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A Review of International Power Sales Agreements

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A Review of International Power Sales Agreements

by
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August 1991

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WEIGHTS AND MEASURES

1 Kilovolt (kV)	=	1,000 volts (V)
1 Kilovolt Ampere (kVA)	=	1,000 volt amperes
1 Kilowatt (kW)	=	1,000 watts (W)
1 Megawatt (MW)	=	10 ³ kilowatts (kW)
1 Gigawatt (GW)	=	10 ⁶ kilowatts (kW)
1 Terawatt (TW)	=	10 ⁹ kilowatts (kW)
1 Kilowatt - hour (kWh)	=	1,000 watt - hours (Wh)
1 Megawatt - hour (MWh)	=	10 ³ kilowatt - hours (kWh)
1 Gigawatt - hour (GWh)	=	10 ⁶ kilowatt - hours (kWh)
1 Terawatt - hour (TWh)	=	10 ⁹ kilowatt - hours (kWh)

ABBREVIATIONS

EdL	=	Electricite du Laos
EDM	=	Electricidade de Mozambique
EGAT	=	Electricity Generating Authority of Thailand
ENALUF	=	Empresa Nacional de Luz y Fuerza (Nicaragua)
ENEE	=	Empresa Nacional de Energia Electrica (Honduras)
ESKOM	=	Electricity Supply Corporation (Republic of South Africa)
GDP	=	Gross Domestic Product
HQ	=	Hydro-Quebec (Canada)
LIBOR	=	London Inter-Bank on-Lending Rate
LRMC	=	Long Run Marginal Cost
SRMC	=	Short Run Marginal Cost
NEPOOL	=	New England Power Pool (USA)
NYPA	=	New York Power Authority (USA)
OH	=	Ontario Hydro (Canada)
ZESA	=	Zimbabwe Electricity Supply Authority

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
INTERNATIONAL POWER SALES AGREEMENTS	1
A. Study Objective	1
B. Background	1
The Role of Contracts in Power Trade	2
Factors Affecting Contract Content	3
C. Features of Contracts Reviewed	7
Contract Terms	8
Preamble	8
Rates and Charges	9
Tariff Escalation and Adjustment	13
Rate Renegotiation	14
Billing and Payments	14
Taxes	15
Scheduling and Deficiencies	15
Delay of In-Service Date	16
Hydrological Risk	17
Facilities Ownership	17
Operating Committee	18
Metering and Measurement of Energy	19
Status of Prior and Other Agreements	19
Force Majeure	19
Sovereignty and Riparian Rights	20
Dispute Resolution	20
Termination	22
Interconnection Agreement	22
D. Conclusions and Implications	25

TABLE 1: SUMMARY OF PRIMARY ISSUES AND CONTRACT FEATURES FOR MAJOR CATEGORIES OF ELECTRICITY TRADE	24
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ANNEX A: LIST OF CONTRACTS REVIEWED	
ANNEX B: TERMS AND CONDITIONS RELEVANT TO AN ELECTRICITY SALES CONTRACT	
ANNEX C: STANDARD TERMS AND CONDITIONS: FUNCTION AND CONTENT	
ANNEX D: DEFINITIONS OF INCREMENTAL AND DECREMENTAL COSTS	
ANNEX E: ENERGY CONTRACT, Hydro-Quebec-NEPOOL	
ANNEX F: FIRM POWER CONTRACT, Ontario-Hydro-Vermont Public Power Supply Authority	
ANNEX G: INTERCONNECTION AGREEMENT, Hydro-Quebec-NEPOOL	

ABSTRACT

This report is a result of a desk study conducted by the Joint UNDP/World Bank Energy Sector Management Assistance Program (ESMAP). The report identifies and analyzes the issues and options involved in the design of electricity export contracts. A well-designed contract is an important component of realizing the objectives of inter-utility trade, in that it provides a mutually agreed structure for the provision of management incentives and for the distribution of risks and rewards of the trade. The study revealed that the most critical determinant of the terms and conditions in an electricity agreement is the degree of firmness of power and energy traded. Aside from the presence of net benefits, the most critical determinants of successful implementation of the agreement were: contractual complexity commensurate with the sophistication of the utilities (data, trading history); non-political management of the trade, based on utilities possessing sufficient autonomy to make key decisions; and the degree of goodwill and trust between the parties.

EXECUTIVE SUMMARY

Inter-utility trade can be an important component of realizing power system objectives as it permits savings derived from load diversity, hydrologic complementarity, economies of scale, reduced reserve requirements and higher system reliability. One-way sales can provide lower cost power to the purchaser and revenues to the seller. Benefits of operating two-way exchanges in an interconnected system include the provision of mutual assistance during system disturbances and emergencies, the sharing of reserves for improved system reliability and the exchange of surplus power and energy to realize savings in the operating costs of both systems. An advantage of capacity interchange is that it allows each system to schedule generation additions at longer intervals. The role of international inter-utility trade in meeting national power sector objectives depends upon, *inter alia*, the objectives of the parties, the configuration of domestic systems and existing trade. Electricity trade transactions between independent utilities range between spot sales to long-term sales of firm power.

Important environmental benefits may be realized in the event two parties can agree on regional planning of generation resources, as additions of capacity are staggered on a regional basis. While there is no source of commercial generation which is completely free from environmental impacts, where purchases of electricity from hydraulic sources, built in accordance with sound environmental practices, are used to replace thermal generation, an additional environmental benefit may be realized through the reduction of atmospheric pollutants in the region.¹

This study examined twenty-four power sales agreements under which electricity trade was successfully implemented. The agreements were between countries at all levels of economic development and were based on a variety of generation sources. The keys to successful trade include: the presence of net benefits to both parties, a desire by both parties to realize those benefits and a focused and non-political internal management and decision-making process regarding trade issues. The degree to which the trade is supplemented by trust and goodwill between the trading utilities is another critical component of successful trade.

The contract is an important tool in managing trade and in the realization of electricity trade objectives. An appropriately designed agreement can provide a workable structure for the provision of management incentives, the distribution of risks and benefits, and can minimize the risk of breach/non-performance, thus increasing the likelihood of each party obtaining the maximum benefits from the trade. There is no model electricity export contract. While the structure and content of electricity export contracts vary widely, all agreements contain certain common elements,

¹ *Air pollution from fossil-fuel fired generating stations contribute significantly to acid rain and global warming as greenhouse gasses and other atmospheric pollutants are emitted. Hydro facilities produce little pollution compared with thermal sources. The environmental problems associated with dams for hydropower production include; loss or change of habitat for marine biota and wildlife; changes in water quality; water logging; changes in ground water levels; and water-borne diseases. Following a thorough environmental impact assessment, design and siting solutions may be able to mitigate or eliminate associated environmental problems. However, the costs and benefits of mitigating environmental harm from hydro sources and the remaining externalities would have to be carefully weighed against those from thermal sources.*

inter alia, the technical characteristics of power and energy to be delivered; rates and charges and administrative clauses specifying date of entry into force, assignability and *force majeure*.

In general, recent contracts between developed countries are far more complex in structure and content than the contracts between developing countries. In part, this reflects the longer trading history and the more sophisticated metering and dispatch technology in use in the developed countries. Developing country electricity trade is generally managed through *ad hoc* arrangements or very simple contracts. The developing world is full of unexploited opportunities for advantageous trade. While there may be clear net benefits to be gained by trade, the trade may be unattractive to one or both parties because of uncertainties over sharing the risks and returns produced by the trade. Sales contracts which clearly allocate rights, responsibilities, risks and benefits between parties would reduce the uncertainties attached to the trade and could facilitate expansion of trade between developing countries.

One of the most important factors affecting the terms and conditions of an electricity sales contract is the type of electricity service to be sold or exchanged. Service may be differentiated by the degree of reliability attached, despatchability and duration of the sale. Major categories of electricity include: firm power and associated energy, including seasonal firm; non-firm energy; and system reliability sales. These services may be differentiated both by their cost to the seller and by the value they provide to the purchaser. Another factor affecting content is regulatory environment. While it is generally utilities which draft, negotiate and implement power sales agreements, various levels of government regulation may either impose *ex ante* conditions on contracts, or may require *ex post* approvals of negotiated contracts; these processes may materially affect the content of contract.

If the seller's system has sufficient capacity reserves, a long-term sale of firm power and associated energy from the seller's system (as opposed to a specific unit) provides the highest value to the purchaser and hence, the highest price to the seller. The seller is obligated to meet the load reserved by the purchaser, even under adverse conditions in the seller's system. Thus, the purchaser is able to defer the building of capacity in its own system, and accordingly, the price for system sales is frequently based on avoided capacity and energy costs in the purchaser's system, as well as the costs of supply. However, the potential for high revenues to the seller is accompanied by revenue risk. If the contracted supply is unavailable, the seller's obligation to supply remains and may have to be met by: generation from high-cost plants, the purchase of replacement power and energy from another supplier, the construction of new capacity, or cash compensation to the purchaser based on the purchaser's cost of production.

Sales of firm power and associated energy from a designated unit only do not carry the same degree of reliability, and generally are of less value to the purchaser than are sales from the system. The lower revenue to the seller is accompanied by lower revenue risks to the seller. However, when sales are from a relatively undeveloped supply system, a purchaser may regard supply from a dedicated unit as having greater reliability than supply from the interconnected system. Most of the recent contracts for the sale of power and associated energy from a designated unit use a two-part tariff, with the capacity charge based on the costs of the unit, plus a negotiated rate-of-return, and the energy charge based on the purchaser's avoided operating costs. The final determination of price will be a negotiated outcome based on technical, financial, economic and

political considerations. Ultimately, price must aim at sharing the savings produced by the trade, thus providing net benefits to both parties.

The contracts' financial provisions set out the method of billing and payment along with the currency of billing and payment. The contract's administrative and legal provisions typically establish an operating committee to manage the day-to-day aspects of the trade, as well as the conditions constituting *force majeure*, and provisions to be followed in the event of a dispute. Each of these provisions is designed to promote stability in the trade, even under adverse conditions.

Sovereignty and riparian issues are not addressed in electricity export contracts. Ownership and maintenance of facilities is generally addressed through a contract provision stating that responsibilities for construction, ownership and operations and maintenance of any facilities required to implement the agreement fall to each utility, within its territory.

All of the electricity sales contracts between developed countries operate in conjunction with an interconnection agreement between the parties. The interconnection agreement establishes the technical characteristics and standards of the interconnection and the responsibilities for its operation and maintenance. It also describes the full range of sales transactions the parties anticipate conducting (additional to the main sales contract) and establishes general pricing principles for each. Typically the interconnection agreement establishes an operating committee, composed of an equal number of senior executives from each utility, to be responsible for the interconnection and to implement the trade. One of the advantages of an interconnection agreement is that by permitting multiple transactions, and allowing the operating committee to apply the provisions to allow maximum flexibility, the parties can realize any additional benefits of system diversity and mitigate any rigidities of the major sales contract.

In general, utility companies are responsible for identification of trade opportunities, drafting and negotiating contracts and implementing the trade. The steps in establishing a trading relationship between two utilities can be categorized as: (a) identification and quantification of all transaction alternatives, including the option of no export sales; (b) identification of the risk-reward trade-offs presented by each transaction and assessment of willingness and ability to bear risks; (c) analysis of potential markets and establishment of contact with potential customers; (d) determination of prices for each category of sale; (e) formulation of positions on the full range of contract issues; (f) drafting the agreement; (g) negotiating the agreement; (h) approval of the agreement by the appropriate authorities; and (i) implementation of agreement. A utility must create the internal structure to carry out these tasks. Both parties must agree on the organization for joint administration of the trade. In addition, the internal regulatory framework should provide clear mandated regarding the responsibilities and reporting relationships of all entities which may be involved in issues regarding the trade.

The starting point for two countries contemplating electricity trade should be the analysis of alternative transactions. Potential sellers need a thorough understanding of the products they can offer and the costs associated with each alternative (including the alternative of no export) as well as the risk-reward trade-offs presented by each alternative. Potential buyers need to evaluate their capacity and energy needs, the alternative means and associated costs of meeting those needs,

and the risk-reward profile of the contemplated import transaction. Both parties must also define the objectives of the trade. Once the basic decisions outlined above are made, and a task-oriented working group for electricity exchange is established, the parties can begin the process of formulating their positions and priorities for the full range of technical, financial and legal/administrative issues.

In considering the structure and content of an electricity sales agreement, an important consideration is that administrative viability may be negatively affected by the negotiation of contracts with very detailed provisions. In addition, managing a complex agreement is likely to increase the transaction costs of the trade, as well as the potential for conflict. The parties will need to identify and weight the advantages and disadvantages of one or several sales contracts with a detailed elaboration of each party's rights and obligations against advantages and disadvantages of a more simply structured agreement which will rely more on the good faith of the parties.

INTERNATIONAL POWER SALES AGREEMENTS

A. Study Objective

The objective of this study is to identify and discuss the key components of international power sales agreements. The analysis is based on examination of twenty-four (24) binational electricity export contracts, supplemented by discussions with industry experts. The contracts examined include those between both developed as well as developing country parties. The sales contracts cover those based both on thermal and hydropower generation.

B. Background

This report focusses on the contractual issues and options involved in the export power and energy. In doing so, it is assumed that the underlying objective of the power sector is to meet demand at the minimum economic cost, and that electricity trade can aid in meeting that objective. It is recognized, however, that economic objectives are often subject to the realization of socioeconomic goals and to other national concerns.

Inter-utility trade can be an important component of minimizing power system costs as it permits savings derived from load diversity, hydrologic complementarity, economies of scale, reduced reserve requirements and higher system reliability. One-way sales can provide lower cost power to the purchaser and revenues to the seller. Benefits of operating two-way exchanges between interconnected systems include the provision of mutual assistance during system disturbances and emergencies, the sharing of reserves for improved system reliability and the exchange of surplus power and energy to realize savings in the operating costs of both systems. An advantage of capacity interchange is that it allows each system to schedule generation additions at longer intervals.

Important environmental benefits may be realized through regional planning of generation resources, as additions of capacity are staggered on a regional basis. While there is no source of commercial generation which is completely free from environmental impacts, where purchases of electricity from hydraulic sources, built in accordance with sound environmental practices,² are used to replace thermal generation, an additional environmental benefit may be realized through the reduction of atmospheric pollutants in the region.³

² *Hydro facilities produce little pollution compared with thermal sources. While hydroelectric facilities can have significant, negative, environmental impacts, these effects, if properly controlled and mitigated, can be less damaging than alternative thermal sources. The environmental problems associated with dams for hydropower production include: loss or change of habitat, affecting marine biota and wildlife; changes in water quality; water-logging and changes in ground water levels; and water-borne diseases. Following a careful environmental impact assessment, design and siting solutions can mitigate or eliminate associated environmental problems. However, the costs and benefits of mitigating environmental harm from hydro sources and the remaining externalities would have to be carefully weighed against those for thermal.*

³ *Air pollution from fossil-fuel fired generating stations makes significant contributions to acid rain and global warming as greenhouse gasses (carbon dioxide, nitrous oxide) and other atmospheric pollutants (sulphur dioxide and nitrogen oxides) are emitted. Coal raises the additional environmental problem of mining.*

The role of international inter-utility trade in meeting national power sector objectives depends upon, *inter alia*, the objectives of the parties, the configuration of their respective domestic systems and existing trade. A typical sequence in the development of power trade between two countries begins with supply of isolated border stations, where the purchaser is generally synchronized to the supplier's grid and is treated as a domestic load. A further step is the interconnection of the national grids to allow each party to provide for contingencies by enlarging the pool of power and energy reserves available in the event of a temporary shortage. This step may then be followed by transfers of periodic low-cost surpluses of power and energy between utilities, and ultimately by the optimal sequencing of investments in both countries as a single power system. In addition, there may be power trade based on the existence of large projects in border areas.

The Role of Contracts in Power Trade

The contract is an important tool in managing trade and in the realization of electricity trade objectives. An appropriately designed agreement can provide a workable structure for the provision of management incentives, the distribution of risks and benefits -- accounting for the relative risk-bearing capacities of each party, and can minimize the risk of breach/non-performance, thus increasing the likelihood of each party obtaining maximum benefits from the trade. Lack of the stability of expectation a contract can provide both the parties and their financiers may inhibit the realization of the potential benefits of international electricity trade.

Electricity trade arrangements and transactions between utilities range from spot sales and purchases to complex long-term contracts. The arrangement chosen will depend on the different power system configurations, the extent of the data available to both parties, and the objectives of the trade. A contract sale commits the buyer and seller to trade electricity over a set period of time, most often at a specified price. Spot sales involve very short-term deals on the price and quantity of electricity traded, based on the short-run marginal costs in each system at the moment of trade. Spot sales do not allow either party to rely on specific prices or quantities, and thus do not materially reduce planning uncertainties for either party.

Both longer-term contract and spot sales are common between utilities in developed countries. However, in developing countries and where investments are required to build new generating capacity, it is more common to base the trade on longer-term sales contracts, especially if the financial or economic viability of the project is dependent on export sales. Revenues from spot sales are too uncertain to support the large investments required. The specific structure of a sales contract will depend on the technical parameters of the electric systems and type of power and energy to be traded, as well as the mandates of domestic regulation (concerning, *inter alia*, trade, taxes and duties, export licenses), the domestic institutional environment, the objectives of the trade and the global and national macroeconomic environment.

Long-term, fixed-price, export contracts are useful in providing stability in the trade and for planning purposes. However, while stability is an important attraction of long-term contracts, it may limit the flexibility required in a trading relationship. Under changed circumstances, there may be pressure for one party to make unilateral changes and breach the contract obligations (contracting risk). Thus, a long-term contract needs to be both flexible and stable. This seeming contradiction raises an important issue to consider in drafting a long-term

contract: as the need for contractual complexity increases, so do the costs (e.g., negotiation, administration and monitoring). These include the increased likelihood of and costs of contractual breakdowns, as well as negotiating, administrative and monitoring costs -- also known as transaction costs.

Factors Affecting Contract Content

One of the most important factors affecting the terms and conditions of an electricity sales contract is the type of electricity service to be sold or exchanged. A basic distinction underlying sales categories is that between power or capacity- measured in kW, and energy - measured in kWh. The distinction exists because electricity cannot be stored economically in large quantities and must be generated as it is used. The electrical output of the system must be raised or lowered instantaneously to meet demand. Power refers to the maximum instantaneous output or capacity of a plant or system and is measured in kW (the terms power and capacity will be used interchangeably to refer to transactions in which the seller reserves capacity to meet the needs of the purchaser). Energy is a measure of electricity generated or consumed, and is measured in kWh - a kW used for an hour is a kWh.

Major categories of electricity sales transactions include: firm power (kW) and associated energy (kWh) - also referred to as capacity transactions, reflecting the seller's obligation to reserve generating capacity for the purchaser; non-firm energy (kWh); and system reliability sales. These services can be differentiated both by their cost to the seller and by the value they provide to the purchaser, which will be affected by the degree of reliability attached to the supply, despatchability, the duration of the sale and the availability of substitutes.

A firm ⁴ power agreement is a contractual obligation in which the seller agrees to reserve and provide a specified amount of power and associated energy to the purchaser and guarantees a certain level of reliability. In general, the supply must be available on a constant and uninterrupted basis. However, the degree of reliability which constitutes firm power is a matter of negotiation between the parties and will be based on the characteristics of generation in the seller's system. A firm sale is a load obligation for the seller, while the buyer is obligated to either take delivery of and pay for a specified minimum amount of power, or to pay for the power reserved (through a "take or pay" contract or minimum monthly bill for kW).⁵ Actual energy delivered is generally measured and billed separately. The common characteristic of firm power contracts is the seller's obligation to supply energy on demand.

⁴ Firm power is power which can be made available at any instant, with high reliability, often established at 95-98% probability. The power may be available continuously (100% load factor) or at some specified load factor providing a firm energy capability. The engineering definition given in this footnote may not necessarily be adopted by the parties. What will constitute "firm" for the purpose of the contract must be defined and agreed by the parties during the negotiation process.

⁵ Producers and lending institutions consider "take or pay" provisions necessary to mitigate the financial risks of building capacity, which requires large capital investments in durable, non-liquid plant.

The terms of a firm power contract may be based on sales from: a) system-wide generation, b) either a specific or the system marginal generation source, or c) a designated unit. The choice affects price as, for the seller, each source has a different cost structure. In addition, different levels of obligation and reliability are associated with each source, which both affects cost to the supplier and value to the purchaser. If the supplier's system has sufficient reserves, firm power from the system is the most reliable of all transactions. Often, a contract for firm power from the interconnected system requires that the supply obligation be met, even if doing so requires the construction of new capacity or purchases from outside the supplier's system. The supplier's inability to meet its obligation usually results in substantial financial penalties. Firm power and associated energy from the system generally receives the highest price of all contract transactions, commensurate with the high degree of obligation/reliability attached to such sales.

Firm supply from a specific plant in the system, rather than from the system as a whole, usually brings a lower price than firm supply from the system, reflecting the higher potential for outages of power delivered from one specific unit. In effect, the purchaser must provide its own reserve capacity. However, when the supplier's system is not well developed (e.g., low reserves, high outage rates), generation from a dedicated unit may have or may be perceived as having higher reliability than system based sales to a potential purchaser. A related arrangement is that for "participation" power and associated energy, where a system desiring additional capacity pays an agreed percentage of the capital, operating and other costs of a specific unit on the seller's system and is entitled to a corresponding portion of the unit's power and energy output.

