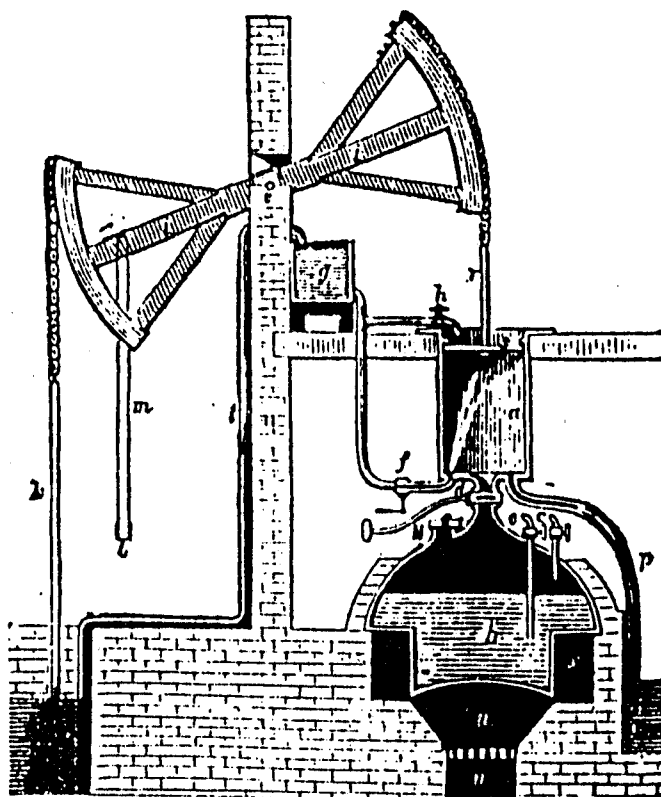


Public Enterprises Procurements and Industrial Development: The Case of Hydro-Quebec

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**Le dessin de la page couverture montre la machine à vapeur à pression
atmosphérique de l'ingénieur anglais, Thomas Newcomen, utilisée
couramment pour pomper l'eau des mines à partir de 1712.**

Public Enterprises Procurements and Industrial Development: The case of Hydro-Québec

Jorge Niosi and Philippe Faucher¹

There is a strange logic in the conduct of human affairs. The irrepressible need for change, and the faked urgency that the democratic process builds in our political institutions oblige each new government to adopt a rather unrealistic approach to policy making. First they feel obliged to reconsider whatever decision has been taken by the previous administration, taking a great deal of time and effort to explain and justify their proposals for the usually marginal adjustment to the policies that they violently denounced while in the opposition. Then, before taking time to assess the urgency of the real needs, while at the same time blaming their incapacity on the dismaying condition of the public finances, they implement whatever policy that can be satisfied at no apparent cost. For lack of program, and because agitation can be masqueraded as progress with the proper media coverage, many governments have recently decided - probably to show their determination- not only to cut on services and programs, but to destroy, piece by piece, the public institutions that have maintained capitalist accumulation one step before being an exercise of sheer brutality. This is why deregulation is not only a reactionary fad; it is clearly an indication of the decaying condition of our society .

The all-out attack now suffered by the public sector is a serious manifestation of the self-destructing syndrome plaguing our institutions. In a situation of rapid economic shifts, associated with an unavoidable need for structural change, it is rather discomfoting to see that so many governments have decided that their public sector is an inefficient instrument and a dispensable burden for the state. Public enterprises are for sale, in Britain, in Canada, and France may soon do the same.

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Independently of the particular value of specific cases that may come to mind, we believe that it is often a mistake to restore private ownership. It is true that public enterprises may not serve the purpose for which they were created, it is also true that our present economic environment may represent a handicap for public firms. But these are powerful policy instruments that can participate in stimulating innovations and contribute to the necessary investment for modernizing the productive structure. If state enterprises are evaluated exclusively from their initial mandate, it is clear that most of them are not performing adequately to satisfy our present needs. In most cases they lack dynamism and accountability. But only in a dogmatic mind does it mean that state enterprises should disappear altogether. Another path can be considered: public firms can be reshaped, and have their objectives redefined to correspond to the new competitive world. We have found ample evidence of this possibility both at the theoretical and the empirical levels.

