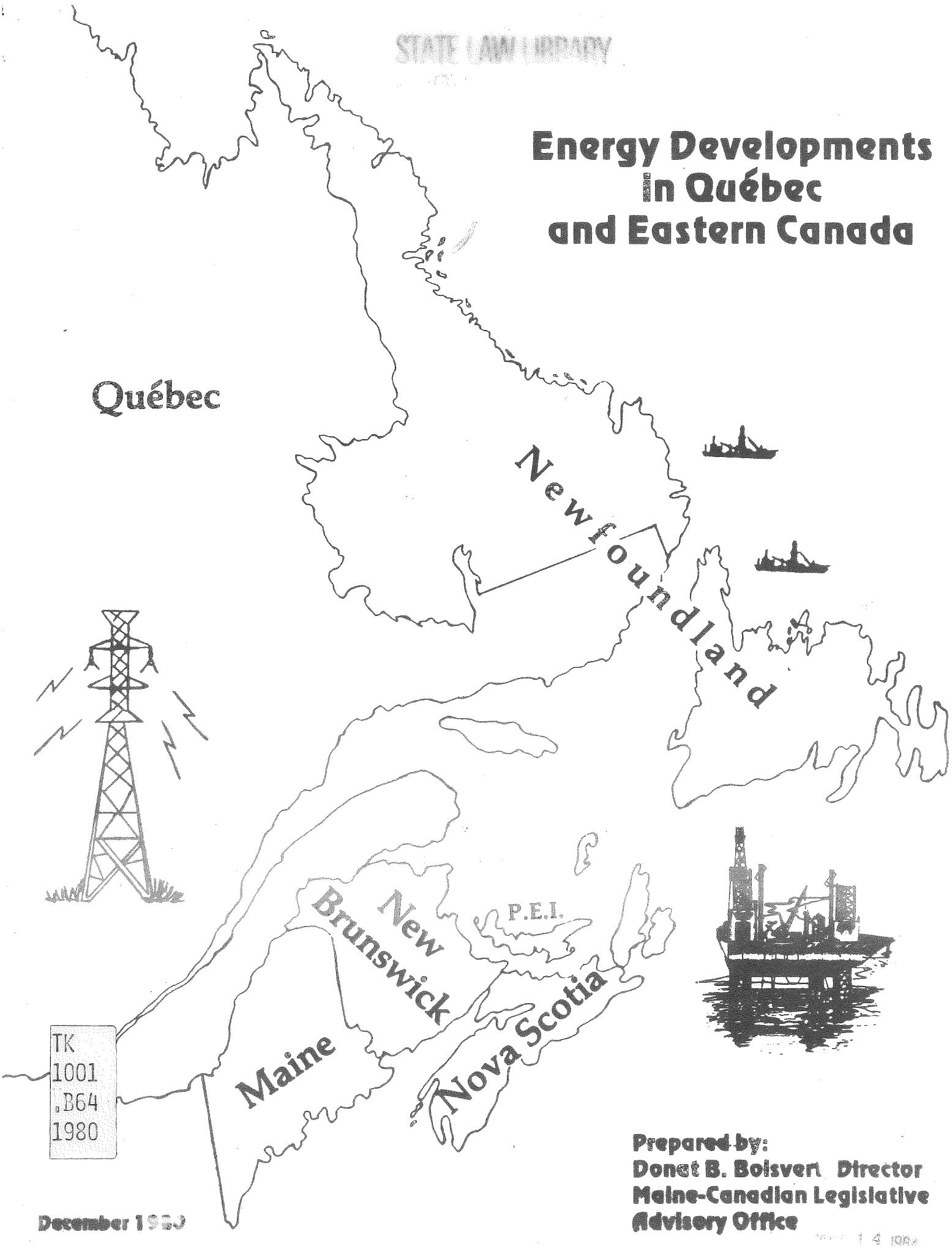
Energy Developments in Québec and Eastern Canada



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INTRODUCTION

This report outlines the major energy developments in Québec and Eastern Canada during 1980. Like the New England region, Québec and the Atlantic Provinces have traditionally been heavily dependent on foreign oil for a substantial part of their energy requirements.Each of these provinces is implementing a strategy to reduce its costly oil imports by conversion to domestically available resources.

The National Energy Program, which is central to the recently announced federal budget, supports these efforts by offering incentives for the conversion from oil-fired electrical generation to coal-fired generation. By calling for the extension of the natural gas pipeline to the Maritimes and by keeping domestic increases in natural gas prices below increases in oil prices, the Government of Canada hopes that provinces will take advantage of Canada's abundant natural gas supplies.Natural gas,which already costs 20% less than oil, will become an even better bargain under the new federal pricing policies. By 1983, this energy source will cost 33% less expensive than oil.

This "off-oil" national energy plan includes provisions for federal subsidies to home owners converting from oil heat to a locally available alternative, such as coal or natural gas. Incentives will also be available for conservation and insulation.

In order to finance this national energy program, the federal budget calls for a new tax on natural gas and oil and reapportions oil and gas revenues, so that the federal government can obtain a greater share of the profits at the expense of the oil producing provinces and the multi-national oil companies. Prior to the new budget the federal government obtained only 10% of the profits while the oil-rich provinces and the oil companies each had a 45% share. Under the new budget, the apportionment is to be 24%, 43% and 33% respectively.

Alberta, Canada's major oil producing province, has reacted vehemently to this budget proposal threatening production cut-backs and court action. In an attempt to avert what could be a serious confrontation, Prime Minister Trudeau has offered to reopen oil-pricing negotiations with the oil-rich Western provinces.

Promising offshore discoveries of gas and oil and vast hydroelectric potential offer the possibility that the eastern provinces could be net energy exporters by the end of the decade. At the last two annual conferences of the New England Governors and the Eastern Canadian Premiers, the subject of energy cooperation has been a central theme.The host of this year's conference, Vermont Governor Richard Snelling, proposed that New England invest $45 billion in developing unharnessed hydroelectric power in Canada in exchange for long term guarantees of energy supplies from these sources.