A related factor affecting the value of the contract is the issue of "despatchability," - the degree to which the buyer or seller controls the actual dispatch of the energy associated with the contracted capacity. This issue is usually addressed through scheduling and load factor measures, in a provision for scheduling (see Scheduling and Deficiencies section below). Firm power and energy available on a year-round basis generally has a higher value to the purchaser than seasonal firm, though the value will depend on the characteristics of the purchaser's system. Firm power and energy may be sold on a short (e.g., three year) or long term (e.g., 10-40 year) basis. Generally, the longer the term of sales, the more expensive the power, as it is regarded as allowing the purchaser to defer the construction of generating capacity. For the seller, the choice of duration will be affected both by anticipated domestic needs and the payback period associated with additional capacity.

In an economy energy transaction, the purchaser buys lower cost energy instead of generating at a higher cost, to affect a saving in the cost of generation when the purchaser has adequate capability to supply the loads on its own system. It is essential to the concept of economy energy that the receiving party have facilities available to supply the equivalent of energy taken, otherwise the supply could be regarded as having some capacity value or as emergency/reserve power. Economy energy is generally sold on an "as available" basis rather than at times set in advance. The seller provides surplus energy when it is available, and has no load-carrying obligation. Often, economy energy is from non-renewable sources and the exchange occurs when one utility has lower cost fuel or more efficient thermal units. When economy exchange takes place, the savings are shared.

In a hydro-based system, there is generally energy that is in excess of firm energy. The industry term for this surplus is **secondary energy**. The amount of secondary energy available depends upon the hydrology and the degree of river regulation. Secondary energy is generally sold as an economy transaction, on an "if, and as available" basis rather than at times set in advance. It is difficult to allocate a cost to the energy component of hydro; therefore it is usually traded as a function of its value. As secondary energy is usually used to displace thermal generation, it is sometimes referred to as fuel replacement energy, and its price is based on a negotiated percentage of the short-run marginal cost of producing a kWh using fuel (avoided costs -- defined in rates and charges section) in the purchaser's system.⁶ A condition attached to the pricing of surplus energy as simple fuel replacement is that the receiving utility must have adequate capacity to serve its load.

The price for both economy and secondary energy is generally based on sharing the savings produced by the transaction. Whether these transactions are on a purely "as available" basis or have some target delivery range assigned, the prices for economy and "as available" secondary energy are generally lower than firm energy as they reflect only the short-run marginal costs of generation to the seller, the avoided short-run costs of the purchaser, and the lower value to the purchaser, who cannot rely on the energy to meet demand. The costs to be included as elements of an avoided cost determination are a matter for negotiation between the parties; however, at a minimum, they include the delivered cost of the fuel which is displaced through the energy purchase, as well as avoided operating costs.

To increase the value of a contract for the trade of non-firm energy, the parties can identify supply or demand complementarities/diversities which would add some capacity value to the trade. If there is a surplus with a definable degree of reliability, such as a pronounced seasonal availability, which can be delivered during times when the purchaser's system experiences shortages, the value of the surplus would be greater than purely "as available" energy. One option is the use of a "seasonal firm" contract. A seasonal firm contract would be most appropriate where the supplier's system has a seasonal surplus with a high degree of reliability over a specified time and the purchaser's system can use that surplus to meet its capacity requirements at a lower cost than using its own generation. Another option is an energy contract which establishes delivery targets for the life of the contract and for each year of the contract. Under this arrangement, the purchaser is able to "preschedule" a portion of the total energy target on an annual and monthly basis. The exact delivery schedule is not determined in the contract, but procedures for annual and monthly scheduling are established. Both these transactions increase the reliability and value of the supply to the purchaser and, hence, the price would be higher than that for purely "as available" energy.

Another class of energy exchange transaction which takes advantage of diversities in two systems is an **energy banking arrangement**. Energy-banking agreements usually occur when a predominantly hydro system is connected to a predominantly thermal system. The purchaser

⁶ *The marginal cost of a given service refers to the increase in the total cost of providing service that results from a small (marginal) increase in output. There is a distinction between short and long run marginal costs. Short-run marginal costs relate to the costs which need to be increased in order to expand output from an existing plant. Long run marginal cost relates to a change in the total costs associated with a permanent increase in output, through expansion of capacity.*

"stores" energy with the supplier's system (in its reservoirs) during the purchaser's off-peak and calls it back during periods of peak demand. Instead of accounting for the interchange and charging each other for the transactions on the basis of hour-by-hour operating costs, it is common practice for utilities to agree to a banking arrangement whereby one of the systems operates as a bank and the other as a depositor. The depositor would "deposit" energy whenever it had surplus, then whenever the depositor needed energy, it would simply withdraw the energy up to the MWh it had in the account with the other system.⁷

Another transaction which takes advantage of diversities in two systems, is **energy interchange** where one party supplies another for later return for the purpose of achieving efficient use of generating capacity. No payment of cash is involved unless an outstanding energy balance remains after a specified period of time. The parties may exchange either energy or capacity; a capacity exchange would allow the utilities to stagger their capacity additions.

System reliability sales include those for emergency energy back-up, scheduled outage, and spinning reserves. Emergency energy is supplied to a party when there is a sudden loss of generation, transmission, or substation equipment which limits output and which impairs the ability of that party to supply its system demand. Contracts typically limit the duration of emergency supply to a specified number of hours, often six hours. Emergency energy is generally accounted for and invoiced separately from other sales transactions. Scheduled outage energy is energy supplied by one utility to another during a period of scheduled outage of generation or transmission facilities. Spinning reserve service occurs when one party purchases from another to supply a portion of its spinning, or operating, reserve.⁸ These transactions generally have no obligation attached to them; one utility supplies another only if it has the surplus. While parties aim to operate their systems to minimize the deviations between actual and scheduled deliveries, inadvertent delivery may occur ("inadvertent energy") and is generally settled by exchange of equivalent energy as soon as practicable.

Generally, electricity trade contracts are negotiated between utilities. However, most governments have regulatory requirements and procedures which may affect the terms and conditions

⁷ For example, a thermal based system trading with a hydro-based system which has storage available could send energy during its off-peak periods to the hydro system, which would then "bank" the energy in a storage reservoir. The thermal system would call back the stored energy when it is experiencing its peak. Conversely, during high water runoff periods, the hydro system may have energy to spare and will send it to the thermal system, to be returned during periods of low runoff. Under the energy banking agreement between Hydro-Quebec and the New England Power Pool (NEPOOL), NEPOOL can send energy to Hydro-Quebec during NEPOOL off-peak periods and Hydro-Quebec returns the energy during peak periods in New England. NEPOOL and Hydro-Quebec share the resulting savings. While Hydro-Quebec is not obligated to either take or return NEPOOL energy, the contract provides economic incentives for Hydro-Quebec to do so.

⁸ At any given time, the interconnected system must have generating facilities in operation with sufficient capability to pick up any reasonable amount of load instantaneously placed on the system or to replace generation that is lost through malfunction or failure. This "spinning" reserve must be available almost instantaneously or within a very short period of time. Spinning reserve must be carried so that the loss of one or more units does not cause too far a drop in system frequency.

of cross-border electricity sales contracts. The regulatory environment varies from country to country and reflects a government's philosophy regarding its role in influencing the forms and terms of trade. Thus, the negotiation of certain terms may have to be in compliance with certain *ex ante* conditions imposed on international electricity sales contracts which materially affect the content of the contract (e.g., environment, price principles, duties and customs). In addition to *ex ante* requirements, many governments require that the contract negotiated by the utilities meet approvals by various levels of government. For example, in Canada, the National Energy Board (NEB) imposes *ex ante* regulation over electricity exports through a mechanism of export licenses and certificates of public convenience (for transmission lines); electricity contracts negotiated by utilities are also subject to *ex post* evaluation by the NEB and provincial governments. In the USA, the only federal regulatory requirement for regarding cross-border electricity trade is that the transmission routes must meet established reliability and environmental standards. Depending on the state and the type of utility involved in the trade, the state public utilities commission may also examine and approve the contract to ensure that the contracted supply meets "the General Good of the State," as provided by state statutes. Because there is a danger that the regulatory processes may either delay or materially change the agreement, as negotiated by the utilities, the majority of contracts include provisions establishing procedures to be followed in the event of lengthy delays or modification by regulatory bodies.

C. Features of Contracts Reviewed

There is no model electricity export contract. However, there is a wealth of precedent for international electricity trade. While the structure and content of electricity export contracts vary widely, all agreements contain certain common elements: technical provisions specifying points of supply, quantum of supply from each point, periods and phasing of supply; arrangements for transmission; rates and charges; and legal and administrative clauses specifying at the very least, date of entry into force, assignability and consequences of *force majeure*. Very generally, any sales contract must define what each party is to do and is to refrain from doing, establish what effect certain contingencies are to have on their duties, define what happens if either fails to perform, and make the agreement enforceable.

This report reviews twenty-four full contracts as well as secondary sources, including annual reports of national electricity companies and World Bank project appraisal reports for details on the terms of four additional electricity contracts. The contract review is supplemented by discussions with industry experts. The contracts are for exports of long, medium and short-term firm, seasonal firm, and "as available" energy. The developed country contracts are concentrated in North America. The developing-country contracts are from Asia, Central and South America and Africa. In evaluating contractual issues and options for sales from predominantly hydro-based systems to mixed thermal systems, the agreements between Canadian and US utilities are of particular interest. A list of the contracts reviewed can be found in Annex A.

Not all power trade is conducted under the aegis of a single contract. Often there are several, usually interlinked, contracts in place. In North America, most cross-border electricity sales contracts are executed in conjunction with an interconnection agreement (see Interconnection Agreement Section below). In addition, there may be several related sales contracts. For example, New York Power Authority (NYPA) and Hydro-Quebec (HQ) trade includes an Interconnection

Agreement, an Energy Agreement, a 1000 MW Firm Power contract⁹, an 800 MW Seasonal Diversity contract (summer, for sale from HQ to NYPA) and a 400 MW Seasonal Diversity contract (winter, from NYPA to HQ). New England Power Pool (NEPOOL) - HQ trade includes an Interconnection Agreement, an Energy Contract, and Energy Banking Agreement, and a Firm Energy Agreement.

Another instance where a power sales contract operates in conjunction with other agreements is when power trade is based on hydropower from a project on an international watercourse shared between two countries. In such cases there may be several interlinked contracts, including a long-term inter-governmental agreement on the development of the hydrological resources of a river basin, a project development Treaty, supported by another (usually shorter-term) agreement for output (power sales) from the project. An example is the Itaipu project, where the Treaty of Itaipu operates in conjunction with both a riparian agreement between the governments and sales contracts between the binational entity and the national electricity companies. Each agreement contains a provision defining its relationship with other, related, agreements. Power sales contracts associated with international water resource development projects will be discussed in a subsequent IEN report.

Contract Terms

A survey of the terms included in the contracts under review revealed forty terms; no one contract contains all of the terms (Annex C provides a list of these terms and their functions). Only eight of the 40 terms listed are found in every contract examined; they are: the preamble (often referred to as recitals in North American contracts); the technical characteristics of power and energy to be delivered (amount, frequency, voltage); the delivery points; the rates (with some provision for pro-rating in the case of deficiencies); billing and payment provisions; force majeure; effective date; and annexes. The Annexes of this report contain two full electricity export contracts (Annexes E and F) and a binational interconnection agreement (Annex G). A table summarizing the terms and conditions of particular importance for the major categories of electricity trade follows the discussion of contract terms below (Table 1, page 23).

Preamble

While not required, each contract examined contains a preamble, ranging from one paragraph naming the parties and the date for commencement of trade (Electricity Generating Authority of Thailand-EGAT and Electricite du Laos-EdL), to several pages (Empresa Nacional de Luz y Fuerza- ENALUF and Empresa Nacional de Energia Electrica-ENEE). Preambles in the majority of contracts name and describe the parties, state the intent to trade a certain type of energy

⁹ HQ and NYPA negotiated the 1000 MW system-firm contract, valued at US\$14.9 billion, in 1989. In the contract, the parties agreed that if all regulatory approvals were not granted by November 1991, either party could cancel the contract without penalty. In August 1991, both parties agreed to extend this date to November 1992 for two reasons: (a) New York power consumption is anticipated to grow more slowly than was forecast at the time of negotiations, therefore a delay in delivery is likely to be beneficial, and (b) the Quebec government is requiring continued environmental review of one of the projects on which deliveries would likely be based.

to fulfill their contract obligation. The preamble may be useful insofar as it evidences the intent of the parties in the event of a dispute.

Rates and Charges

Firm, non-firm and system reliability (back-up) transactions each have different rate structures. An important distinction for pricing purposes is that between power and energy (p.3 - Factors Affecting Contract Content). The costs associated with power or capacity consist of all or most plant-related costs. Capacity costs vary with the quantity of plant and equipment necessary to meet the reserved power requirements. Billing for capacity is measured in kW of contracted capacity or actual maximum demand, measured over a specified time. Energy costs are composed of operating costs, including: the expenses for fuel, fuel handling, and operations and maintenance. Energy costs vary in total with the quantity of energy consumed and are billed in kWh.

The principles underlying electricity pricing have changed over time. In the contracts negotiated in the 1960s and 1970s, pricing was commonly based on average historical costs of supply in the seller's system, plus a negotiated rate-of-return. The underlying principles for setting tariffs in the recent contracts can be categorized, in a general way as: a) long- and short-run marginal or incremental costs in each system; b) financial requirements (meeting cash flow requirements and achieving a rate-of-return on investment); c) equity considerations; and d) practicality and ease of administration. Differences between developed and developing-country contracts can be seen in pricing principles and structures and in price adaptation provisions. The developing-country contracts often base price on average embedded historical costs, plus a required rate of return, do not employ seasonal or peak period pricing, and tend to use fixed escalation rates. While contracts in developing countries often differentiate price by season, peak periods or generation source, and employ price adjustment formulas rather than fixed escalation. Ultimately the tariff is arrived at through negotiations which, usually, but not always, incorporate some or all of the above factors, as well as political concerns.¹⁰

Firm Power and Associated Energy. While the examination focusses on recent contracts, negotiated after 1980, a brief discussion of the practices in older contracts follows, as the methodology is occasionally still used. Tariffs in these contracts were generally structured using rate-base methodologies which incorporated the supplier's average embedded costs and allowed rate-of-return requirements into the price. These older contracts examined used a two-part rate, consisting of separate charges for capacity (demand charge in kW) and energy consumed (energy charge in kWh). The capacity charge was commonly a block-meter rate with the price falling per unit reserved or delivered. The two structures for billing of contracted capacity were: (a) a bill based on the prior month's maximum demand, defined as the highest load taken in a month, continuous over a specified amount of time -- 15, 30 or 60 minute time intervals being the most common, with longer intervals favoring the buyer -- this type of capacity charge was accompanied by a fixed monthly minimum bill, payable regardless of whether any energy actually taken; and (b) a "take or pay" bill for MW of contracted power, also payable regardless of whether any energy is

¹⁰ *Political concerns or the relative bargaining strengths of the parties may be the most important factor in establishing price if negotiation occurs when the seller's marginal costs are very low.*

actually taken. Often there was a provision allowing the purchaser to take above the capacity reserved by contract; the amounts and prices for the extra power were specified in the contract.

The charges for firm power and associated energy in the majority of recent export contracts in North America are based on the marginal costs of supply in each system, combined with financial targets and political considerations. All the firm power and associated energy contracts examined employ a two part rate schedule composed of a capacity (kW) and an energy charge (kWh). Contracts for sale of electricity from system-hydro commonly base the capacity charge on the avoided costs of the purchaser. Contracts for sale of electricity from a designated unit commonly base the capacity charge on the seller's capital costs of the unit. In line with marginal cost pricing, use is increasingly made of peak and off-peak pricing, reflecting the different costs of supply in each party's system.

Capacity Charge. The objective of the capacity charge is to ensure that the capital costs associated with the capacity reserved for the purposes of meeting contract obligations are covered. Typically, at least a certain portion of the demand or capacity charge is "take or pay," or else there is a minimum monthly bill, both of which are payable regardless of whether any energy is taken. Capacity not taken cannot be rescheduled, while energy not taken or delivered generally may be rescheduled, within specified time periods. About half the contracts examined use a fixed price per MW of capacity reserved (Ontario Hydro's contracts, ENEE-ENALUF). Others base the capacity charge on maximum demand recorded in a month (Lesotho - ESKOM, Texas - Mexico), which operates in conjunction with a contract-stipulated monthly minimum bill. The contracts between HQ and NYPA use a formula based on the product of: a) the amount of capacity reserved (kW) and b) a negotiated reference price (\$/kW), reflecting the costs of building capacity in each party's system in that year. At the time deliveries commence, HQ's contracts provide for an escalation to the capacity charge agreed at contract signing by formulas tied to cost of capital indices and construction cost indices, in an attempt to keep the value constant. The capacity charge is then "frozen," with annual adjustments based on cost of capital (long-term bond interest rates).

Associated Energy Charge. The second part of the firm power and associated energy charge is the charge for energy actually taken, calculated in \$/kWh. When sales are from thermal sources, the most common charge is "110% of the seller's incremental costs of production."¹¹ Other alternatives presented by the contracts include: a) a negotiated fixed price per MWh based on avoided fuel and operating costs in the purchaser's system; b) a price reflecting both the seller's hourly incremental costs of production (at 110%) and time-of-use price differentiation, based on the purchaser's load characteristics and delivered fuel costs; and c) the greater of a fixed rate per kWh (to be set by the Operating Committee) or 110% - 115% of the seller's incremental costs. The charge for associated energy from a hydro-based system or unit is generally based on the purchaser's avoided energy costs per kWh, at between 75% - 95% of those costs.

¹¹ *The 110% charge consists of 100% of short-run costs, plus 10% to compensate for errors in estimation and to provide some profit, according to several utility industry officials and industry analysts. The definition and elements of incremental costs are typically included in an annex to the principal agreement. A typical definition: "any cost incurred by the supplying party that would not otherwise be incurred if the transaction did not take place." Annex D provides a survey of elements included in incremental costs in the contracts reviewed.*

Seasonal capacity and energy. Where utilities have complementary and diverse supply and demand patterns, Seasonal Diversity contracts are an option which can add value to what would otherwise be an "as available" transaction. The Seasonal Diversity contracts between NYPA and HQ are an example. The seasonal trade is executed in conjunction with, but separately from, the 1000 MW firm power contract. There are two contracts: an 800 MW summer capacity contract for sales from HQ to NYPA and a 400 MW winter capacity contract for sales from NYPA to HQ. While many of the provisions in each contract are mirrors, the tariffs and the scheduling provisions are different. The capacity and energy charges in each contract reflect the different cost structures of hydro and thermal. The hydro-based sales have a higher capacity charge and lower energy charge than the thermal-based sales. In addition, the energy charge for thermal sales increases with GWh delivered. In both contracts, the adjustment indices for capacity and energy are the same. The capacity charge NYPA pays HQ under the summer capacity contract is lower (by half) than the capacity charge NYPA pays HQ under the 1000 MW firm power contract, reflecting both the lower cost to HQ and the lower value to NYPA.

Prescheduled energy. Another option to add value to what would otherwise be purely "as available" energy is for parties to conclude a contract which stipulates a target amount of energy to be delivered each year over the life of the contract, with further provision for advance scheduling of a specified percentage of the total on an annual and monthly basis. The 1983 Energy Contract and 1985 Firm Energy Contract between HQ and NEPOOL illustrate two approaches to adding value to energy through scheduling standards.

The 1983 Energy contract establishes target levels of delivery from HQ to NEPOOL, and is based on two tiers of reliability. Two-thirds of the energy is able to be scheduled on an annual basis; the remaining one third is scheduled on an hourly, "as available" basis. The prescheduled energy has a higher degree of reliability and value than the remaining "as available" energy, and the seller receives a higher price for the prescheduled energy. The charge per MWh of "prescheduled" energy is 80% of the Weighted Average New England Power Pool Fossil Energy Cost (see Supplement I to the 1983 Energy Contract in Annex E, page 16 of 16 "Derivation of Weighted New England Power Pool Fossil Energy Cost"). The charge per MWh for "as available" energy is the lesser of 80% of NEPOOL's replacement fuel cost for a particular hour, or HQ's "Basic Energy Cost"¹² plus 50% of the savings in production costs produced by the transaction. In the initial years of contract operation (1986 - 1989), NEPOOL realized substantial savings, of approximately US\$70 million. However, over the past two and a half years, NEPOOL's savings have been lower than anticipated, as low flow conditions in HQ's system have prevented HQ from meeting its target deliveries to NEPOOL (which are scheduled solely on an "as available" basis). Still, NEPOOL officials express satisfaction with the arrangement.

