-**	**107**
May 92	**Oct. 93**	**50**	**-**	**57**	**28 (1)**	**-**	**-**	**-**	**135**
Nov. 93	**Oct. 94**	**50**	**-**	**57**	**28**	**-**	**-**	**-**	**135**
Nov. 94	**Aug. 95**	**50**	**-**	**57**	**28**	**-**	**-**	**-**	**135**
Sep. 95	**Oct. 95**		**200**	**57**	**28**	**-**	**-**	**-**	**185**
Nov. 95	**Oct. 96**	**-**	**200**	**57**	**28**	**47 (2)**		**-**	**332**
Nov. 96	**Oct. 2000**	**-**	**200**	**57**	**28**	**47**	**2.5 (3)**		**334.5**
Nov. 2000	**Oct. 2012**	**-**	**200**	**57**	**28**	**47**	**2.5**	**5.5 (4)**	**340**
Nov. 2012	**Oct. 2015**	**-**	**200**	**-**	**-**	**47**	**2.5**	**5.5**	**255**
Nov. 2015	**Oct. 2016**	**-**	**-**	**-**	**-**	**-**	**2.5**	**5.5**	**8.0**
Nov. 2016	**Oct. 2020**	**-**	**-**	**-**	**-**	**-**	**-**	**5.5**	**5.5**

1) Written notice shall be given no later than 30 April 1992.
2) Written notice shall be given no later than 30 April 1994.
3) Written notice shall be given no later than 1 November 1996.
4) Written notice shall be given no later than 1 November 1992.

Energy

The maximum total amount of energy to be exported will be approximately 62 TW.h for the full term of the contract. The amounts of energy associated with the schedules of capacity vary according to the load factors for each schedule. These different load factors are established as follows:

Program	Annual Load Factor
A	between 50% and 80%
B	75 %
C	75 %

Reduction in deliveries - Load factor adjustment

(1) Hydro-Québec may reduce the annual load factor for Schedules B and C to a minimum level of 65% for a contract year. However, Hydro-Québec shall not exercise this option more than three times during the term of the contract. The Operating Committee may reschedule the energy reductions in the following years.

(2) VJO may reduce the annual load factor for Schedules B and C to 70% or increase it to 80%. However, VJO shall not exercise this option more than five times during the term of the contract. The change of load factor for a contract year may result in an adjustment in the load factor for the following years, as decided or agreed upon by the Operating Committee.

Scheduling

Prior to 1 September preceding any contract year, the two parties shall establish:

(a) the annual load factor for that contract year; and
(b) the monthly delivery schedules for the following contract year.

The monthly load factors may vary between 25% and 95%. The contract year refers to the period from 1 November to 31 October.

Deficiencies (Article VI)

Schedule A

If Hydro-Québec is unable to deliver the amount of energy scheduled, it shall pay to VJO the costs incurred by VJO to replace that amount of energy. In case of VJO deficiency, VJO shall pay for the amount of contract capacity (50 MW) and energy at a load factor of 50%.

Schedules B and C

Where there are deficiencies of either of the parties during a contract year, the contract provides a mechanism for adjusting the delivery schedules in the following years. It also provides a formula for calculating the compensation to be paid to one or the other of the two parties if, at the end of a contract year, any amount of the deficiencies has not been rescheduled.

Pricing

Capacity

For each month of the contract year, VJO shall pay for the contractual amount in effect for each schedule, whether the deliveries of energy are made or not, in accordance with the formulas provided in Article IV.

The pricing formulas for Schedules B and C take into account adjustment factors calculated on the basis of the interest rates on corporate long-term bonds and the index of construction costs for thermal generating stations in the United States published in the *Handy-Whitman Index of Public Utility Construction Costs*.

Energy

For Schedule A, the prices for energy delivered to VJO are established in Article 4.1(a) of the contract. For Schedules B and C, the prices established in Article 4.1(b) will be indexed by the US Gross National Product Implicit Price Deflator.

Other price adjustments (Article 4.2)

If, before 1 November 1992, Hydro-Québec signs another agreement with another party in the United States for the sale of an equivalent product on price terms which are more favourable than those of this contract, then equally favourable terms shall be applied to Schedules B and C of the contract during the term of the other agreement.

This principle would apply only to an agreement for a term of fifteen years or more and an amount of capacity equal to or greater than 75% of the amount of this contract

Approvals

The obligations under this contract are contingent upon the receipt by all parties, Hydro-Québec, VJO and the purchasers of VJO electric power, of all rights and approvals on terms satisfactory to each party seeking a right or approval.