In response to this proposal, the Quebec Minister of Energy and Resources has offered a joint energy development plan to New England states desirous of importing electricity on a long term basis. This project would involve the exploitation of two rivers in the Ungava Bay, the Caniapiscau and the George, which have a joint potential of nearly 5000 mw. It would not be economically feasible for Québec to finance this project on its own in the near future; but guaranteed markets for this power in New England during a 15 year period would amortize the plan thereby permitting Québec to proceed with this development.

Given the likelihood of potential energy surpluses in Québec and Eastern Canada, the key to greater energy exchanges is obviously greater transmission capabilities between that region and New England. Of all. the states in the Northeast region,New York is the most active in energy exchanges with Canada. It has major electrical interconnections with Québec and is already hooked up to the natural gas pipeline at Niagara on the Ontario border. Supplies of Canadian natural gas currently entering New England markets are funneled through this New York trunkline. The Power Authority of the State of New York (PASNY) is also negotiating for additional hydro power from Labrador and tidal power from Nova Scotia. These initiatives undertaken by PASNY illustrate the fact that joint energy projects with Canada can be mutually advantageous.

In conclusion, it should be noted that the facts and figures cited in this report are subject to modification because energy planning is a rapidly evolving area. Information is constantly being up-dated and policies undergo frequent revisions.

December 1980

Donat B. Boisvert,
Director

ENERGY DEVELOPMENTS

IN

QUEBEC AND EASTERN CANADA

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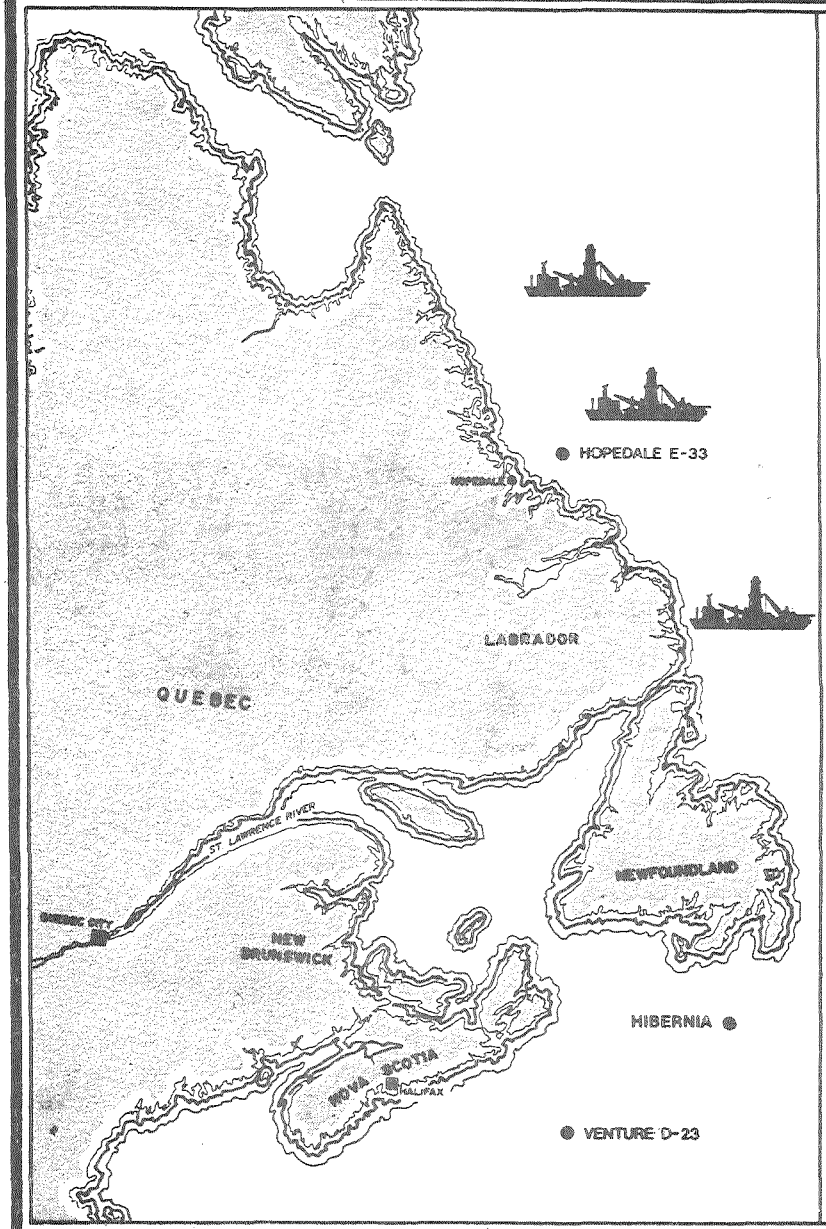
OFFSHORE EXPLORATION

Oil exploration off the East Coast of Canada is picking up momentum. Based on promising discovery wells, such as Hibernia P-15 in the East Newfoundland Basin, Petro-Canada (a Crown Corporation) and a consortium of multinational oil companies have expanded their investments in offshore exploration and drilling.

In the last decade more than $1.2 billion was spent in the search for oil and gas in the region of the Atlantic Provinces. This year approximately $450 million will be spent on East coast exploration and drilling. 22% of this figure ($100 million) will be invested in geophysical research. Yet,only one well has been drilled for every 7,100 square miles of area off Newfoundland compared to one well for every 347 square miles in the North Sea.

HIBERNIA. Although most of this section of the North Atlantic remains unexplored, three sites have offered encouragement to investors. The Hibernia area in the East Newfoundland Basin, for instance,has been termed a "giant field" with an estimated production capacity of 300,000 barrels of oil a day.Eastern Canada's current dependence on foreign oil is 500,000 barrels a day. Hibernia P-15 was the first major offshore discovery in the North Atlantic.Two confirmation wells have been drilled in the area: Hibernia O-35 and Hibernia B-08; another delineation well, G-55, was started in mid-November.

Some oil executives believe that the Hibernia field is on the threshold of commercial development.It is estimated that the East Newfoundland Basin could contain 10 billion barrels of recoverable oil and 15 trillion cubic feet of gas. With government cooperation, production could begin in five or six years. The Hibernia discovery which was looked upon with "cautious optimism" a few months ago, is now termed "the world's number one offshore oil and gas play" by Merrill Lynch Royal Securities.