The 1985 Firm Energy contract between HQ and NEPOOL employs only a MWh charge, based both on the amount of energy contracted for and actually delivered. HQ is obligated to make available and NEPOOL to pay for an annual quantity of energy of 7 TWh through the ten-

¹² The definition of the Basic Energy Cost can be found in Article VII of the contract, Annex E page 7 of 7. The "Basic Energy cost was set to meet Canada's National Energy Board (NEB) requirements that the price of exports not be lower than price to Canadian consumers. The NEB has since removed this requirement.

year life of the contract, establishing a "take or pay" floor. The contract's scheduling article establishes minimum and maximum GWh delivery ranges for each month. Three months prior to the beginning of each contract year HQ is to present NEPOOL with a preliminary schedule of its expected monthly deliveries for the year. While NEPOOL may suggest modifications, HQ is not obligated to meet these. NEPOOL controls the weekly, daily and hourly schedules. The scheduling and deficiency provisions are complex, reflecting the uncertainties of hydro-based power (see Scheduling section below). The MWh price consists of a reference price per MWh adjusted on each year by a ratio based on the change in New England's fuel costs over the year (see Annex D, pp.3-5: "Annual Weighted NEPOOL Fossil Energy Cost"). The reference price is escalated after five years and the total charges are set to be equivalent to 80% of NEPOOL's average fuel costs for the first five years of the contract and 95% of NEPOOL's average fuel costs for the second five years of the contract. The 80% and 95% represent NEPOOL's expectation about the value of the energy at the time the contract was negotiated (a no-lose situation for NEPOOL as long as there is any fossil to back-off). At the time the contract was negotiated, NEPOOL estimated it would receive a capacity value equivalent of 525 MW in the winter and 1500 MW in the summer even though the contract billing was for energy. However, the unexpected drop in fuel prices and a drop in demand in NEPOOL's system may lower NEPOOL's savings from the trade.

Non-firm energy. Tariffs for "as available" economy and secondary energy are typically based on a negotiated price falling between the seller's incremental cost of production and the buyer's avoided, or "decremental costs."¹³ The terms are designed to provide an incentive to the recipient to choose imports over domestic generation, to ensure that the seller covers its costs and to provide both parties a share in the net benefits (savings) produced by the trade. The parties must reach agreement on which costs may be included in determining incremental costs in the supplier's system and decremental costs in the purchaser's system; the allowed costs are usually set out in an annex.

Economy energy sales, based on thermal generation, are typically priced using a variable or fixed rate based on one-half the sum of the supplying party's incremental costs and the receiving party's avoided operating costs. The usual factors applied to value hydro surpluses are: in the range of 0.8 to 0.9 of the avoided cost of producing a kWh using fuel if the surplus has a long duration and in the range of 0.5 to 0.75 of the avoided cost of producing a kWh if the surplus has a short duration. Tariff structures in the contracts for export of hydroenergy to predominantly thermal systems include: a) a flat rate per unit of energy delivered -- this is a negotiated rate based on the buyer's expected avoided operating and fuel costs; b) a variable rate, typically 80% of the buyer's avoided fuel costs; or c) a variable rate, set at 80% of buyer's total avoided costs. The percentages are negotiated rates reflecting both the value of the energy to the purchaser and the bargaining position of the seller at the time the contract was negotiated.

Emergency energy. Trading partners traditionally stand ready to help each other in emergencies. Depending on the degree of commitment to supply emergency energy, the charges for

¹³ *The definition and elements of decremental costs are typically included in an annex to the principal agreement. A typical definition: "the net sum of all avoided costs to the party to whom energy is supplied." Elements typically included the determination of decremental costs are found in Annex D.*

emergency energy may be for capacity and associated energy or for energy only. Most emergency sales are based on "as available" energy only, and most contracts stipulate that a party will make available emergency energy only to the extent that such supply is consistent with the safe and proper operation of its own system and up to the limit of the interconnection capacity. To prevent a purchasing utility from using emergency energy to meet non-emergency needs, which may be a temptation where companies have different production costs, the parties may: a) stipulate an upper time limit, after which the transaction is no longer considered "emergency" and may become an "outage" transaction, which is likely to have a different price structure - a typical time limit is six hours; or b) use incentive rates where the charge for emergency energy is set above the average cost on either system. This gives a utility a strong incentive to ask for emergency power only when it is needed and an equally strong incentive for the other company to make energy available in an emergency.

In keeping with the tradition of goodwill surrounding emergency energy, the majority of contracts in this study employ an energy only charge, with the objective being to cover the seller's costs of production. Examples of the emergency energy charges follow: a) 110% of the incremental costs of production for the seller's most expensive unit; and b) 110% of the seller's incremental costs of production for the first six hours of energy supplied, after which the greater of 110% of the seller's incremental costs or 110% of the purchaser's decremental costs. NEPOOL and HQ sell emergency energy as a capacity transaction with a two-part rate: the capacity charge is billed in \$/MW/day, applied to the maximum amount of power scheduled and provided in any hour of that day -- the charge for associated energy is 110% of the incremental costs of supply.

Tariff Escalation and Adjustment

Most contracts examined contain an explicit escalation or price adjustment provision in the rates article. Those contracts which did not have an explicit escalation or price adjustment provision employed a rate renegotiation provision instead (EGAT-EdL, ENEE-ENALUF). The escalation clauses establish a base price from which a fixed *per annum* escalation occurs. The escalation rate is based on the parties' assumptions concerning inflation and other price changes. The adjustment clauses establish a reference base price for capacity and energy charges, adjusted at specified intervals by various indices. In firm power transactions, the indices used for adjusting capacity charges include those based on: cost of capital, construction costs and gross national or gross domestic product implicit price deflators; the indices used for adjusting the associated energy charge include: general price indices and fuel price indices. In non-firm energy transactions the indices to adjust the tariff are based on fuel prices or general inflation. Unlike escalation clauses, adjustment formulas allow the price to change in either direction.

Many of the contracts negotiated in the late 1970s and early 1980s adjusted energy charges by fuel-price indices (for example, the Weighted Average Fossil Energy Cost Index used in the contracts between NEPOOL and HQ). However, the volatility in oil prices resulted in unacceptable fluctuations in the value of the contract, and the contract lost its stabilizing predictive value. Therefore, the trend in North American contracts is away from adjustments based on fuel prices to adjustments based on general inflation indices. An example is the 1990 contract between the Vermont Joint Owners (purchaser) and Hydro-Quebec (seller), which adjusts the energy price by the GDP Implicit Price Deflator (USA); Vermont cites the benefit of this adjustment index as one

of relatively stable and predictable shifts in prices.

Rate Renegotiation

Only the developing-country contracts contain specific provisions for rate renegotiation. However, implicit renegotiation was effected in all of Ontario-Hydro's contracts with Vermont through the use of short-term (five years or less) contracts with a provision for extension, at which time the rates could be renegotiated. Explicit renegotiation provisions specify the conditions of renegotiation, such as: a) renegotiation at the request of either party when a fundamental shift in the operating environment "substantially" alters the bases on which price was set, and b) renegotiation at a fixed time in the life of the agreement (usually half way through), at the request of either party. Several of the North American contracts provide for quarterly or semi-annual adjustment of certain energy charges (as the responsibility of the operating committee). While renegotiation provisions can offer flexibility in the event of changed circumstances, they can increase uncertainty which may reduce the value of the sale to both parties.

Generally, renegotiation works to the advantage of the seller, as the buyer has become dependent on the supply. However, the supplier's advantage can be offset by the relative bargaining strength of the parties. Therefore, if the supplier is the weaker party, a renegotiation provision may not work to its advantage. An example is the 1981 Energy Supply contract between EGAT (purchaser) and EdL (supplier). The contract duration is ten years, with a provision for renegotiation after five years at the request of either party. The pricing provision established a base kWh price with a fixed annual escalation of 9%; which was based on assumptions about inflation and the price of oil (EGAT's generation is based on oil). Over the years 1981-1986, the price of oil fell, countering the assumptions underlying the 9% p.a. escalation. In 1986, EGAT exercised its option to renegotiate the price and succeeded in lowering the 1986 base price by 30%, causing EdL to reevaluate its planned revenues and projects based on those revenues.

Billing and Payments

All of the contracts contain a provision establishing billing and payments procedures. Typically, the provision specifies the billing period, the basis for invoicing and the currency of bill computation as well as the timing, delivery of and currency of payment and procedures in the event of a disputed bill. These components of the billing provision are discussed in greater detail below.

- (a) **Currency.** The majority of contracts establish one currency for billing and payment purposes. The contracts between North American utilities all use the US dollar. In the developing country contracts where power exports were associated with the building of capacity, the tariff was set either in US dollars, or in local currency equivalents of US dollars, in order to meet debt repayment obligations. One of these contracts invoiced with a local currency and US dollar component, with the US dollar proportion based on debt service obligations. Developing-country contracts not associated with building capacity showed no pattern: some chose to denominate billing and payment in US dollars (EGAT and EdL, ENEE and its trade with other Central American utilities), while others bill in local currencies (existing

Nepal-India trade, ESKOM to LEC). Electricidade de Mozambique (EDM) and Zimbabwe Electricity Supply Authority (ZESA) invoice each other in US dollars, with 40% of the bill payable in US dollars and 60% payable in local currencies.

- (b) **Exchange Rates.** The basis for exchange rate determination is included in most contracts. When invoicing is monthly, the general guideline is to use the exchange rate of a named bank at noon on the last (first, in one contract) banking day of the month for which power is billed. Not all contracts contain a provision specifying exchange rate guidelines, for example, the EdL-EGAT tariffs are set and payable in US dollars with no provision for exchange rate determinations necessary. Any adjustments for inflation are in the tariff schedule.
- (c) **Penalties for Late Payment.** Penalties for late payment are included in all but one contract (EdL-EGAT). If the bill is not paid by the designated due date, the amount due becomes subject to interest from the day of bill receipt. The level of interest typically charged is 2% points higher than the prime commercial rate *per annum* at a named bank, or else 2% above the London Inter-Bank on-Lending Rate (LIBOR).
- (d) **Disputed Bill.** Also included are procedures for payment in the event one party disputes the bill. The provisions are designed to ensure that the dispute will not disrupt the trade. Most commonly, the purchaser must pay in full and will be compensated with interest in the event of error. Power and energy supply are to be continued, unless the non-payment goes past a certain date (usually 30 days), at which point the seller may discontinue supply -- but the purchaser is not released from its take-or-pay obligations.

Taxes

Slightly more than half the contracts have no tax clause. The majority of recent contracts that have a tax clause use it essentially for stabilization purposes; the objective being to maintain the value of the contract as negotiated by insulating the contract parties from any change in government regulation subsequent to signing. In these contracts, the parties agree that the prices are fixed free of any tax, export or import duty, or other export or import charge. The contracting utilities further agree that each is responsible for absorbing the financial impact of any changes introduced by their respective governments, should any new laws regarding taxes or duties occur subsequent to the signing of the contract.

Scheduling and Deficiencies

Firm power. Scheduling and deficiency provisions are particularly important in firm power contracts. These provisions not only provide the parties with stability of expectation, but can also work to lighten the extent of absolute obligations, if flexibility is designed into the procedures (for example, rescheduling or allowable reductions/increases in load factor). Scheduling provisions are used to establish the availability, or despatchability, of the contracted supply. Contracts based

on sales from hydro sources generally use more complex scheduling provisions than contracts based on thermal sources, in an effort to mitigate the effects of hydrological uncertainties for both parties. The scheduling provisions in North American contracts based on sales from hydro-based systems establish procedures for an iterative process of notification of annual, monthly, weekly, daily, and hourly delivery schedules, variations in load factor¹⁴ and procedures for modification. Contracts based on sales from thermal systems generally require less advance notification for scheduling, generally requiring either a monthly or a weekly initiation process.

The scheduling provision generally specifies the party who initiates the scheduling process and thus controls the despatchability. As a general rule, contracts for sale of firm power name the purchaser as the party providing the initial (preliminary) schedule. The initiating party notifies its trading partner of its estimate of its availabilities/needs and the associated load factor, over the time period specified in the contract. Generally, the partner may suggest modifications; however, the initiating party is obligated only to make its best effort to accommodate. The majority of contracts delegate scheduling authority to an operating committee. The developing-country contracts did not establish scheduling procedures, leaving that task to "appropriate contacts" in each utility.

The majority of contracts contain deficiency provisions which define the types of situations that constitute deficiency, and establish allocation and prioritization procedures in the event of deficiency (among all load obligations of the seller and among all obligations of the purchaser to "take or pay"). Most of the contracts call for rescheduling within a certain time period, and establish the procedures for rescheduling. If the delivery of energy cannot be rescheduled within that time, then a *pro rata* compensation formula is applied, with compensation flowing from the non-performing party to the performing party. All of the contracts establish a procedure for measuring deficiencies to effect an offset in payments due. However, the aim is to avoid the need for financial compensation (penalty) through the flexibility of rescheduling. Deficiencies caused by an "Act of God" are addressed in the *force majeure* clause.

Non-firm energy. Non-firm energy is typically scheduled on an hourly basis by utility dispatchers. As non-firm, "as available" energy is offered and accepted on short notice, deficiency provisions are not necessary.

Delay of In-Service Date

In contracts where construction is required to implement the trade, there is generally a clause establishing procedural rules for modifications in the event of a delay in the in-service date. Generally, the contract specifies the date contract obligations are to commence, based on the start of "commercial operation." The contract typically names any facilities (e.g., a specific generating plant or transmission line) on which the contracted trade relies and the procedure for assessing responsibility for the delay. Up to a certain point in time, agreed by the parties, the agreement

¹⁴ A common approach is to establish both a base load factor and an acceptable range for load factor variations, accompanied by a provision allowing the seller or buyer to vary the load factor beyond that range under certain circumstances.

rights, obligations and date of termination are simply shifted by the number of days or weeks of the delay, often with a small escalation to price. After that point, the failure to perform is treated as a deficiency and compensation is assessed. Most contracts contain formulas for compensation, to be applied by the operating committee. Several of the North American contracts allowed for termination of the contract, if after a certain point, the facilities or regulatory approvals required to implement the trade were not in place. The consequences of regulatory delay are generally addressed in a separate authorizations provision. In the authorizations clause, the parties: pledge to expedite the necessary regulatory approvals, agree to notify the other of any material developments in the approval process and stipulate how to proceed in the event of unanticipated delay or changes, including termination.

Hydrological Risk

Of the contracts for sales from hydro-based systems, only one explicitly addresses the problem of hydrological risk. Manitoba Hydro (seller) agreed with Northern States Power (NSP, buyer) that in the event of adverse water conditions in Manitoba's watershed, NSP would deliver to Manitoba Hydro a maximum of 1.5 GWh of energy in any twelve month period to allow Manitoba to fulfill its contract obligations to NSP. The price to Manitoba is all costs associated with NSP's provision of energy plus the greater of NSP's average markup for its other inter-utility sales or 10% of NSP's incremental costs of production. This approach allocates the hydrological risk to Manitoba. In general, when a contract is for sale of firm power from the system, the supplier bears the majority of the hydrological risk.

The majority of North American contracts for sales of firm power from hydro-based systems used scheduling provisions to address hydrological risk. In these contracts, scheduling provisions establish monthly delivery targets based on typical seasonal availability of water for power generation. Another approach for addressing seasonal variation is to offer firm power and energy on a seasonal basis. Seasonal firm contracts have their greatest value where the power and associated energy are available during the purchaser's peak season.

A common provision which addresses the risk of unusual adverse water conditions is one permitting the seller to deliver at very low capacity factors during a specified number of years, the choice of those years being the seller's. This provision serves to share the effects of hydrological risk. For example, to address low water conditions in the HQ system, the 1990 Vermont Joint Owners - HQ contract permits HQ to reduce the contract load factor from 75% to 65% three times during the term of the contract. However, Vermont may, in each case, defer this reduction by one year. This contract specifically excludes drought as a *force majeure* condition, based on the following facts: the Hydro-Quebec system is 95% hydro-based, therefore low water conditions are a foreseeable event (*force majeure* requires that the event have been non-foreseeable and non-preventable); the contract is for firm power from the system, not a specific unit, therefore Hydro-Quebec is obligated to find other sources of supply, in the event it cannot supply from hydro-based sources; and the contract provides three load factor adjustments to HQ. Thus, HQ's obligation to use due diligence and foresight to avoid *force majeure* events means that it could not invoke drought as an event to excuse its performance of the contract.

Facilities Ownership

Export sales contracts based on sales from an interconnected system do not, as a rule, address ownership issues. One common exception is for the contract to state that responsibilities for construction, ownership, operations and maintenance of any facilities required to implement the agreement (most often metering equipment and transmission lines), fall to each utility within its territory. Where contract sales are from a specific unit, the contract often specifically states that the dedication of a specific unit to meet contract obligations does not confer any ownership rights on the purchaser.

Operating Committee

The operating committee is a mechanism to ensure efficient, flexible and non-political management of the trade. All of the North American and many, but not all, of the developing-country contracts establish an operating committee to administer and implement the trade. If the parties plan to use an existing operating committee, there is a provision incorporating that operating committee into the new agreement. The operating committee is small, usually one or two senior engineers from each utility, with very specific technical and scheduling responsibilities and powers. Typically, the committee is not a full-time body. Representatives from each utility may spend several days a month on their operating committee duties, with a meeting of the full committee once a month. In establishing an operating committee, the following aspects are generally addressed in the contract.

- (a) **Composition.** Each party must be equally represented. Typically, an operating committee consists of two or four senior members of the utilities, one (or two) appointed by each utility. When the committee is composed of only one representative from each utility, that member is typically a senior systems planner.
- (b) **Purpose and Duties.** The clause establishing the operating committee typically does so in general terms, such as: "to administer and interpret the agreement," with specific duties stipulated in each of the related operational clauses (including scheduling, monitoring and metering, actions in event of deficiency or emergency). Several of the contracts contained a sub-clause enumerating the committee's scope of duties, including but not limited to all matters relating to: a) operation of the systems' interconnection; b) the metering, accounting and billing for power and energy; c) the coordination of maintenance schedules; d) the correlation of short-range forecasts of load and capacity requirements; and e) the determination and allocation of losses.
- (c) **Authorizations.** The powers of the operating committee are also described in a general manner: "to do all things necessary to ensure delivery of and payment for the contract energy in accordance with the provisions and intent of this contract." The right of the committee to have access to the records and accounts of both parties is usually provided for in the contract.
- (d) **Decision-making.** The operating committee is empowered to make decisions

on certain issues. Each party has one vote. All contracts incorporating an operating committee stipulate that decisions reached by the committee must be unanimous. If a decision cannot be resolved within a specified period of time (usually 30 days), the issue will be taken to formal dispute resolution. While the committee is empowered to make certain technical and financial decisions, it may not make decisions which in any way alter the terms or the spirit of the basic agreement.

Metering and Measurement of Energy

A small error in meter accuracy or reading can result in a substantial loss of benefit for one party. Therefore, meter standards, the responsibility for reading the meters, and the procedure in event of a disputed measurement are provided in most contracts. Metering and measuring requirements raise the question of who has metering responsibility and access: the supplier, the concerned purchaser, or both, through an operating committee or other verification measures. Where there is an operating committee, it is generally given express responsibility for the metering and measuring tasks. Where no joint operating committee is in place, the parties must specify the standards for equipment and procedures for metering, metering equipment upkeep and testing, and verification of readings. Verification is typically accomplished by the presence of an official from the other party at meter-readings.

Status of Prior and Other Agreements

When the proposed agreement replaces prior trade agreements between the utilities, the contract usually contains a Prior Agreements clause which establishes that any prior agreements relating to the trade are to be superseded by the new agreement.

When the new agreement is additional to other electricity trade obligations (between the supplier and purchaser, or between the supplier and other purchasers), the agreement contains a provision specifying the relationships between obligations in the new agreement and existing agreements (for example, priorities in the event of a deficiency).

Force Majeure

Force majeure is an element of every contract examined for this study. Most often, there is a separate *force majeure* article; however, some contracts include *force majeure* either as a sub-clause of a comprehensive legal article or in a liabilities article. In the event *force majeure* conditions affect performance, the party affected by *force majeure* is released from its obligation to perform and from liability for loss or damage to the extent that *force majeure* is the cause of that loss or damage. Each contract includes both a definition of *force majeure* and a non-exhaustive list of conditions which constitute *force majeure* (some examples: war, revolution, insurrections, strikes - excluding those strikes affecting solely operations between the parties, acts of sabotage, nonperformance by contractors due to causes not attributable to the parties). Only conditions which have a low likelihood of occurrence are true *force majeure* events. Generally, the seller will benefit

from an inclusive definition of events constituting *force majeure*, while the purchaser will benefit from a limited definition of those events. While low water conditions are not included as a *force majeure* condition in any of the contracts examined, many of these contracts address the risk of low water conditions in their scheduling and deficiencies clauses (see Hydrological Risk section). However, it is up to the parties to agree on conditions constituting *force majeure*, and there is no reason unusually adverse water conditions could not be included in the clause.

The majority of contracts require that the *force majeure* event not have been foreseeable or preventable by exercise of due diligence. The party whose performance is affected by *force majeure* is obligated to notify the other party immediately and to correct the condition as quickly as possible. A few of the North American contracts apply formulas modifying "take-or-pay" capacity charges in the event of *force majeure*. The parties must agree on the standard of obligation to exercise diligence and remedy the condition; the seller will benefit from a lower standard and the purchaser from a higher standard of obligation. In the event that the parties cannot agree that a non-foreseeable and non-preventable *force majeure* condition, as defined in the contract, has occurred, the interpretation becomes a matter for dispute resolution.

Sovereignty and Riparian Rights

While exports may be based on hydroelectric generation on an international river, electricity trade itself does not raise sovereignty or riparian issues. This is borne out in the study agreements, none of which have a provision addressing either sovereignty or riparian rights.

