



National Energy Board

Reasons for Decision

**British Columbia Hydro and
Power Authority, and**

**British Columbia Power
Exchange Corporation**

EW-2-91

Decembe 1992

National Energy Board

Reasons for Decision

In the Matter of

**British Columbia Hydro and Power
Authority, and**

**British Columbia Power Exchange
Corporation**

Application dated 29 April 1991 for permits to
export short term firm electricity and
interruptible energy

EW-2-91

December 1992

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Abbreviations

Units of Measurement

km	kilometre (1000 metres)
kV	kilovolt (1000 volts)
kW.h	kilowatt hour (1000 watt hours)
MW.h	megawatt hour (1000 kW.h)
GW.h	gigawatt hour (1 000 000 kW.h)
MW	megawatt (1000 kilowatts)

Names

ALCAN	Alcan Aluminum Limited
B.C. Hydro} Applicant	British Columbia Hydro and Power Authority
BCUC	British Columbia Utilities Commission
Bonneville	Bonneville Power Administration
Burrard	Burrard Plant
CAC	Consumers Association of Canada (B.C. Branch)
EMF	Electromagnetic Fields
ERC	Energy Removal Certificate
FMA	Fair Market Access
ISCA	ISCA Management Ltd.
PEO	Power Exchange Operation
POWEREX} Applicant	British Columbia Power Exchange Corporation
SaskPower	Saskatchewan Power Corporation
the GVRD	Greater Vancouver Regional District
the Board	National Energy Board

the Act	<i>National Energy Board Act</i>
the MOG	1990 Memorandum of Guidance
TransAlta	TransAlta Utilities Corporation
U.S.A.	United States of America
Westcoast	Westcoast Energy Inc.
WKPL	West Kootenay Power and Light Company, Limited
WSCC	Western Systems Coordinating Council

Recital and Intervenors

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

IN THE MATTER of an application dated 29 April 1991 by the British Columbia Hydro and Power Authority and by the British Columbia Power Exchange Corporation, for authorizations to export electricity under Part VI of the said Act, filed with the Board under File Number 6200-B7-3.

EXAMINED by means of written submissions.

BEFORE:

R. Illing Presiding Member

B.Horner, Q.C. Member

K. Vollman Member

INTERVENORS:

B.C. Ministry of Energy, Mines and Petroleum Resources

Consumers Hydro Electric Economic Power Society

Consumers Association of Canada (B.C. Branch)

A. Edwards, M.L.A. Kootenay (now Minister of Energy, Mines and Petroleum Resources)

Environment Canada

Regional District of Fraser - Cheam

J. Fulton, M.P. (Skeena)

P. Graham

Greater Vancouver Regional District

ISCA Management Ltd.

Kootenay Okanagan Electric Consumer Association

* Northstar Energy Corporation

City of Port Moody

Saskatchewan Power Corporation

West Kootenay Power and Light Company Limited

Westcoast Energy Inc.

TransAlta Utilities Corporation

* **Intervenor who did not present a submission or raise a concern.**

A list of those parties providing a letter of comment is included as Appendix I.

Chapter 1

Preamble

This report describes the information examined by the National Energy Board ("the Board") and the conclusions reached in its review of the application by the British Columbia Hydro and Power Authority ("B.C. Hydro") and the British Columbia Power Exchange Corporation ("POWEREX") ("the Applicants") dated 29 April 1991 requesting various permits for the exportation of electricity. The purpose of the review was to determine whether to issue the requested authorizations without a public hearing, or to recommend to the Minister of Energy, Mines and Resources that the Governor in Council designate the application for licensing, which would necessitate a public hearing.

1.1 Procedures Followed in Reviewing the Application

As part of its review, the Board sought the views of interested parties, including the general public, which it considered, along with the application, other information that the Board required the Applicants to furnish and the Applicants' responses to the submissions received from interested parties.

Board Order EW-2-91 dated 12 August 1991, as amended, established the procedure for obtaining the views of interested parties on the application. This procedure was in accordance with the Board's 22 June 1990 Memorandum of Guidance ("the MOG") concerning full implementation of the September 1988 Canadian Electricity Policy.

In its review of the application, the Board ensured that its information requirements, set out in section 119.03 of the *National Energy Board Act* ("The Act") and in the draft "Electricity Regulations", attached as Appendix I to the MOG, were met.

In conducting the review, the Board sought to avoid duplication of measures taken by the Applicants and by the Government of British Columbia with due regard to all considerations that appeared to the Board to be relevant. The Board's review considered:

- a) the effect of the exports on provinces other than British Columbia
- b) the impact of the exports on the environment; and
- c) whether the Applicants have
 - (i) informed those who have declared an interest in buying electricity for consumption in Canada of the quantities and classes of service available for sale; and
 - (ii) given an opportunity to purchase electricity on terms and conditions as favourable as the terms and conditions specified in the application to those who, within a reasonable time after being so informed, demonstrate an intention to buy electricity for consumption in Canada.

The process described in paragraph (c) above is referred to in these Reasons for Decision as providing fair market access ("FMA").

1.2 Environmental Screening of the Proposed Exports

The Board's review of the application included consideration of the impact of the export proposals on the environment as required under paragraph 119.06 (2)(b) of the Act. In addition, the review incorporated a screening of the environmental effects of the proposals in accordance with those requirements of the *Environmental Assessment and Review Process Guidelines Order* which did not duplicate any portion of the Board's own regulatory process.

In respect of the assessment of the impact of the proposed exports on the environment pursuant to paragraph 119.06(2)(b) of the Act, the Board was governed by the judgement of the Federal Court of Appeal in the case of the Attorney General of Québec v. National Energy Board (1991), 132 N.R.214 (F.C.A.).¹

The judgement stated that "in considering an application for leave to export electricity, the Board must be concerned about the environmental consequences, since the public interest is involved. The Board's function in this respect is in any case confirmed in several enactments. However, the only question can be as to the environmental consequences of the export, namely the consequences for the environment of "[sending] from Canada...power produced in Canada." The judgement also stated that "the factors which may be relevant in considering an application for leave to export electricity and the conditions which the Board may place on its leave clearly cannot relate to anything but the export of electricity." It further specifically stated that "it seems clear that, as it is understood in the Act with respect to electricity, export does not cover production itself."

The Board considers that it addresses the environmental effect of the sending from Canada of exports of electricity in its review of applications by the utility concerned for certificates to construct and operate international power lines or to alter existing international power lines. That review includes an examination of the effect on the environment of the operation of the line at its maximum capacity.

1.3 The Applicants' Public Notification Procedures

The Applicants initiated a public involvement program in two phases over a seven month period beginning in October 1990 as part of the application process for Board export permits and a Province of British Columbia "Energy Removal Certificate". During Phase I, the Applicants met with representatives of interest groups to design steps within the program. Included in the design were information requirements, participation initiatives, issues to be addressed, and possible barriers to communication. Based on Phase I, the Applicants' initiatives included a province-wide newspaper advertisement for early notification, discussions with representatives of environmental groups, business, industry and government, five public open house sessions, media releases, distribution of project information and responses to specific queries on electricity trade. In addition, on 11 May 1991, the Applicants published a notice of their application in the Canada Gazette.

By 29 April 1991, the date the application was filed, the Applicants had convened meetings and discussions with about 50 stakeholder groups and registered 155 people at its open houses held in different provincial locations. Approximately 450 letters were sent responding to enquiries and

¹ On 11 July 1992, leave to appeal the judgement of the Federal Court of Appeal was granted to the Québec Cree by the Supreme Court of Canada.

providing information on the application and about 650 information kits on electricity trade were distributed. During the public involvement process, participants identified a variety of topics they suggested should be addressed in the application. Topics included:

Topic	Concern
1 - Public Involvement Process	- the notice period was too short and there was not adequate time to review the information
2 - Electricity Trade Revenues	- how revenues were used and the benefits distributed
3 - Role of POWEREX	- the role of POWEREX in export transactions was questioned
4 - Short Term Firm Exports	- it was suggested that firm sales place domestic customers at risk; and - there was support for the export of interruptible energy surplus to domestic needs
5 - Requirement to Sell	- participants questioned whether there would be an on-going requirement to sell in all events
6 - Environment and Conservation	- concerns expressed over reservoir fluctuations and use of additional thermal generation due to exports
7 - Price of Electricity	- participants were generally satisfied with market pricing; and - it was believed that pricing should reflect environmental and social costs

From the public involvement process the Applicants concluded that public participation in planning for electricity trade should be ongoing and should not end with submission of the renewal applications.