Leader in east coast explorations ...working to assure Canada's future energy supply.

During the 1980 drilling season, Petro-Canada will have participated in 9 of the 10 wells drilled in the Canadian Atlantic region.

Petro-Canada was an active participant in the Hopedale, Venture and Hibernia discoveries, and in 1980 has become Operator for the three drillships of the Labrador Group of companies.

Petro-Canada

SABLE ISLAND. A second region rich in hydrocarbons is the Sable Island area off the coast of Nova Scotia. Shell Canada and its partners have drilled 46 test wells on the Scotian shelf since 1969. Four gas discoveries have been made in this area to date. The Venture D-23 discovery well,12 miles east of Sable Island, showed encouraging results last year (daily flow of 40 million cubic feet of gas) and a confirmation well, B-13, was drilled this summer. The results will not be fully assessed till March of 1981.

If,at that point,it is judged to be a commercial find, production could start by 1987. The Scotian shelf may eventually yield one billion barrels of oil and six trillion cubic feet of gas. Irving Oil and Chevron Standard of Canada have also made seismic tests of geological formations under the isthmus connecting Nova Scotia and New Brunswick.

LABRADOR SHELF. The third major area that has attracted the interest of Petro-Canada and its oil company co-partners is the Labrador shelf where exploration began in 1971. In 1978 the Hopedale, E-33, discovery was made there. On the whole, the Labrador shelf could contain five billion barrels of oil and 50 trillion cubic feet of gas. Petro-Canada is drilling three wells in the Labrador Sea this year.

Although offshore drilling is increasing in the North Atlantic, many observers feel that it should be progressing at a much more rapid pace.However, there are several factors impeding exploration and drilling. The federal/provincial dispute over the ownership and control of offshore resources is one such stumbling block. Newfoundland Premier, Brian Peckford has been especially vociferous in his defense of total provincial ownership. If an accord cannot be reached this question could end up in the Supreme Court of Canada.

Restrictive Petroleum Resources Acts recently adopted in Newfoundland and Nova Scotia could also jeopardize development by permitting these provinces to take equity on viable wells and to impose preferrential employment policies favoring local residents. Another factor discouraging investment is the current Canadian price for oil- $16.75 per barrel.At about half the world price, the oil companies feel that commercial exploitation of this oil would not yield a satisfactory profit margin.

The new federal budget announced at the end of October called for an immediate .80¢ increase per barrel with additional increases of $4.50 per barrel for the next three years. Oil company executives have balked at the Ottawa proposal which they claim opts for nationalization of petroleum resources at the expense of exploration and self-sufficiency. The federal plan is also seen as antagonistic by the oil producing provinces, especially Alberta. Environmental questions and fishermen's concerns also add complexity to the issue of offshore drilling. Finally, climatic conditions in the North Atlantic and the worldwide shortage of offshore drilling rigs are also impeding exploration efforts.

LABRADOR: HYDROELECTRIC RESOURCES

CHURCHILL FALLS. Labrador has one of the largest hydroelectric facilities in the world. Completed in 1972, at the cost of $975 million, Churchill Falls has in recent years become a center of controversy between Newfoundland and Québec. The dispute revolves around a contract signed in 1969 by Hydro-Québec and the Newfoundland and Labrador Hydroelectric Corporation. According to the terms of the contract, Hydro-Québec is entitled to buy all but 300 mw of the 5,225 mw generated at Churchill Falls for 60 years at a rate of a little more than 3 mills per kilowatt hour, which is only a small fraction of its current worth.

The government of Newfoundland figures that rising oil prices have resulted in a $600 million a year profit for Québec. Since no one foresaw in 1969 that energy costs would skyrocket, Newfoundland has asked Hydro-Québec to renegotiate the contract to obtain a higher rate, to secure a bigger share of the power (800 mw instead of 300 mw) and to obtain free passage of electricity through Québec for exportation to U.S. markets. The British Privy Council set the Labrador boundary in 1927;but Québec has never formally accepted this ruling.

Québec has consistently refused to grant permission to Newfoundland to transmit electricity across its border, requiring instead that all electricity entering Québec be sold to Hydro-Québec at the border. Since there is no interconnection currently existing between Labrador and Newfoundland, the only route electricity for exportation can take is through Québec.

LOWER CHURCHILL DEVELOPMENT CORPORATION. Labrador has a wealth of as yet unexploited hydroelectric capacity but the costly development of this unharnessed power is dependent on firm contracts with accessible markets. For instance, the Lower Churchill Development Corporation, formed in 1978 through a partnership between Newfoundland and Labrador Hydroelectric Corporation (51%) and the Government of Canada (49%), is considering the development of two sites, Muskrat Falls and Gull Island.