Applicable Law

Parties are free to choose the law by which the agreement shall be governed and construed; they may choose the laws of either party or that of any other state, provided the parties agree. In the contracts examined for this study, the contracts between developing country parties did not designate an applicable law, while the developed countries did include such a designation in their contracts. Most, but not all, developed-country contracts designated the law of the supplying party as the applicable law. In the event that a matter for interpretation or resolution arises, conflict of law rules stipulate that when a contract is silent on the governing law, the law to be applied will be either the law of the place where the contract was signed or where performance occurred. Therefore, if the parties want to reduce uncertainty in the event of a dispute, they should establish in advance the law they wish to govern. Related to the choice of law is the choice of language. In circumstances where the parties speak different languages, the contract often indicates the language by which the agreement will be interpreted (generally, this will be the language in which the agreement was negotiated).

Dispute Resolution

The provisions of the contract, taken as a whole, should work together to reduce the risk of a conflict which cannot be resolved through the normal functioning of the contract provisions. Dispute resolution clauses apply to disputes that remain unresolved by contract provisions or informal negotiations between the parties at working or higher levels. Most contracts specify that an issue

be considered at the working level for a specified period of time, and only if the issue cannot be resolved within that framework, does it go to the formal dispute resolution mechanism. The majority of contracts contain a formal dispute resolution provision (Ontario-Hydro's contracts with Vermont Public Power Supply Authority do not, nor does the 1983 Energy Contract between HQ and NEPOOL). There are two general categories of dispute resolution procedures: a) direct negotiations between the parties, and b) arbitration using a third party. Most contracts use arbitration or a combination of negotiation followed by arbitration, however several of the developing-country utilities chose negotiation rather than arbitration.

Each of the methods, direct negotiation and arbitration, offers advantages and disadvantages. Arbitration by third parties may be politically unacceptable to one or both of the parties as the introduction of an outsider requiring access to data for fact-finding and producing a binding solution can raise sovereignty concerns. However, in that arbitration uses the services of technically qualified parties outside of the conflict, the resolution may be perceived as unbiased and more fair. Informal and direct negotiations may be more acceptable, politically, as they do not bring in an outsider and may not require the same level of access to data as arbitration. In addition, negotiation offers more flexibility than arbitration, which generally follows clearly established rules. However, negotiation may work against a weaker partner.

Arbitration is the most common mechanism for resolving international commercial disputes. The contracts between US and Canadian utilities contain the most detailed arbitration provisions, the content of which is paraphrased below, as it is illustrative of a very complete clause.

- (a) **Arbitration Committee Composition and Election Procedures.** The majority of contracts employ either an arbitration committee consisting of three persons - one appointed by each of the utilities and a third to be designated by the two utility appointees, or a single arbitrator appointed by the two parties. The contracts stipulate that arbitrators be qualified in the technical aspects of the matter in dispute and that the third arbitrator (or the single arbitrator where there is only one) not be from either party's territory. (In US-Canada contracts, "territory" means State or Province, not country.)
- (b) **Procedures and Time Requirements.** The primary purpose is to prevent delays and disruptions to the trade. Most of the contracts stipulate that the dispute must first be presented to the Operating Committee; if it remains unresolved there for a specified time period (usually 30 days), the dispute then proceeds to arbitration. Time limits are set for the appointment of arbitrators, providing for a appointing authority to intervene in the event that the parties cannot agree on the selection of an arbitrator. A statute of limitations for submission of the dispute to arbitration is also included (usually one or two years).
- (c) **Location of arbitration.** Most of the contracts designate a specific location where the arbitration will occur, with a provision to change the location by

mutual agreement. Of the contracts which designate a specific locale, most chose the state or provincial capital of the purchaser utility.

- (d) **Rules, Guidelines and Law to be Applied.** The dispute resolution article contains a sub-clause specifying the law which will guide in construing the meaning and interpretation of the agreement (in the case of the US and Canada, the State or Province) and any procedural or substantive rules which will guide the arbitration process. For example, the North America contracts incorporate the American Arbitration Association's Commercial Arbitration Rules and the Supplementary Procedures for International Commercial Arbitration. No pattern emerges concerning which is the applicable law: HQ's supply contracts with NEPOOL and NYPA designate the laws of Quebec; Ontario-Hydro's supply contract with the City of Cleveland designates the laws of Ohio, while its contracts with VPPSA designate the laws of Ontario.
- (e) **Enforcement.** Every contract stipulates that the decision reached through arbitration be final (not subject to appeal) and binding on the parties, but shall not constitute an amendment to the contract.

The substantive and procedural rules for dispute resolution contained in the developing-country contracts were relatively brief and general, relying on the good will of the parties to reach a satisfactory solution. One of the contracts (EGAT-EdL) simply stipulates that in the event of a dispute, through direct negotiations, "the two parties will... cooperate with each other in straightening out the dispute." However, all but the EGAT-EdL contract establish guidelines for the appointment of the negotiators/arbitrators, reflecting recognition of the extent to which the choice of the negotiator/arbitrator may affect the final outcome of the dispute resolution process.

Termination

The majority of contracts contained provisions for termination, based on either the will of one or both of the parties, or on the occurrence of specified conditions. All four of Ontario-Hydro's supply contracts provide for termination by mutual agreement or by one of the parties, following written notice (90 days in two of the contracts 12 months in the other two). The rest of the contracts provide for termination under specified conditions, including: termination on default; termination based on sustained failure to pay bills; termination based on inability of the purchaser to obtain a delivery path; termination due to inability to obtain necessary regulatory approvals by a specified date; and unilateral termination in case of war or emergency. Each of the provisions establishes the procedures to be followed to effect the termination, which always consist of notice to the other party, and may include assessment of compensation or damages. In the case of termination on default, the contracts generally stipulate that the party in default be given notice of termination, followed a specified period of time to correct the default. Neither the contracts between HQ and NYPA, nor those between developing-country parties contain termination provisions.

Interconnection Agreement

All of the electricity sales contracts between developed countries operate in conjunction with an interconnection agreement between the parties. By establishing principles and guidelines for the trade, the interconnection agreement provides operation personnel the flexibility to do the things that are most economical and beneficial as the need arises. The interconnection agreement establishes the technical characteristics of the interconnection and the responsibilities for its operation and maintenance. The agreement also describes the types of sales transactions the parties anticipate conducting and establishes general pricing principles for each. Typically, the interconnection agreement establishes an operating committee, composed of an equal number of senior executives from each utility, to be responsible for the interconnection and to implement the trade (see discussion in the section on Operating Committee). One of the advantages of an interconnection agreement is that by permitting flexibility in trade, the parties can realize any additional benefits of system diversity and mitigate any rigidities of the major sales contract. (See Annex G: 1983 Interconnection Agreement between NEPOOL and HQ; this interconnection agreement underpins the 1983 Energy Contract, the 1983 Energy Banking Agreement and the 1985 Firm Energy Contract between the two parties and has allowed the two companies to take advantage of opportunities to realize savings which are not covered in the purchase contracts.)

Table 1. Summary of Primary Issues and Contract Features for Major Categories of Electricity Trade

Contracted Service	Primary Issues	Provision in Contract to Address Issues
System Firm	<ul style="list-style-type: none"> a) High Degree of Obligation to Supply/to Accept b) Covering System LRMC c) Despachability d) Protection in the event of delay, deficiency or "Act of God" 	<ul style="list-style-type: none"> a) Preamble. Scheduling. Duration. Termination. b) Fates and Charges, including adjustment. Billing and Payment. c) Scheduling. Capacity Deficiency Allocation. d) Delay of In Service Date. Authorizations. Scheduling. Capacity Deficiency Allocations. Force Majeure clause.
Plant/Unit Firm	<ul style="list-style-type: none"> a) Lower degree of obligation, parties may agree that seller will provide back-up when plant/unit is not in service b) Covering Fixed and Variable costs c) Despachability d) Protection in the event of delay, deficiency or "Act of God" 	<ul style="list-style-type: none"> a) Preamble. Unit from Which Capacity will be made Available. Option to Furnish Energy from Alternate Sources. b) Rates and Charges. Billing and Payments. c) Determination of Capacity Available from Each Unit. Energy Availability. Scheduling provisions; procedure for notification of outages. d) Delay of Commercial Operation. Scheduling. Allocation of Capacity Deficiencies. Force Majeure. Clause.
Non-Firm	<ul style="list-style-type: none"> a) Very low value, unless some reliability can be added. b) Cover SRMC 	<ul style="list-style-type: none"> a) If sufficient supply and demand diversities exist, the parties may: conclude a Seasonal Capacity contract(s), the issues and contract provisions will be the same as those for firm sales contracts; or the supplier can offer a certain amount of "prescheduled" energy -- notice and scheduling provisions will be particularly important. b) Rates and Charges.
Emergency and Back-up	<ul style="list-style-type: none"> a) Making supply available while limiting the obligation of supplier and circumscribing the use of this category; b) Recover costs of supply. 	<ul style="list-style-type: none"> a) Clear definitions and limits for each transaction; supplier to make available only to the extent that it can. Notification provision. Designation of parties responsible for implementation/operation. b) Establish pricing principles for each category of transaction.
Interconnection Agreement and Subsidiary Services	<ul style="list-style-type: none"> a) To assure the maintenance of facilities on which trade is based; b) To establish the operating procedures which will govern the trade; c) To establish the full range of transactions to take place on the interconnection, creating flexibility in the trade. 	<ul style="list-style-type: none"> a) Provision naming the facilities and allocating responsibility for operations and maintenance; b) Operating committee with specific tasks ensuring reliability and smooth operation; c) Provision naming all contemplated transactions, the pricing principles and the responsibility for implementing; provision empowering the operating committee to make other trades.

D. Conclusions and Implications

This study examined twenty-four power sales agreements under which electricity trade was successfully implemented. The agreements were between countries at all levels of economic development and were based on a variety of generation sources. The keys to successful trade include: the presence of net benefits to both parties, a desire by both parties to realize those benefits and a focused and non-political internal management and decision-making process regarding trade issues. The degree to which the trade is supplemented by trust and goodwill between the trading utilities is another critical component of successful trade.

The starting point for two countries contemplating electricity trade should be the technical and financial analysis of alternative transactions. Potential sellers need to develop a thorough understanding of the products they can offer and the costs associated with each alternative (including the alternative of no export) as well as the risk-reward trade-offs presented by each alternative. Potential buyers need to evaluate their capacity and energy needs, the alternative means and associated costs of meeting those needs, and the risk-reward profile of the contemplated import transaction. Both parties must also define the objectives of the trade. In addition, both parties must establish both the internal and joint mechanisms for administering the agreement-reaching process. Once the basic decisions outlined above are made, and a task-oriented working group for electricity exchange is established, the parties can begin the process of formulating their positions and priorities for the full range of technical, financial and legal/administrative issues.

In considering the structure and content of an electricity sales agreement, an important consideration is that administrative viability may be negatively affected by the negotiation of contracts with very detailed provisions. In addition, managing a complex agreement is likely to increase the transaction costs of the trade, as well as the potential for conflict. The parties will need to identify and weight the advantages and disadvantages of one or several sales contracts with a detailed elaboration of each party's rights and obligations against advantages and disadvantages of a more simply structured agreement which will rely more on the good faith of the parties.

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Terms and Conditions Relevant to an Electricity Sales Contract

1. **Preamble**
2. **Definitions**
3. **Type(s) of Energy to be sold**
 - .firm (surplus, seasonal) and secondary
4. **Amounts of power and energy to be sold**
 - .for firm power and associated energy-- MW and MWh
 - .for secondary or economy energy -- kWh, as available
5. **Characteristics of Power and energy to be sold**
 - .phase, voltage and frequency
6. **Load Factor and load factor adjustments**
7. **Scheduling Procedures**
 - .firm (annual, monthly, weekly, hourly)
 - .secondary or economy (hourly)
8. **Deficiencies and Interruptions.**
 - .delay of in-service date
 - .reduction in ability to deliver
 - .reduction in ability to take
 - .transmission deficiency
 - .allocation of shortage burden
 - .rescheduling procedure
 - .compensations
8. **Point(s) of Delivery**
9. **Metering and Measuring of Energy**
 - .standards
 - .responsibility of which party (can be both)
 - .facilities owned and maintained by which party (can be both)
 - .granting of required access

10. **Facilities: Ownership, Standards and Operations and Maintenance (O & M)**
 - .specify facilities
 - .specify ownership
 - .standard of care
 - .parties responsible for O & M
11. **Rates and Charges**
 - .capacity
 - .energy
 - .escalation/adjustment
12. **Billing and Payment**
 - .procedure for computation of bill
 - .procedure for payment
 - .currency and exchange rates
 - .late penalty
 - .procedure in event of disputed bill.
13. **Renegotiation of Rates**

Specify procedure and timing:

 - .renegotiation at specified time intervals throughout the contract
 - .implicit, through use of short-term contracts
 - .under changed circumstances
15. **Stabilization**
16. **Operating Committee**
 - .membership and appointment
 - .duties
 - .authorities
 - .accesses
 - .decision-making procedures
 - .procedure if the parties cannot agree
 - .responsibility for expenses of the Committee
17. **Liability**

18. **Force Majeure**
 - .specify criteria to be met to constitute *force majeure*
 - .define standard of care and obligations of party claiming *force majeure*
 - .define procedures to be followed in the event of *force majeure*
 - .define rights attaching to other party
 - .establish procedure in the event the parties do not agree that a *force majeure* event has occurred
19. **Records**
 - .Standards
 - .Accesses
20. **Law of the Contract**
 - .specify which country's law will be used
21. **Licenses and Authorizations**
 - .specify required and contingent national-level authorizations
 - .agree to expedite approval processes
 - .specify procedure in event regulatory bodies materially modify the contract as negotiated
22. **Previous Communications**
23. **Status of Earlier Agreements**
 - .name these agreements
 - .establish the relationship of earlier agreements to the current agreement
24. **Assignment of Rights**
25. **Suspension**
 - .conditions under which suspension allowed
 - .procedures and notices
 - .rights and obligations of each party

26. **Termination**
Conditions and procedures:
 - .unilateral
 - .by mutual agreement
 - .compensation
27. **Procedures for Amendment/Revision**
 - .establish conditions under which amendment or revision is allowable
28. **Negotiation of certain aspects after conclusion of Agreement**
 - .specify which aspects
 - .establish procedure
29. **Successors and Assigns**
30. **Notices**
 - .addresses for official correspondence
31. **Effective Date and Term**
 - .duration
 - .conditions and provision, if any, for extension
32. **Dispute Resolution**
 - .type of resolution process (arbitration or negotiation)
 - .composition, qualifications and appointment of resolution committee
 - .procedures in the event parties cannot agree on
arbitrator/negotiator(s)
 - .procedures and time requirements
 - .rules, guidelines and applicable law to be applied
 - .enforcement
33. **Name and Incorporate Annexes and Supplements**
34. **Annexes and Supplements**
 - .detail on rates
 - .map of delivery path and points
 - .list of peak and off peak periods
 - .list of other agreements in force.

SURVEY OF STANDARD TERMS AND CONDITIONS

Taken together, the provisions of a contract will mitigate the risk of unilateral action or breach (contracting risk) through establishing an agreed allocation of risks and returns; the rights and responsibilities of each party and the procedures to be followed in the event of a dispute.

1. **Parties, Date and Title.** A contract will generally commence with a title page naming the parties, the date of signature and the title of the transaction (e.g., "Firm Power Agreement").
2. **Preamble/Recitals.** A clause at the beginning of an agreement which may be helpful in interpretation of ambiguities. The preamble may be as short as one paragraph in which the parties are named and the intent to trade is stated. More often, the preamble is several paragraphs long and describes the parties, the type of trade, the reasons for the trade (e.g., surplus capacity or energy, to take advantage of existing transmission) and the objectives of the trade (e.g., "alignment in generation to enable both countries to make smaller and more rational investments in electric plants", mutual assistance in emergencies). It is not an essential part of the agreement and it neither enlarges nor confers powers, but may be useful as an interpretive device.
3. **Description of Project and Facilities.** A clause included when the trade is tied to specific facilities or a specific project. Included in the clause will be a description of scope, location and function of project and/or the facilities on which performance of the contract relies. Interconnection agreements always specify the facilities on which the trade is based.
4. **Effective Date and Term of Agreement.** The effective date clause establishes the date agreement rights and obligations commence. The clause may be included in the preamble or as a separate provision. The term of agreement establishes the duration of agreement and agreement rights and obligations. A provision for the extension of agreement for a specified time is often included in the contract, to allow for rescheduling or extension due to delays, as well as to allow for continuance for satisfactory trade; extensions are typically accompanied by adjustments to tariffs.
5. **Delay in start date.** If the commencement of trade is dependent on the construction or expansion of facilities, the contract usually establishes the procedures to be followed in the event of a delay in the start date due to delays in completion of the facilities. Typically, the agreement's rights and obligations are shifted by the duration of the delay, sometimes with a small escalation in the rate. However, many contracts allow for termination of the contract if the trade does not commence by a specified date (sometimes referred to as a "drop-dead date"), in which case procedures for termination and assessing compensation are included in the clause.

6. **Definition of Terms.** An article listing and defining the exact meaning ascribed to those terms having particular significance to the undertaking. It is important for both parties to have the same understanding of essential terms. Definitions are used to provide clarity in both understanding and interpretation of agreement, therefore can be useful for dispute resolution. Where ambiguity desired, often left out. Definitions typically constitute a separate article. Another accepted practice is to include the definition of a word or phrase in the article in which the term is used. A choice of language clause, specifying the official language(s) of the contract, may also be important where the parties speak different languages.

7. **Status of Previous Agreements between the Parties.** A clause used to provide clarity where there is already existing electricity trade. The clause names the prior agreements, describes the operational relationships and specify priorities between the agreements. Alternately, the parties may agree that prior agreements are superseded by the current agreement.

Technical and Operating Provisions

8. **Contract Amounts of Power and Energy.** This clause specifies the amounts of power and energy for which the parties are contracting and often includes the agreed load factor. The clause may also specify the level of obligation attached to the supply and include priority reservations for meeting and allocating domestic requirements and load obligations contracted to other parties.

9. **Characteristics of the Power and Energy.** The clause specifies the current, phase and voltage of electricity to be delivered/accepted and may also specify acceptable ranges of fluctuation in these parameters.

10. **Delivery Points.** Specifies locations and technical characteristics of energy to be delivered, often a map of delivery points is included in annexes and incorporated into the agreement.

11. **Transmission.** This clause, when present, briefly describes the transmission route, specifies the technical characteristics of the transmission lines, the responsibility for operation and maintenance of the lines (including ownership).

12. **Scheduling.** The scheduling clause establishes the procedures for scheduling energy deliveries/acceptance. The procedures generally include: the time requirements for scheduling (e.g., annual, monthly, weekly, hourly); the party responsible for establishing initial, preliminary schedules; and the responsibilities for dispatch. The clause may specify minimum or maximum delivery target ranges for each scheduling period, as well as conditions under which the load factor may be varied. The clause may also set out procedures for coordination of maintenance/scheduled outages.

13. **Monitoring and Metering.** This clause establishes procedures and standards for metering and measurement as well as the responsibility for verification of equipment condition and meter readings. The clause also delegates the cost of equipment and procedures.

14. Service Conditions and Standards. The function of this clause is to ensure a satisfactory standard of operation, the objective being to see that parties operate power sources so as to minimize deviations between maintenance responsibilities and standards. States the standard of care (usually "in a manner required for satisfactory operation") and responsibilities (usually each party maintains its facilities at its own expense) for operation and maintenance of each system.

15. Hydro Spill Conditions. This clause may be found in contracts where the purchaser has a mixed hydro-thermal system, and has dams that may occasionally be overfull. The article defines conditions constituting hydro spill in the purchaser's system. Allows and specifies procedures for changes in delivery terms and price under these conditions. Requires advance notice to seller.

16. Deficiencies and Interruptions. A deficiencies and interruption clause provides remedies for energy not delivered because of interruptions or reductions to commitments, due either to inability to deliver scheduled energy or inability to accept scheduled energy, other than those outages jointly planned or those caused by *force majeure* conditions. Coverage may also include transmission deficiencies. The clause defines conditions constituting deficiencies and then states the procedures for rescheduling and/or compensation and often. Generally, the provision also establishes an allocation of the deficiency among all of the utilities obligations (both those imposed by its own system and those imposed by contract obligations to other systems).

Fiscal and Tax Regime

17. Rates and Charges. This article sets out the tariffs and/or tariff formula for the contract power and energy. Specific details and formulae may be included in body or in annex; if in an annex, the main agreement must include reference to annex and incorporate annex into the contract. The level, structure and methodology on which the rates are based vary with: characteristics of energy and power being traded; pricing philosophy; the respective system configurations; trade objectives of both parties and with regulatory mandates. In addition, political concerns and relative bargaining strength may play a role in determination of the ultimate price through negotiations.

18. Rate Adjustments. Adjustment clauses function to increase contract responsiveness to changed conditions and therefore reduce risk of breach. Typically, a part of the rates article. For rates, a substantive revision rule may contain a rate or formula or actual dollar figures by which rates will be revised. Procedural rules will specify under what conditions and using what methodology the rate will be adjusted.

19. Rate Renegotiation. A renegotiation clause is generally found in contracts with no provision for adjustment to the rate. Establishes the conditions and procedures under which rates may be renegotiated. May specify renegotiation based on passage of a specified amount of time, or call for renegotiation when economic circumstances have changed sufficiently to alter the bases on which contract was agreed. Other contracts build in rate renegotiation by limiting the duration of the contract, with a provision for extension.

20. Billing and Payments. This clause establishes procedures for invoicing, submitting and paying bills. Most clauses include: penalties for late payment, currency of bill computation and payment and rules regarding exchange rate determination. Generally, the clause includes procedures to be followed in the event of a disputed bill; these procedures are designed to keep the trade going in spite of any dispute over the bill.