These rights and approvals concern the permits and licences required to purchase, sell, transmit and deliver power and energy in accordance with the contract between Hydro-Québec and VJO and with the resale contracts between VJO and third parties.

Each party has the right to terminate the contract without liability to the other party should any rights or approvals, including required permits and licences, be withheld or tendered on terms unsatisfactory to it.

If, however, following issuance of all permits and licences required by the two parties to the contract (Hydro-Québec and VJO) for fulfilment of their obligations under the contract, these permits or licences are modified or terminated by a subsequent decision of any government or any governmental or paragovernmental agency in Canada or the United States, the party thus prevented from fulfilling its obligations will have the right to terminate the contract, but only if it compensates the other party for all costs, damages and expenses incurred or suffered or to be incurred or suffered as a result of such termination.

Appendix VI
Summary of the Contract with New York Power Authority

Firm Power Contract (Summary)

The Firm Power Contract between Hydro-Québec and New York Power Authority took effect on 26 April 1989, the date of its execution, and will terminate on 30 April 2016.

This contract stipulates, among other things, the conditions which will govern the delivery schedules, the establishment of prices for firm power and energy and the mechanism for adjusting the quantities and prices if there is a deficiency in deliveries.

Contractual quantities

Power

Hydro-Québec shall make available to NYPA two blocks of 500 MW of firm capacity for a period of 20 years. The first block will be delivered from 1 May 1995 to 30 April 2015, and the second from 1 May 1996 to 30 April 2016.

NYPA has the option of relinquishing part of the above quantities, up to a total of 218 MW apportioned equally between the two blocks, provided it notifies Hydro-Québec in writing not later than 31 December 1991.

Energy

The maximum amount of energy associated with the two blocks of 500 MW which may be delivered at an annual load factor of 75% is 6750 GW.h per year.

NYPA shall take delivery of and pay for the energy associated with the contract capacity at an annual load factor of 75% (Article 2.02).

Hydro-Québec may reduce the load factor for a contract year to 65%. However, Hydro-Québec shall not exercise this option more than four times during the contract period (Article 3.01).

NYPA may increase or decrease the load factor, subject to the provisions of Article 3.02. However, NYPA shall not exercise this option more than six times during the contract period.

Delivery schedules

The monthly delivery schedules will be established in accordance with Article IV of the contract. The average load factors may vary between 30% and 95%, depending on the month. The contract year refers to the period from 1 May to 30 April.

The monthly delivery schedule shall be established jointly by Hydro-Québec and NYPA before 1 April preceding the contract year which begins the following 1 May.

Deficiencies

Article V of the contract provides a mechanism for adjusting the delivery schedules if there are deficiencies caused by interruptions or reductions in the hourly scheduled deliveries.

The contract also provides a formula for calculating compensation to be paid to one or the other of the two parties if, at the end of a contract year, any amount of the hourly deficiencies has not been rescheduled.

Pricing

The price for the capacity which NYPA shall take delivery of and pay for in each month of the contract period will be established in accordance with the formula provided in Article 6.01 of the contract. This formula takes into account adjustment factors calculated on the basis of the interest rates on corporate long-term bonds in the United States and the index of construction costs for thermal generating stations in the United States published in the *Handy-Whitman Index of Public Utility Construction Costs*.

The price for the energy delivered to NYPA will be established in accordance with the formula provided in Article 6.02 of the contract. This formula provides for an adjustment in prices using a factor calculated on the basis of the US Gross National Product Implicit Price Deflator.

Approvals

The obligations under this contract are contingent upon the receipt by Hydro-Québec and NYPA, no later than 30 November 1991, of all the rights and approvals listed in Supplement II of the contract, on terms satisfactory to each party.

Hydro-Québec must obtain, in particular, an Order-in-Council from the Government of Quebec and NEB approval.

NYPA must obtain, in particular, approval under Section 1009 of the New York Public Authorities Law, authorization from the New York Public Service Commission and the New Jersey Board of Public Utilities, and acceptance for filing by the Federal Energy Regulatory Commission of a transmission agreement.

If, subsequent to 30 November 1991, the rights and approvals identified in Supplement II of the contract with respect to either party are not rendered or are denied or are terminated or are modified and are consequently rendered unacceptable for that party, then that party would have the right to terminate the contract, but only if it compensates the other party for all costs, damages and expenses already incurred or suffered or to be incurred or suffered.