Chapter 2

Background

2.1 The Applicants

B.C. Hydro is a provincial crown corporation established in 1962 to generate, transmit and distribute electricity in British Columbia. The company provides electrical service to most of the province, the main exception being the area served by West Kootenay Power and Light Company, Limited ("WKPL"). The map included as Appendix II shows the main generation and transmission facilities of B.C. Hydro.

POWEREX, a wholly-owned subsidiary of B.C. Hydro was established in December 1988 to facilitate the development of a private sector power industry for electricity trade. POWEREX will be primarily responsible for all electricity export sales for B.C. Hydro with the exception of Board export orders held by B.C. Hydro for exports to Point Roberts, in the State of Washington, and Hyder, Alaska. Additionally, POWEREX will manage most storage transactions with neighbouring utilities in Alberta and the United States of America ("U.S.A"). Also, POWEREX proposes to establish a short term electricity trade operation identified as the Power Exchange Operation ("PEO"), which will, in part, be responsible for all export transactions of up to one year in duration. Exports of greater than one year's duration will be dealt with through negotiations outside the PEO.

B.C. Hydro will be primarily responsible for equichange, storage, adjustment and carrier transfers of electricity for coordination and other support transactions with utilities in the U.S.A. In addition, B.C. Hydro will handle Canadian obligations under the Columbia River Treaty and the Skagit Valley Treaty.

B.C. Hydro's system is interconnected in the north with the Alcan Aluminum Limited ("ALCAN") system at Kitimat, in the east with the system of TransAlta Utilities Corporation ("TransAlta"), in the southeast with the systems of Cominco Limited and WKPL, and in the south with the system of the Bonneville Power Administration ("Bonneville"). Bonneville is an agency of the United States Government, with interests in generation and transmission facilities in the Pacific Northwest area of the United States of America. There are four international power lines connecting the B.C. Hydro and Cominco systems to the Bonneville system. Two 500-kV lines cross the international boundary at Douglas, British Columbia, near Vancouver, and two 230-kV lines cross the border at Nelway, British Columbia. In addition, B.C. Hydro owns two other international power lines; one supplies the isolated distribution system of Puget Sound Power & Light Company in the Point Roberts area of the State of Washington while the other supplies the isolated community of Hyder, Alaska.

The export of power over these international power lines is authorized by Licences EL-162, EL-163 and EL-164, which, as amended, will expire on 31 December 1992. The licences were issued to B.C. Hydro by the Board in July 1984. The Board made POWEREX a co-holder of Licences EL-162 and EL-163 in September 1990.

2.2 Export Markets

The Applicants' principal export markets include Bonneville and those utilities that are members of the Western Systems Coordinating Council ("WSCC"). Members of the Northwest Power Pool and the Western Systems Power Pool are also members of the WSCC. The interconnections with the member utilities allow the Applicants to import and export surplus power and energy and to share in other benefits. The interconnections with Bonneville are also utilized for transactions pursuant to the sale of downstream benefits arising from the Columbia River Treaty and Skagit River Treaty.

Chapter 3

Requested Authorizations

B.C. Hydro and POWEREX sought the following export authorizations to continue currently approved transactions over existing international power lines:

3.1 Exports of Interruptible Energy

The Applicants requested a permit to export up to 20 000 GW.h of interruptible energy in each year of the requested permit less any short term firm exports they may make in any year. The permit would commence on 1 October 1991¹ and end on 30 September 1997. The 20 000 GW.h export quantity includes potential firm export sale transfers because the Applicants did not know at the time of application whether they will market surplus electricity on a firm or interruptible basis or both. This permit would replace existing licences EL-163 and EL-164 which expire on 31 December 1992.

The Applicants stated that an interruptible export permit is required to allow the following transactions for which the terms and conditions are not known at the time of the application:

- interruptible energy export sales
- storage and equichange transactions between the Applicants and U.S.A. utilities - no equichange agreements exist at this time but the storage agreements with Bonneville allow storage transactions of up to 4 000 GW.h annually.
- coordination transactions with interconnected utilities in the U.S.A., including transactions under the Non-Treaty Storage Agreement with Bonneville - coordination agreements are stated to result in near zero net export or import over the six year term of the application. However, in any one year significant exports could occur.
- circulating power flows - the Applicants estimate a maximum annual export of 3 000 GW.h of circulating power flows.
- carrier transfers (i.e. wheeling²) - the application includes an allowance of an estimated maximum of 4 000 GW.h in any one year of purchases for resale from other producers in British Columbia and Alberta, and also the Applicants' carrier transfers.
- inadvertent and adjustment transfers - an allowance of 500 GW.h in any one year is included for inadvertent and adjustment energy transfers.

¹ The Applicants requested that the permits applied for commence on 1 October 1991. The Board was unable to complete its review prior to that date and granted extensions to 31 December 1992.

² Wheeling is the transmission of power belonging to one utility through the circuits of another utility for delivery either to a third party or back to the originating system.

3.2 Exports of Short-Term Firm Electricity

The Applicants requested a permit to export up to 2 300 MW of firm power in each year of the requested permit. The permit would commence on 1 October 1991¹ and end on 30 September 1997. Exports would be reduced by any amount that B.C. Hydro is required to supply to Seattle City Light pursuant to the Skagit River Treaty between Canada and the U.S.A. This permit would replace existing Licence EL-162 which expires on 31 December 1992.

The exports would be made in accordance with existing agreements with Bonneville and such agreements as would be negotiated with other U.S.A. utilities.

The Applicants stated that the estimated maximum monthly quantity of firm energy exported would not exceed 1 540 GW.h, representing a 90 percent capacity factor on the 2 300 MW interconnection capability, and that the estimated maximum annual quantity of firm energy exported would not exceed 6 000 GW.h.

The Applicants stated that they are not requesting any authorizations for long term firm exports or any potential exports over new interconnections and that furthermore, approvals necessary to allow long term firm sales would be the subject of separate applications to provincial and federal authorities.

¹ The Applicants requested that the permits applied for commence on 1 October 1991. The Board was unable to complete its review prior to that date and extended the terms of the existing export authorizations to 31 December 1992.

Chapter 4

Information Supplied by the Applicants

4.1 Provincial and U.S.A. Approvals Related to the Interruptible/Firm Exports

4.1.1 Provincial Approvals

The Applicants stated that the steps to obtain Provincial authorization are:

- Approval by the British Columbia Minister of Energy, Mines and Petroleum Resources for an Energy Removal Certificate ("ERC"). (The Minister may refer an application to a commission with terms of reference for a public hearing. The application was referred to the British Columbia Utilities Commission ("BCUC") on 19 November 1991.)
- If the matter is referred to a commission, the commission must submit a report, with recommendations, to the Lieutenant Governor in Council. (The BCUC report was submitted on 30 June 1992.)
- Approval by the Lieutenant Governor in Council. (The Lieutenant Governor in Council approved the issuance of an ERC with conditions on 17 September 1992.)

4.1.2 U.S.A. Approvals

The Applicants have stated that there are no approvals required to import electricity from British Columbia into the U.S.A.

4.2 The Impact of the Exports on the Environment

The Applicants stated that the proposed exports will be transmitted by facilities which have obtained all the necessary provincial and federal permits and certificates and are presently operating within the applicable provincial and federal standards and guidelines. The Applicants further stated that they propose to export to the U.S.A. over existing international power lines and are not requesting the authorization of any potential exports over new interconnections.