21. Taxes. This clause generally functions as a rate stabilization clause (para. 22). Each party is generally obligated to protect the other from any taxes or duties imposed by their respective governments. Earlier contracts (1960s) tended to use a stabilization clause in which the taxation system operating at the time the agreement was made was to be applicable through the life of the agreement.

22. Stabilization Clause. A provision to assure each party that legislation subsequent to the contract shall not apply to that contract. Stabilization clauses are found primarily in the financial and tax sections of contracts of long duration, where each contracting party may be exposed to the danger that the other party's government may alter the content of its own law in a manner that would change the value of the contract, as negotiated, if passed through to the other party.

Administrative and Legal

23. Operating Committee. The clause functions to establish and give legal identity to an operating committee for purposes of implementing the day-to-day aspects of the trade, as established in the sales agreement. The clause states committee's purpose, duties and authorities as well as its operating procedure (membership, voting). An operating committee generally has authority for applying tariffs, scheduling, deficiency allocations and rescheduling as well as constituting the first stage of dispute resolution.

24. Ownership. Ownership is generally not an issue when sales are from the power system as a whole. However, when sales are from a specific unit, the contract typically states that the right to a certain amount of output does not confer ownership rights on the purchaser.

25. Prevention and Settlement of Disputes. Taken together, all clauses in a contract function as dispute prevention (e.g., definitions, scheduling, deficiencies, operating committee, force majeure, price adjustment, renegotiation, and others). Clauses for the settlement of disputes apply to disagreements that remain unresolved through operation of the contract mechanisms (including the operating committee). The dispute resolution clause sets out the formal procedures by which conflict is to be resolved. These may include negotiation, consultation, arbitration, judicial settlement, and other peaceful means. Most call for the establishment of an arbitration committee, only after the dispute remains unresolved by the operating committee for a stipulated period of time, typically 30 days (where there is no operating committee, the utility officials responsible for the trade would be the first level of dispute resolution, followed by senior utility executives). The arbitration procedures are also subject to time requirements. Generally, the contract stipulates that the decisions reached by the arbitration body are binding, but do not constitute an amendment to the agreement.

26. **Records.** Clause requiring the keeping of records, the standards to be used and the accesses allowed.

27. **Liabilities.** This clause exonerates each utility from any liability claims caused by its operations, if the problem in its operations was caused, in the first place, by the operations of its partner utility. The clause generally also prohibits contingent and tort damages. The liability clause is activated only by a claim being made.

28. **Force Majeure.** An automatic adaptation clause that defines the consequences of a suspension of performance due to a fundamental and unforeseen change in circumstances. *Force majeure* clauses in transnational agreements vary significantly - ranging from the very simple to the very detailed. Parties to transnational contracts generally specify the conditions which constitute *force majeure* and procedures to implement the remedies of the clause. The more detailed *force majeure* clauses usually contain a definition of *force majeure* conditions and an illustrative list of events which constitute *force majeure* (lists are not intended to be exhaustive). Generally, the obligations of the party affected by a *force majeure* condition are excused or reduced to the extent they are caused by the *force majeure* condition. The definition of impossibility of performance is often supplemented by the requirement that the event must also have been unforeseeable and that the party could not have been reasonably expected to prevent the condition. The non-performing party generally is under obligation to notify its trading partner and to correct the problem quickly. Labor disputes are a major cause of non-performance and the parties generally stipulate whether or not strikes are an allowable *force majeure* condition. Often general labor strikes are included, while labor strikes affecting only the utility are excluded. ENALUF-ENEE includes strikes which affect the utilities normal operations, but excludes strikes which exclusively affect supplies between the two enterprises.

29. **Applicable Law.** This clause specifies the State to whose law the parties agree to be bound; need not be a State party to the contract. This is the law that will be used to interpret any ambiguities in the operation of the agreement, or in the event of a dispute resolution proceeding.

30. **Licenses and Authorities.** The purpose of this clause is to ensure the contract complies with domestic regulations of each party before the trade begins. The clause stipulates that the trade is contingent on government approvals. In order to avoid delays associated with regulatory approvals, both parties generally agree in the contract to expedite the approval process. In certain circumstances, where regulatory approval process is particularly complex, or where the value of the trade would be diminished after a certain point in time, the parties include a provision allowing one party to terminate the contract if regulatory approvals are not obtained by a specified date; the provision for termination is usually accompanied by substantial penalty to the party unable to obtain the approval. Regulatory bodies from each country are typically given the right to suspend the agreement in case of war or other national emergency.

31. Land Easements. Where access to territory of one party by the other is necessary for project implementation, there is a clause outlining the responsibilities of host government to obtain necessary rights and specifying the rights and obligations attaching to the easement as well as the duration of the easement and provision for its reversion.

32. Assignments of Rights. The objective is to specify the conditions and procedure by which assignor disposes of rights and obligations (assignor may merely have to inform partner, or may have to get partners consent) and to protect the party who is consistently adhering to the contract. While the contract may make no mention of this question at all; assignment is not avoided, as the choice of law clause provides for the application of the general rules of the State to whose laws the parties have agreed to be bound.

33. Termination. Termination refers to an ending of contract rights and obligations, usually before the anticipated term of the contract. Termination may be by mutual agreement or by exercise of one party of a remedy due to the default of the other party ("Termination on Default"). Termination clause specifies the conditions under which a cancellation of the contract relationship is to be permitted and the procedures to be followed.

34. Suspension. Clause stating the conditions and procedures for suspension of duties as well as consequences, responsibilities and procedures for reactivation of agreement. Often found in contracts between parties who anticipate some problems in delivery path (interconnection or wheeling).

35. Previous Communications. A clause referring to any verbal or written exchanges regarding the trade at hand, prior to the final agreement. For purposes of clarity of intent and interpretation of agreement; usually declares previous communications to be void of meaning for purposes of agreement.

36. Relation of Agreement to Electricity Sales Agreements with Other Outside Parties. Acknowledges that as each party is party to other agreements, the agreement in question shall not affect the rights and obligations of any of the parties with respect to such agreements. Such a clause generally establishes the allocations among parties in case of deficiencies.

37. Incorporation of Annexes and Exhibits into the Agreement. In many agreements, the details of important clauses (rates and charges, delivery points, description of peak and off-peak periods) are included in annexes rather than the body of the agreement text. The agreement must refer to and incorporate these.

38. Procedure for Amendment/Revision. By providing conditions and procedures for bilateral adaptation of contract terms, this clause functions to reduce reasons for breach due to changed circumstances. Works together with stabilization clauses which preclude unilateral alterations, while the revision clause permits modification of the contract regime by consensus. Revisions may be sought for reasons not causally connected to contract ("undue hardship" due to a change in the economic situation which substantially alters the conditions on the basis of which the contract was concluded), as well as reasons arising from the contract (revision at particular points in time of fiscal regime, most typically). A reference in the contract to the possibility of revision serves to strengthen the position of the party wanting a renegotiation. Substantive and procedural rules regarding the renegotiation are not necessary, but can be useful.

39. Negotiation of Details after Signing of Contract. A clause required when parties decide to delay the negotiation of certain details to some point in time after the contract has entered into force. Clause contains description of what is to be negotiated and the procedural rules to be followed.

40. Annexes, Supplements and Exhibits. Attachments at the end of a contract to provide greater detail on certain of the contracts main clauses. The contract must specifically incorporate such attachments for the attachments to be a valid part of the agreement.

DEFINITIONS OF INCREMENTAL AND DECREMENTAL COSTS**A. 1983 Interconnection Agreement between Hydro-Québec and NEPOOL****Incremental Cost**

The words "incremental cost" where used in this Agreement shall mean any cost incurred by one party hereto supplying energy to or making operating reserve available to the other, which would not otherwise be incurred if the transaction did not take place.

The elements of incremental cost when energy is supplied from sources on the seller's system which are normally in operation for operating reserve or for other purposes shall include, but not be limited to, the following:

- . Any incremental fuel cost or water rental charge.
- . Any cost for energy purchased to replace stored hydraulic energy.
- . Any incremental maintenance cost.
- . Any incremental labor cost.
- . Any incremental cost of a miscellaneous nature such as for example, coal handling, water spillage.
- . Any incremental transmission cost or saving.
- . Any applicable incremental taxes or grants in lieu of taxes.

When energy is supplied from sources on the seller's system placed in operation for the specific and sole purpose of supplying energy or making operating reserve available to the other party, then the incremental cost shall include all costs referred to above and in addition, where applicable:

- . Any boiler firing-up cost.
- . Any boiler banking cost.
- . Any boiler incremental maintenance cost.
- . Any boiler incremental labor cost.

- . Any turbine starting cost.
- . Any turbine speed-no-load cost.
- . Any turbine incremental labor cost.

When energy is supplied from sources on the seller's system, then the incremental cost may include an allowance, computed by probability methods, for estimated present-day value of future costs which are expected to be incurred as a result of the transaction. The methods of computing and applying such allowances shall be agreed upon in writing by the Operating Committee.

Decremental Cost

The words "decremental cost" when used in relation with matters pertaining to this Agreement shall mean the net sum of all avoided applicable costs, as defined above, to the party to whom energy is supplied.

B. Manitoba - United States
Winnipeg - Grand Forks 230 KV Interconnection Coordination Agreement
BETWEEN
The Manitoba Hydro-Electric Board
Minnkota Power Cooperative, Inc.
Northern States Power Company
Otter Tail Power Company

Incremental Cost

The "Incremental Cost" of a supplying Party for operating generating facilities to supply energy for another Party shall include the incremental cost of fuel, labor, maintenance, energy losses, and start-up costs associated with the supply of such energy.

Decremental Cost

The "Decremental Cost" of a receiving Party for avoiding the operation of generating facilities through the purchase of energy from another Party shall include the cost of fuel, labor, maintenance, energy losses, and start-up costs avoided as a result of such purchase.

C. 1985 Firm Energy Contract Between Hydro-Québec and NEPOOL**Derivation of Annual Weighted NEPOOL Fossil Energy Cost**

The Annual Weighted NEPOOL Fossil Energy Cost shall be based on the actual experience of the NEPOOL Participants during the twelve-month period starting September 1st and ending August 31st and shall be the quotient obtained from dividing

- 1) the total cost of the Fossil Fuel burned by the NEPOOL Participants for the production of electrical energy during such twelve-month period, by
- 2) the total net electric energy generated from Fossil Fuel by the NEPOOL Participants during such twelve-month period.

The cost of the Fossil Fuel burned by each NEPOOL Participant in any applicable twelve-month period shall be summed to yield the total for NEPOOL for such period.

The net electric energy generated from Fossil Fuel by each NEPOOL Participant in any applicable twelve-month period shall be summed to yield the total for NEPOOL for such period.

The total cost of the Fossil Fuel burned will be made up of the following four components.

Item 1**Fossil Fuel Cost Delivered**

This cost is the price at the NEPOOL Participant's receiving point, including freight and miscellaneous transportation costs. Fossil Fuel Cost Delivered includes such items as:

- a) Net price paid to vendor excluding financing and storage charges. All discounts for prompt payment, price adjustments for Fossil Fuel quality and demurrage costs are included.
- b) Freight, barge, trucking or other transportation charges additional to net price paid to vendor not including, however, charges for unloading from shipping medium.
- c) Payments to others for docking of vessels, placing of rail cars, shifting of same to complete unloading, undocking or release of carriers. Includes cost of tugs, switch engines, etc., when a part of net price paid to vendor.

- d) **Cost to the NEPOOL Participant of verifying quality or quantity of Fossil Fuel as a necessary prerequisite to unloading. Costs of Saybolt, Martin or other outside services are included here (but not NEPOOL Participant's labor).**
- e) **Customs fees, sales taxes, purchasing agent's commission, insurance, or other fees imposed on purchaser at or prior to time of receipt.**

Item 2

Fuel Additive Cost

This item is intended to include:

- a) **Cost to additives or treatment chemicals to improve combustion qualities of the Fossil Fuel.**
- b) **Cost of Fossil Fuel (while generating) used to ignite or stabilize boiler burning No. 6 oil as primary fuel.**

Item 3

Fossil Fuel Unloading Cost

This cost includes all labor, supplies and expenses of unloading Fossil Fuel from the shipping facilities to a predetermined transfer point. The transfer point is the common location in the Fossil Fuel handling system from which Fossil Fuel being unloaded may be transferred to the boiler plant and/or to the fuel storage. This item includes variable expenses such as:

- a) **Variable costs of labor, supplies and other expenses for unloading carriers to the storage facility of the user.**
- b) **Variable costs of labor to receive vessels, rail cars or other carriers, connect hoses, or other unloading facilities, tend valving, pumping tank levels, etc., during unloading, release carriers at completion of unloading, etc.**
- c) **Cost of heating of oil, if required for unloading, and if not reflected in the computation of electric energy generated.**
- d) **Placing or removing booms around barges or tankers for oil-spill control purposes.**

- e) **Hoses or similar expendable supplies used for fuel oil unloading.**

Item 4

Fossil Fuel Handling Cost

This cost includes all labor, supplies and expenses for handling all the Fossil Fuel from the transfer point or tank, or coal pile to the boiler plant. This item includes variable expenses such as:

- a) **Variable costs of labor (including clerical), supplies and other variable cost for holding oil in storage and transferring from storage tank, or from storage to service or day tank.**
- b) **Cost of heating to maintain Fossil Fuel at proper temperature for handling and atomization if not reflected in the computation of electric energy generated.**
- c) **Labor to supply additive or apply treatment procedures to Fossil Fuel in preparation for use, including operating of pump, handling of additives, or other materials, etc.**

**Contrat d'énergie
Energy Contract**

**Nepool participants
Hydro-Québec**

**Mars 1983
March 1983**

ENERGY CONTRACT

This Contract made as of the day of 198 .

BETWEEN:

HYDRO-QUEBEC, a body politic and corporate, duly incorporated and regulated by the Hydro-Québec Act (R.S.Q., Chapter H-5) having its head office and principal place of business at 75 Dorchester Boulevard West, Montréal, Province of Québec, party of the first part,

AND

The corporate entities which are the participants in the New England Power Pool (NEPOOL) pursuant to the New England Power Pool Agreement, dated September 1, 1971, as amended and as filed with the Federal Energy Regulatory Commission. Those entities which are the participants in NEPOOL as of the date hereof are shown on Schedule A and are acting herein by and through the NEPOOL Management Committee. The participants in NEPOOL, as shown on Schedule A, and as changed from time to time by additions of new participants or terminations of participants effected in accordance with the terms of the NEPOOL Agreement, are hereinafter called the "NEPOOL Participants", party of the second part.

WHEREAS, HYDRO-QUEBEC plans and constructs facilities so as to have the capability of meeting Québec requirements at all times; and

WHEREAS, the variability of water supplies and the finite capacity of reservoirs make it probable that at times HYDRO-QUEBEC will have surplus energy available for sale to others, including the NEPOOL Participants; and

WHEREAS, HYDRO-QUEBEC and the NEPOOL Participants will benefit substantially if HYDRO-QUEBEC is able to sell and the NEPOOL Participants are able to buy available surplus energy; and

WHEREAS, HYDRO-QUEBEC wishes to sell and the NEPOOL Participants wish to buy available surplus energy in the ultimate interest of their respective customers; and

WHEREAS, the NEPOOL Participants will enter into arrangements to make use of a HVDC transmission line to be constructed and leading from an interconnection with the facilities of HYDRO-QUEBEC on the International Boundary to a terminal near the Comerford Generating Station at the Vermont-New Hampshire border;

NOW, THEREFORE, the parties agree as follows:

ARTICLE I**1.0 Definitions**

- 1.1 "Contract Period" shall mean the period from September 1st, 1986 to the end of the term of this Contract, as specified in Article XXII.
- 1.2 "Contract Year" shall mean the period September 1st of one Year to August 31st of the following Year.
- 1.3 "Year" shall mean the period from January 1st to December 31st.
- 1.4 "Contract Energy" shall mean the sum of all Pre-Scheduled Energy and all Other Energy described in Sections 1.5 and 1.6.
- 1.5 "Pre-Scheduled Energy" shall mean surplus energy scheduled in advance, as described in Section 3.2.
- 1.6 "Other Energy" shall mean surplus energy that has not been pre-scheduled but is available on an hour-to-hour basis, as described in Section 3.3.
- 1.7 "Week" shall mean the period extending from 00:01 hour Monday to 24:00 hours on the following Sunday.
- 1.8 "On-Peak Hours" shall mean the hours between 08:01 hours and 22:00 hours each day of the Contract Period.
- 1.9 "Usable Capacity" of the interconnections between HYDRO-QUEBEC and a party in the United States shall mean the maximum power transfer to such party in the United States in MW that can be sustained continuously on such interconnections under normal operating conditions and meet the criteria and standards concerning system reliability of the interconnected system adopted by the Northeast Power Coordinating Council (NPCC).
- 1.10 "Interconnection Agreement" shall mean the Interconnection Agreement between HYDRO-QUEBEC and the NEPOOL Participants dated March 21, 1983, as it may be amended, and any similar superseding agreement in force between the parties at any time during the Contract Period.
- 1.11 "Operating Committee" shall mean the committee established by the parties pursuant to the Interconnection Agreement.
- 1.12 "Energy Banking Agreement" shall mean the Energy Banking Agreement between

HYDRO-QUEBEC, the NEPOOL Participants and other parties dated March 21, 1983, as it may be amended, and any similar superseding agreement in force between the parties at any time during the Contract Period.

ARTICLE II

2.0 Reservation and Delivery of Contract Energy

2.1 Recognizing that HYDRO-QUEBEC cannot guarantee that it will have any specific amount of Contract Energy in any particular Year after 1986, the parties agree on a target of thirty-three terawatt-hours (33 TWh) to be offered by HYDRO-QUEBEC to the NEPOOL Participants subject to Articles XI and XVI, for a period extending from September 1st, 1986 to August 31st, 1997. This energy will be offered according to Section 2.2, and at least two thirds of the said Contract Energy will be offered as Pre-Scheduled Energy during each Contract Year. To the extent necessary to reach the above target quantity, HYDRO-QUEBEC will offer to the NEPOOL participants, if and when available, an average quantity of three terawatt-hours (3 TWh) of all types of surplus energy in each Contract Year during the Contract Period. These are subject to adjustment according to Article XI and will be referred to as the Annual Targets.

2.2 HYDRO-QUEBEC will to the NEPOOL Participants, during the Contract Period, where:

A is the quantity of surplus energy expected to be available, as determined by HYDRO-QUEBEC, for each Contract Year after taking into (i) all energy to be delivered under firm contracts, (ii) any quantity of non-firm energy to be supplied to Canadian users and (iii) any quantity of energy to be produced by generating facilities specifically installed to supply a neighboring system and utilized by or on behalf of such neighboring system.

R is the ratio of the Usable Capacity of the interconnections between HYDRO-QUEBEC and the NEPOOL Participant, described in Supplement I of the Interconnection Agreement, to the total Usable Capacity of HYDRO-QUEBEC'S interconnections with the United States. Before May 1st of each Year, the Operating Committee will review the ratio to be used for the next Contract Year.

Notwithstanding the above provisions of Section 2.2, HYDRO-QUEBEC will offer the NEPOOL Participants, if and when available, an amount of at least six-tenths of a terawatt-hour (0.6 TWh) of Contract Energy in any Contract Year if the cumulative amount of Contract Energy made available to the NEPOOL Participants during the previous Contract Years is less than the Cumulative total of the Annual Targets of these Contract Years. This agreement to offer a minimum of six-tenths of a terawatt-hour (0.6

TWh) of Contract Energy to the NEPOOL Participants shall be subject to HYDRO-QUEBEC's prior agreement to give Power Authority of the State of New York a priority on a certain quantity of surplus energy in accordance with Section 2.2 of the Energy Contract dated as of March 19th, 1982 between Power Authority of the State of New York and HYDRO-QUEBEC.

- 2.3 In consideration of HYDRO-QUEBEC's agreement to give the NEPOOL Participants a priority on a certain quantity of surplus energy in accordance with Section 2.2 above, the NEPOOL Participants agree to schedule annually, and in accordance with Sections 2.5 and 2.6 below, if offered by HYDRO-QUEBEC, up to four terawatt-hours (4 TWh) of Contract Energy during each Contract Year, subject to the provisions of Article III.
- 2.4 On or before June 1st preceding a Contract Year, HYDRO-QUEBEC shall offer the NEPOOL Participants in writing the amount of Contract Energy for the up-coming Contract Year in accordance with Sections 2.1, 2.2 and 2.3 above.

Such notification shall include HYDRO-QUEBEC's best estimate of:

- 1) the expected monthly deliveries, and
- 2) the maximum amount of energy that could be offered each month

subject to the Usable Capacity of the interconnections between HYDRO-QUEBEC and the NEPOOL Participants described in Supplement I of the Interconnection Agreement.

- 2.5 On or before July 1st preceding a Contract Year, the NEPOOL Participants shall state in writing the manner in which they expect to take month by month the estimated amount of Contract Energy specified by HYDRO-QUEBEC taking into consideration the quantities and limits specified by HYDRO-QUEBEC according to the second paragraph of Section 2.4 and subject to the provisions of Section 2.3.
- 2.6 The Operating Committee may change the amounts of Contract Energy specified in accordance with Sections 2.4 and 2.5 at any time. Once agreed to by the Operating Committee, the requested changes shall be incorporated into the existing estimate and the resulting amounts shall become the amended estimate.