Appendix VII
Construction Program

Table a7-1

Hydro-Québec
Construction Program

PRODUCTION AND TRANSMISSION	COMMISSIONING YEAR WITH EXPORTS					
	Without Exports Vjo + Nypa[1]	VJO	Advancement (Years)	NYPA[2]	Advancement (Years)	Advancement Total (Years)
Peak Load Projects						
MANIC 3	1998	1998	0	1996	2	2
13th line phase 1	1998	1996	0	1996	2	2
MANIC 2	1999	1999	0	1997	2	2
MANIC 1	2000	2000	0	1997	3	3
GAS TURBINES or others	1991-2029	1991-2029	0	1991-2029	0	0
Base Load Projects						
LA GRANDE 1	1994	1994	0	1994	0	0
BRISAY	1993	1993	0	1993	0	0
LA FORGE 1	1996	1994	2	1994	0	2
12th line	1994	1994	0	1994	0	0
STE-MARGUERITE	2010	2007	3	2004	3	6
13th line phase 2	2010	2007	3	2004	3	6
GRANDE BALEINE	2004-2006	2002-2004	2	1998-2000	4	6
14th line	2004	2002	2	1998	4	6
ASHUAPMUSHUAN	2010-2011	2010-2011	0	2006	4	4
LAFORGE 2	1999	1997	2	1995	2	4
EASTMAIN 1	2012	2012	0	2008	4	4
NBR	2014-2021	2012-2021	2	2009-2021	3	5
15th line	2014	2012	2	2009	3	5

(1) : Includes new aluminium smelters
(2) : Includes VJO

Appendix VIII
Table a8-1 - Capacity, Demand and Excess Power
Table a8-2 - Energy Supply and Demand

Table a8-1

Hydro-Québec
CAPACITY, DEMAND and EXCESS POWER
Base Scenario + VJO + NYPA
Month of January (a)

(MW)

	Year									
	1991	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
(1) Capacity	30380	31450	32750	33760	35010	35940	36540	37120	38320	39120
(2) Regular loads	29530	30760	32070	32710	32840	34290	35460	36150	36740	37240
(*) VJO	107	107	165	165	165	392	431	431	431	431
(*) NYPA	0	0	0	0	0	500	1000	1000	1000	1000
(3) Required reserve	3100	3190	3570	3590	3660	3880	3900	3960	4010	4060
Emergency aide										
(4) Interruptible loads	850	850	1050	1400	1700	2000	2000	2000	2000	2000
(5) Neighbouring systems	1230	1230	1230	1230	1230	1050	1050	1050	1050	1050
Other measures	350	430	630	0	0	0	0	0	0	0
(6) Planned maintenance	0	0	0	0	0	0	0	0	0	0
(7) Excess	180	10	20	90	1440	820	230	60	620	870

	Year									
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
(1) Capacity	40050	40060	40070	40330	41150	41530	42090	42420	42930	43330
(2) Regular loads	37810	38350	38900	39450	40020	40570	41010	41400	41810	42230
(*) VJO	450	450	450	450	450	450	450	450	450	450
(*) NYPA	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
(3) Required reserve	3990	3990	3950	3960	4000	4040	4070	4100	4130	4170
Emergency aide										
(4) Interruptible loads	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
(5) Neighbouring systems	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
(6) Planned maintenance	0	0	0	0	0	0	0	0	0	0
(7) Excess	1300	770	270	-30	180	-30	60	-30	40	-20

	Year									
	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
(1) Capacity	43790	44270	44640	45100	45920	45930	45330	45460	45840	46220
(2) Regular loads	42640	43080	43410	43860	44330	43970	43970	44150	44520	44890
(*) VJO	450	450	335	335	335	58	19	19	19	19
(*) NYPA	1000	1000	1000	1000	1000	500	0	0	0	0
(3) Required reserve	4200	4230	4250	4290	4320	4300	4280	4310	4340	4360
Emergency aide										
(4) Interruptible loads	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000

(5)	Neighbouring systems	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
(6)	Planned maintenance	0	0	0	0	0	0	0	0	0	0
(7)	Excess	0	10	30	0	320	710	310	50	30	20

(a) : January is the critical month
(*) : Included in the regular loads
(4) : Interruptible loads are included in the regular loads
(7) : Excess = (1) - (2) - (3) + (4) + (5) - (6)