The Applicants submit that the issue of electromagnetic fields ("EMF") resulting from an increase in power levels over international electric power lines and the alleged resulting electromagnetic radiation was canvassed, in detail, in a July 1986 inquiry by the British Columbia Utilities Commission. The inquiry held that there is insufficient evidence to support a presumption of an actual health risk. The inquiry further stated that it would involve undesirable and unfounded speculation to establish any fixed standards for EMF exposure. The Applicants submit that no environmental issue can be or is established presently in relation to EMF. The Applicants state they are not disregarding the concern about EMF. B.C. Hydro sponsors research in the area and reviews other studies being done in the world.

In respect of the matters described in the Federal Court of Appeal Judgement (refer to Section 1.2 of this Reasons for Decision) as they relate to the effect on the environment of the sending from Canada of electricity exports, the Applicants propose to send the electricity from Canada over international power lines already certificated by the Board. Moreover, the Applicants have not made any changes to these international power lines, since the Board issued its certificates with the exception of the inclusion of a phase shifting transformer in the Nelway Substation. The inclusion of the Nelway phase shifting transformer was approved by the Board in a separate proceeding in April 1992.

4.3 The Effect of the Exports on Provinces Other Than British Columbia

The Applicants stated in their application that they do not expect the proposed exports will have any significant negative impacts outside British Columbia.

In elaborating on this statement, the Applicants advised that any surplus electricity sourced from Alberta for sale under the requested permits would come from coal and gas fired plants. They stated further that emissions from these plants comply with Alberta provincial limits. The environmental impacts of additional emissions caused by the incremental increase in generation for electricity exports are expected to be insignificant as the plants will continue to operate under existing approved air and water limits.

With respect to the impact on the reliability of Alberta systems resulting from the proposed exports, the Applicants and TransAlta have completed studies and entered into principles of an agreement related to the cooperative operation and development of their systems. TransAlta has reviewed the studies and principles undertaken by B.C. Hydro in conjunction with the WSCC that formed the basis for increasing B.C. Hydro-Bonneville tie-line capabilities from 2 000 to 2 300 MW and has not indicated any negative impact on the reliability of the Alberta systems. The Applicants state they have entered into export transactions to the U.S.A. for a number of years without adverse effects on the adjacent systems in Alberta, and have not received any objections to the proposed exports from adjacent utilities based on concerns with reliability or security.

4.4 Fair Market Access

Fair market access was dealt with in correspondence between the Applicants, the Saskatchewan Power Corporation ("SaskPower"), the West Kootenay Power and Light Company, and in their respective submissions to the Board. That correspondence and the submissions are described in Chapter 5 of this Reasons for Decision. This section will concentrate on information supplied by the Applicants.

The Applicants state that numerous types of interruptible and firm transactions of up to one year will be transacted by Canadian and U.S.A. participants through the Power Exchange Operation while interruptible and firm exports of longer than one year would be through negotiations outside the PEO. Accordingly, the Board examined the Applicants' provision of FMA for potential interruptible and firm export transactions of less than one year duration and transactions of greater than one year's duration.

4.4.1 Interruptible/Firm Exports of up to One Year Duration

Transactions under the PEO would follow the same procedures regardless of whether the market is for domestic or export sales. The PEO is a short term electricity marketing operation coordinated and administered by POWEREX. The PEO continuously tests the market to determine buyers and sellers and the price at which transactions will occur. In addition to buying and selling, the PEO provides services such as wheeling and storing energy. The PEO, which does not own any electrical power facilities, has been operating on a trial basis since 1991, and a request for its approval has been submitted to the Government of British Columbia. No decision has yet been rendered.

The Applicants stated that the PEO will post price and quantity information on an electronic bulletin board which is available to PEO subscribers. Subscription to the PEO is free. As well, the Applicants will provide up to date information to anyone specifically requesting information regarding surplus energy.

Transactions by PEO participants will be conducted under three market based procedures:

- 1) posted buy and sell prices
- 2) supplier nominated prices
- 3) negotiated prices

4.4.1.1 Posted Buy and Sell Prices

Based on its market assessment the PEO posts its buy and sell prices for electricity transactions. For daily transactions, the prices and quantities are posted the day before delivery. All participants have the opportunity to commit to a transaction during that period; if demand exceeds supply the sales will be prorated. This procedure would be the same for other posted transactions, such as weekly/monthly, with the exception that postings are made further in advance. PEO posted transactions have the highest priority because they provide the maximum return to the PEO. To avoid any conflict of interest, B.C. Hydro declares its transaction prices in advance and makes transactions only after other participants. The Applicants state that this ensures that PEO procedures provide FMA but also that B.C. Hydro has given all participants an opportunity to make transactions before it enters into the market.

4.4.1.2 Supplier Nominated Prices

Prospective sellers can "nominate" prices at which they would be willing to sell to the PEO rather than accept the PEO posted buy price. The PEO may accept or reject the members nominated sell price. If accepted, the supplier to the PEO would be paid his nominated selling price plus one-half the difference between the nominated selling price and the PEO posted sell price. These transactions are treated by the PEO in the same manner as "Posted Buy and Sell Prices" with the exception that the PEO purchase price is nominated by the seller rather than set by the PEO. As the PEO schedules transactions based on the greatest gain to the PEO, the supplier accepts the risk that the transaction may not occur if the PEO has sufficient lower cost resources to meet demand.

4.4.1.3 Negotiated Prices

The Applicants stated that under the PEO, or in the event the PEO is not approved, buyers and sellers can also negotiate prices. Currently, for firm transactions the Applicants send letters of offer to all accessibly interconnected Canadian utilities, after negotiations with a U.S.A. customer have been concluded, to provide the Canadian utilities the opportunity to intercept the transactions. The Applicants send out similar letters for interruptible transactions of longer than one month duration. In addition, the Applicants are in constant telephone contact with Canadian utilities with respect to day to day transactions. However, the Applicants also stated that they propose to modify the current practice consistent with the new FMA requirements. They submit that FMA does not require interception, and that all PEO members are treated equally and compete for products and services on an equal footing.

4.4.2 Interruptible/Firm Exports Greater Than One Year's Duration

For transactions of longer than one year's duration the Applicants will seek out markets for and provide information on potential surplus electricity. The Applicants will continue to produce and distribute the Electricity Plan and the Cost of New Electricity Supply Report. In addition, the Applicants will undertake to provide annual operations reports that will provide the historic and projected prices. Finally, the Applicants will continue their practice of regular ongoing personal contact with potential customers and will provide information on request as well. Once a potential customer expresses an interest, the Applicants will undertake negotiations with them. The Applicants submit that this process will fulfil the FMA requirements. The table that follows provides a summary of the Applicants proposed exports and corresponding FMA procedures.

4.4.3 Requirement for Prior Board Approval of Specific Export Contracts

The Applicants requested six year export permits authorizing them to make interruptible and short-term firm exports. They argued that since substantial information, discussion and review would have been undertaken by the Board prior to the issuance of any permits by the Board, a requirement to submit separate contracts under the requested permits for prior Board approval would be an unnecessary duplication of process. Moreover, they stated that the short-term electricity trade market is dynamic with a relatively high transaction volume and that a prior approval requirement would create delays and result in lost opportunities given the short time frame between final negotiations and proposed contract commencement dates. However, the Applicants stated that there are more uncertainties with the short term market beyond four years and proposed a prior approval requirement for contracts greater than four years duration.

The Applicants propose to continue monthly reporting of transactions and to submit the Electricity Plan and the Cost of Electricity Supply to the Board, so that the Board will have updated information on electricity trade transactions available for review.

Summary of Proposed Exports and Corresponding FMA Procedures			
Proposed Exports		FMA Procedures	
Duration of Export	Type	Through the PEO	Outside the PEO*
Up to one year	- Firm/Interruptible	- provide information on electricity available for sale under the following transactions: • posted buy/sell prices • supplier nominated prices • negotiated prices - change from present practice (interception) to FMA	- provide information on electricity available for sale under the following transactions: • negotiated prices - change from present practice (interpretation) to FMA
Greater than one year	- Firm/Interruptible		- provide information on electricity available for sale - change from present practice (interception) to FMA

* Longer than one year or if PEO not approved.

4.4.4 Wheeling of Interruptible/Firm Electricity for Export

In addition to buying and selling energy, the PEO also provides for other electric services such as carrier transfers (or wheeling) to parties.