ARTICLE III

3.0 Delivery Schedules

- 3.1 Advance notices and scheduling for delivery of all Contract Energy provided for in Sections 2.4 2.5 and 2.6 shall be established in accordance with the following principles:

- 3.1.1 Hydro-Quebec shall not be obligated to run thermal generation or purchase energy from a third party in order to fulfill its commitments under this Contract.**
- 3.1.2 The receipt of all Contract Energy by the NEPOOL Participants shall be for the purpose of displacing fossil-fired generation.**
- 3.2 In order to adhere to the above general principles, the following specific procedures shall apply for the scheduling of Pre-Scheduled Energy unless otherwise agreed by the Operating Committee.**
- 3.2.1 Before 10:00 hours Wednesday of each Week, HYDRO-QUEBEC shall indicate to the NEPOOL Participants the amount of energy expected to be available during the following Week. HYDRO-QUEBEC shall also indicate the maximum quantity of such energy expected to be available each day of the following Week. The sum of the maximum daily quantities should not be less than the quantity expected to be available for the Week. Such advance notice shall also include the expected megawatts which can be sustained over the On-Peak Hours each day. To the extent practicable, HYDRO-QUEBEC will use its best efforts to spread the energy available for a month evenly over the Weeks in the month.**
- 3.2.2 Before 12:00 hours on Thursday, the NEPOOL Participants shall submit to HYDRO-QUEBEC a preliminary hour-by-hour schedule of deliveries which total an amount of energy not greater than the weekly amount specified by HYDRO-QUEBEC in accordance with Section 3.2.1 and respecting the limits specified by HYDRO-QUEBEC in accordance with Section 3.2.1. If a party expects any major change in this schedule, it shall notify the other promptly.**
- 3.2.3 By 10:00 hours of each day, HYDRO-QUEBEC shall confirm, or reduce if necessary, the preliminary schedule of energy for the second following day.**
- 3.2.4 Within four (4) working hours of the receipt of the schedule indicated in Section 3.2.3, the NEPOOL Participants and HYDRO-QUEBEC shall agree on an hourly schedule of energy for the second following day.**
- 3.2.5 It is agreed that, on the day of delivery, the NEPOOL Participants shall have the right to request HYDRO-QUEBEC to change the hourly schedule at any time. HYDRO-QUEBEC agrees to make these requested changes provided that the total amount of energy on the day, agreed upon pursuant to Section 3.2.4, remains unchanged and also provided that the requested changes do not adversely affect the secure or economic operation of its facilities.**
- 3.3 On an hourly basis, HYDRO-QUEBEC shall offer to the NEPOOL Participants the quantity of Other Energy available. The NEPOOL Participants shall indicate to HYDRO-QUEBEC the quantity of Other Energy they will take. Either party may**

suspend or terminate the supply of Other Energy at any time on reasonable notice to the other.

- 3.4 At any time, for security reasons on their systems, the NEPOOL Participants shall have the right to decrease the hourly schedule.

ARTICLE IV

4.0 Energy Characteristics

All energy sold and delivered by HYDRO-QUEBEC to the NEPOOL Participants shall be in the form of direct current or three-phase alternating current compatible with and at nominal operating voltages appropriate to the particular interconnection, unless agreed otherwise by the Operating Committee. Such voltages will be varied in accordance with system requirements and accepted utility practices.

ARTICLE V

5.0 Delivery Points

Delivery of Contract Energy shall be effected at the delivery points identified in Supplement I of the Interconnection Agreement, unless agreed otherwise by the Operating Committee.

ARTICLE VI

6.0 Operating Committee

- 6.1 The Operating Committee is authorized on behalf of the parties to do all things necessary to ensure delivery of and payment for Contract Energy in accordance with the provisions and intent of this Contract.
- 6.2 The duties and powers of the Operating Committee and the procedure that it shall follow are those which are established in the Interconnection Agreement and in this Contract.

ARTICLE VII

7.0 Measurement of Energy

- 7.1 All Contract Energy supplied at the delivery points referred to in Article V shall be

metered at the metering facilities to be installed under the Interconnection Agreement, unless agreed otherwise by the Operating Committee.

- 7.2 Appropriate allowances shall be made by HYDRO-QUEBEC in all measurements to account for line losses between the points of metering and the delivery points, unless agreed otherwise by Operating Committee.

ARTICLE VIII

8.0 Rates and Billing Procedures

- 8.1 The price for Pre-Scheduled Energy delivered in any month shall be 80% of the Weighted New England Power Pool Fossil Energy Cost as defined in Supplement I of this Contract.

- 8.2 The price for Other Energy delivered in any hour during any month shall be the lesser of:

- a) 80% of the decremental cost of the energy thus replaced, less any applicable added cost resulting from the delivery, or
- b) a price consisting of the Basic Energy Cost, as defined in Section 8.4 below, plus fifty percent (50%) of the savings in production costs to be produced by the transactions. Such savings are defined as the difference between the value of the decremental cost of the energy thus replaced and the Basic Energy Cost.

The decremental cost shall be as defined in Supplement II of the Interconnection Agreement.

- 8.3 The Weighted New England Power Pool Fossil Energy Cost shall be calculated for each month in accordance with Supplement I of this Contract.

- 8.4 HYDRO-QUEBEC's Basic Energy Cost in \$/MWh for each month will be, unless agreed otherwise by the Operating Committee, the average price computed for the greater of the following quantities:

- 1) the most recent one terawatt-hour (1 TWh) of all energy, other than firm energy, sold by HYDRO-QUEBEC in Canadian markets outside the Province of Québec during and prior to the second previous calendar month; or
- 2) the total amount of all energy, other than firm energy, sold by HYDRO-QUEBEC in Canadian markets outside the Province of Québec during the second previous calendar month.

- 8.5** The amount of Contract Energy made available for each Week shall be the greater of:
- a) The Pre-Scheduled Energy offered by HYDRO-QUEBEC in accordance with Section 3.2.1, less any reduction made by HYDRO-QUEBEC according to Section 3.2.3 and less any curtailment by HYDRO-QUEBEC in accordance with Article IX; or
 - b) the Contract Energy delivered.
- 8.6** The cumulative amount of Contract Energy made available during any Contract Year will be the accumulated sum of the weekly Contract Energy made available, as determined in accordance with Section 8.5 above, plus a quantity of energy, as determined by HYDRO-QUEBEC at the end of each Contract Year, delivered under the Interconnection Agreement, and shall not exceed the lesser of four terawatt-hours (4 TWh) or 1.5 times the sum of the quantities of Pre-Scheduled Energy offered by HYDRO-QUEBEC and as adjusted in accordance with Section 8.5 a) above.

Unless otherwise agreed to by the Operating Committee, the Contract Energy made available and not taken by the NEPOOL Participants will be lost to the NEPOOL Participants.

- 8.7** Promptly after the end of each calendar month throughout the duration of this Contract, HYDRO-QUEBEC shall prepare and submit to the NEPOOL Participants a monthly bill which will include the following:
- a) the amount of Pre-Scheduled Energy delivered the month to the NEPOOL Participants and the corresponding payment required;
 - b) the amount of Other Energy delivered during the month to the NEPOOL Participants and the corresponding payment required;
 - c) the cumulative amount of Contract Energy made available for all the completed Weeks since the beginning of the Contract Year.

If the monthly billing is unavoidably delayed, an interim bill based on estimated charges may be issued.

- 8.** The following specific procedures shall apply for the payment of the bills.

8.8.1 Unless otherwise indicated in writing by HYDRO-QUEBEC, all payments due by the NEPOOL Participants to HYDRO-QUEBEC will be effected in immediately available funds of the United States of America by wire transfer to a bank account in Montréal, Québec, Canada, designated by HYDRO-QUEBEC, or in such other manner as is reasonably requested by HYDRO-QUEBEC.

- 8.8.2** In the event that it is required, in the determination of any costs for purposes of billing under this Contract, to express Canadian funds in the United States of America funds or the United States of America funds in Canadian funds, the parties will use the average, for the period covered by the bill, of the daily noon rates of exchange quoted by the Bank of Canada for purchases of the United States of America funds or the reciprocal thereof for purchases of Canadian funds, as the case may be.
- 8.8.3** All bills will be payable within twenty (20) days following their receipt unless agreed otherwise by the Operating Committee. All amounts due not paid within thirty (30) days following the said date of receipt shall be subject to interest from the said date of receipt at a rate two percentage points higher than the prime commercial rate per annum announced by Citibank, N.A. at its principal office in New York, New York, or by any other bank designated by the Operating Committee, as in effect from time to time, each change in such announced rate to be effective for the purposes hereof on the date on which such change is effective, unless another rate is agreed to by the Operating Committee. In the event a party disputes a portion of a bill, such party shall pay the undisputed portion within the time period specified above.

ARTICLE IX

9.0 Dependability of Supply

- 9.1** It is understood that this Contract does not include any firm power. However, after the hourly delivery schedules of Pre-Scheduled Energy have been agreed upon pursuant to Sections 3.2.2, 3.2.3 and 3.2.4, these schedules shall be considered as dependable subject to the conditions in Sections 9.2 to 9.7 below
- 9.2** The supply to primary and interruptible loads on HYDRO-QUEBEC's system shall receive priority of supply over Contract Energy deliveries to the NEPOOL Participants under this Contract.
- 9.3** The supply of Pre-Scheduled Energy to the NEPOOL Participants under this Contract shall be subject to curtailment if necessary to maintain adequate Spinning Reserve and transmission security on any part of the HYDRO-QUEBEC system. However, when establishing the schedule pursuant to Sections 3.2.1 and 3.2.3, HYDRO-QUEBEC will not consider the generation used to supply the NEPOOL Participants as part of its operating reserve.
- 9.4** The supply of secondary energy loads within the HYDRO-QUEBEC system shall receive priority of supply over Pre-Scheduled Energy deliveries to the NEPOOL

Participants under this Contract provided such loads were committed or connected to the HYDRO-QUEBEC system and taking deliveries of power at the time the schedule of Pre-Scheduled Energy was confirmed or reduced pursuant to Section 3.2.3 above.

- 9.5 The supply of Pre-Scheduled Energy to the NEPOOL Participants under this Contract shall receive priority over the supply of secondary energy loads within the HYDRO-QUEBEC system provided such loads were neither committed nor connected at the time the schedule of Pre-Scheduled Energy was confirmed or reduced pursuant to Section 3.2.3 above.
- 9.6 The supply of Pre-Scheduled Energy to the NEPOOL Participants as scheduled pursuant to Section 3.2.3 above, shall receive priority over the supply by HYDRO-QUEBEC of Economy Energy, Fuel Replacement Energy or any other such like energy to other systems interconnected with HYDRO-QUEBEC.
- 9.7 The supply of power and energy to other systems, as a result of emergencies on such systems, shall receive priority over the supply of Contract Energy.

ANNEX X

10.0 Other Agreements

Deliveries of energy under the Energy Banking Agreement or, subject to Sections 2.3 and 8.6, under any of the Supplements of the Interconnection Agreement in force during the Contract Period shall not be considered part of the Contract Energy, unless agreed otherwise by the Operating Committee.

ARTICLE XI

11.0 Special provisions

- 11.1 If the In-Service Date as defined in the Energy Banking Agreement is later than September 1st, 1986, it will be necessary to reduce the total target quantity of thirty-three terawatt-hours (33 TWh) by twenty-five hundredths of a terawatt-hour (0.25 TWh) per month for each full month late and to reduce the Annual Target for each Contract Year or part thereof, between September 1st, 1986 and the In-Service Date, by twenty-five hundredths of a terawatt-hour (0.25 TWh) per month for each full month of that Contract Year by which the In-Service Date is later than September 1st.
- 11.2 Wherever this Contract refers to periods of time, such periods shall be determined in accordance with the time applicable at the central dispatch center operated by the NEPOOL Participants.

ARTICLE XII

12.0 Extension of Contract Period

12.1 This Contract shall be extended until HYDRO-QUEBEC has made available, subject to Section 11.1 above, a total quantity equal to the target quantity of Contract Energy, but not beyond August 31st, 2002.

The amount considered as made available to the NEPOOL Participants, for the purposes of this Section, is the cumulative amount of Contract Energy computed in accordance with Section 8.6.

12.2 Any quantity of Contract Energy not made available at the end of the said extension period shall be cancelled.

ARTICLE XIII**13.0 Force Majeure**

Each party hereto shall use all due diligence to perform its obligations under this Contract but conditions may arise which prevent or delay performance by a party because of causes beyond that party's reasonable control, including without limiting the generality of the foregoing, failure of facilities, flood, earthquake, storm, lightning, fire, explosion, epidemic, war, riot, civil disturbance, labor trouble, strike, sabotage and restraint by court or public authority which by exercise of due diligence and foresight a party could not be expected to avoid. If a party is rendered unable to fulfill any obligation by reason of such causes, it shall be excused from performing to the extent it is prevented or delayed from so doing but shall exercise due diligence to correct such inability with all reasonable dispatch, and shall not be liable for injury, damage or loss resulting from such inability. However, settlement of strikes and labor disturbances shall be wholly within the discretion of the party having the difficulty.

ARTICLE XIV**14.0 Liability**

No party shall make any claim upon any other by reason of its circuits or system being damaged or rendered inoperative for any period as a result of an occurrence on the circuits or system of another party or on the circuits or system utilized by a party to this Contract. Without limiting the generality of the foregoing, no party shall be held responsible for any loss or damage sustained by another party, for any cause or reason whatsoever, the delivery of power and energy is interrupted, increased or decreased or if the voltage or frequency of the power and energy delivered hereunder to another party is increased, decreased or in any way affected for whatever length of time.

A party to this Contract shall not make any claim against another party for any liability it has incurred as a result of any damages sustained by third parties from any cause whatsoever.

ARTICLE XV

15.0 Applicable law

This Contract shall be governed by and construed in accordance with the laws of the Province of Québec.

ARTICLE XVI

16.0 Authorities

16.1 This Contract is subject to and conditioned upon receipt of all requisite consents and approvals by the competent authorities.

16.2 If the In-Service Date, as defined in the Energy Banking Agreement is later than November 1st, 1989, either HYDRO-QUEBEC or the NEPOOL Participants shall, within thirty (30) days from that Date, have the right to cancel this Contract.

16.3 No modification to this Contract shall be binding on the parties hereto, or either of them, unless such modification is in writing and is signed by a duly authorized representative of each of them.

ARTICLE XVII

17.0 Assignability

Subject to Article XVIII, except in the event of merger, consolidation or sale of all, or substantially all of the assets of a party devoted to production, transmission, distribution and sale of electricity, no voluntary transfer of this Contract or of the rights of a party hereunder shall be made without the written approval of the other party, provided that in any event any successor to or assignee of the rights of a party, whether by voluntary transfer, judicial sale or otherwise, shall be subject to all of the provisions and conditions of this Contract to the same extent as though such successor or assignee were the original party hereunder.

ARTICLE XVIII

18.0 NEPOOL Participants

- 18.1 The utilities identified on Schedule A, which are the NEPOOL Participants at the date of this Contract, have caused this Contract to be executed on their behalf by the Chairman of the NEPOOL Executive Committee, this execution being authorized by Section 5.15 (d) of the NEPOOL Agreement dated September 1, 1971, as amended, and a vote of the NEPOOL Management Committee adopted November 12, 1982.
- 18.2 The NEPOOL Participants agree to give prompt written notice to HYDRO-QUEBEC in the event that either:
- (i) a utility which, at the date of this Contract is or subsequently becomes a NEPOOL Participant, terminates its participation in NEPOOL; or
 - (ii) a utility which, at the date of this Contract is not a NEPOOL Participant, subsequently becomes such a Participant.
- 18.3 In the event any utility so terminates its participation in NEPOOL, its status as a party to this Contract shall terminate upon the giving of and at the date specified in, such notice of such termination. In the event any utility becomes a NEPOOL Participant after the date of this Contract, it shall become a party to this Contract upon the giving of and at the date specified in, such notice of its Participant status.
- 18.4 Except as otherwise provided in Section 18.5 of this Article the NEPOOL Participants shall be treated as a single party for all purposes of this Contract, and the NEPOOL Management Committee (or the NEPOOL Executive Committee acting on its behalf) or its designee shall act for and represent the NEPOOL Participants in all matters with respect to this Contract, other than those assigned to the Operating Committee hereunder. Any action taken by the Management Committee (or the Executive Committee acting on its behalf) or its designee on behalf of the NEPOOL Participants under this Contract shall be conclusive and binding upon the NEPOOL Participants.
- 18.5 The obligations of the NEPOOL Participants under this Contract are several and not joint. The relative obligations of the NEPOOL Participants at all times shall be measured by their respective adjusted Annual Peaks as that term is defined in the NEPOOL Agreement referred to in Section 18.1 of this Article.

ARTICLE XIX

19.0 Termination on Default

If one or more of the individual NEPOOL Participants or HYDRO-QUEBEC is in default in the performance of any of its obligations under this Contract, the other party (HYDRO-QUEBEC or the NEPOOL Participants) shall have the right to terminate this Contract upon three (3) months' prior written notice to the party which is in default and

on the date specified in such notice, if such default is not corrected before the end of such three-month period.

ARTICLE XX

20.0 Notices

- 20.1 Any notice, demand or request required or authorized by this Contract to be given to a party shall be in writing and shall either be personally delivered to a representative customarily authorized to receive such notice, demand or request, or it shall be mailed, postage prepaid, to the party at the address shown on the signature page hereof. The designation of such address may be changed at any time by any party by written notice given to the other party.
- 20.2 Any notice, demand or request so addressed and mailed by registered mail shall be deemed to be given when so mailed, and shall be deemed to be received on the seventh business day following its deposit in America or Canada.

ARTICLE XXI

21.0 Previous Communications

This instrument shall constitute the sole and complete agreement of the parties hereto in respect to the matters herein set forth. All previous communications between the parties hereto, either oral or written, including without limitation the various drafts of this instrument, shall be of no force or effect and shall not be used as a guide to the interpretation of this instrument.

ARTICLE XXII

22.0 Effective Date and Term

This Contract shall be effective from September 1st, 1986 and shall terminate on August 31st, 1997. However, this Contract may be extended to August 31st, 2002 in accordance with the provisions of Sector 12.1 above.

IN WITNESS WHEREOF, the parties hereto have executed this Contract.

SUPPLEMENT I**DERIVATION OF WEIGHTED NEW ENGLAND POWER
POOL FOSSIL ENERGY COST**

The Weighted New England Power Pool Fossil Energy Cost for each month shall be based on the actual experience of the NEPOOL Participants during the twelve-month period ending on the last day of the second previous month and shall be the quotient obtained from dividing 1) the total cost of the fossil fuel burned by NEPOOL Participants for the production of electrical energy during such twelve-month period, by 2) the total net electric energy generated from fossil fuel by the NEPOOL Participants during such twelve-month period.

The cost of the fossil fuel burned by each NEPOOL Participant monthly shall be determined each month and summed to yield the total for NEPOOL for the month. The monthly NEPOOL totals shall be summed for the applicable twelve-month period.

The net electrical energy generated from fossil fuel by each NEPOOL Participant shall be determined each month and summed to yield the total for NEPOOL for the month. The monthly NEPOOL totals shall be summed for the applicable twelve-month period.

FIRM POWER AGREEMENT

THIS AGREEMENT made in Toronto, Province of Ontario, as of the day of October, 1984.

BETWEEN:

ONTARIO HYDRO, an Ontario Corporation continued and regulated by Power Corporation Act, RSO 1980, Chapter 384, hereinafter called "Hydro."

OF THE FIRST PART.

and

VERMONT PUBLIC POWER SUPPLY AUTHORITY, a Vermont corporation continued and regulated by the Vermont Public Power Supply Act. V.S. 1979, No. 78, hereinafter called "VPPSA",

OF THE SECOND PART.

WHEREAS Hydro and VPPSA entered into an agreement dated November 3, 1991, for the supply by Hydro of firm electric power and energy to VPPSA for a period of three years; and,

WHEREAS clause 1.1 of this firm power and energy agreement allowed for an extension for an additional period of five years commencing on November 1, 1984; and,

WHEREAS Hydro has available for sale firm electric power and energy; and,

WHEREAS VPPSA desires to purchase such firm power and energy and the parties have agreed to enter into an agreement for the supply of firm power and energy upon the following terms and conditions.

NOW THEREFORE, for and in consideration of the premises and of the mutual agreements set forth, and subject to the provisions of the Power Corporation Act, RSD 1980, Chapter 384, the parties hereto mutually agree as follows:

1.0 TERM OF AGREEMENT

1.1 The provisions of this Agreement relating to the availability of firm power and energy and payment shall become effective November 1, 1984, subject to the provisions of

Section 12.0. Except as otherwise provided herein, this Agreement shall continue in force to October 31, 1989. Subject to the provisions of Section 12.0, this Agreement may be extended by mutual agreement in writing for a second period of up to five years. Any extension to this agreement must be finalized prior to August 31, 1989, unless otherwise agreed to by the Operating Committee.

- 1.2 A "Contract Year" is defined as the period commencing on November 1, in any year and continuing to October 31 of the following year.
- 1.3 The minimum period of sale and payment for firm power and energy under this Agreement is one Contract Year.