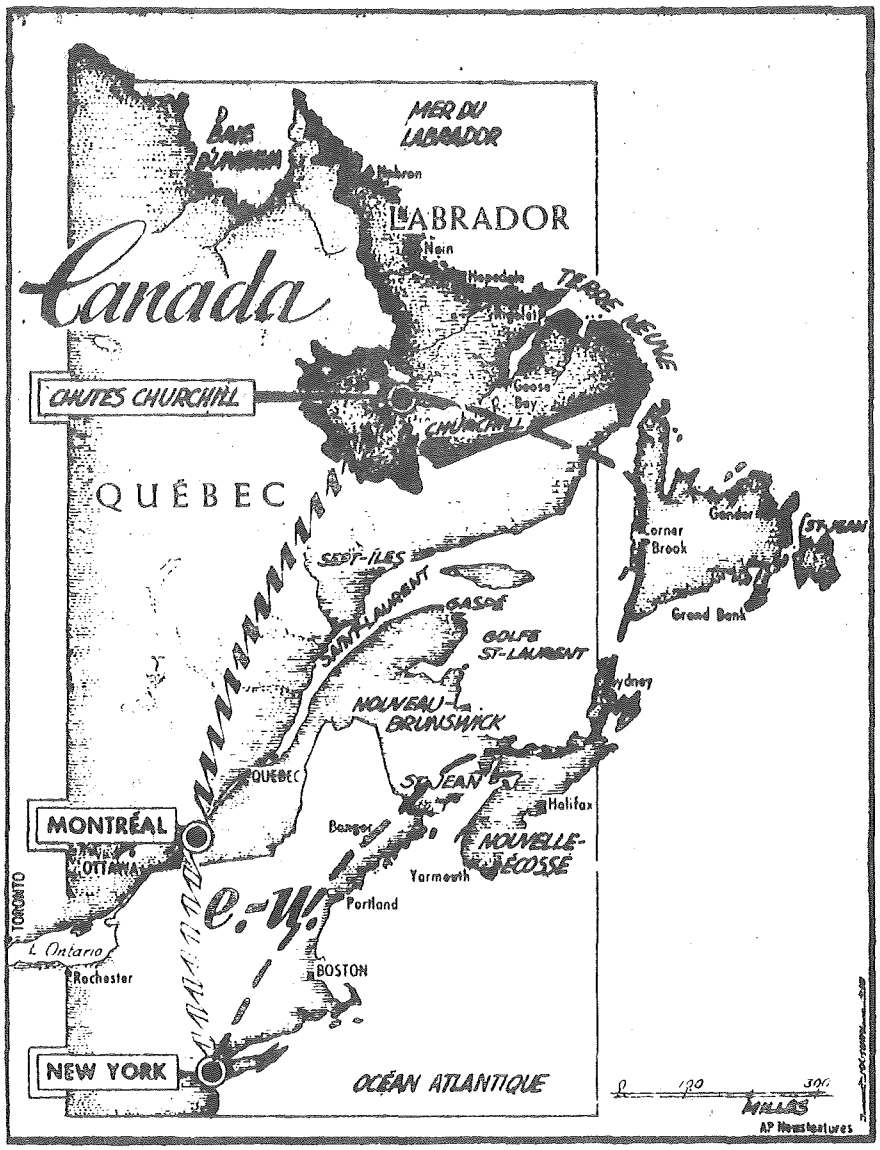
These two projects could come on stream by 1986. Though the power generated at Muskrat Falls could be absorbed by Newfoundland by 1989, the Gull Island production (1,700 mw) would be available for exportation. Together these two sites could generate 2318 mw. At a projected cost of $7.7 billion, Gull Island (1,700 mw) and Muskrat Falls (618 mw) would only be profitable if surplus power could be exported. Nova Scotia and the Power Authority of the State of New York have indicated interest in this surplus.

ELECTRICITY EXPORTATION. In October, the Power Authority of the State of New York agreed in principle to buy 600 mw of this surplus power and to pay transmission costs. New York would also consider the possibility of advance payments to finance development of the site. Five smaller rivers,which have their headwaters in Labrador and which flow through Québec to the sea,also offer development potential. These additional sources of unharnessed power have a combined potential of 3,350 mw.

The Newfoundland government has an alternate plan to export its surplus electricity should the Québec route remain barred. This undersea cable route would go from Labrador across the strait of Belle Isle into the Newfoundland grid,then across the Cabot strait (90 nautical miles) to Nova Scotia and New Brunswick and into the U.S. at the Maine border.Even if technologically possible, the cost of such an alternative is very high.

Although the desired route for the exportation of surplus electricity is still through Québec, Newfoundland Energy Minister Leo Barry is not discounting the alternative of a submarine cable to the Maritimes. According to Mr. Barry, a preliminary study of the question has shown that,as a last resort, this option would still be economically feasible.

Newfoundland is also seeking permission from the National Energy Board for use of existing transmission lines in Québec.Premier Peckford has steadily maintained that Québec does not have the constitutional right to restrict the flow of Newfoundland electricity through its territory to other provinces or to the United States.



The zig-zag line on this map shows the existing export route of Churchill Falls electricity. The other line shows a proposed alternative route through the Belle Isle Strait into Newfoundland, then across the Cabot Strait to the Maritimes and into New England at the Maine border.

NOVA SCOTIA: ENERGY DIVERSIFICATION

Nova Scotia is pursuing a diversified energy plan in an effort to reduce its dependence on foreign oil. Two years ago, 68% of the energy consumed in Nova Scotia was generated from imported oil; today only 38% of energy requirements are filled by this source. With an existing generating capacity of 2000 mw, Nova Scotia has the highest energy costs in the country. Lacking sources of large scale conventional hydroelectric production, the government of Nova Scotia plans to concentrate on three other areas of energy development: coal, tidal power and offshore gas.

COAL-FIRED GENERATION. Premier Buchanan considers coal the cornerstone of Nova Scotia's energy policy for the immediate future. Despite the strong opposition voiced by environmentalists, who fear that the acid rain problem could be aggravated, Nova Scotia anticipates converting to 50% coal generation by 1990. In late 1979, the province announced a $1.3 billion energy development program designed to substitute coal for imported oil in electrical generation by 1988.

The two Lingan coal-fired plants which were completed this year produce more than 42% of Nova Scotia's electrical energy requirements. Two more 300mw coal generating plants, to be on stream by the late 1980's, will cut dependence on foreign oil to less than 10%. This coincides with the National Energy Program which will provide 75% of the cost of environmentally acceptable conversion from oil-fired generation to coal. The Tufts Cove plant would immediately be eligible for the new federal program.

In addition to coal-fired generation, Nova Scotia also intends to use part of its massive coal resources in developing synthetic fuels. Scotia Liquicoal Ltd., for example, has undertaken a $1.1 million demonstration project to produce liquicoal (50% coal, 30% oil and 20% water). A pilot project is also under way in Pictou County to estimate the potential reserves of natural gas trapped in coal seams.