The Canadian public sector is closer to the European, than American model, in both the importance and the involvement of state enterprises in the market economy. Direct governmental intervention through Crown corporations, is a tradition in utilities, finance, transportation, manufacturing and mining. As elsewhere, the reasons proposed to justify the direct involvement of the state in productive activities are often confused, eclectic, and even contradictory. Among the "second generation" rationalization now being heard, is the use of public enterprise as an instrument of industrial policy through the regulation of its buying power. It is argued in this paper that, whatever were the original purposes, the use of crown corporations as public markets can justify their permanence and development. *We observed that the use of public firms as an instrument of industrial policy occurs only after they have been established and nurtured for other purposes. In other words, the "public market dimension" appears after the corporation has settled and integrated itself in the economy.* This argument will be developed through the examination of the Canadian public sector and a close look at the procurement policy of Hydro-Quebec, Canada's major public utility.

1-Why public corporations in a market economy ?

The public sector occupies an awkward corner in economic analysis in general, and in the Canadian economy in particular. No single or widely admitted explanation exists for this increasingly important phenomenon².

The most common explanation is based on the concept of "natural monopolies", such as electricity, water or gas distribution, telephone and postal services. However these "natural monopolies" are not necessarily taken in charge by public enterprises in every market economy. In the United-States, these activities are under the responsibility of private corporations operating under the authority of governmental regulatory bodies. In Canada, the situation varies from one Province to another: electric production and distribution is mostly a matter of public enterprise in central and eastern Canada, but not in Alberta, where private enterprise is the rule. Telephone services are provided by private companies under federal regulation everywhere in Canada, except in Saskatchewan. The greatest number of public corporations, if not among the most important ones, both in Canada and elsewhere, are not related to "natural monopolies": oil, shipbuilding, aircraft, steel or industrial machinery are often produced by state corporations competing with private ones.

Among other explanations suggested for the creation of public enterprises is the activity of lobbies (either trade-unions or managers) looking for bailouts from the state. Workers push for the nationalization of ailing companies for the purpose of keeping their jobs, while managers prefer to sell to governments rather than to face total bankruptcy. Typically, steel companies in England, Belgium and France became public through such a dynamic. However, salvage operations are not that common, and are extremely rare in the Canadian context (the only major exception being Canadian National Railways). Incidentally, not every failing corporation is nationalized, but large corporations and banks are more likely to be rescued than small and medium firms.

Infant industry protectionism can take the form of direct government participation. In Japanese and German industrial histories we find many cases of governments overcoming barriers to entry by creating national state firms, and eventually, once soundly established, turning them to the private sector. In Canada, some major crown corporations such as Air

² For a review of the literature on this topic see; Ph. Faucher, (1981).

Canada, and Polysar were risky new ventures initiated by the Federal government for lack of interest and commitment by the private sector. However this explanation clearly applies to only a handful of cases, both in Canada and elsewhere. Infant industries can be nurtured in quite different ways, including special tax treatment, subsidies, or tariff protection, and not necessarily through nationalization.

There are two special explanations that apply mostly to the mining industry. State corporations can serve either as "windows" on the industry, or as rent collectors. In Canada, Petro-Canada fits this first category, while the Potash Corp. of Saskatchewan, is an illustration of the second possibility. Once again, it should be noted that information on an economic sector, or rent can be obtained by using other instruments. Finance inspectors for instance, could achieve similar goals. There is therefore no logical necessity for the noted preference on state enterprises.

At times public corporations are created as suppliers of critical materials or energy resources, such as steel, petrochemicals, oil, or military equipment. Such situations occurred in the case of Sidbec, Petro-Canada, Alberta Energy Corporation, Eldorado Nuclear or Polysar. For this analysis to be satisfactory, it would be necessary to explain the reason why these corporations are kept in the public sector, even though the "critical situation" has long disappeared.

On the other hand it clearly appears that the use of public enterprises as public markets, understood as an instrument to promote the development of particular industrial sectors is seldom acknowledged. There are a few exceptions such as the nationalization of the telephone service in Europe. Public corporations are compelled to apply the local procurement policies and provide captive markets for developing industries. The Japanese semi-conductor industry experienced a rapid growth thanks to the Nippon Telegraph & Telephone procurement policies in the seventies and eighties. There is no record that Canadian Crown corporations have been incorporated in order to serve as public markets regulators.

Nevertheless, we believe that whatever the reason for the creation of a public enterprise, and we have presented only a few of the options that are mentioned in the relevant literature, they can be used as potent instruments of industrial policy. On a more theoretical level, this dimension can help to explain the persistence of public firms through time, well after they have achieved the initial goal for which they were created.