2.0 AVAILABILITY OF POWER AND ENERGY

- 2.1 Subject to the provisions of this Agreement, Hydro shall make available to VPPSA 20 MW of firm power and energy at up to 100 percent monthly load factor.
- 2.2 Hydro will make this firm power and energy available to VPPSA from its next increment of base load generation after it has satisfied its Ontario load requirements, and also any contractual firm power and energy commitments which were made prior to signing the Firm Power Agreement between VPPSA and Hydro, dated November 3, 1981. These are listed in Attachment 1.
- 2.3 Because Hydro anticipates having sufficient generation over and above that necessary for Ontario load and any prior contractual commitments, the reliability of the purchase is expected to be equivalent to that required to meet the reliability target for supply to Hydro's own load. However, Hydro shall interrupt or curtail the delivery of power hereunder whenever and to whatever extent such power is required to supply any firm load in Ontario and any prior contractual commitments. Should Hydro not have sufficient generation to make power available under the terms of this contract, Hydro is not obligated to construct new facilities or purchase power in order to make such power available.

3.0 SCHEDULING

- 3.1 In this Agreement, "week" shall mean a period of seven consecutive days starting at 00:00 on Monday and ending at 24:00 on Sunday EST.
- 3.2 In this Agreement, "on-peak" hours shall be defined as from "08:00 through 22:00," Monday to Saturday inclusive, local time of VPPSA (except for US statutory holidays as listed in Attachment 2). All other hours are "off-peak," including the statutory

holidays in Attachment 2.

- 3.3 Energy delivery schedules shall be prearranged weekly by the scheduling coordinators of Hydro and VPPSA or its agent, by Thursday afternoon of the week prior. Wheeling parties shall be notified in accordance with common industry practice.
- 3.4 "Minimum Energy" shall be defined as: 25 percent of the maximum energy scheduled during any other hour of that same day.
- 3.5 During any hour of the off-peak hours, the energy scheduled to be delivered shall be no less than the Minimum Energy defined in Section 3.4, unless otherwise agreed by the Operating Committee.

4.0 CHARACTERISTICS OF THE POWER AND ENERGY.

- 4.1 All firm power and energy made available by Hydro to VPPSA shall be three phase, alternating current at operating voltages and frequencies established on the Hydro system at the Ontario border.

5.0 TRANSMISSION

- 5.1 Hydro agrees to deliver the quantities of firm power and energy to the Ontario border. VPPSA agrees to make the necessary arrangements with the intervening party or parties for transmission of the firm power and energy from the Ontario border to VPPSA.

6.0 RATES AND CHARGES

- 6.1 VPPSA agrees to pay for the quantities of firm power and energy made available during the term of this Agreement as follows:

6.1.1 Capacity Charges

Capacity charges are as follows:

- (a) For all deliveries contracted for under Section 2.1, the capacity charge will be as follows:
- (i) November 1, 1984 to October 31, 1985, \$98 (US) per KW per year, and
 - (ii) November 1, 1985 to October 31, 1989, \$103 (US) per KW per year.

- (b) Capacity charges will be payable in twelve equal monthly installment during the Contract Year.
- (c) If Hydro interrupts or curtails the availability of firm power or energy, or Hydro is rendered unable to make available the power and energy pursuant to Sections 2.3 or 10.1, or if VPPSA declines delivery of oil- or gas-fired energy pursuant to Section 6.1.3, the monthly capacity charge otherwise payable shall be prorated having regard for the extent of the decrease of availability or delivery and the period of such decrease of availability or delivery.

6.1.2 Energy Charges

The energy to be supplied by Hydro for VPPSA will be produced primarily by coal-fired generation and only occasionally or in part by other sources of generation. With this in mind, the charges payable by VPPSA to Hydro for the energy scheduled to be delivered under this Agreement shall be as detailed on the attached schedules, unless otherwise agreed by the Operating Committee:

- (a) November 1, 1984 to October 31, 1985 - Schedule 1
- (b) November 1, 1985 to October 31, 1989 - Schedule 2

6.1.3 VPPSA may refuse delivery of energy supplied from oil- or gas-fired generation with five hours notice and subject to recovery by Hydro of any consequent out-of-pocket costs incurred. The notice time may be shortened by mutual agreement.

6.2 In the event both parties agree to extend this contract after October 31, 1989, as provided in Section 1.1, these rates and charges shall be subject to renegotiation.

6.2.1 Provided that there is no lapse between the term of any subsequent Agreement and that of this Agreement, VPPSA will maintain its then current position in Hydro's energy costing sequence for the amounts of power and energy made available under Section 2.0 above. If the amount of power under this Agreement is reduced in accordance with Section 14.3, the reduced amount shall be used when determining the position in Hydro's energy costing sequence for any subsequent Agreement.

7.0 BILLING

7.1 The procedure for the rendering and payment of bills for this power and energy shall be as set out hereunder unless otherwise agreed to by the Operating Committee.

- 7.1.1 An invoice for service during each month shall be prepared and rendered by Hydro to VPPSA by the eighth day of the following month and shall be payable by VPPSA on the first banking day common to the parties following the fifteenth day of the month in which the bill is rendered. Unless otherwise directed by Hydro, payment to Ontario Hydro should be made in US Federal Funds to:

Citibank, New York
for Bank of Montreal, New York Agency
International Banking - Ontario
regarding Ontario Hydro.

The currency exchange rate used to convert Canadian dollars to US dollars in billing calculations, where required, shall be that quoted by the Bank of Canada at noon on the last banking day of the month prior to the month for which power is billed.

- 7.1.2 Any amount not paid on time shall be subject to interest from the date of the bill at the rate of two percent over the prime rate as quoted by the Bank of Montreal on the last banking day of the month for which power is billed.
- 7.2 If any bill remains unpaid for thirty days after the date for payment, Hydro may, in addition to all other remedies available to it, and after giving VPPSA at least five days notice in writing of Hydro's intention to do so, discontinue the supply of power and energy and may refuse to resume the supply so long as any amount due remains unpaid. Such discontinuance shall not be construed as a breach of contract by Hydro, nor shall such discontinuance relieve VPPSA from its obligations to pay for power and energy in accordance with the provisions of this Agreement.

8.0 OPERATING COMMITTEE

- 8.1 For purposes of administering and interpreting the terms of this Agreement, there is hereby established an Operating Committee consisting of two members. VPPSA and Hydro will each appoint one member and one alternate member to the Operating Committee. Each party shall give prompt notice in writing to the other of appointment, removal, and replacement of its member or alternate.

The Operating Committee is authorized on behalf of the parties hereto to do all acts and things necessary to carry out the provisions of this Agreement and for such purposes the Committee shall have access at all reasonable times to the pertinent records and accounts of the parties.

All decisions of the Operating Committee in respect to matters within its jurisdiction shall be unanimous.

9.0 RECORDS

9.1 Subject to its current record retention policy, each party hereto shall keep complete and accurate records and memoranda of its operations hereunder and shall maintain such data as may be necessary to determine with reasonable accuracy any item required hereunder. With respect to billing records, each party shall maintain such records, memoranda and data for a period of not less than 90 days subsequent to each transaction. The Operating Committee shall have the right to examine all such records and memoranda insofar as may be necessary for the purpose of ascertaining the reasonableness and accuracy of any statements of costs relating to transactions hereunder.

10.0 LIABILITY AND FORCE MAJEURE

10.1 Either party shall not be liable to the other party for injury, damage or loss resulting from the supply, nonsupply or quality of electricity hereunder, nor for the loss or damage resulting from any cause beyond the control of a party including, but not limited to, failure of facilities, flood, earthquake storm, lightning, fire, epidemic, war, riot, civil disturbance, labour trouble, strike, sabotage and restraint by court or public authority which, by exercise of due diligence and foresight, a party could not reasonably be expected to avoid. Settlement of strikes and labour trouble shall be wholly within the discretion of the party having the difficulty.

10.2 Either party shall not make any claim upon the other party by reason of one party's system being damaged or rendered inoperative for any period as a result of an occurrence on the system of the other party.

11.0 APPLICABLE LAW

11.1 This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario.

12.0 LICENCES AND AUTHORITIES

12.1 The agreements and obligations expressed herein are subject to such initial and continuing governmental permission as may be required. Each party shall be responsible for securing any approvals required by it from any regulatory agency of competent jurisdiction relating to its participation in this Agreement and will cooperate with other parties in seeking such approvals. In particular, this Agreement is subject to the terms and conditions of Hydro's export license EL-135 for Miscellaneous Firm Power or any subsequent license as issued by the National Energy Board of Canada.

13.0 NOTICES

13.1 Any written notice required by this Agreement shall be deemed properly given if either mailed or delivered to the Secretary, Ontario Hydro, 700 University Avenue, Toronto, Ontario, M5S 1X6, on behalf of Hydro, or to the Chairman of the Board, Vermont Public Power Supply Authority, PO Box 425, 512 St. George Road, Williston, Vermont, 05495, on behalf of VPPSA. The designation of the person may be changed at any time by either party by written notice.

14.0 TERMINATION

14.1 This Agreement may be terminated at any time by mutual agreement or VPPSA may terminate the second through fifth contract years of the Agreement provided written notice of such termination is provided to Hydro prior to August 31, 1985.

14.2 By mutual agreement, for periods not exceeding six months unless otherwise agreed by the Operating Committee, this Agreement may be suspended at any time, or the contracted amount of power being made available at any time may be temporarily reduced as to quantity, depending on the duration and extent to which VPPSA is unable to secure transmission services from intervening parties pursuant to Section 5.0.

14.3 If, upon review by the Operating Committee, it is mutually agreed that VPPSA is unable to make necessary arrangements on economical terms for transmission from the Ontario border to VPPSA of all or part of the power contracted herein, this contract may be reduced as to quantity of power or terminated at the commencement of any Contract Year. Written notice of the desire for such reduction or termination shall be provided by VPPSA to Hydro three months prior to commencement of a Contract Year, unless otherwise agreed by the Operating Committee.

15.0 SUCCESSORS AND ASSIGNS

15.1 This Agreement shall extend to, be binding upon and ensure to the benefit of Hydro and VPPSA and their respective successors and assigns provided that VPPSA shall not be entitled to assign its entire interest in this Agreement or any portion thereof without the consent in writing of Hydro.

IN WITNESS WHEREOF Hydro and VPPSA have caused this Agreement to be executed by the signatures of their proper officers duly authorized in that behalf.

Attachment 1**Forming Part of the**
Firm Power Agreement Between Ontario Hydro and
Vermont Public Power Supply Authority
Effective: November 1, 1984**Contractual Commitments Preceding This Agreement**

1. There are no contractual commitments preceding this agreement.

Attachment 2**Firm Power Agreement Between Ontario Hydro and**
Vermont Public Power Supply Authority
Effective: November 1, 1984

Statutory Holidays to be considered "off-peak" for this agreement:

New Year's Day

Washington's Birthday

Good Friday

Memorial Day

Independence Day

Labour Day

Veteran's Day

Thanksgiving Day

Christmas Day

Schedule 1

Forming part of the

Firm Power Agreement Between Ontario Hydro and

Vermont Public Power Supply Authority

Effective: November 1, 1984

Energy charges payable by VPPSA to Hydro for energy scheduled to be delivered during the period November 1, 1984 to October 31, 1985.

DEFINITION: Incremental Production Cost

The incremental production cost of transactions made under this Agreement shall mean any cost incurred by or accountable to Ontario Hydro which would not have been incurred had the transaction not taken place as determined by Ontario Hydro.

The elements of incremental production cost shall include, where applicable, but not be limited, to the following:

- Incremental costs of fuel, water rental, maintenance, labour, transmission, export or other taxes, miscellaneous incremental costs such as coal handling, etc.
 - Boiler firing up and banking.
 - Turbine starting and speed-no-load.
1. During on-peak periods, for energy produced by coal-fired or nuclear or hydraulic generation, a rate (R1) in dollars (US) per megawatt-hour as determined in the following formula:

$$R1 = [(X)(10.0 \text{ GJ/MWh}) + \text{ICA}](1.2)$$

where x is the laid down cost of US coal delivered to Lambton TGS in \$US/GJ;

and IMC is an adder to recover incremental maintenance costs at Lambton TGS in \$US/MWh;

and CCC is an adder to recover carrying charges on the coal in \$US/MWh;

and ICA is an adder to recover other incremental costs as provided for in the definition of Incremental Production Cost above. Initially, this charge will be \$0.40 (US)/MWh and shall be reviewed at least quarterly by the Operating Committee.

2. During off-peak periods, for energy produced by coal-fired generation, a rate (R2), in dollars (US) per megawatt-hour as determined by the following formula:

$$R2 = [(X)(10.0 \text{ GJ/MWh}) + \text{IMC} + \text{CCC} + \text{ICA}](1.1)$$

where X, IMC, CCC, and ICA are as defined in Paragraph 1 above.

3. during off/peak periods, the rate (R2) shall apply to the Minimum Energy scheduled pursuant to Section 3.4 regardless of source other than oil- or gas-fired generation which shall be priced as provided for in Paragraph 5 below.
4. During off-peak periods, for energy produced by nuclear or hydraulic generation other than provided for in Paragraph 3, a rate (R3), in dollars (US) per megawatt-hour determined by the following formula:

$$R3 = (C + R2)/2$$

where C equals the incremental production cost of nuclear generation at Hydro's Bruce A Generating Station in the second month prior to delivery of such energy to VPPSA, and R2 is as defined in Paragraph 2 above.

5. During any hour, for energy produced by oil-fired or gas-fired generation, a rate (R4), in dollars (US) per megawatt-hour determined by the following formula:

$$R4 = (\text{COG})(1.1)$$

where COG equals the Incremental Production Cost (as defined above) of the oil- or gas-fired generation used to provide the energy.

Schedule 2
Forming Part of the
Firm Power Agreement Between Ontario Hydro and
Vermont Public Power Supply Authority

Effective: November 1, 1984

Energy charges payable by VPPSA to Hydro for energy scheduled to be delivered during the period November 1, 1985 to October 31, 1989.

A floor price (FP) shall be set each month in advance by Hydro. This floor price shall be based on 115 percent of the average running costs of coal-fired generation expected to be operated to supply the power and energy reserved for VPPSA.

1. During on-peak hours, the floor price shall apply to all energy scheduled and supplied from coal-fired or nuclear or hydraulic generation.
2. During off-peak hours, the floor price shall apply to all energy scheduled and supplied from coal-fired generation.
3. During off-peak hours, the floor price shall apply to the Minimum Energy defined in Section 3.4 regardless of the source; except that oil- or gas-fired generation shall be priced as provided in Paragraph 5 below.
4. During off-peak hours, for energy supplied from nuclear or hydraulic generation, over and above the Minimum Energy defined in Section 3.4, the price (P_N) in dollars per megawatt-hour, shall be determined by the following formula:

$$P_N = (C + FP)/2$$

where C equals the average Incremental production cost of nuclear generation at Hydro's Bruce A Generating Station in the second month prior to delivery of such energy to VPPSA, and

FP = floor price for coal-fired generation as determined above.

This price (P_N) shall be determined each month in advance by Hydro and quoted in US currency.

5. **During all hours, the energy charge shall be 110 percent of Hydro's hourly incremental production cost for all energy scheduled and supplied to VPPSA from oil- or gas-fired generation.**

INTERCONNECTION AGREEMENT

This Agreement made as of the day of 198 .

BETWEEN:

HYDRO-QUEBEC, a body politic and corporate, duly incorporated and regulated by the Hydro-Québec Act (R.S.Q., Chapter H-5) having its head office and principal place of business at 75 Dorchester Boulevard West, Montréal, Province of Québec, party of the first part,

AND

The corporate entities which are the participants in the New England Power Pool (NEPOOL) pursuant to the New England Power Pool Agreement, dated September 1, 1971, as amended and as filed with the Federal Energy Regulatory Commission. Those entities which are the participants in NEPOOL as of the date hereof are shown on Schedule A and are acting herein by and through the NEPOOL Management Committee. The participants in NEPOOL, as shown on Schedule A, and as changed from time to time by additions of new participants or terminations of participants effected in accordance with the terms of the NEPOOL Agreement, are hereinafter called the "NEPOOL Participants", party of the second part.

WHEREAS, the NEPOOL Participants and HYDRO-QUEBEC are engaged in the generation, transmission and supply of electric power and energy in their respective service areas and desire to maintain interconnections between their systems; and

WHEREAS, it is the desire, intent and purpose of the parties to provide mutual assistance during emergencies, improve reliability of bulk power supply through coordinated operations, provide operating economies by the exchange of surplus power and energy and also, to the extent deemed mutually desirable, secure additional economies through coordinated development;

NOW, THEREFORE, the parties agree as follows:

ARTICLE I**1.0 GOVERNMENTAL AUTHORIZATIONS**

This Agreement, including its Supplements, is subject to the initial and continuing governmental authorizations required to establish, operate and maintain interconnections and to interchange power and energy as herein specified.

ARTICLE II

2.0 GENERAL OBLIGATIONS AND PRACTICES

2.1 Characteristics of Power and Energy

All electric power and energy interchanged hereunder shall be in the form of direct current or three phase alternating current compatible with and at nominal operating voltages appropriate to the particular interconnection.

2.2 Sharing Reserves in Emergencies

The NEPOOL Participants and HYDRO-QUEBEC shall, to the maximum extent each deems consistent with the safe and proper operation of its own system, the furnishing of economical, dependable and satisfactory services to its own customers, and its obligations to other parties, make available to the other party hereto in emergencies on the other's system, its available generating capability in excess of its load requirements up to the limit of the capacity of the interconnection facilities. The conditions, rates and charges for such transactions are set out in Supplements II through VI.

2.3 Interchange of Surplus Power and Energy

At times other than emergencies, each party will make available to the other such surplus energy as it may, at its own option, desire to sell.

The conditions, rates and charges for such transactions are set out in Supplements II through VI.

2.4 Regulation of Energy Flows

The parties will cooperate in establishing operating practices in order to, as far as practicable, keep the net power and energy passing from one system to the other as close as possible to prearranged schedules.

2.5 Operating Reserve

Each of the parties will normally maintain such operating reserve as it deems necessary for its own system. Subject to the availability of supply, either may arrange to obtain operating reserve from the other. The conditions, rates and charges for such transactions are set out in Supplement VI.

2.6 Operating Voltage

The operating voltage of the interconnection shall be controlled in accordance with operating practices and limitations set from time to time by the Operating Committee hereinafter established.

2.7 Maintenance Schedules

To the extent mutually considered desirable and to the extent permitted by their other obligations, the parties shall coordinate maintenance schedules for generating equipment and transmission lines so as to increase the reliability of their power systems and maximize as far as practicable the value of the interconnection for the parties.

2.8 Coordinated Development

The parties will cooperate to the extent mutually considered desirable and feasible in coordinating development of generating and other facilities so as to increase the reliability of their power systems and maximize as far as practicable the value of the interconnection for the parties.

ARTICLE III**3.0 OWNERSHIP, OPERATION AND MAINTENANCE OF THE INTERCONNECTION FACILITIES**

3.1 A description of the interconnection facilities and the delivery points is given in Supplement I. Unless agreed otherwise, one or more of the NEPOOL Participants shall own, lease or contract to use the interconnection facilities located in New England and HYDRO-QUEBEC shall own, lease or contract to use the interconnection facilities located in Québec.

3.2 Each of the parties shall be responsible for the operation and maintenance of the facilities owned, leased or contracted for use by it, including all costs associated therewith. Changes or additions to the interconnection facilities may be made by mutual agreement.

ARTICLE IV**4.0 DELIVERY AND METERING****4.1 Delivery of Power and Energy**

Electric power and energy will be delivered and received at the delivery points specified in Supplement I.

4.2 Metering

Appropriate metering devices shall be installed as required to provide readings at least hourly of the power and energy interchange. The measurements of power and energy obtained from the metering equipment shall be adjusted to determine the quantities of power and energy delivered at the delivery at the delivery points.

4.3 Inspection and Testing

Any properly designated representative of the parties shall have access to the billing meters for the purpose of reading the same. The accuracy of the meters shall be verified by proper tests at least once a year or upon reasonable notice given by either of the parties to the other. Each party shall be entitled to have a representative present at such verification.

4.4 Meters out of Service

When the billing meters are out of service for testing or repairs or because of failure or malfunction, power and energy flow during the period of outage or malfunction shall be determined from other meter readings, if available, or, if not available, shall be estimated and agreed to by the Operating Committee, but no adjustment shall be made for more than the two most recently completed billing periods unless otherwise agreed by the Operating Committee.

ARTICLE V**5.0 CLASSIFICATION OF TRANSACTIONS**

5.1 The classification of services provided pursuant to this Agreement and the related terms, conditions, rates and charges are set forth in Supplements to this Agreement.

5.2 These classifications are in addition to any power, energy or other services provided for by any other agreement which may be in effect between the NEPOOL Participants and HYDRO-QUEBEC during the term of this Agreement.

ARTICLE VI**6.0 SUPPLEMENTS**

The supplements made a part of this Agreement are as follows:

Supplement I : Interconnection Facilities and Delivery points.

- Supplement II : Incremental Cost and Decremental Cost.
- Supplement III : Economy, Fuel Replacement, Tertiary and Inadvertent Energy.
- Supplement IV : Capacity or emergency power.
- Supplement V : Supplemental or Conservation Energy.
- Supplement VI : Operating Reserve.