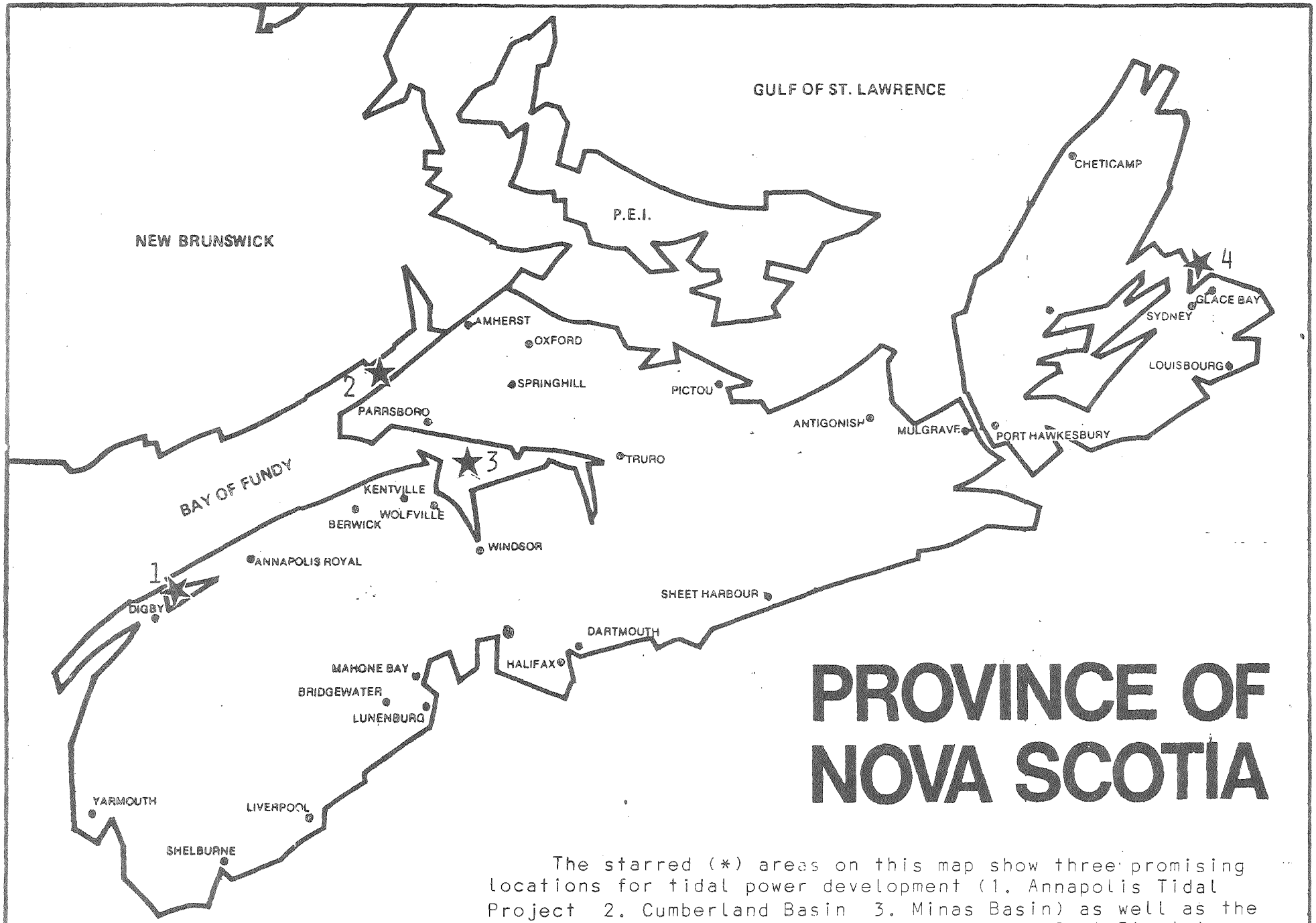
Since the federal government will provide financial assistance for the development of the province's coal resources, the Nova Scotia Power Corporation will proceed with the construction of two new 150 mw coal-fired stations in New Waterford.The first of these will be producing power by the end of 1983; the second is scheduled for completion by December 1984.

TIDAL POWER. An alternative energy source on which the Buchanan government has placed high hopes is tidal power. The Nova Scotia Tidal Power Commission has begun construction of a pilot tidal power project in the Bay of Fundy at the Annapolis River Basin. The tides at this site are approximately 4.5 meters high. Scheduled for completion in 1983, this $46 million plant is expected to generate 20 mw of power displacing the equivalent of 80,000 barrels of oil per year.

If this pilot project proves successful, a large-scale tidal power plant might be built to further harness the tumultuous tides of the Bay of Fundy. The site currently favored by Premier Buchanan is Minas Basin where a 6,000 mw plant could be built.Since most of the energy generated at this site would be for exportation, firm contracts with buyers would be necessary to finance this multi-billion dollar plan.

The states of New York and Massachusetts have already voiced interest in the project and Nova Scotia is currently negotiating with the New Brunswick government on rights to transmit power through its grid to U.S. markets. A 1000 mw tidal power station on Cumberland Basin between Nova Scotia and New Brunswick has also been considered. Construction of a large scale Fundy Tidal project is likely to begin within two or three years.

SABLE ISLAND AND NATURAL GAS. The discovery of gas off Sable Island also has important implications for Nova Scotia's overall energy picture. The National Energy Board has decided to delay the extension of the Q and M Pipeline to the Maritimes. The pipeline carrying Albertan gas eastward will however be extended from Montréal to Québec. The possibility of commercial development off Sable Island is believed to be a con-



PROVINCE OF NOVA SCOTIA

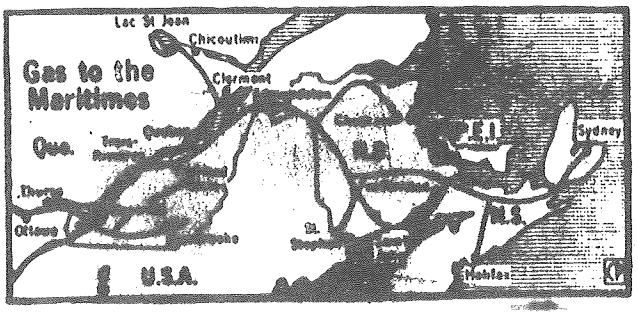
The starred (*) areas on this map show three promising locations for tidal power development (1. Annapolis Tidal Project 2. Cumberland Basin 3. Minas Basin) as well as the site of a major coal development (4. Lingan Coal Plants).

tributing factor in the delay. Other factors include further environmental studies and the lack of unanimity among Maritime Premiers. New Brunswick, which at first opposed the extension because it could cut into the demand for its Point Lepreau nuclear power, has altered its position with the assurance that natural gas prices in this province would be the same as in Ontario.