This dimension becomes relevant when it appears that the public sector controls activities requiring large expenditures. This is true in most public utilities, such as mining and mass transportation. The capital outlays can easily be enough to maintain production among a good number of suppliers. These will later, if required, act as major political supporters for the state enterprises. Either as development tools, or as easy access markets, these are additional dimensions for which state enterprises tend to stay in place and grow in our private market economies.

2-Crown corporations as public markets in the Canadian economy.

Public enterprises are an important dimension of our economic reality. In 1984, they were responsible for 15.8% of the total investment in the Canadian economy (Stat.Can., cat. 61-205). Of this percentage 60% is accounted by Provincial Crown corporations and 32% by their federal counterparts, while municipal public enterprises are only minor actors.

Within Provincial state enterprises, electric corporations are by far the most important ones. Almost two thirds of the assets of the provincial public corporations are electric concerns. The two largest are Hydro-Quebec and Ontario Hydro (see Table 1). These two, which are very similar in importance, as measured by assets, represented, each, almost 15% of the total assets of all Canadian Crown corporations.

Other important non financial provincial state enterprises include the Potash Corporation of Saskatchewan, Sidbec, SYSCO, and the Alberta Government Telephone Commission.

Federal Crown corporations, are also large enterprises. Among the bigger industrial (in the broad sense) public corporations, we find Canadian National Railways, Petro-Canada, Air Canada, Eldorado Nuclear and Atomic Energy of Canada (see Table 2).

While Canada never had an industrial strategy worthy of the name, fragments of industrial policies can be found in most departments and at all levels of governments. Local procurement laws, subsidies, public financial corporations, tax incentives, public loans, state research facilities, are among the most common measures orchestrated to promote industrial development.

Public markets represent a large share of Canadian economic activity³. In 1979 they amounted to 43,5 billion \$, half of which being accounted for by governments expenses, the other half by federal, provincial and local public enterprises⁴.

The control over final demand is an important tool for industrial policy. Its potential is not only related to the captive market offered to private producers. Demand management has also been considered, by Schmookler among others, as an essential part of an innovation model (Rothwell and Zegveld, 1985,60). This has been documented recently by studies on the role of the US government in the development of major industrial sectors through public procurement agencies (Nelson,1982). We are well aware, on the other hand that the influence of market demand upon innovation is subject to a great deal of criticism (Mowery and Rosenberg, 1979). We do not suggest here that procurement policies should be considered as exclusive determinants of innovation. In fact what we believe our case study shows is that there are important limits from both the structure of the industry and from the internal priorities of the organisation that restrict the enterprise's capacity to use its market power to its full potential.

We have found evidence of the use of Crown corporations as captive markets for industrial purposes in most, if not all, of the largest of them. State enterprises are responsible for 56% of the public demand for manufactured goods. This is particularly true for provincial public enterprises who bought for 6,4 billion \$ of manufactured goods in 1979.

If we look at particular cases, it appears that, starting with Ontario Hydro at the beginning of the century, the Canadian National after World War I, Atomic, Energy of Canada after World War II, or more recently Petro-Canada, almost all major Crown corporation, either provincial or federal, have paid their tribute to industrial development. Interestingly, Air Canada is the most conspicuous exception to the general rule (Hafs, 1984).

³ Parts of the analysis presented here is based on the study realized by Robert Dalpé (1986).

⁴ Canada, Approvisionnement et Services, *La Taille et la structure du marché du secteur public 1979 - Données à l'appui*, Ottawa, septembre 1983.

However, the use of public enterprise as an industrial policy tool is less than systematic. The intensity in the use varies from one government to another, from one Province to the next. Liberals and New Democrats have used this policy tool more frequently and intensively than Conservatives, Creditists or the Union Nationale party in Quebec (Chandler, 1982). Central Canada has been more able to promote industry through Crown corporations than the rest of the country.

Moreover, the public market rationale is seldom (if ever) mentioned among the original arguments invoked for the creation of Canadian Crown corporations. *The "industrial planning" justification comes later in the life of a state enterprise.* Some examples will be useful.