Table a8-2

HYDRO-QUÉBEC
ENERGY SUPPLY AND DEMAND
TW.h

SUPPLY	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
HYDRO-QUÉBEC SYSTEM										
Hydro	126.3	134.1	139.3	141.4	146.1	153.2	157.6	160.4	163.2	163.1
Thermal										
Gentilly-2	5.4	5.4	5.4	5.4	4.9	4.9	4.9	4.9	4.9	4.9
Tracy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peaking thermal	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other thermal	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total thermal	5.7	5.6	5.6	5.7	5.2	5.2	5.2	5.2	5.2	5.2
Total system	132.0	139.7	144.9	147.1	151.3	158.4	162.8	165.6	168.4	168.3
PURCHASE IN QUÉBEC										
Agreements	3.4	3.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Other	0.3	0.3	0.3	0.4	0.5	0.7	0.9	0.9	0.9	0.9
PURCHASE OUTSIDE QUÉBEC (CFLCo)	33.0	32.8	32.7	32.5	32.4	32.2	32.2	32.2	32.2	32.2
Total Purchases	36.7	36.4	35.4	35.3	35.3	35.3	35.5	35.5	35.5	35.5
TOTAL SUPPLY	168.7	176.1	180.3	182.4	186.6	193.7	198.3	201.1	203.9	203.8
DEMAND										
IN QUÉBEC										
Regular [1]	136.2	142.9	148.3	150.8	154.4	157.6	160.4	163.3	166.0	168.1
Agreements	4.5	4.4	3.5	3.5	3.5	3.5	3.5	3.1	3.0	3.0
Total (A)	140.7	147.3	151.8	154.3	157.9	161.1	163.9	166.4	169.0	171.1
OUTSIDE QUÉBEC										
United States										
NYPA	0.0	0.0	0.0	0.0	2.2	5.5	6.5	6.5	6.5	6.5
NEPOOL	6.8	6.8	6.8	6.8	6.7	6.6	6.5	6.5	6.5	4.4
VDPS [2]	1.1	1.1	1.1	1.1	0.7	0.0	0.0	0.0	0.0	0.0
VJO	0.7	1.0	1.1	1.1	1.5	2.6	2.8	2.8	2.8	2.8
Vermont Utilities	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8.7	8.9	9.0	9.0	11.1	14.7	15.8	15.8	15.8	13.7
Others	3.9	3.8	3.0	2.4	0.5	0.4	0.4	0.4	0.4	0.1
Total (B)	12.6	12.7	12.0	11.4	11.6	15.1	16.2	16.2	16.2	13.8
Regular Demand (A+B)	153.3	160.0	163.8	165.7	169.5	176.2	180.1	182.6	185.2	184.9
Total losses	15.4	16.1	16.5	16.7	17.1	17.5	18.2	18.5	18.7	18.9

NOTES:

(1) Sales of firm electricity in Québec

(2) Vermont Department of Public Service

SUPPLY	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
HYDRO-QUÉBEC SYSTEM										
Hydro	160.9	163.4	165.8	168.3	170.7	173.0	174.6	176.3	178.1	179.7
Thermal										
Gentilly-2	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Tracy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peaking thermal	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4
Other thermal	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Total thermal	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.5
Total system	166.1	168.6	171.0	173.5	176.0	178.3	179.9	181.6	183.4	185.2
PURCHASE IN QUÉBEC										
Agreements	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Other	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
PURCHASE OUTSIDE QUÉBEC (CFLCo)	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
Total Purchases	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5
TOTAL SUPPLY	201.6	204.1	206.5	209.0	211.5	213.8	215.4	217.1	218.9	220.7
DEMAND										
IN QUÉBEC										
Regular [1]	170.3	172.5	174.7	176.9	179.2	181.3	182.7	184.2	185.9	187.5
Agreements	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total (A)	173.3	175.5	177.7	179.9	182.2	184.3	185.7	187.2	188.9	190.5
OUTSIDE QUÉBEC										
United States										
NYPA	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
NEPOOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VDPS [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VJO	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vermont Utilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (B)	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Regular Demand (A+B)	182.8	185.0	187.2	189.4	191.7	193.8	195.2	196.7	198.4	200.0
Total losses	18.8	19.1	19.3	19.6	19.8	20.0	20.2	20.4	20.5	20.7

NOTES: (1) Sales of firm electricity in Québec
(2) Vermont Department of Public Service