The NEB decision which originally called for a 2 year moratorium on the pipeline extension could cause Nova Scotia to be eliminated from the competition on a multi-million dollar regasification plant to be built on the East Coast by 1985. Two sites are presently being considered for this plant which would transform liquified Arctic gas to its original state: the strait of Canso in Nova Scotia and Gros Cacouna (near Rivière-du-Loup) in Québec. The later site, Gros Cacouna, is only 80 miles from Madawaska. If a superport is developed there, it could have important implications for the shipment of grain to Maine and for the transportation of Maine produce to Mid-western markets.

Nova Scotia has entered an appeal in an effort to have the NEB reconsider its decision to delay extension of the natural gas pipeline to the Maritimes. In support of the extension, L.F. Kirkpatrick, the president of the provincially owned Nova Scotia Power Corporation, pointed out that if natural gas were available to 20% of Nova Scotia's primary energy market, the federal government could save $200 million in oil subsidy payments.

Because the new national energy plan favors the replacement of oil by coal and natural gas, the Federal government has decided to encourage the extension of the pipeline as soon as possible. If Nova Scotia does not win its appeal to the National Energy Board, federal energy Minister Marc Lalonde will introduce legislation enabling the construction. The National Energy Program calls for the introduction of natural gas into the Maritimes by 1983. The pipeline would allow for reversible flow so that offshore gas could be piped into the system. The federal government has set $500 million aside for this project. Although the exact route of this pipeline has not yet been determined, the original proposal submitted by Trans - Québec and Maritimes Pipelines called for a major trunk line into New England at the St.Stephen/ Calais border.



THE NEW ENGLAND STATES' PIPELINE. The proposed extension of the Q & M Pipeline into the Maritimes has important implications not only for Eastern Canada but also for Maine and the rest of New England.

In a history-making step, the six New England Public Utility Commissions through the New England Conference of Public Utilities, have requested that Canada's National Energy Board grant them intervenor status.This form of participation would permit the New England Public Utility Commissions to convey directly to the NEB their support for the extension and their commitment to the prompt processing of permit and authority applications for the construction of the New England States Pipeline from Maine to Rhode Island. Representing the New England Public Utility Commissions in this matter is the Attorney General of the State of Rhode Island,Mr. Dennis J. Roberts II.

The New England Energy Congress called for tripling natural gas consumption in New England within the next twenty years. To reach this goal natural gas consumption,which currently fills 8% of this region's energy requirements,would have to increase to 25% by the year 2000.

In Maine, natural gas use presently comprises less than 1% of the state's overall energy needs. The Portland and Lewiston areas are the only two population centers as yet to be served by Northern Utilities, the local natural gas distributor. However, the proposed route through Maine of the New England States Pipeline would make this energy option accessible to 2/3rds of the population and could potentially open markets for natural gas from Bangor to Augusta.

In an effort to facilitate the construction of the Maine segment of the N.E. pipeline, the 109th Legislature adopted "An act to clarify the statutes relating to natural gas pipeline companies" (L.D.1704) during its Second Regular Session. This cleared the way for a commitment by two Boston based companies, Algonquin Gas Transmission and Transcontinental Gas Pipe Line (Transco), to go ahead with their effort to build the New England States Pipeline.

Although this pipeline is primarily intended to supply gas to existing Algonquin and Transco customers outside the State of Maine, these companies have entered negotiations with Northern Utilities (which has distribution rights for most of Maine) to discuss

NEW ENGLAND STATES PIPELINE

This map shows the proposed route of the New England States Pipeline through Maine and its interconnection with the existing Northern Utilities Pipeline near Gray.

supplying gas from the proposed pipeline for local distribution. They are also arranging for an interconnection between the New England States Pipeline and either Northern Utilities or Granite State Pipeline to facilitate the delivery of gas to this area.

Since then, Algonquin and Transco have also taken action on the Canadian side of the border to expedite the project. They have recently entered a contract with a natural gas supplier and will soon apply for an export license.

Depending upon the progress of the pipeline extension into the Maritimes and the amount of time required to obtain approvals from the various regulatory agencies, the Maine segment of the New England States Pipeline could be built by 1984.

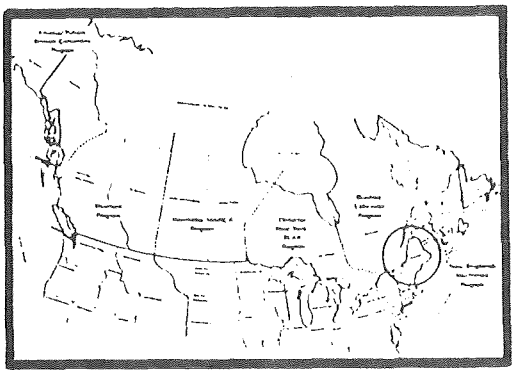
NEW BRUNSWICK: THE ENERGY BROKER

ELECTRICITY EXCHANGES. Because of its central location and its electrical interconnections with Québec, Maine, Prince Edward Island and Nova Scotia,New Brunswick plays a key role in the distribution of energy on a regional basis. Last year New Brunswick imported 40% of its power requirements from Québec on a 450 mw transmission line that was built in 1971 at a cost of $27 million. New Brunswick buys hydro power from Québec at 80% of the cost of oil-fired generation and exports most of its more costly oil-fired power. The New Brunswick Electric Power Commission is presently considering doubling that capacity and it is assumed that a portion of this energy would be resold to Nova Scotia, Prince Edward Island and Maine.

Within six years, the NBEPC expects purchased power to be providing 30.7% of total needs, nuclear 28.4%, hydro 25.5%, coal 8.8% and oil 6.6%. In 1979,oil use was almost four times as great as it is expected to be in 1986. Last year the province exported almost as much electricity as it imported. The New Brunswick Electric Power Commission exports 1,660 mw of electricity through its grids to Nova Scotia, Québec, Prince Edward Island and Maine. With Nova Scotia alone, New Brunswick has an interchange capacity of 400 mw. New Brunswick also supplies Prince Edward Island with 75% of its total electrical requirements by undersea cable.