When the Applicants provide a wheeling service for the purpose of exporting, they stated that legal ownership of the electricity for export was a matter of law based upon the terms of the specific contract. The Applicants further stated that they expect parties asking for wheeling service through the PEO to have the necessary regulatory approvals to engage in such export sales.

Chapter 5

Interventions, Submissions, and the Applicants' Responses

5.1 Interventions

The Board received letters from 41 parties in respect of the 29 April 1991 application. The Board placed 17 of the parties on its final list of interested parties, thereby conferring on them the right to participate as intervenors in the EW-2-91 proceedings. The remaining 24 letters were considered to be letters of comment. Of the 17 intervenors included on the final list of interested parties, 3 filed submissions with the Board while 4 participated by filing information requests with the Applicants.

5.2 Submissions and the Applicants' Responses

5.2.1 Saskatchewan Power Corporation

SaskPower stated that as a result of its interprovincial tie with Alberta, it is an accessible Canadian utility to the Applicants, the Province of British Columbia and the Province of Alberta and therefore is accessible to the surplus generation from B.C. Hydro's integrated system, short term purchases from other electricity producers in British Columbia, short term purchases from Alberta utilities and carrier transfers from other producers in British Columbia and Alberta. SaskPower further stated it has an interconnection agreement with utilities in Alberta through which it buys and sells electricity and shares generation reserves. The utility would like assurances that the granting of the application to the Applicants will not negatively impact on SaskPower's rights pursuant to its interconnection agreement.

SaskPower stated that as an accessible Canadian utility it has not been provided with an opportunity to consider the acquisition of some or part of the firm or interruptible energy from any of the sources of supply in British Columbia or Alberta. SaskPower stated that pursuant to the Fair Market Access guidelines, firm and interruptible energy proposed for export should be offered to it first, before exports to the U.S.A. occur. SaskPower acknowledges that access would be subject to satisfactory arrangements with utilities in British Columbia and Alberta.

5.2.2 West Kootenay Power and Light Company, Limited

WKPL stated that although it had not expressed an interest in the purchase of surplus electricity, it fully expects that it will be advantageous to its customers if surplus electricity is available for purchase during the term of the application. WKPL is of the opinion that an offer of proposed exports to Canadians is an efficient mechanism, given the limited number of accessible Canadian utilities, and is also effective because it ensures domestic customers will be able to purchase on terms no less favourable than those offered to purchasers in the U.S.A.

WKPL acknowledges that the FMA guidelines do not include a right to intercept but its position is that a right to intercept, or some other preference to accessible Canadian utilities, should be a condition of the approval of the application. WKPL states that 24 hours would be a sufficient time

frame to exercise a right to intercept because that amount of time would not reduce the effectiveness or efficiency of B.C. Hydro offers.

In response, the Applicants stated their belief that an offer mechanism to Canadians for electricity proposed for export is not effective or efficient and that under licences EL-162 and EL-163 only interconnected or accessible utilities were allowed to make use of electricity proposed for export which did not provide other potential customers with access to electricity proposed for export. Furthermore, interconnected or accessible utilities could intercept contracts, negotiated with U.S.A. utilities at considerable effort and expense, without expressing any prior interest in purchasing electricity and without entering into any negotiations with the seller on a market basis. The Applicants state that Canadian interconnected or accessible utilities will occasionally have a surplus, and an offer mechanism provides them with valuable market information gathered by the Applicants. Thus it may allow potential Canadian sellers of electricity to capture a sales opportunity without doing any marketing or negotiating.

To remedy that, and to provide equal opportunity to its customers, the Applicants state that the proposed Power Exchange Operation will post hourly, monthly and longer term buy and sell prices and quantities for energy and capacity on a computer bulletin board. The prices will also be available over the telephone or by facsimile transmission from 8am to 4pm, every working day, and reflect current responses to the PEO buy and sell prices and the PEO perception of the future market. Hourly schedules for purchases or sales must be nominated to the PEO by 11am on the working day before the schedule is to take place. Once confirmed, the schedules shall be considered a contract and both parties shall use all reasonable efforts to minimize adjustments.

5.2.3 Consumers Association of Canada et. al. ("B.C. Branch") ("CAC")

The CAC stated that although it understands federal jurisdiction is not and should not be duplicative of provincial jurisdiction, it believes that a provincial review cannot substitute for Board scrutiny in matters coming within federal jurisdiction, even where there is an overlap in jurisdiction. The CAC submits that the Board must consider matters within its jurisdiction. Thus intervenors ought to have the benefit of reviewing the British Columbia Utility Commission's decision before participating in a hearing before the Board. The CAC submits that the Board recommend to the Governor in Council that the B.C. Hydro/POWEREX application be subject to a licence proceeding which includes a public hearing. The CAC states that the primary issue of federal jurisdiction is security of domestic supply and the related issues such as the licence term, which ought to be short-term in the view of the CAC. Furthermore, CAC is concerned that B.C. Hydro will make long term (i.e., five to six years) firm sales which will jeopardize domestic supply at the latter end, requiring the purchase of expensive replacement power or the operation of the Burrard Thermal Power Plant ("Burrard"). Burrard is the most expensive B.C. Hydro generation, and affects air quality in the Greater Vancouver area. CAC is also concerned about B.C. Hydro's ability to accurately forecast demand four to six years out. CAC submits that there can be large variances of available surplus which may require the use of Burrard, or the purchase of other higher cost resources.

The CAC states that a six year term is now routinely defined as a "short term export" and it is appropriate to review the time frame and definition of short-term exports in granting an export licence. However, CAC does believe that shorter terms are appropriate as energy surpluses diminish.

The CAC is also concerned about the impact on the environment of the increase in electromagnetic fields resulting from an increase in transmission of electricity along international power lines. However, CAC did not submit any evidence relating to EMF.

Finally, the CAC states that the Applicants are not requesting authorization for exports over new interconnections, yet B.C. Hydro and Washington Water Power Company continue to plan a 230 kV transmission intertie. The CAC is of the opinion that exports affect the planning and operation of the intertie and work done related to the intertie should be assessed even if it is not actually built during the term of the export permits.

5.2.4 The Greater Vancouver Regional District ("the GVRD")

The GVRD submitted that the Applicants' application for export permits is premature until such time as the Applicants have assessed the environmental impacts.

Insofar as Burrard is concerned, the GVRD believes that Burrard should only be used in emergency situations. The GVRD believes that B.C. Hydro intends to use Burrard to support exports of firm energy which could aggravate air pollution problems in the Greater Vancouver area. GVRD submits that Burrard is the single largest source of nitrogen oxide emissions in the Greater Vancouver area. Furthermore, ground level ozone problems occurring during the summer months may be increased by the operation of Burrard during the summer months, the season in which the ozone problem is most severe.

The GVRD further states that Board information requirements should specifically direct the Applicants to file an assessment of the probable environmental impacts of the proposed exportation. Although the GVRD acknowledges that B.C. Hydro provided details of permits held by Burrard and the restrictions under which Burrard operates, it has made no attempt to provide an assessment of the probable environmental impact of the proposed exportation. For those reasons, the GVRD opposes the application.

In response, the Applicants submit that the proposed exports will be generated and transmitted by facilities which have obtained all the necessary provincial and federal permits and certificates and are operating at present within applicable provincial and federal environmental standards and guidelines. The Applicants state that other producers in British Columbia and Alberta, such as Alcan, Alberta utilities and independent power producers may be willing to sell surplus generation to the Applicants from time to time. Those surpluses could be purchased for sale or be exported from British Columbia through the PEO. The Applicants submit that electricity purchases from other producers must operate in accordance with provincial and federal regulations.

5.2.5 ISCA Management Ltd. ("ISCA")

ISCA's submission addressed environmental aspects of proposed licences, more particularly nitrogen oxides reduction technologies.

5.2.6 Westcoast Energy Inc. ("Westcoast")

Westcoast's interest in the application extended to the frequency of use of Burrard. Westcoast owns and operates a natural gas pipeline transmission system that transports natural gas to the BC Gas Power Mainland Division for subsequent redelivery to Burrard. To the extent that Burrard will be utilized to generate electricity for export it will contribute to incremental system throughput and utilization on the Westcoast system.