SUPPLY	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
HYDRO-QUÉBEC SYSTEM										
Hydo	181.4	183.1	184.3	187.3	186.6	183.4	183.5	184.9	186.3	187.8
Thermal										
Gentilly-2	4.9	4.9	4.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Tracy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Peaking thermal	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Other thermal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total thermal	5.5	5.5	5.5	4.5	4.5	4.5	4.5	4.5	4.6	4.6
Total system	186.9	188.6	189.8	191.8	191.1	187.9	188.0	189.4	190.9	192.4
PURCHASE IN QUÉBEC										
Agreements	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Other	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
PURCHASES OUTSIDE QUÉBEC (CFLCo)	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
Total Purchases	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5	35.5
TOTAL SUPPLY	222.4	224.1	225.3	227.3	226.6	223.4	223.5	224.9	226.4	227.9
DEMAND										
IN QUÉBEC										
Regular [1]	189.0	190.7	192.4	194.2	195.9	197.6	199.0	200.2	201.6	202.9
Agreements	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Total (A)	192.0	193.7	195.4	197.2	198.9	200.6	202.0	203.2	204.6	205.9
OUTSIDE QUÉBEC										
United States										
NYPA	6.5	6.5	6.5	6.5	4.4	1.1	0.0	0.0	0.0	0.0
NEPOOL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VDPS [2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
VJO	3.0	2.8	2.2	2.2	1.9	0.3	0.1	0.1	0.1	0.1
Vermont Utilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	9.5	9.3	8.7	8.7	6.3	1.4	0.1	0.1	0.1	0.1
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (B)	9.5	9.3	8.7	8.7	6.3	1.4	0.1	0.1	0.1	0.1
Regulard Demand (A+B)	201.5	203.0	204.1	205.9	205.2	202.0	202.1	203.3	204.7	206.0
Total losses	20.9	21.1	21.2	21.4	21.4	21.4	21.4	21.6	21.7	21.9

NOTES:

(1) Sales of firm electricity in Québec

(2) Vermont Department of Public Service

Appendix IX
Revenue and Price Estimates

HYDRO-QUÉBEC

Revenue and Price Estimates

Vermont Joint Owners

Years	Quantities (TW.h)	Revenues (million $)	Average Prices ($/MW.h)	Years	Quantities (TW.h)	Revenues (million $)	Average Price ($/MW.h)
1990	0.3	14.4	46.73	2006	3.0	359.8	121.71
1991	0.7	34.2	47.17	2007	3.0	369.1	124.83
1992	1.0	64.5	65.91	2008	3.0	378.8	128.11
1993	1.1	82.4	74.51	2009	3.0	389.0	131.56
1994	1.1	84.2	76.16	2010	3.0	399.7	135.19
1995	1.5	132.8	87.85	2011	3.0	411.0	139.01
1996	2.6	253.0	96.61	2012	2.8	405.7	143.33
1997	2.8	280.4	99.02	2013	2.2	331.9	150.80
1998	2.8	285.8	100.94	2014	2.2	341.7	155.25
1999	2.8	291.5	102.95	2015	1.9	303.0	159.69
2000	2.9	300.2	105.25	2016	0.3	60.1	177.52
2001	3.0	320.1	108.28	2017	0.1	24.2	194.18
2002	3.0	327.1	110.64	2018	0.1	24.9	199.63
2003	3.0	334.8	113.25	2019	0.1	25.6	205.36
2004	3.0	342.7	115.93	2020	0.1	21.9	210.34
2005	3.0	351.1	118.75				
				Total	**62.2**	**7345.6**	

New York Power Authority

Years (TW.h)	Qyantities (million $)	Revnues ($/MW.h)	Average Prices	Years (TW.h)	Quantities (million $)	Revenues ($/MW.h)	Average Price
1995	2.2	220.8	100.84	2006	6.6	839.4	127.76
1996	5.5	569.6	104.03	2007	6.6	859.9	130.88
1997	6.6	696.9	106.07	2008	6.6	881.5	134.16
1998	6.6	709.5	107.99	2009	6.6	904.1	137.62
1999	6.6	722.7	110.00	2010	6.6	928.0	141.25
2000	6.6	736.6	112.11	2011	6.6	953.1	145.07
2001	6.6	751.1	114.33	2012	6.6	979.5	149.09
2002	6.6	766.4	116.66	2013	6.6	1007.3	153.32
2003	6.6	783.5	119.25	2014	6.6	1036.6	157.77
2004	6.6	801.4	121.97	2015	6.6	712.9	162.77
2005	6.6	819.9	124.79	2016	6.6	182.1	166.27
				Total	**132.0**	**16862.8**	

note:

Current Canadian Dollars
Rounded figures

Appendix X
Licence No. EL-179

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 November 1990 and shall end on 31 August 1995.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "A" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed 50 MW.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall not exceed 350 GW.h.