ELECTRICITY EXPORTS TO MAINE. Under a 10 year contract which took effect in 1976, the Maine Electric Power Company buys 400 mw of electricity from New Brunswick's Coleson Cove oil-fired generating plant. Up to now,the rate of purchase was the same price New Brunswick customers pay. However, the recent National Energy Board decision to reduce oil subsidies from $20 a barrel to $8 a barrel will have a direct effect on the Coleson Cove contract. Federal Energy Minister Marc Lalonde estimated that the $20 a barrel compensation payments were "subsidizing the American consumer to the tune of about $90 million a year."

Although MEPCO contributed substantially to the construction of the Coleson Cove plants and makes significant payments toward fuel, capital, operation and maintenance of the facilities with the understanding that its



Existing transmission interconnections between New Brunswick and Maine.

United States/Canada Electricity Exchanges. (May 1979) p.25

rates would remain the same as those paid by New Brunswick customers for the duration of the contract, MEPCO nonetheless faces a rate increase because NBEPC apparently intends on having the Maine company bear the burden of the federal government's cut-backs in oil subsidies. Discussions between MEPCO and NBEPC are currently underway to see if the contract can be renegotiated. Although oil subsidies are ending, federal funds would be available under the National Energy Program to convert Coleson Cove's oil-fired generation to coal or gas.

If an agreement satisfactory to both parties cannot be reached in the present negotiations, MEPCO will pursue a court action which seeks to establish that MEPCO is free to treat the contract as terminated by NBEPC. In 1979, NBEPC supplied approximately 9163 mw hours per day of electricity to MEPCO at a cost of more than $72 million.

In describing New Brunswick Electric Power's sales agreements with Maine, Premier Hatfield has stated that New Brunswick consumers are getting two to three times the benefits from NBEPC's planning as Maine consumers can expect from their utilities. The NBEPC had a net income of $43.1 million last year.The closure of Maine Yankee by the Nuclear Regulatory Commission in the Spring of 1979 because of concerns about its ability to withstand an earthquake boosted export sales by 52.5%.

POINT LEPREAU. Maine utilities are also considering importing additional power from New Brunswick's Point Lepreau Nuclear power plant. This billion dollar plant, with a generating capacity of 630 mw, is due to come on-line in November of 1981. Both Central Maine Power and Bangor Hydro are among the utilities vying for purchases of Point Lepreau surplus power.

Although the plant is not yet operating, all 630 mw are spoken for.New Brunswick plans to use 400mw itself; of the remaining 230 mw, Maine utilities may purchase 130 mw and a Massachusetts utility is committed for the other 100 mw. Under its proposed contract, CMP would be buying 100 mw for a period extending from November 1st, 1983 to 1989. Bangor Hydro also seeks to obtain 30 mw for a similar length of time.

In other energy-related matters, the New Brunswick Legislature has passed a new Mining Act. Under the new law, the New Brunswick Electric Power Commission has the right of first refusal on many potential coal mine sites. The province has an estimated 50 million tons of coal reserves.

PEAT-FIRED GENERATION. A federal study has also shown the feasibility of building a peat-fired generating station in Northeast New Brunswick.It has been estimated that there is a sufficient supply of peat in the Shippegan area to fire a 40 mw station for 30 years. As yet there are no peat-fired generating stations in Canada,though a pulp and paper mill in Newfoundland is running a peat-fired operation on an experimental basis. In addition to New Brunswick, Newfoundland, Ontario and Québec all have substantial peat reserves.

QUEBEC: ELECTRIFICATION AND EXPLORATION

OVERALL ENERGY PICTURE. Québec has more installed and potential water power than any other province. Despite this abundance of hydroelectric resources, Québec has a largely oil-based energy structure. Although it has reduced its dependency on oil in recent years, Québec still uses oil for 70% of its overall energy requirements. Electrical generation accounts for approximately 22% of the total and natural gas another 6%. The Québec government's energy policy anticipate that by the year 2000, 50% of the province's energy requirements can be met with electricity.

NATURAL GAS. New federal subsidies to homeowners for conversion from oil heating systems to natural gas and the National Energy Board's decision to extend the Albertan natural gas pipeline (Q.& M) from Montréal to Québec City will also contribute to a reduction in oil dependency.

The decision to extend the Trans-Québec and Maritimes pipeline to Québec City will make natural gas accessible to most of the province. It is estimated that natural gas usage could increase from 6% to 20% of total energy requirements.

Although Albertan gas was introduced into Québec in 1958, its penetration into the energy market has thus far been slow. At first, the Q & M Pipeline Company had hoped to reach Québec City by 1981; but now it is believed that extension could be delayed by several years. Although NEB approval had made extension possible last year, inter-ministerial differences on the provincial level have prevented further progress on this matter.

The exact route of the pipeline is the disputed issue. The Minister of Agriculture and the Minister of Municipal Affairs have voiced the opposition of farmers and of cities to the construction of this section of the pipeline through their lands. Environmentalists are also wary about what route the pipeline will take.

However, this question could be expedited by the federal government's intention to have the pipeline reach the Maritimes by 1983. It is now believed that the pipeline will reach Rivière-du-Loup, the midpoint between Montréal and Québec City, in 1981.

HYDRO-QUEBEC. Québec's current production capacity for hydro is estimated at more than 20,000mw; ten years from now it is expected to double. Hydro-Québec presently generates 18,292 mw of this hydroelectric power; by 1985, its capacity will have reached 30,211 mw. It is anticipated that electricity consumption in Québec will have doubled between 1978 and 1990. Hydro-Québec predicts that all profitable hydro sources will be exploited by the mid-1990's.

Awaiting further electrification,Québec exports large amounts of electricity to the U.S.,especially to New York and Vermont. Large capacity U.S. interconnections exist only with New York. This state bought $107 million worth of electricity from Québec last year and purchases could double by 1988. In all, Hydro-Québec's sales of electricity to the U.S. totalled $228 million in 1979. Preliminary studies show that hydro potential totalling 1700 mw could be available for exportation 10 months a year from 1990 to 2005.