Ontario Hydro was incorporated in 1906, following a movement of small and medium industrialists who asked for cheap and abundant electric power. The Commission took over several generating plants before it undertook the construction of its first station in 1914-1917. However, the first large entry of the company in the generation business came in 1917-1921, with the massive Queenston-Chippawa project. In 1951, the first coal-fired generating station was inaugurated, and in 1955 Ontario Hydro launched its nuclear programme together with AEC Ltd and the Canadian General Electric Co. By this time the collaboration between the public utility and the electric manufacturers was close. It was only in the 1970's that Ontario Hydro could publish the high provincial content of its capital and operating expenditures. As the Royal Commission on Electric Power Planning indicated in its 1980 Report: "Indeed it [Ontario Hydro] has become one of the most powerful instrument of economic policy open to the Ontario government" (Report, p. 147). The Royal Commission estimated that in 1978 expenditures of the Ontario Hydro totalled 1,7 billion \$ and that 70% of it were made in the Province. Taking the multipliers in consideration, the total income effect was about 5,1 billion \$ or 6% of the gross provincial product (Report, p.17).

Petro-Canada is another case. Created in 1975 to insure the supply of oil and energy, by developing the frontier regions of Canada, the national oil company soon became involved in industrial policy through its large capital expenditures. These expenditures amounted to 294 million \$ in 1976, but rose steadily to 1,2 billion \$ in 1984. In 1980, the Gas and Oil Act regulated the Canadian content of Petro-Canada's purchases, and in 1983 the company issued a full-fledged Canadian benefits procurement strategy.

The Potash Corporation of Saskatchewan was incorporated in 1975 in order to increase the Province participation in economic rents, and to influence the pace of resource development (Laux and Molot, 1981). However, once PCS was established and accepted, the provincial government set new priorities for the Crown corporation, including the increase of the local content of its capital and operating expenditures, in order to maximise the economic spin-offs for the Province.

3. Hydro-Quebec; a case study of public markets ⁵

Hydro-Quebec is currently investing slightly under 2 billions \$ annually on construction contracts, buying goods and services of all kinds. The enterprise has had an active procurement policy since 1962, designed to limit to firms established in Quebec the largest share of the market. Contracts over 50 000 \$ are attributed by way of tenders restricted primarily to local producers when it is considered that the local competition is enough to ensure reliable quality and service. If this condition is not met, the call for tenders is open to other Canadian and foreign producers. For contracts between 2 000 \$ and 50 000 \$ three producers at least are invited to present bids. Finally, for contracts below 2 000 \$, the company contacts directly its current purveyors.

About 5% of the contracts, for 25% of the total value of purchases are publicly announced. Bids on invitation represent 75% of the contracts for 72% of the value. Direct purchases represent approximately 25% of the orders but only 3% of the monetary value of the orders.

In the case of public calls for tenders that are not limited to local producers, the selection process allows for a 10 % preferential margin to help producers with high ratios of local content compete with foreign firms. But the local content is certainly not the only factor that determines to whom the order will be made. A first selection is made on the basis of the technical quality and performance of the product, on the timetable for delivery and on the credit offered. It is only then that the lowest bid is considered and the 10 % preference applied.

The effect of this procurement policy is very clear. It appears that the regulation aspect has a very high discriminating effect. In fact a

⁵ Parts of this section are drawn from chapter nine of our book (in collaboration with Johanne Bergeron), *Hydro-Québec; la société de l'heure de pointe*, Montréal, les Presses de l'Université de Montréal, 1986.

sample from of the Daily Commercial News, shows that only local producers care to make offers. We can safely assume that invitations to bid on smaller contracts are restricted to Quebec firms. For most years since 1967, goods and services bought by Hydro-Quebec come in a proportion that varies from 66% to 82 % in value, from local producers, and around 10% from foreign countries (see table 4).

The way the concept of local content is applied, should be explained. By this concept the State enterprise does not mean the local value added as it could be expected, but, in a much more common way, the total value of goods and services bought to firms established in Quebec. This is a rather weak definition, for it maintains the confusion between goods that are produced in Quebec and goods that are purchased from firms established in Quebec. This is a first indication that the real value of the local content, defined as it should, as local value added, may be much less than claimed by Hydro-Quebec.

This guess is confirmed by the only study we are aware of, which has tried, using an economic model, to operationnalize the concept of value added applied to the economic activities of Hydro-Quebec. The first phase of the James Bay project (La Grande phase 1) required an investment of 8 billions \$ (\$ of 1979) of which 76 % were spent on local goods and services. Out of this high percentage, 55 % are wages and salaries for the thousands of construction workers, heavy equipment operators and peripheral services that were paid exclusively to Quebecers.

Of the 3 663 \$ millions paid for the purchased of manufactured goods and services, more than half, or 1 669 \$ millions (54 %) were purchased outside Quebec. More drastically, 83 % of the value of the imports necessitated by the project, were industrial goods. This means that most of the equipment bought or rented like trucks, cranes, fuels, tools and heavy electrical products were imported (see table 5). The company explains this situation by claiming that there are not any local producers of the goods it requires.