9. The prices of power and energy to be exported hereunder shall be as set forth in section 4.1(a) of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

    (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

    (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

        i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

        ii) governmental authorizations received; and

        iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

    (a) the quantities of power and energy exported hereunder, and

    (b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XI
Licence No. EL-180

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order")*, the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 September 1995 and shall end on 31 October 2015.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "B" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed 200 MW.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantity referred to in condition 7 hereof, subject to the provisions of Sections 3.2 and 3.3 of the Firm Power and Energy Contract, but shall not exceed 1402 GW.h.

9. The prices of power and energy to be exported hereunder shall be as set forth in sections 4.1(b) and 4.2 of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

    (a) any production facility required by Hydro Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

    (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

        i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

        ii) governmental authorizations received; and

        iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

    (a) the quantities of power and energy exported hereunder, and

    (b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XII
Licence No. EL-181

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 November 1990 and shall end on 31 October 2012.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall he transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "C1" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed 57 MW.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantity referred to in condition 7 hereof, subject to the provisions of Sections 3.2 and 3.3 of the Firm Power and Energy Contract, but shall not exceed 400 GW.h.

9. The prices of power and energy to be exported hereunder shall be as set forth in sections 4.1(b) and 4.2 of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

    (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

    (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

        i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

        ii) governmental authorizations received; and

        iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

    (a) the quantities of power and energy exported hereunder, and

    (b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XIII
Licence No. EL-182

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 May 1992 and shall end on 31 October 2012.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "C2" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed 58 MW.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantity referred to in condition 7 hereof, subject to the provisions of Sections 3.2 and 3.3 of the Firm Power and Energy Contract, but shall not exceed 406 GW.h.

9. The prices of power and energy to be exported hereunder shall be as set forth in sections 4.1(b) and 4.2 of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

    (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

    (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

        i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

        ii) governmental authorizations received; and

        iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

    (a) the quantities of power and energy exported hereunder, and

    (b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XIV
Licence No.EL-183

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 November 1995 and shall end on 31 October 2015.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "C3" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed 77 MW.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantity referred to in condition 7 hereof, subject to the provisions of Sections 3.2 and 3.3 of the Firm Power and Energy Contract, but shall not exceed 540 GW.h.

9. The prices of power and energy to be exported hereunder shall be as set forth in sections 4.1(b) and 4.2 of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

    (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

    (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

        i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

        ii) governmental authorizations received; and

        iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

    (a) the quantities of power and energy exported hereunder, and

    (b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XV
Licence No. EL-184

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW THEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 November 1996 and shall end on 31 October 2020.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power and Energy Contract between Vermont Joint Owners and Hydro-Québec, dated 4 December 1987 as amended on 31 August 1988 ("Firm Power and Energy Contract").

5. All exports made hereunder shall be in accordance with Schedule "C4" provided for in section 3.1 of the Firm Power and Energy Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed

   (a) 39 MW during the period of 1 November 1996 to 31 October 2000.

   (b) 58 MW during the period of 1 November 2000 to 31 October 2016.

   (c) 19 MW during the period of 1 November 2016 to 31 October 2020.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantities referred to in condition 7 hereof, subject to the provisions of Sections 3.2 and 3.3 of the Firm Power and Energy Contract, but shall not exceed

   (a) 273 GW.h during the period of 1 November 1996 to 31 October 2000.

   (b) 406 GW.h during the period of 1 November 2000 to 31 October 2016.

   (c) 133 GW.h during the period of 1 November 2016 to 31 October 2020.

9. The prices of power and energy to be exported hereunder shall be as set forth in sections 4.1(b) and 4.2 of the Firm Power and Energy Contract.

10. This licence remains valid to the extent that

   (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

   (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

      i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

      ii) governmental authorizations received; and

      iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

(a) the quantities of power and energy exported hereunder, and

(b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary

Appendix XVI
Licence No. EL-185

IN THE MATTER OF an application by Hydro-Québec pursuant to Part VI of the *National Energy Board Act* ("the Act"), for a licence for the exportation of electricity, filed with the National Energy Board ("the Board") under File No. 1923-Q1-18.