5.2.7 TransAlta Utilities Corporation

A letter from TransAlta stated that it desires an opportunity to export to the U.S.A., indirectly through sales of its surpluses to B.C. Hydro for subsequent export by the Applicants to the United States, or directly by wheeling its surpluses through the B.C. Hydro system. It was TransAlta's understanding that B.C. Hydro's export activities would not compromise B.C. Hydro's obligations to TransAlta to provide emergency assistance for both operating and planning purposes.

5.2.8 Letters of Comment

The Board received 24 letters of comment related to the B.C. Hydro/POWEREX application. A number of letters addressed multiple concerns. Topics included concerns about the environment, health, agriculture, air quality and a request for public hearings (17 letters). Two letters were filed in opposition to possible exports from Alcan. There were also 4 letters expressing concern about the effect of exports on existing B.C. Hydro tariffs. Other letters discussed the right of British Columbia residents to utilize surpluses before exports, the social impact of exports, not enough contact by the Applicants with individuals concerning the proposed exports, the source of generation for proposed exports and the assertion that exports were below cost because export prices are less than the cost of electricity generation from the Revelstoke Dam.

Chapter 6

Views of the Board

In its review of the application, the Board may only consider those matters as outlined in Section 1.1 of this Reasons for Decision. Accordingly, the Board did not consider any of the evidence, submissions and letters of comment that addressed matters outside its jurisdiction.

6.1 Provincial and U.S.A. Approvals Related to the Exports

The Board is satisfied that all Provincial approvals required for the proposed exports from British Columbia have been received. The Board notes that the Applicants stated that no U.S.A. approvals are required to import the proposed exports from British Columbia.

6.2 The Impact of the Exports on the Environment

The judgement of the Federal Court of Appeal, described in Section 1.2 of this Reasons for Decision, indicated that the Board, in respect of the impact of an export of electricity on the environment, may consider only the impact of the sending from Canada of the electricity involved. It therefore had regard only to the impact on the environment of the transmission, or sending from Canada, of the proposed exports. Consequently, the Board did not consider evidence filed by the Applicants or other interested parties, such as the GVRD or ISCA, concerning the environmental impact of the generation and purchases by the Applicants, and purchases from other electricity producers of the electricity which might be exported under the requested permits.

The Board notes that the sending of the proposed exports from Canada may occur over any or all of B.C. Hydro's international power lines. The Board considered the environmental effects of the operation of the international power lines at full load when it issued to B.C. Hydro its Certificates of Public Convenience and Necessity to construct and operate its 230 kV and 500 kV international power lines. The Board did not receive any new evidence of environmental impacts concerning the sending of electricity from Canada by the Applicants. The Board recognizes the CAC's concern about the impact on the environment of the increase in electromagnetic fields resulting from an increase in the transmission of electricity along the international power lines. The Board notes that a July 1986 enquiry by the BCUC held that there was insufficient evidence to support a presumption of an actual health risk and that the BCUC concluded that it would be undesirable and unfounded speculation to establish and fix standards for EMF exposure. The Board notes that although the CAC raised concerns with EMF, no new evidence was submitted that would question the BCUC 1986 enquiry. The Board further notes that the Applicants stated that they are not disregarding EMF concerns, and that B.C. Hydro sponsors research in the area and remains informed on related studies.

The Board has considered the potential environmental effects of sending electricity over these international circuits for the full range of possible interruptible and/or firm exports requested by the Applicants in this application. The Board is satisfied that the proposed exports will be transmitted by facilities which have obtained all the necessary provincial and federal permits and certificates and are presently operating within the applicable provincial and federal standards and guidelines.

Finally, the Board is satisfied that the potentially adverse environmental effects of the proposed exports would be insignificant or mitigable with known technology.

6.3 The Effect of the Exports on Provinces Other Than British Columbia

6.3.1 Reliability Concerns

The Board notes that TransAlta, the sole Canadian utility connected interprovincially with the B.C. Hydro system, had an opportunity to have input into a study undertaken by B.C. Hydro in conjunction with the WSCC that formed the basis for increasing the B.C. Hydro-Bonneville tie-line capabilities from 2 000 to 2 300 MW. In the evidence TransAlta stated that from operating experience, B.C. Hydro's exports, over the years, have not had any effects on the reliability of Alberta's electrical systems.

The Board is, therefore, satisfied that the proposed exports would not have any unacceptable effects on the reliability and stability of operation of the power systems in adjacent provinces.

6.4 Fair Market Access

The Applicants requested authorization for exports where the terms and conditions are not known at the time of the application. This raises a number of concerns related to FMA:

- How are FMA requirements to be satisfied in those cases where the terms and conditions of export contracts are not known at the time of the application?
- Should the Board require prior approval of specific export contracts executed under the requested permits?
- Should there be a maximum duration for separate interruptible and short term export contracts negotiated under the requested permits?

Also addressed as FMA related concerns is the Applicants' proposal to provide wheeling and other services for export purposes.

6.4.1 Interruptible/Firm Exports of up to One Year Duration

The Board notes that the PEO process incorporates three market based procedures for interruptible and firm transactions of less than one year in duration. The three market based procedures are discussed separately below.

6.4.1.1 PEO Posted Buy and Sell Prices

Based on its market assessment, the PEO posts its transaction buy and sell prices. For daily transactions the prices and quantities are posted the day before delivery and all PEO participants have an opportunity to commit to a transaction during that period. The procedure is stated to be the same for longer transactions, such as weekly/monthly, with the exception that postings are made further in advance.

As the PEO procedure informs Canadians who have expressed an interest in purchasing electricity of the quantities and prices of electricity available for sale, and allows them a reasonable period to demonstrate their intention to purchase, it appears to the Board that the posted buy and sell prices through the PEO provides FMA to interested Canadians. Moreover, as PEO membership is free, even if interested Canadians do not want to be a PEO member, transaction information is available on request.

6.4.1.2 PEO Supplier Nominated Prices

The Board notes that prospective sellers can nominate their selling price to the PEO rather than accept the PEO buy price. With the exception that the PEO purchase price is negotiated rather than set by the PEO, nominated transactions are treated in the same manner by the PEO as posted buy and sell transactions.

The PEO supplier nominated price procedure informs Canadians who have expressed an interest in purchasing of the quantities and prices of electricity available for sale and allows them a reasonable period to demonstrate their intention to purchase. Moreover, irrespective of whether prospective sellers to the PEO sell at a nominated price or at the PEO posted buy price, the PEO posted selling price is available to all potential customers. It appears to the Board that this PEO procedure provides FMA to interested Canadians.

6.4.1.3 PEO Negotiated Prices

The Board notes that buyers and sellers can also negotiate transactions under the PEO. In contrast to other PEO transactions, where transaction quantities and prices are transparent to all interested parties, negotiated transactions are not transparent to all parties. The Applicants suggest that FMA no longer requires interception, but did not provide a detailed description of how FMA would be provided for negotiated transactions.

Although the Board concurs that FMA does not oblige the Applicants to provide for interception of proposed exports, fair market access is meant to afford to Canadian purchasers who have demonstrated an intention to buy electricity for consumption in Canada an opportunity to purchase electricity on terms and conditions as favourable as those offered to an export customer. Further, the Board believes that the Act places an onus on both the exporter and prospective Canadian purchasers to bargain in good faith and work out for themselves mutually acceptable and appropriate FMA procedures.

The Board notes that the export authorizations requested by the Applicants are for transactions where the terms and conditions are not known at the time of the application. The Board recognizes the need for the Applicants to have such authorizations to engage in short term electricity export trade and provide the flexibility to coordinate operations with those of interconnected U.S.A. neighbours for maximum economic and reliability benefits. However, the FMA requirements in the Act require the Board to satisfy itself that Canadians will have been given an opportunity to purchase electricity on terms and conditions (including price) as favourable as the terms and conditions of any proposed export that might be negotiated by the Applicants. Therefore, to ensure compliance with the Act, the Board will condition any permits it may issue to ensure that prospective Canadian purchasers will be provided fair market access.