Since local producers, when they exist, are selected mainly on the basis of the conditions regulating the attribution of contracts, it is logical that the 10 % price preferential has a very limited impact on the cost of the purchases. The additional cost fluctuates between 1,5 millions \$ and 376 000 \$, which, beside the rather large difference, represents less than one tenth of 1 % of the total value of goods and services purchased, or between

1 and 4 % of the cost of the contracts allocated under the preferential provision (see table 6).

The procurement policy applied by Hydro-Quebec is therefore much less effective than it claims and has not been applied with much aggressiveness given the small amount of monetary incentives used and the recurrent absence of local producers for most of the manufactured goods and equipment required.

Nevertheless, Hydro-Quebec, has had a major role in the location and the development of a few large firms in the electrical equipment industry. The turbines, alternators and water-gates complex represent between 40 and 50 % of the cost of equipment on an hydro-electrical plant. This is the reason why two firms established in Quebec have decided to produce these equipments: they are Marine industrie, using a French technology (bought from Neyrpic a subsidiary of the Alstom group), and Dominion Engineering Works (a subsidiary of Canadian General Electric). Other firms who have specialized in the production of goods required by Hydro-Quebec are ASEA Electric Ltd (transformers), Merlin-Gérin Co., Cegelec Industries Inc., C.G.E. and Montel (insulators, and circuit breakers), Westinghouse Canada (reactors, condensators), Reynolds Aluminium, Pirelli, Northern Telecom, Cable Phillips and Alcan Products of Canada (electrical cables and wires), BBC Brown Boveri Canada (heavy electrical equipment), and B.-G.Checo International (construction works).

In all of these cases, when expanded facilities were required, the investment occurred between 1965 and 1970. Some firms were offered guaranteed markets (for a twenty years period in the case of ASEA) and/or preferential pricing along with other advantages (in the form of government loans, subsidies and fiscal incentives). But there were only a few such investments. The value of the goods and services purchased in Quebec has not increased since 1971. In its present design, and the way it is being applied, it seems that the procurement policy had all the effects it could on the industrial structure of the Province. It is quite possible that the small dimension of the market allows only for a limited number of highly specialized producers. More generally it may also be an indication of the limits of demand-pull policy, which confirms the analysis proposed by Rothwell and Zegveld (1985).

Because of a recent downturn in investment, Hydro-Quebec has decided to have a more active procurement policy. Through the

establishment of more direct links with its contractors, the public corporation is trying to have a positive impact on their growth, while at the same time using its market power to stabilize prices, control quality, stimulate R & D and promote exports.

Initially a few measures have been considered to stimulate local production. It has been considered that production lines could be nationalized if firms, instead of competing with each other, agree to cooperate through sub-contracting. Such an agreement on interconnecting material for instance, could make the local content jump from 30 to 60 %. When there is no local producer for the equipment needed, an exclusive procurement contract can be signed conditional upon the creation of a production facility. But Hydro-Quebec cannot guarantee a constant flow of orders, and the entreprise must commit itself to actively prospect export markets. This can also be used to keep a local supplier in operation.

It also has been considered that, when the contract being passed includes little or no local content, the State entreprise can negotiate a compensating agreement with the firm. It will buy the goods against a commitment by the firm to expand its productive activities in the Province. This strategy is being tried with foreign firms which are encouraged to seek exclusive production agreements⁶.

Why would Hydro-Quebec engage itself in such an activity? Independently of the nationalistic preferences of some of its services, the entreprise, in the absence of a direct order from the minister, has no interest in spending time and resources to help local producers. The only logical reason, is that the entreprise needs to secure a reliable supply for the goods it requires. This means to get the proper equipment at a fair price in sufficient quantity when needed. The danger with offering a market guarantee, is that the firm may fall back on competitiveness and through neglect of its R&D efforts, offer technologically obsolete equipment (talks of feather-bedding suppliers are already heard with poor record on foreign markets)(Rothwell and Zegfeld,1985, p.119). This is why Hydro-Quebec insists that its market should be used as a basis from which the firm will

⁶ Firms such as Canadian General Electric, Federal Pioneer, Cegelec, BG Checo International, Westinghouse, ASEA, Siemens, Crouse-Hinds, Brown-Boveri Howden and Klockner-Moeller were given such mandates. But because these production agreements concern essentially products that are of specific interest for Hydro-Quebec to Ontario Hydro, they haven't been followed by a significant rise of the country's export of electrical equipment. (Dalpé,1986, p.104).

seek new markets. Also as a public enterprise, it does not want to be held responsible for the well-being of its purveyors.