WHEREAS, by an application to the Board dated 28 July 1989 Hydro-Québec has applied, under Part VI of the Act, for a licence for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America;

AND WHEREAS a public hearing has been held commencing on 19 February 1990, at which Hydro-Québec and other interested parties have been heard;

AND WHEREAS parties interested in buying electricity for consumption in Canada have been given fair market access to the electricity proposed for export;

AND WHEREAS pursuant to the *Environmental Assessment and Review Process Guidelines Order ("EARP Guidelines Order"*), the Board has performed an environmental screening of the application by considering the evidence gathered during the above-mentioned public hearing;

AND WHEREAS the Board has determined, subject to the undertaking of appropriate environmental reviews prior to the construction of production facilities used in part to support the proposed exports, that the requirements of the *EARP Guidelines Order* will have been fulfilled;

AND WHEREAS the Board has taken into account all such matters as appear to it to be relevant, including surplus and price;

NOW ThEREFORE, the National Energy Board, pursuant to section 119.08 of the Act, and subject to the conditions hereof, hereby issues this licence to Hydro-Québec for the exportation of firm power and energy at places on the international boundary line between Canada and the United States of America.

THIS LICENCE is subject to the following terms and conditions:

1. The term of this licence shall commence on 1 May 1995 and shall end on 30 April 2016.

2. The inter-utility export transfer authorized hereunder is the sale transfer of firm power and energy.

3. The power and energy to be exported hereunder shall be transmitted over the 765 kV international power line for which the Board has issued Certificate of Public Convenience and Necessity EC-III-15 and any international power line for which the Board has issued a certificate of public convenience and necessity.

4. The power and energy to be exported hereunder shall be as described in the Firm Power Contract between New York Power Authority and Hydro-Québec, dated 26 April 1989 ("Firm Power Contract").

5. All exports made hereunder shall be in accordance with the Firm Power Contract.

6. No amendment or addition to, termination or substitution of, the Firm Power and Energy Contract shall be effective until approved by the Board.

7. The quantity of power that may be exported hereunder shall not exceed

   (a) 500 MW during the period of 1 may 1995 to 30 April 1996.

   (b) 1000 MW during the period of 1 May 1996 to 30 April 2015.

   (c) 500 MW during the period of 1 May 2015 to 30 April 2016.

8. The quantity of energy that may be exported hereunder, during any 12 month period throughout the term of the licence, shall correspond to a yearly load factor of 75 percent of the quantities referred to in condition 7 hereof, subject to the provisions of Article III of the Firm Power Contract, but shall not exceed

   (a) 3514 GW.h during the period of 1 may 1995 to 30 April 1996.

   (b) 7028 GW.h during the period of 1 May 1996 to 30 April 2015.

   (c) 3514 GW.h during the period of 1 May 2015 to 30 April 2016.

9. The prices of power and energy to be exported hereunder shall be as set forth in Article VI of the Firm Power Contract.

10. This licence remains valid to the extent that

   (a) any production facility required by Hydro-Québec to supply the exports authorized herein, for which construction had not yet been authorized pursuant to the evidence presented to the Board at the EH-3-89 hearing that ended on 5 March 1990, will have been subjected, prior to its construction, to the appropriate environmental assessment and review procedures as well as to the applicable environmental standards and guidelines in accordance with federal government laws and regulations.

   (b) Hydro-Québec, following any of the environmental assessment and review procedures mentioned in subcondition (a), will have filed with the Board

      i) a summary of all environmental impact assessments and reports on the conclusions and recommendations arising from the said assessment and review procedures;

      ii) governmental authorizations received; and

      iii) a statement of the measures that Hydro-Québec intends to take to minimize the negative environmental impacts.

11. The generation of thermal energy to be exported hereunder shall not contravene relevant federal environmental standards or guidelines.

12. Notwithstanding section 18 of the *National Energy Board Part VI Regulations*, Hydro-Québec, within 20 days after the end of each month comprised in the term of this licence, shall file with the Board a report in such form and detail as the Board may specify, setting forth for each such month,

(a) the quantities of power and energy exported hereunder, and

(b) the price for the power and the energy and the resulting revenue.

ISSUED under Part VI of the *National Energy Board Act* at Ottawa, Ontario, this 24 August 1990.

National Energy Board

Marie Tobin
Secretary