Moreover, to provide Canadians with a complaints mechanism if they believe they have not been provided FMA, the Board will condition any permits it may issue to require the Applicants to provide information on exports as follows:

- due to the limited time available to Canadians to negotiate a similar purchase, for exports of one month or less (i.e. hourly, weekly), the Board will condition any permits it may issue to require the Applicants to inform accessible Canadian purchasers, on request, of the terms and conditions, including price, under which a particular export was made.
- for exports greater than a month, condition any permits it may issue to require the Applicants to file a copy of the associated contractual arrangements with the Board, within fifteen consecutive days after the contract is executed, and upon request serve a copy thereof on the requesting accessible Canadian purchaser.

6.4.1.4 Negotiated Prices for Interruptible/Firm Export Contracts Greater Than One Year's Duration

The Board notes that for transactions of longer than one year's duration the Applicants will seek out markets and provide information on potential surplus electricity, which is itself a continuation of the Applicants' regular ongoing contact with potential customers. Also, information would be provided on request. It is further noted that the Applicants stated they will undertake negotiations with potential customers who express an interest in purchasing a particular block of electricity.

The Board has the same FMA concerns regarding these negotiated transactions as noted for PEO negotiated transactions which will not have their terms and conditions, for the most part, known at the time of the application to the Board. Accordingly, to monitor compliance the Board will, for information purposes only, condition any permits it may issue to require the Applicants to file a copy of the associated contractual arrangements with the Board, within fifteen consecutive days after the contract is executed, and upon request, serve a copy thereof on the requesting accessible Canadian purchaser.

6.4.1.5 Requirement for Prior Board Approval of Specific Export Contracts

In their application and responses to queries from the Board, the Applicants proposed that export contracts for durations of up to four years need not be subjected to further Board scrutiny as all the requisite information had been provided for in the application to allow the Board to grant such authorization. Further, the Applicants proposed a requirement of prior approval of contracts of greater than four years' duration as they acknowledge that there are more uncertainties in the short-term markets beyond four years.

The Board notes, however, that the Act now provides that in the case of permits, the Board may only impose conditions which relate to specific matters set out in the MOG, and this does not include prior approval of export contracts. The Board can impose conditions requiring prior Board approval only for applications where the Board issues licences, following designation of an application by the Governor in Council and a public hearing.

The Board recognizes that under existing export licences held by the Applicants, they are permitted to engage in export transactions of up to 48 months. The Board notes, however, that existing exports are

authorized under a licence which was granted following a public hearing and which contains conditions requiring prior Board approval of exports greater than one month's duration and requiring the Applicants to first offer proposed exports to Canadians. Thus, under the existing licences the actual terms and conditions of specific contracts were examined by the Board on a case by case basis taking into consideration matters under the Board's jurisdiction.

Thus the Board must determine whether to set an upper limit on the duration of contracts entered into under any permits it might issue - recognizing that such contracts will not be subject to prior Board approval.

6.4.1.6 Maximum Duration of Specific Export Contracts

The Board notes that if it were to issue permits for the duration requested by the Applicants (i.e. 6 years) and to place no restrictions on the duration of specific export contracts negotiated under such permits, then it would be possible for the Applicants to enter into six-year interruptible and short-term export contracts where the terms and conditions are not known at the time of the application. Moreover, any single export contract under any permits the Board may issue would not be subject to further Board scrutiny except for complaints arising from after the fact monitoring by Canadians concerning FMA compliance.

Thus the task which faces the Board in the context of this application is to ensure that only short-term interruptible and firm transactions are authorized under the permits it may issue. Accordingly, there is a need for the Board to establish what it means by the words "short term".

The Board notes that the Applicants have described the PEO as a short-term electricity trade operation which allows, among other things, the buying and selling of interruptible and short-term firm energy in a short-term market, with many diverse players operating in a competitive and opportunistic environment requiring fast decision making to respond to short-term prices and market conditions. On a trial basis, the PEO has been facilitating electricity trade with both Alberta and the U.S.A. Evidence provided by the Applicants regarding the PEO states that "short-term electricity transactions are transactions of one year or less duration". In the Board's opinion such a definition, as it relates to the PEO, which is strictly to meet system operating requirements, appears reasonable. Accordingly, for interruptible and firm transactions inside the PEO, the Board will condition any permits it may issue limiting the duration of permits to one year in respect of any single export contract to which the Applicants may be party.

In addition to the flexibility required to make short-term export transactions associated with maximizing the benefits of co-ordinated system operations of the interconnected networks within the PEO, the Board recognizes the Applicants' need for flexibility to make short-term firm capacity and associated energy exports and other mutually beneficial international transactions outside the PEO. Purchasers in the U.S.A. usually enter into such transactions to ensure continuity of secure, reliable and economic electric service to customers in the immediate planning horizon. Major equipment breakdowns of generating facilities, delays in bringing generating units into service, unexpected increases in demand and reduced effectiveness of demand side management programs, are just a few examples of events that could cause unexpected U.S.A. capacity deficiencies that might give rise to imports from the Applicants. Such situations can arise quickly, and the decisions required to conclude transaction arrangements need to be taken rapidly.

The Applicants proposed that they be permitted to enter into contracts of up to four years duration without requiring prior Board approval. However, for interruptible and short-term exports not subject to prior Board approval, which would be the case in this application, the Board is of the view that a shorter time frame is warranted. The Board is of the view that a maximum duration of three years for specific exports is reasonable and will permit the Applicants to engage in export transactions of an operational and immediate planning nature. For exports beyond three years, intermediate and longer term planning considerations could affect facility additions and therefore these exports should be covered under separate permits the Board may issue.

The Board is therefore prepared to allow, under any permits it may issue for transactions outside the PEO, short-term exports of up to three years' duration for any specific export contracts. Export contracts of greater than three years' duration would require an application to the Board for a separate export permit.

The Board recognizes that the Applicants have export commitments which were approved by the Board under existing NEB electricity export licences. Those export commitments would continue to be authorized under any permits the Board may grant and would be exempted from any conditions the Board might impose in respect to the duration of new export contracts.

Finally, the Board is of the view that, with respect to storage transfers where the U.S. utility banks electricity in the Applicants' system for later return, the net export is zero. Accordingly, the public interest is not detrimentally affected by these particular transactions. Therefore, as the storage agreements between the Applicants and U.S.A. utilities provide for multi-year transfers, the Board is of the view that the duration of transfer contracts of up to the term requested by the Applicants is reasonable.

6.4.2 Wheeling of Interruptible/Firm Electricity for Export

The Board notes that the Applicants propose to make carrier transfers and also to provide carrier transfers or wheeling services to other parties for export through the B.C. Hydro system under the requested permits. For those cases where the Applicants make carrier transfers for the purposes of exporting electricity from one part of the B.C. Hydro system for wheeling through the U.S.A. and the simultaneous import of the electricity into another part of the B.C. Hydro system, the net export is zero. The Board is of the view for such carrier transfers the public interest is not detrimentally affected.

In cases where the Applicants provide carrier transfer service to other parties for export, the net exports are not zero. In effect the Applicants will be wheeling electricity from Canada to export markets. The Board is not concerned when a potential Canadian exporter passes ownership of the electricity to be exported to the Applicants as in those instances the exports would be made under Board authorizations issued to the Applicants. If, however, the prospective Canadian exporter does not pass ownership of the electricity to be exported to the Applicants, and the exporter does not have Board authorization to export, the Applicants would be providing a carrier service for export to parties for which there is no Board authorization, this would be in contravention of the Act.

The Board therefore will direct the Applicants to ensure that for those occasions when a Canadian exporter utilizes the Applicants' wheeling service to export its electricity, those services will only be provided when the prospective Canadian exporter has demonstrated that the necessary Board approvals

have been obtained. The Board will include such a directive, requiring the Applicants to ensure that a prospective Canadian exporter has demonstrated that the necessary Board approvals have been obtained, in any permits it may issue.