Over the past two years Hydro-Quebec has signed a few production agreements⁷. The enterprise has identified a limited number of "strategic" products over which their demand represents a large share of the market. Twenty eight products and 41 producers are identified has potential candidates for such agreements. Using this market power potential Hydro-Quebec approaches the producers with conditional market guarantees. These may represent up to 80 % over three years of real needs for a given commodity, with a minimal guaranty of 50 % of forecasted needs. The enterprise has to agree to respect the technical specifications established by the user, deliver on schedule, control quality and stay within an established price range. Given these minimal conditions three other dimensions are considered. Firstly, local content has to be improved. There is no pre-established minimal level, but the firm has to prove that whenever possible it buys parts and products from local suppliers, and that, within a negotiated timetable, production facilities will be established in Quebec. The major indicator used is the amount of investment the firm has committed itself to realize. Secondly, Hydro-Quebec seems to be very concerned with the export capacity of its suppliers as a means to insure their competitiveness, and as a way to avoid the state's enterprise responsibility as a monopsonic buyer. Since most producers are branch plants of foreign firms, an exclusive production mandate is considered as a very positive sign of the willingness of the firm to cooperate. Otherwise, export targets are set, market perspectives are discussed and all barriers to foreign trade (like restrictive patents and licences) are expected to be lifted. Thirdly, R&D requirements are set, and product specification and performance are regularly updated to create an additional incentive. The ability of Hydro-Quebec to influence technical change is limited by the fact that the technology used has reached a high level of maturity.⁸ These agreements are signed for periods of three years and are regularly monitored by Hydro-Quebec. So far such agreements have been signed in 1985 with 9 firms for the production of 14 different products. Hydro-

⁷ Interview Hydro-Quebec, Service des approvisionnements, may 16 1986.

⁸ "The single most important factor affecting the ability of public procurement to influence technological change was the stage of maturity of the product and the industry. It is when the industry and product are in the early stages of their cycle of development that procurement incentives have their greatest potential impact on technological change." (Rothwell and Zegveld, 1985, p.123).

Quebec has purchased products made through such agreements for a value of 56 millions \$.

Associated with public market demand one would expect to find some indication of technological innovation taking place. Hydro-Quebec has a research center, IREQ, which is to test new equipments and find new solutions to problems arising with the production and transport of huge amounts of electricity under difficult geographical and weather conditions. Over the years, close to 60 innovations or adaptations were considered sufficiently important for a patent to be issued in as many as 20 countries⁹. But the commercial success of these discoveries has been slow. In fact it is only recently that IREQ has made some effort to have their scientific prowess transform into commercial undertakings. Some firms have agreed to produce under licence agreement new products developed and tested by IREQ. In 1985, production reached 3 millions \$, but it is not clear at this stage if sales are only those of Hydro-Quebec, or if other clients have been successfully approached.

Another dimension of public markets which is associated with the activities of Hydro-Quebec is the phenomenal development of the local engineering firms. Around one third of the activities of these firms are directly related to energy projects in the form of feasibility and impact studies, planning and drawing of power plants, dams, roads, power lines, etc., all related to Hydro-Quebec.

Quebec has an important engineering industry with more than 200 firms which employ more than 10 000 persons, half of whom are professionals. Some of the major firms have expanded directly in association with major energy projects. Surveyer, Nenninger and Chênevert (SNC) was part of the Manic 5 project, Asselin, Benoit, Boucher, Ducharme and Lapointe (ABBDL) worked on Manic 2, 3, 5 and on the Outardes 2 power plants, Georges Demers was part of Outardes 3 and 4; SNC, Montreal Engineering Company (Monenco) and the Shawinigan Engineering Company collaborated on the Gentilly 2 nuclear plant; while a subsidiary of Bechtel Corp. of San Francisco, along with Lavalin were responsible for the James Bay project.

⁹ Data on IREQ's performance is drawn from documents specially requested by the authors.

It is doubtful that the creation and expansion of the engineering industry in Quebec is the result of a conscious policy of Hydro-Quebec. It rather appears to be the happy outcome of a rational policy of systematically using sub-contracting instead of allowing for the expansion of an in-house expensive and institutionally rigid engineering capacity. Difficult labor relations between Hydro-Quebec and its unionized professionals dating back to the early sixties, are responsible for this decision.