ARTICLE VII

7.0 BILLING

- 7.1 Promptly after the end of each calendar month, a bill or bills shall be rendered for any services provided during that month under the terms of this Agreement. If the monthly billing is unavoidably delayed, an interim bill based on estimated charges may be issued.
- 7.2 Unless otherwise indicated in writing by HYDRO-QUEBEC, all payments due by the NEPOOL Participants to HYDRO-QUEBEC will be effected in immediately available funds of the United States of America by wire transfer to a bank account in Montréal, Québec, Canada, designated by HYDRO-QUEBEC, or in such other manner as is reasonably requested by HYDRO-QUEBEC.
- 7.3 Unless otherwise indicated in writing by the NEPOOL Participants, all payments due by HYDRO-QUEBEC to the NEPOOL Participants will be effected in immediately available funds of the United States of America by wire transfer to a bank account in Hartford, Connecticut, designated by the NEPOOL Participants, or in such other manner as is reasonably requested by the NEPOOL Participants.
- 7.4 In the event that it is required, in the determination of any costs for purposes of billing under this Agreement, to express Canadian funds in the United States of America funds or the United States of America funds in Canadian funds, the parties will use the average, for the period covered by the bill, of the daily noon rates of exchange quoted by the Bank of Canada for purchases of the United States of America funds or the reciprocal thereof for purchases of Canadian funds, as the case may be.
- 7.5 All bills will be payable within twenty (20) days following their receipt unless agreed otherwise by the Operating Committee. All amounts due not paid within thirty (30) days following the said date of receipt shall be subject to interest from the said date of receipt at a rate two percentage points higher than the prime commercial rate per annum

announced by Citibank, N.A. at its principal office in New York, New York, or by any other bank designated by the Operating Committee, as in effect from time to time, each change in such announced rate to be effective for the purposes hereof on the date on which such change is effective, unless another rate is agreed to by the Operating Committee. In the event a party disputes a portion of a bill, such party shall pay the undisputed portion within the time period specified above.

ARTICLE VIII

8.0 OPERATING COMMITTEE

8.1 The parties shall maintain an Operating Committee, consisting of four members, two appointed by HYDRO-QUEBEC and two appointed by the NEPOOL Participants, and four alternate members, two appointed by HYDRO-QUEBEC and two appointed by the NEPOOL Participants. Should a member be unable to attend a meeting, he shall be represented at the meeting by the alternate member or by a person named either by the member or the alternate, or by the person to whom such member reports administratively. Prompt notice in writing shall be given for all appointments, removals and replacements.

8.2 Duties

The Operating Committee is authorized on behalf of both parties to do all things necessary to provide for transmission and delivery of power and energy and for payment for such power and energy in accordance with the provisions and intent of this Agreement and of any other power agreements between the parties.

Specifically, the duties of the Operating Committee include but are not limited to:

- (a) All matters related to the interconnected operation of the parties' electric systems;
- (b) All matters related to the metering, accounting and billing for power, energy and other related services;
- (c) The coordination of maintenance schedules;
- (d) The correlation of short range forecasts of load and capacity requirements;
- (e) The consideration of such other operating matters as may arise in carrying out the objectives of this Agreement or as may be referred to it;
- (f) The determination and allocation of losses.

8.3 Decisions

All decisions of the Operating Committee shall be unanimous.

8.4 Expenses

Each party shall pay the expenses of its own members of the Operating Committee. Any expenses jointly incurred by the Committee for activities pertaining to the interconnection shall be shared equally by HYDRO-QUEBEC and the NEPOOL Participants or in such other proportion as may be agreed upon by the Operating Committee.

8.5 Access to Records and Documents

The Operating Committee shall have access at all reasonable times to the pertinent and relevant records of the NEPOOL Participants and HYDRO-QUEBEC required to substantiate any fact pertaining to this Agreement.

8.6 Agreements of the Operating Committee

Any agreement of the Operating Committee made pursuant to this Agreement shall be confirmed in writing and signed by the members of the said Committee.

ARTICLE IX**9.0 CONTINUITY OF SERVICE**

The NEPOOL Participants and HYDRO-QUEBEC shall exercise reasonable care to maintain continuity of service in the delivery and receipt of electric power and energy as provided under this Agreement. If the service is interrupted or diminished for any reason, the cause of such interruption or reduction shall be removed and normal operating conditions restored as soon as practicable.

10.0 FORCE MAJEURE

Each party hereto shall use all due diligence to perform its obligation under this Agreement but conditions may arise which prevent or delay performance by one or the other because of causes beyond a party's reasonable control, including without limiting the generality of the foregoing, failure of facilities, flood, earthquake, storm, lightning, fire, explosion, epidemic, war, riot, civil disturbance, labour trouble, strike, sabotage and restraint by court or public authority which by exercise of due diligence and foresight either party could not be expected to avoid. If a party is rendered unable to fulfill any obligations by reason of such causes, it shall be excused from performing to the extent it is prevented or delayed from so doing but shall exercise due diligence to correct such

inability with all reasonable dispatch, and shall not be liable for injury, damage or loss resulting from such inability. However, settlement of strikes and labour disturbances shall be wholly within the discretion of the party having the difficulty.

ARTICLE XI

11.0 LIABILITY

No party shall make any claim upon any other by reason of one party's circuits or system being damaged or rendered inoperative for any period as a result of an occurrence on the circuits or system of the other party or on the circuits or system utilized by a party to the Agreement. Without limiting the generality of the foregoing, no party shall be held responsible for any loss or damage sustained by another party if, for any cause or reason whatsoever, the delivery of power and energy is interrupted, increased or decreased or if the voltage or frequency of the power and energy delivered hereunder to the other party is increased, decreased or in any way affected for whatever length of time.

A party to this Agreement shall not make any claim against another party for any liability it has incurred as a result of any damages sustained by third parties from any cause whatsoever.

ARTICLE XII

12.0 APPLICABLE LAW

This Agreement shall be governed by and construed in accordance with the laws of the Province of Québec.

ARTICLE XIII

13.0 ASSIGNABILITY

Subject to Article XV, except in the event of merger, consolidation or sale of all, or substantially all of the assets of a party devoted to production, transmission, distribution and sale of electricity, no voluntary transfer of this Agreement or of the rights of a party hereunder shall be made without the written approval of the other party, provided that in any event any successor to or assignee of the rights of a party, whether by voluntary transfer, judicial sale or otherwise, shall be subject to all of the provisions and conditions of this Agreement to the same extent as though such successor or assignee were the original party hereunder.

ARTICLE XIV

14.0 EFFECTIVE DATE AND TERM

- 14.1 Subject to Article I, this Agreement shall take effect on the first calendar date on which the interconnection facilities identified in Section 1(a) of Supplement I, are available to transmit commercially power and energy between the NEPOOL Participants and HYDRO-QUEBEC, except for testing purposes while commissioning the interconnection facilities and shall continue in full force and effect until terminated.
- 14.2 This Agreement may be terminated at any time by mutual agreement. This Agreement may also be terminated by a party by giving five (5) years prior written notice to the other party, it being understood that such unilateral termination shall not prejudice the completion of any other agreement then in force between the parties, and that no such termination notice may be given prior to the date on which this Agreement takes effect.
- 14.3 Any of the Supplements II to VI inclusive forming part of this Agreement may be terminated by either party by giving twelve (12) months prior written notice to the other party, it being understood and agreed that such unilateral termination shall notice prejudice the completion of any other agreement then in force between the parties.

ARTICLE XV**15.0 NEPOOL PARTICIPANTS**

- 15.1 The utilities identified on Schedule A, which are the NEPOOL Participants at the date of this Agreement, have caused this Agreement to be executed on their behalf by the Chairman of the NEPOOL Executive Committee, this execution being authorized by Section 5.15 (d) of the NEPOOL Agreement dated September 1, 1971, as amended, and a vote of the NEPOOL Management Committee adopted November 12, 1982.
- 15.2 The NEPOOL Participants agree to give prompt written notice to HYDRO-QUEBEC in the event that either:
- (i) a utility which, at the date of this Agreement is or subsequently becomes a NEPOOL Participant, terminates its participation in NEPOOL; or
 - (ii) a utility which, at the date of this Agreement is not a NEPOOL Participant, subsequently becomes such a Participant.
- 15.3 In the event any utility so terminates its participation in NEPOOL, its status as a party to this Agreement shall terminate upon the giving of and at the date specified in such notice of such termination. In the event any utility becomes a Participant in NEPOOL after the date of this Agreement, it shall become a party to this Agreement upon the

giving of and at the date specified in such notice of its Participant status.

- 15.4 Except as otherwise provided in Section 15.5 of this Article, the NEPOOL Participants shall be treated as a single party for all purposes of this Agreement, and the NEPOOL Management Committee (or the NEPOOL Executive Committee acting on its behalf) or its designee shall act for and represent the NEPOOL Participants in all matters with respect to this Agreement, other than those assigned to the Operating Committee under Article VIII. Any action taken by the Management Committee (or the Executive Committee acting on its behalf) or its designee on behalf of the NEPOOL Participants under this Agreement shall be conclusive and binding upon the NEPOOL Participants.
- 15.5 The obligations of the NEPOOL Participants under this Agreement are several and not joint. The relative obligations of the NEPOOL Participants at any time shall be measured by their respective Adjusted Annual Peaks as that term is defined in the NEPOOL Agreement referred to in Section 15.1 of this Article.

ARTICLE XVI

16.0 NOTICES

- 16.1 Any notice, demand or request required or authorized by this Agreement to be given to a party shall be in writing and shall either be personally delivered to a representative customarily authorized to receive such notice, demand or request, or it shall be mailed, postage pre-paid, to the party at the address shown on the signature page hereof. The designation of such address may be changed at any time by any party by written notice given to the other party.
- 16.2 Any notice, demand or request so addressed and mailed by registered mail shall be deemed to be given when so mailed, and shall be deemed to be received on the seventh business day following its deposit in the mails of the United States of America or Canada.

ARTICLE XVII

17.0 TERMINATION ON DEFAULT

If one or more of the individual NEPOOL Participants or HYDRO-QUEBEC is in default in the performance of any of its obligations under this Agreement, the other party (HYDRO-QUEBEC or the NEPOOL Participants) shall have the right to terminate this Agreement upon three (3) months' prior written notice to the party which is in default and on the date specified in such notice, if such default is not corrected before the end of three-month period.

ARTICLE XVIII**18.0 REVIEW AND AMENDMENT**

- 18.1 The terms of this Agreement are subject to review at the request of either party. If, consequent to such review, it is agreed that any of the provisions hereof, or the practices or conduct of either party impose an inequity, hardship or undue burden upon the other party, the parties shall endeavour to amend or supplement this Agreement in such a manner as will remove such inequity, hardship or undue burden.
- 18.2 Amendments which may appear advisable shall effected in writing by the duly authorized representatives of each party.

ARTICLE XIX**19.0 PREVIOUS COMMUNICATIONS**

This instrument shall constitute the sole and complete agreement of the parties hereto in respect of the matters herein set forth. All previous communications between the parties hereto, either oral or written, including without limitation the various drafts of this instruments, shall be of no force or effect and shall not be used as a guide to the interpretation of this instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement.

SUPPLEMENT I

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

INTERCONNECTION FACILITIES AND DELIVERY POINTS

The interconnection facilities and the related delivery points between the NEPOOL Participants and HYDRO-QUEBEC are described in this Supplement I.

1. INTERCONNECTION FACILITIES(a) Direct Current Interconnection

The interconnection facilities consist of a direct current transmission line insulated for a nominal operating voltage of ± 450 kV linking Des Cantons Substation in Québec and Comerford Generating Station in New Hampshire and crossing the International Boundary near Stanhope in Québec and Norton in Vermont, including the related rectifying and inverting equipment at both ends.

(b) Other Interconnection Facilities

Such other interconnection facilities as may be agreed to by the parties.

(c) Miscellaneous Facilities

Such additional equipment and facilities for metering, telemetering, relaying, load control, communications and such other purposes as may be deemed necessary by the parties to effect adequate and satisfactory operation of the interconnection facilities.

2. DELIVERY POINTS(a) Delivery Points

The delivery point is located at the point where the transmission line described

in 1 above crosses the boundary between Canada and the United States.

The Metering Point for the power and energy delivered under this Agreement is at Des Cantons Substation of Hydro-Québec.

(b) Other Delivery Points

Such other delivery points as may be agreed to by the Operating Committee.

SUPPLEMENT II

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

INCREMENTAL COST AND DECREMENTAL COST

1. **INCREMENTAL COST**

The words "incremental cost" where used in this Agreement shall mean any cost incurred by one party hereto supplying energy to or making operating reserve available to the other, which would not otherwise be incurred if the transaction did not take place.

The elements of incremental cost when energy is supplied from sources on the seller's system which are normally in operation for operating reserve or for other purposes shall include, but not be limited to, the following:

Any incremental fuel cost or water rental charge.

Any cost for energy purchased to replace stored hydraulic energy.

Any incremental maintenance cost.

Any incremental labour cost.

Any incremental cost of a miscellaneous nature such as, for example, coal handling, water spillage.

Any incremental transmission cost or saving.

Any applicable incremental taxes or grants in lieu of taxes.

When energy is supplied from sources on the seller's system placed in operation for the specific and sole purpose of supplying energy or making operating reserve available to the other party, then the incremental cost shall include all costs referred to above and in addition, where applicable:

Any boiler firing-up cost.

Any boiler banking cost.

Any boiler incremental maintenance cost.

Any boiler incremental labour cost.

Any turbine starting cost.

Any turbine speed-no-load cost.

Any turbine incremental labour cost.

When energy is supplied from sources on the seller's system, then the incremental cost may include an allowance, computed by probability methods, for estimated present-day value of future costs which are expected to be incurred as a result of the transaction. The methods of computing and applying such allowances shall be agreed upon in writing by the Operating Committee.

2. DECREMENTAL COST

The words "decremental cost" when used in relation with matters pertaining to this Agreement shall mean the net sum of all avoided applicable costs, as defined above, to the party to whom energy is supplied.

SUPPLEMENT III

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

ECONOMY, FUEL REPLACEMENT, TERTIARY AND INADVERTENT ENERGY

The classifications, conditions, rates and charges for Economy, Fuel Replacement, Tertiary and Inadvertent Energy are set forth in this Supplement III.

1. ECONOMY ENERGY

"Economy Energy" is defined as energy derived from non-renewable resources and delivered in order to effect a savings in the cost of generation when the receiving party has adequate generating capability available to carry its own load.

Either party may suspend or terminate the supply of Economy Energy at any time on reasonable notice to the other.

Unless otherwise agreed to by the Operating Committee for a specific delivery, the price to be paid for Economy Energy shall be the incremental cost to the supplying party plus one-half of the savings gained by the interchange. The savings gained by the interchange shall be determined by deducting the incremental cost to the supplying party from the decremental cost to the receiving party of such energy transfer.

Incremental cost and decremental cost are defined in Supplement II herein.

2. FUEL REPLACEMENT ENERGY

"Fuel Replacement Energy" is defined as energy derived from renewable resources and delivered to replace energy derived from non-renewable resources in order to effect savings and economize non-renewable resources.

Either party, may suspend or terminate the supply of Fuel Replacement Energy at any time on reasonable notice to the other.

Unless otherwise agreed by the Operating Committee for a specific delivery, the price to be paid for Fuel Replacement Energy shall be the lesser of:

- (a) 80% of the decremental cost of the energy thus replaced, less any applicable added cost resulting from the delivery, or
- (b) a price consisting of one-half of a basic energy cost agreed upon from time to time by the Operating Committee, plus one-half of the decremental cost of the energy thus replaced, less any applicable added cost resulting from the delivery, said price not to be less than a value specified by the Operating Committee.

Decremental cost is defined in Supplement II herein.

3. TERTIARY ENERGY

"Tertiary Energy" is defined as energy which is not otherwise covered herein or in any other agreement between the parties, and which can be from either party to the other, over and above the supplying party's commitments or requirements for its own system. This may include, for example, energy supplied to enable water storage control or to facilitate river regulation.

The conditions, rates and charges for Tertiary Energy shall be as agreed upon by the Operating Committee from time to time.

4. INADVERTENT ENERGY

"Inadvertent Energy" is defined as the difference between net actual energy interchange and net scheduled energy interchange. The net scheduled energy interchange used to determine Inadvertent Energy shall be the net total of the schedules as used for billing energy under this or any other agreement between the parties. The methods of determining the "net actual interchange" and the "net scheduled interchange" will be established by the Operating Committee.

Unless otherwise agreed by the Operating Committee, Inadvertent Energy shall be balanced by the return of an equal number of megawatt-hours at mutually agreeable times.

SUPPLEMENT IV

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

CAPACITY OR EMERGENCY POWER

The conditions, rates and charges for Capacity or Emergency Power are set forth in this Supplement IV.

"Capacity or Emergency Power" is defined as capacity and associated energy which is supplied by either the NEPOOL Participants or HYDRO-QUEBEC to the other as day-to-day assistance in case of a temporary capacity deficiency existing as the result of forced outages of facilities or unusual or abnormal operating conditions affecting the capacity of the receiving party's own

generating capability.

1. Normally, a request for Capacity or Emergency Power for Capacity or Emergency Power shall be made the previous day. In an emergency, a schedule shall be made as soon as it becomes apparent that continued assistance will be required. Any emergency delivery lasting less than thirty (30) consecutive minutes, whether scheduled or not, shall be classified as Inadvertent Energy.
2. The delivery of Capacity or Emergency Power shall be maintained unless, in the opinion of the supplying party, the delivery is prevented or made inadvisable by an emergency or other unforeseen conditions.
3. The following rates and charges shall apply to the purchase of Capacity or Emergency Power unless agreed otherwise by the Operating Committee for a specific delivery:
 - (a) The demand shall be 120 \$U.S./MW/day applied to the maximum amount of power scheduled and provided in any hour of that day.
 - (b) The charge for associated energy delivered in each hour shall be the greater of:
 - (i) 110% of the incremental cost of such energy as defined in Supplement II, or
 - (ii) a rate or rates in dollars per megawatthour agreed upon by the Operating Committee.
4. The receiving party may cancel all or part of a scheduled Capacity or Emergency Power purchase prior to the commencement of delivery, but shall be subject to a cancellation charge of 110% of any cost incurred by the supplying party in preparing to deliver said schedule but not less than 10 \$U.S./MW of cancelled Capacity or Emergency Power.
5. If Capacity or Emergency Power is reduced from the amount scheduled for thirty (30) consecutive minutes or more during the daily period of reservation by the supplying party by reason of its system requirements, then the receiving party may cancel its Capacity or Emergency Power purchase during that day and pay only for the energy already received.
6. If the supplying party purchases Capacity or Emergency Power or equivalent from a third party external to this Agreement for delivery to the other party hereto, then the charges for such delivery shall be 110% of the out-of-pocket costs incurred by the supplying party in acquiring and delivering such Capacity or Emergency Power or equivalent from said third party. Such out-of-pocket cost shall consist of the total amount paid therefore by the supplying party which otherwise would not have been paid by such party, plus the

cost of the incremental electric losses supplying party's system.

SUPPLEMENT V

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

SUPPLEMENTAL OR CONSERVATION ENERGY

"Supplemental or Conservation Energy" is defined as energy provided to supplement energy storage (water or fuel) or conserve fuel supplies of the receiving party, the need for which results from water or fuel unavailability, governmental actions or widespread disasters, any one of which is beyond the reasonable control of the party.

Unless agreed otherwise by the Operating Committee for a specific delivery, the parties may arrange to purchase or exchange Supplemental or Conservation Energy under the following conditions, rates and charges:

1. A request for Supplemental or Conservation Energy ordinarily shall be submitted in writing and shall state:
 - an estimate of the megawatt-hours of energy desired,
 - the time period for which the energy is required,
 - and, if applicable, the time period during which such energy shall be returned in kind.
2. The arrangements and conditions for each purchase shall be agreed upon by the Operating Committee. Unless otherwise specified, the following conditions will apply:
 - (a) The necessary generation and transmission capability, fuels and storages will be reserved by the supplying party to fulfill its commitment to the receiving party during the period of reservation.
 - (b) If unforeseen conditions arise such that, in the opinion of the supplying party, the commitment would jeopardize the security of supply to its own system, the supplying party has the right to reduce or cancel its commitment.
 - (c) The delivery of Supplemental or Conservation Energy is subject to interruption at any time upon reasonable notice.

3. There shall be no charge for the equivalent exchange of Supplemental or Conservation Energy (i.e. the delivery and return in kind of such energy).
4. The charge for Supplemental or Conservation Energy shall be established by the Operating Committee.
5. If agreed upon by the Operating Committee, the receiving party may cancel any part or all of a schedule for delivery of Supplemental or Conservation Energy, but shall be subject, unless otherwise agreed upon by the Operating Committee to a cancellation charge equal to 110% of any cost which the supplying party may have incurred in preparing to deliver said Supplemental or Conservation Energy.

SUPPLEMENT VI

Forming part of the Interconnection Agreement
between
The NEPOOL Participants
and
HYDRO-QUEBEC

OPERATING RESERVE

The conditions, rates and charges for Operating Reserve are set forth in this Supplement VI.

Operating Reserve may be made available by one party to the other on a day-to-day basis in order to supplement the resources of the receiving party at times of temporary deficiency. The supply of Operating Reserve shall be continued as scheduled unless, in the opinion of the supplying party, it is prevented or made inadvisable by an emergency or other unforeseen conditions.

The conditions, rates and charges for the supply of Operating Reserve shall be established by the Operating Committee, however the rates and charges for the supply of Operating Reserve shall not be less than 110% of the cost of providing such Operating Reserve.

The receiving party may cancel all or part of a scheduled Operating Reserve purchase but shall be subject to a cancellation charge of 110% of any cost incurred by the supplying party in preparing to make available said scheduled reserve.

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