6.4.3 Other Transactions and Services

Regarding the provision of FMA for transactions and services such as coordination, circulating power flows, and inadvertent and adjustment transfers as described in Section 3.1, the Board is of the view that there are no net exports involved because they are consequences of interconnected systems operations, and the public interest is not detrimentally affected by these particular transactions.

6.5 Term of Requested Permits

The Board notes that the two requested export permits will end on 30 September 1997. The Board recognizes that the Applicants will utilize the requested export permits in a manner which will allow them to gain the benefits of coordinated operations with their neighbouring interconnected U.S.A. systems. The Board also notes that long term sales would be the subject of separate applications to provincial and federal authorities.

For these reasons the Board is satisfied that the requested terms of the permits are reasonable.

Chapter 7

Disposition

After considering the information provided by the Applicants and the interventions and submissions of interested parties, the Board is of the view that a public hearing is not required or necessary and has decided not to recommend to the Minister that the Governor in Council designate the B.C.

Hydro/POWEREX application for licencing as it has not identified any issues within the Board's jurisdiction which would benefit from further public review.

The Board, having satisfied itself that the exports would not have any unacceptable effect on provinces other than British Columbia, that the impact of the export on the environment would be insignificant or mitigable with known technology, that the Applicants' FMA procedures appear to provide fair market access to the exports, and having regard to all considerations that appear to it to be relevant, is prepared to issue to B.C. Hydro and POWEREX permits granting the requested authorizations. For administrative reasons and to allow the Board to monitor the type of export transactions under and outside the PEO process the Board will issue four export permits. Two of the export permits, one for interruptible exports and one for short term firm exports will be issued for export sale transactions under the PEO process, while the other two permits for interruptible exports and short term firm exports will be for export sale transactions outside the PEO. Terms and conditions applicable to each permit are set out in Appendices III, IV, V and VI. The term of Permits EPE-41, EPE-42, EPE-43 and EPE-44 will commence on 1 January 1993 instead of 1 October 1991 as requested in the application. Finally, B.C. Hydro and POWEREX are requested to supply to the Board, by the 15th day after the end of each month during the term of these permits, a report setting forth the quantities of power and energy exported and the resulting revenue.

The foregoing constitutes our Reasons for Decision in the present application of B.C. Hydro and POWEREX pursuant to Part VI of the *National Energy Board Act*.

R. Illing
Presiding Member

R.B. Horner, Q.C.
Member

K.W. Vollman
Member

Appendix I

Parties Providing Letters of Comment

John Marrett

Dewdney-Allouette Regional District

Mainland Dairymen's Association

J.M. Black

Peace Valley Environmental Association

District of Burnaby

District of Chilliwack

City of Langley

The Corporation of Delta

The Corporation of the District of North Vancouver

Corporation of the District of Maple Ridge

The Corporation of the City of North Vancouver

Village of Anmore

The Corporation of the Village of Harrison Hot Springs

City of Vancouver

The Corporation of the District of Matsqui

James Campbell

Karen Zaborneak

Clifford Walker

Project North

Lorna L. Philbrick (Mrs.)

Allied Rivers Commission

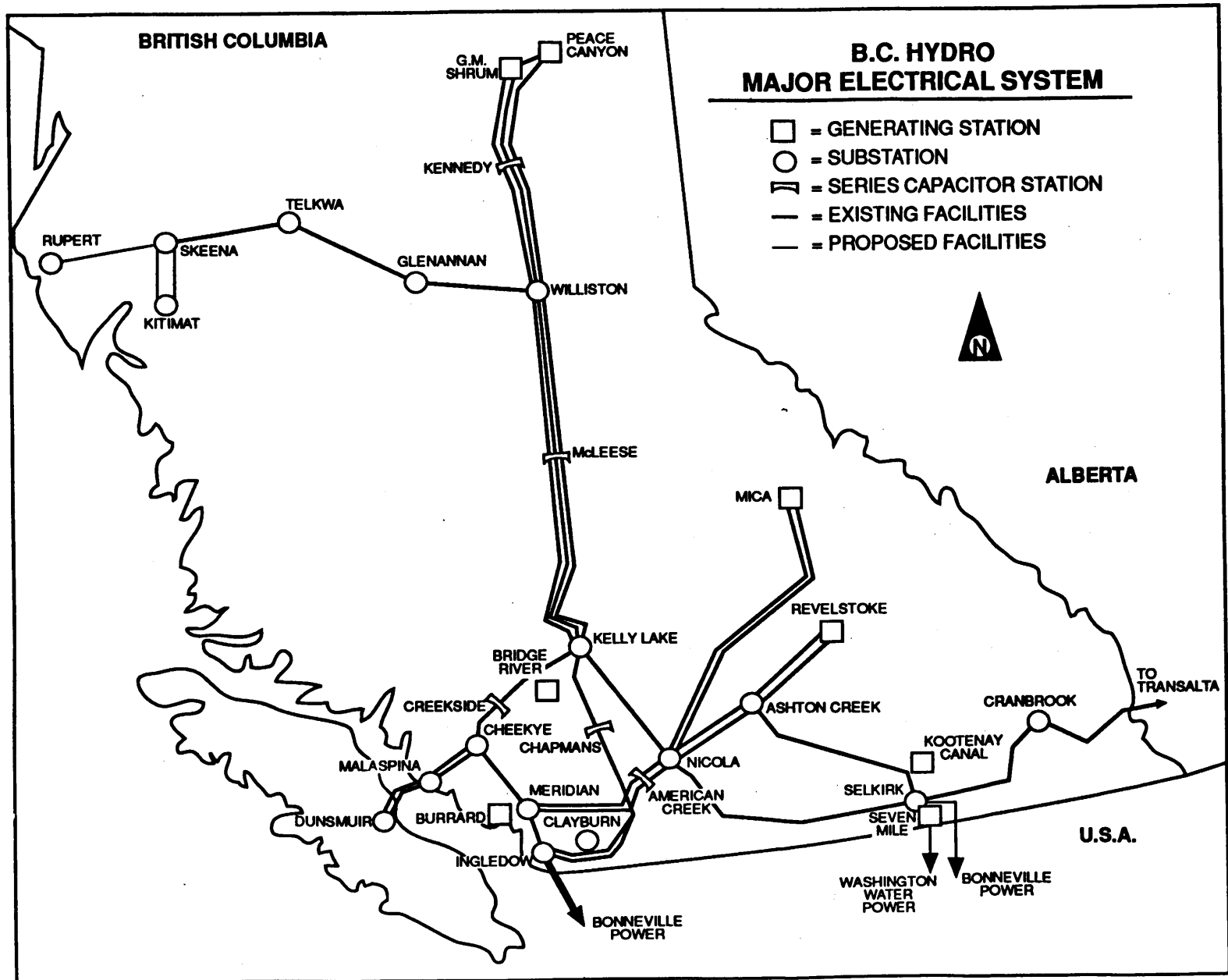
The Corporation of the District of West Vancouver

Edmonton Power

Appendix II

B.C. Hydro Major Electrical System

Figure A2-1
B.C. Hydro Major Electrical System



Appendix III

Terms and Conditions of Export Permit EPE-41

1. The term of this permit shall commence on 1 January 1993 and shall end on 30 September 1997.
2. Under the Power Exchange Operation, the classes of transfer authorized hereunder shall be the sale, exchange, storage, circulating power flow, adjustment and carrier transfer of interruptible energy.
3. The energy to be exported hereunder may be transmitted over any international power lines for which the Board has issued a certificate of public convenience and necessity or permit.
4. The quantity of energy that may be exported hereunder shall not exceed 20 000 GW.h in any consecutive twelve-month period, less actual exports under Permits EPE-42, EPE-43 and EPE-44.
5. The exports made hereunder shall be in accordance with one of the following agreements:
 - 1) The Interconnection and Exchange Agreement executed 9 January 1991 between B.C. Hydro and POWEREX and the Bonneville Power Administration (Contract No. DE-MS79-91BP92793);
 - 2) The Non-Treaty Storage Agreement executed 9 July 1990 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-90BP92754); and
 - 3) The letter agreement executed 10 May 1982 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-82BP90334).
6. Any amendment or addendum to, termination or substitution of the agreements referred to in Condition 5 shall not be effective until approved by the Board. Contracts for the export of electricity from Canada shall not be considered to be such amendments, addendums, terminations or substitutions.
7. For any single contract for the export of electricity from Canada which is entered into by B.C. Hydro and/or POWEREX, the maximum duration of this permit shall not exceed one year from the date exports commence.
8. B.C. Hydro and/or POWEREX shall not export without:
 - (i) informing those who have declared an interest in buying electricity for consumption in Canada of the quantities and classes available for sale; and
 - (ii) giving an opportunity to purchase electricity on terms and conditions (including price) as favourable as the terms and conditions which apply to the proposed exports, to those who, within a reasonable time after being so informed demonstrate an intention to buy electricity for consumption in Canada.