Out of the need for survival, the engineering firms, unlike the equipment producers, have expanded their activities in foreign, mostly third world, markets. But it is remarkable that this expansion has not given birth to an equivalent development of local equipments¹⁰. The reason this sector of activity has not developed into a full grown industry can be explained to a large extent by the overwhelming domination of foreign multinationals.

Finally, it is interesting to note that in 1978, Hydro-Quebec has created a subsidiary called Hydro-Quebec International which is supposed, in close collaboration with the private sector, to promote the local technology and know-how in matters related to electrical energy production, transport, distribution and management. It is difficult at this time to have a clear picture of the success or failure of this interesting initiative. Since 1978, Hydro-Quebec International has obtained contracts for a value of approximately 50 millions \$ (of which 13 millions \$ for 1985 alone). Presently the enterprise is involved in 40 projects in 22 countries involving training technical expertise, feasibility study and project design. In the early 80's, the new subsidiary has been attacked by the private sector from fear that Hydro-Quebec International has an unfair advantage (by being part of a state-owned enterprise and therefore not having to meet the performance criterias of the private sector) and represents additional competition in a market that, on a world scale, is already saturated. Experience shows that the concrete mechanism of public and private strategies of market penetration have been reconciled. Four different projects are now underway involving at least one other private engineering firm.

¹⁰ This information is mentioned in the study by Major and Martin.

CONCLUSION

Canadian Crown corporations, both federal and provincial, have been created for many different goals: running natural monopolies, insuring supplies, rent collecting, information gathering, or bailout operations. But, whatever the original motive behind the incorporation, once established they become powerful levers of industrial policy through their massive capital and operating expenditures.

Our case study shows that the procurement policy applied by Hydro-Quebec has contributed to increase the local content of goods and services bought by the firm, but that, even with the massive investment realized in the seventies, the industrial structure of the electrical equipment industry in Quebec, has not changed a great deal. This may be caused by the particular nature of this industry. It is known to be, on a world scale, a highly exclusive cartel. In 1979 there were in Quebec about 40 major firms that belong directly to that industry, half of which are foreign subsidiaries. The reason why the 10 % preferential margin has been under-utilized may not be that local producers are competitive, but that foreign subsidiaries established in Quebec simply do not care to increase the value of their local production. This is a structural limit that may prove very difficult, and certainly very costly to overcome. Public markets cannot be a total substitute for a legitimate market.

Procurement policies provide a limited leverage to the firm. Other dimensions have to be considered to assess the real extent of market power associated with public demand. The product concentration of the demand, the structure of the industry, its stage in the technological product cycle, all of these are factors that should be considered. But the effects of some of these limitations can be measured and eventually neutralized in order for demand-pull policies to play their full effect on the industrial structure.

As such, Crown corporations can be used as positive development tools, speeding up the process of industrial learning and technology transfer to Canadian industry. Even when the public market power has not been systematically used, as in the Hydro-Quebec case, the Crown corporation has been able to nurture the development of worldscale native engineering firms and indirectly promote the conversion of the electric manufacturers to world product mandates in the equipment field.

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TABLE 1

**Provincial Electric Crown Corporations
Total Assets in 1984 (c\$ millions)**

Ontario Hydro	27 301
Hydro-Québec	27 129
B.C. Hydro	9 593
N.B. Electric	2 768
Manitoba Hydro	2 394
Saskatchewan Power	2 356
Nfld & Labrador Hydro	2 106
N. Scotia Power	1 337

Source: Annual Reports.

TABLE 2

**Largest Federal Industrial Crown Corporations
Total Assets in 1984 (C\$ Millions)**

Petro-Canada	9 055
C.N. Railways	7 467
Air Canada	2 513
AEC Ltd.	1 226
Eldorado Nuclear	911
Canadair	399
Devco	397
The Havilland	227

Source: Publics Accounts of Canada, 1985

Table 3

Products for which public sector's demand account for 20% or more of value of shipments