In late September of this year, the National Energy Board approved two sales of hydroelectricity to Vermont. Utilities in the adjacent provinces of Ontario and New Brunswick voiced no objections to the sales. Under the first contract, the Vermont Public Service Board will buy up to 52 mw from Hydro-Québec for five years. The state agency will then redistribute this power at cost to Vermont utilities.The Public Utility Commissions of three New England states - Vermont, New Hampshire and Rhode Island-are authorized to seek and buy power directly.

Vermont Public Service Board chairman Richard Saudek estimates that Vermont will save $10,000. a day in power cost. Under the arrangement Vermont receives power only when it is needed. The second agreement assures Citizens Utilities, which serves Northern Vermont, a five year supply of electricity to increase from 32 mw beginning in January 1981 to 46 mw in the last year of the contract. Although no high tension interconnections exist between Québec and Maine,Québec does supply electricity to several border areas in Maine; the total capacity of these lines amounts to less than 1 mw.

In his recent inaugural address to the Québec National Assembly, Premier René Lévesque revealed a new role for Hydro-Québec. In this decade, the government-owned utility will invest $100 million a year on an insulation and conservation program for home-owners.

OIL DEPENDENCY. Because Québec is so heavily dependent on oil, the government has entered the fields oi oil exploration and direct purchasing in order to insure supplies. Alberta is currently Québec's major supplier of crude oil (60% of total); but both the federal government and the Québec Ministry of Energy expect that this source will cease to be available to Québec by the end of this decade.

For the remaining 40% of its oil requirements, Québec depends on foreign sources most of which are transported to Québec by the Portland-Montréal pipeline. This pipeline is currently operating at half-capacity: 240,000 barrels a day. Petro-Canada recently concluded an oil deal with Mexico for 50,000 barrels of oil a day and this supply is being piped to Montréal refineries via the Portland pipeline. An energy task force commissioned by the ten provinces has recently recommended that the Portland-Montréal pipeline be made reversible to allow oil to flow directly to the East coast, making transmission to the Atlantic Provinces easier and facilitating emergency exchanges in times of severe depletion of supplies.

SOQUIP. Recent efforts in oil and gas exploration have increased dramatically in Québec. SOQUIP (Société québécoise d'initiatives pétrolières), a provincial corporation similar to Petro Canada, has a mandate to"explore for, produce, store, transport and sell crude hydrocarbons in liquid or gaseous form."

In the period between 1969 and 1978, SOQUIP invested $34.5 million in oil exploration in Québec, $6.4 million in Western Canada and $6.8 million in the Maritimes. In 1978, SOQUIP spent $7.1 million in Québec to drill 6 wells and, in 1979, this sum was increased 39% to $9.9 million.

Although there has been only one commercially exploitable discovery made on Québec territory to date (natural gas at St-Flavien on the southern bank of the St-Lawrence), SOQUIP plans to put $100 million in oil and gas exploration in Québec and in the St-Lawrence over the next five years. It will also participate in foreign drilling projects mainly in French-speaking Africa, by investing another $88 million over the same period. Several oil-exporting countries now require clients to participate in exploration activities as a condition for further purchases of crude.

QUEBEC POWER LINES ENTERING MAINE

SERVICES FRONTALIERS - ETAT DU MAINE

Endroit	Ordonnance	Puissance maximale en kW	Energie maximale en kWh
près d'Estcourt	ELO-132	240	480 000
près de Saint-Pamphile	ELO-133	240	480 000
près de Saint-Zacharie	ELO-134	40	80 000
près de Woburn	ELO-137	75	200 000
près de St-Juste-de-Bretenières	ELO-138	20	100 000
près de St-Juste-de-Bretenières	ELO-139	35	65 000
près de Ste-Aurélie	ELO-140	65	150 000
près du Lac Frontière	ELO-141	10	10 000
près de St-Cyprien	ELO-142	2	2 000
près d'Armstrong et de St-Théophile	ELO-143	57	150 000

Although there are ten power lines from Québec entering border regions in Maine, the maximum capacity of all these lines is less than 1 mw.

SUMMARY

Québec and the Atlantic Provinces have taken definite steps in recent years to reduce their dependence on foreign oil. Encouraged by the Liberal government's new National Energy Program which offers incentives for conversion from oil, these provinces have turned to the exploitation of domestic resources to fill a substantial portion of their energy requirements.

Despite federal/provincial jurisdictional disputes, offshore exploration and drilling have already resulted in significant discoveries of oil and gas. Newfoundland, which has relatively small energy needs, should easily attain energy self-sufficiency within the decade with its offshore wealth and Labrador's significant hydroelectric potential.

Nova Scotia has directed its efforts to the exploitation of its vast coal reserves, Fundy tidal power, and offshore natural gas; this new orientation will place Nova Scotia in a favorable position by the 1990's.

New Brunswick is taking advantage of its electrical interconnections with Québec, the development of nuclear power and the conversion from oil-fired generation to coal to reduce its oil dependency. New Brunswick is also profiting from its central geographic position to reap large profits from energy exchanges.

Finally, Québec is harnessing its hydroelectric power to supplant foreign oil. It is also participating in gas and oil exploration both in its territory and elsewhere through SOQUIP, a provincially-owned corporation.

The federal energy minister's recent decision to favor the extension of the Q & M Pipeline, from Montréal through Québec City and into the Maritimes, will also aid these provinces in attaining their "off-oil" energy goals in the near future and by the mid-1980's, it could be aiding Maine and New England in attaining the same objective.

December 1980

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For more information,
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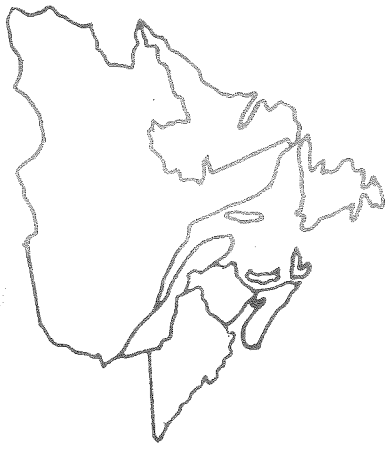

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