9. B.C. Hydro and/or POWEREX must:
- (i) subsequent to the commencement of an export, inform accessible Canadian purchasers, on request, of the terms and conditions, including price, for any export of one month or less; and
 - (ii) file with the Board, within fifteen consecutive days of its execution, a copy of any export contract greater than one month's duration, and upon request, serve a copy thereof on the requesting accessible Canadian purchaser.

Appendix IV

Terms and Conditions of Export Permit EPE-42

1. The term of this permit shall commence on 1 January 1993 and shall end on 30 September 1997.
2. Under the Power Exchange Operation the class of transfer authorized hereunder shall be the sale, storage, carrier and exchange transfer of blocks of short term firm power and energy.
3. The power and energy to be exported hereunder may be transmitted over any international power lines for which the Board has issued a certificate of public convenience and necessity or permit.
4. The quantity of power and energy that may be exported hereunder shall not exceed 2 300 MW of power and shall not exceed 6 000 GW.h of firm energy in any consecutive twelve-month period, less actual exports under Permit EPE-44.
5. The exports made hereunder shall be in accordance with one of the following agreements:
 - 1) The Interconnection and Exchange Agreement dated 9 January 1991, between B.C. Hydro and POWEREX and the Bonneville Power Administration (Contract No. DE-MS79-91BP92793);
 - 2) The Non-Treaty Storage Agreement dated 9 July 1990 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-90BP92754); and
 - 3) The letter agreement executed 10 May 1982 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-82BP90334).
6. Any amendment or addendum to, termination or substitution of the agreements referred to in Condition 5 shall not be effective until approved by the Board. Contracts for the export of electricity from Canada shall not be considered to be such amendments, addendums, terminations or substitutions.
7. For any single contract for the export of electricity from Canada which is entered into by B.C. Hydro and/or POWEREX, the maximum duration of this permit shall not exceed one year from the date exports commence.
8. B.C. Hydro and/or POWEREX shall not export without:
 - (i) informing those who have declared an interest in buying electricity for consumption in Canada of the quantities and classes available for sale; and
 - (ii) giving an opportunity to purchase electricity on terms and conditions (including price) as favourable as the terms and conditions which apply to the proposed exports, to those who, within a reasonable time after being so informed demonstrate an intention to buy electricity for consumption in Canada.

9. B.C. Hydro and/or POWEREX must:
- (i) subsequent to the commencement of an export, inform accessible Canadian purchasers, on request, of the terms and conditions, including price, for any export of one month or less; and
 - (ii) file with the Board, within fifteen consecutive days of its execution, a copy of any export contract greater than one month's duration, and upon request, serve a copy thereof on the requesting accessible Canadian purchaser.

Appendix V

Terms and Conditions of Export Permit EPE-43

1. The term of this permit shall commence on 1 January 1993 and shall end on 30 September 1997.
2. For transfers outside the Power Exchange Operation, the classes of transfer authorized hereunder shall be the sale, exchange, storage, circulating power flow, adjustment and carrier transfer of interruptible energy.
3. The energy to be exported hereunder may be transmitted over any international power lines for which the Board has issued a certificate of public convenience and necessity or permit.
4. The quantity of energy that may be exported hereunder shall not exceed 20 000 GW.h in any consecutive twelve-month period, less actual exports under Permits EPE-4I, EPE-42 and EPE-44.
5. The exports made hereunder shall be in accordance with one of the following agreements:
 - 1) The Interconnection and Exchange Agreement executed 9 January 1991 between B.C. Hydro and POWEREX and the Bonneville Power Administration (Contract No. DE-MS79-91BP92793);
 - 2) The Non-Treaty Storage Agreement executed 9 July 1990 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-90BP92754); and
 - 3) The letter agreement executed 10 May 1982 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-82BP90334).
6. Any amendment or addendum to, termination or substitution of the agreements referred to in Condition 5 shall not be effective until approved by the Board. Contracts for the export of electricity from Canada shall not be considered to be such amendments, addendums, terminations or substitutions.
7. Except for storage transfers, for any single contract for the export of electricity from Canada which is entered into by B.C. Hydro and/or POWEREX, subsequent to the date of this permit, the maximum duration of this permit shall not exceed three years from the date exports commence.
8. B.C. Hydro and/or POWEREX shall not export without:
 - (i) informing those who have declared an interest in buying electricity for consumption in Canada of the quantities and classes available for sale; and
 - (ii) giving an opportunity to purchase electricity on terms and conditions (including price) as favourable as the terms and conditions which apply to the proposed exports, to

those who, within a reasonable time after being so informed demonstrate an intention to buy electricity for consumption in Canada.

9. B.C. Hydro and/or POWEREX must:

- (i) subsequent to the commencement of an export, inform accessible Canadian purchasers, on request, of the terms and conditions, including price, for any export of one month or less; and
- (ii) file with the Board, within fifteen consecutive days of its execution, a copy of any export contract greater than one month's duration, and upon request, serve a copy thereof on the requesting accessible Canadian purchaser.

Appendix VI

Terms and Conditions of Export Permit EPE-44

1. The term of this permit shall commence on 1 January 1993 and shall end on 30 September 1997.
2. For transfers outside the Power Exchange Operation the class of transfer authorized hereunder shall be the sale, storage, carrier and equichange transfer of blocks of short term firm power and energy.
3. The power and energy to be exported hereunder may be transmitted over any international power lines for which the Board has issued a certificate of public convenience and necessity or permit.
4. The quantity of power and energy that may be exported hereunder shall not exceed 2 300 MW of power and shall not exceed 6 000 GW.h of firm energy in any consecutive twelve-month period, less actual exports under Permit EPE-42.
5. The exports made hereunder shall be in accordance with one of the following agreements:
 - 1) The Interconnection and Exchange Agreement executed 9 January 1991, between B.C. Hydro and POWEREX and the Bonneville Power Administration (Contract No. DE-MS79-9IBP92793);
 - 2) The Non-Treaty Storage Agreement executed 9 July 1990 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-90BP92754); and
 - 3) The letter agreement executed 10 May 1982 between B.C. Hydro and the Bonneville Power Administration (Contract No. DE-MS79-82BP90334).
6. Any amendment or addendum to, termination or substitution of the agreements referred to in Condition 5 shall not be effective until approved by the Board. Contracts for the export of electricity from Canada shall not be considered to be such amendments, addendums, terminations or substitutions.
7. Except for storage transfers, for any single contract for the export of electricity from Canada which is entered into by B.C. Hydro and/or POWEREX, subsequent to the date of this permit, the maximum duration of this permit shall not exceed three years from the date exports commence.
8. B.C. Hydro and/or POWEREX shall not export without:
 - (i) informing those who have declared an interest in buying electricity for consumption in Canada of the quantities and classes available for sale; and
 - (ii) giving an opportunity to purchase electricity on terms and conditions (including price) as favourable as the terms and conditions which apply to the proposed permits, to

those who, within a reasonable time after being so informed demonstrate an intention to buy electricity for consumption in Canada.

9. B.C. Hydro and/or POWEREX must:

- (i) subsequent to the commencement of an export, inform all accessible Canadian purchasers, on request, of the terms and conditions, including price, for any export of one month or less; and
- (ii) file with the Board, within fifteen consecutive days of its execution, a copy of any export contract greater than one month's duration, and upon request, serve a copy thereof on the requesting accessible Canadian purchaser.