Product Code	Product Description	Value of Shipments		Demand by public sector			Percent Share of Value of Shipments				
		Canada	\$'000	Canada	Québec	Ontario	C.B.	Canada	Québec	Ontario	C.B.
289	Publishing & Printing	4 543 301		981 676	241 476	360 333	121 035	21,6	5,3	7,9	2,7
301	Boiler and Plate works	630 190		135 242	43 036	40 438	15 367	21,5	6,6	6,4	2,4
302	Fabricate Structural Metal Industry	1 133 602		293 993	89 591	72 152	35 960	25,9	7,9	6,4	3,2
327	Shipbuilding and Repair	852 241		172 066	31 682	45 917	43 429	20,2	3,7	5,4	5,1
336	Manufacturers of Electrical Industrial Equipment	1 510 903		601 308	192 097	217 282	47 739	39,8	12,7	14,4	3,2
338	Manufacturers of Electric Wire and Cable	1 070 628		358 994	138 114	81 511	46 973	33,5	12,9	7,6	4,4
354	Concrete Products Manufacturers	578 200		191 940	53 556	52 748	21 694	33,2	9,3	9,1	3,7
355	Ready-Mix Concrete Manufacturers	683 560		424 769	142 072	103 168	52 729	48,1	16,6	11,7	6,0
369	Miscellaneous Petroleum and Coal Products Industries	91 202		25 189	5 583	7 750	2 715	27,6	6,1	8,5	3,0

Source: Canada, Supply and Services, La taille et la structure du marché du secteur public 1972, Données à l'appui, Ottawa, 1983.

Table 4
 Goods and Services purchased by Hydro-Québec According to their Origin¹

YEARS	QUEBEC		Other Provinces		Other Countries		Total
	Millions \$	%	Millions \$	%	Millions \$	%	Millions \$
1967	133,6	72	31,5	17	19,9	11	185,0
1968	128,4	75	28,4	17	13,4	8	170,2
1969	168,3	70	33,7	14	39,1	16	241,1
1970	214,7	79	29,0	11	28,8	11	272,5
1971	267,3	80	37,1	11	29,1	9	333,5
1972	195,7	72	44,7	16	30,7	11	271,1
1973	212,9	74	50,1	17	23,5	8	286,5
1974	291,1	66	83,4	19	66,6	15	441,1
1975	314,8	71	68,8	15	61,0	14	444,6
1976	296,8	72	73,0	18	40,1	10	410,0
1977	625,2	72	131,2	15	113,7	13	870,2
1978	763,0	68	242,9	22	114,6	10	1 120,6
1979	737,7	76	119,4	12	107,3	12	964,4
1980	884,8	82	91,9	9	99,2	9	1 075,9
1981	929,9	78	151,3	12	129,3	10	1 273,5
1982	898,2	80	138,8	12	91,6	8	1 128,6
1983	591,8	72	156,2	19	68,4	9	816,5
1984	805,6	79	106,4	10	113,8	11	1 025,8
1985	996,1	75	155,7	12	175,0	13	1 326,8

¹ Excluding the purchase of electrical energy.

Source: Hydro-Québec, Direction générale des approvisionnements, Service planification.

TABLE 5

Local Content of the La Grande Phase 1 Project

Outlays	Investment (millions \$)	%	Quebec's share (millions \$)	%	Local Content (millions \$)	%
Wages & Salaries	4 404	55	4 404	100	4 404	55
Goods and Services	3 662	45	1 669	46	1 669	21
Total	8 066	100			6 073	76

Source: Hydro-Québec, direction Recherche économique, "Les retombées économiques québécoises du compte de la Grande Phase 1", Information-Cadres, vol. 4, no. 11, nov. 1981, pages 29 à 38.

Table 6

Additional Cost Resulting from the Preferential Rate allocation, 1976-1982

Years	Additional Cost	Total value of Goods and Services purchased (,000\$)	Total Value of Preferential Allocations	Additional Cost in Relation to Preferential Allocations	Additional Cost in Relation to Total Value of Purchases
1976	236 405	409 975	14 058 800	1,68	0,06
1977	960 606	874 964	25 854 187	3,71	0,11
1978	1 122 929	1 132 024	29 422 112	3,81	0,10
1979	440 312	971 810	26 514 626	1,65	0,05
1980	582 693	1 075 936	28 696 003	1,02	0,05
1981	1 582 176	1 273 518	46 496 718	3,4	0,05
1982	376 596	1 128 583	21 148 216	1,78	0,03
1983	156 841	816 468	7 738 043	2,03	0,02
1984	128 575	1 025 828	6 130 186	2,10	0,01
1985	127 012	1 326 883	9 033 994	1,41	0,01

Source: Hydro-Québec, Service Achats, Direction générale approvisionnement

Titres déjà parus:

- 86-01 Faucher, Philippe, "Le bon sens contre la raison: commentaires critiques autour d'un rapport du Conseil économique du Canada."
- 86-02 Duquette, Michel. "Libéralisme ou nationalisme dans la politique énergétique canadienne?"