REGIONAL INDUSTRIAL DEVELOPMENT INCENTIVES: A CANADA-U.S. COMPARISON

by

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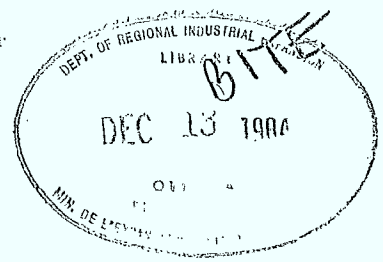

Regional Industrial Development Incentives---A Canada-U.S. Comparison

Summary

The purpose of this study was to compare industrial incentive programs offered by Canadian Provinces and U.S. States. In particular, interest was focused on the "sunbelt" states in the southeast U.S., but material was also collected from Ohio, Maine, Massachusetts, Vermont as well as Ontario and Quebec. It soon became clear that a large project would call for an individual approach so that it is not possible to project data beyond the states and provinces surveyed. In the time available it was not possible to cover Western Canada or the western part of the U.S.

• Most State/Provincial financial incentive programs are designed for the needs of smaller firms requiring less than $1 million. The major U.S. financing instrument for investments of between $1-10 million is the industrial revenue bond. In Canada assistance of this magnitude is usually filled by joint Federal-Provincial grants usually involving DREE. Financing over $10 million in both countries is handled on a case by case basis, but in Canada the Federal government is normally involved, in the U.S. a State may manage it alone.

Five major conclusions emerge from this study. First; there is a basic difference between the U.S. Federal and U.S. State approach to industrial development which affects the implementation of programs. U.S. Federal funds are geared to emergencies, in particular high unemployment. State programs are aimed at increasing overall economic growth often at the expense of neighbouring States. Because of regional differences in outlook, the State programs' basic philosophy is sometimes very much at odds with Federal policy and philosophy to an extent that States sometimes reject Federal content in incentive programs. This is not universal, of course, but is a disernable trend.

Second; the highly competitive attitude extends beyond the State level to countries and municipalities which may offer land and buildings at subsidized costs or tax concessions. This multiplicity of concessions, grants, loans, subsidies, tax forgiveness at several levels make the calculation of site location difficult and complicated.

Third; in contrast, under the Provincial-Municipal Act, Canadian local governments are not permitted to offer financial incentives. Joint Federal-Provincial programs show a more integrated and unified approach.

Fourth; the political content of U.S. State programs is also more pronounced. Governors in some States, for example, take a strong and visible interest in the industrial development program. In some cases the office of industrial development is directly connected with the office of the Governor for example.

Fifth; many of the common measure of comparison such as wage rates and productivity are too general and inappropriate for realistic assessment. In some cases Canadian costs look much worse than they are. It could be to our advantage to do more detailed and specific studies in this area.

Introduction

The purpose of this study is to compare the industrial incentive programs offered by Canadian Provinces and U.S. States in order to estimate their magnitude and effectiveness.

The study took the form of a simulated site selection study for a European Company with North American partners producing transport equipment such as public transit vehicle components or light rail equipment. The model firm was expected to employ at least 500 workers in three units or perhaps 1,500 in one large unit with a strong possibility that the eventual size would be 3,000 workers. The market was expected to expand rapidly and suggestions were made that some innovative technology was involved in the production process. Six major areas of concern were explored; capital assistance, taxes, labour costs, transportation, land and buildings, energy requirements. Although loans, grants and subsidies would of course have some bearing on the location decision, long term operating factors such as running costs and security of energy supply were also considered significant. The company was not identified, but was described as moderately well known with a good credit rating.

The site selection study was carried out as realistically as possible. The present enquiries were considered as the second stage of a process which would be to quantify some of the general images projected, to examine more closely those factors of particular importance to the client and finally to produce a short list of locations within the chosen areas for further survey and study.

Without a clearer idea of the physical dimensions of the project or more precise weighting of the factors involved it is impossible to make a subjective ranking of potential sites. However, the major part of this paper is a detailed comparison of these factors for the areas involved. Initially it was hoped that by focussing on a few key areas it would be possible to make some generalizations about other places, but for a project as large as the model it became clear that no set patterns exist. For this reason no State or Province which has not been surveyed is included in the discussions, although in some cases, where information is available figures have been used. All the data was collected in personal interviews with State and Provincial economic development officers, utilities, banks and railways. The main part of this study is a harvest of that collection. While the difficulties of dealing with a hypothetical rather than an actual project soon became obvious (for example transportation and distribution of the final output may be an important determinant of location) there is no doubt that operating within a realistic framework had distinct advantages. Although incentives may be produced and marketed on a Province or State basis when considering a project of this scope the area of potential development is greatly narrowed. For some factors this decreased the differential between localities. For a large industrial plant the choice of sites may be limited quite considerably.

On the other hand a large industrial project is an extremely attractive prize for any State or Province. Since most incentive programs are designed for smaller enterprises, the packages offered to large projects are usually custom tailored. It is also clear that through incentive programs, States and Provinces are explicitly and implicitly selling not just a location, but also a place within an industrial strategy and the attitudes which go with it. In the concluding section we look at what is being sold and some of the motives behind the sales efforts.

Finally, it often seems that what is being sold is out of key with what the investor would like to buy. Some States are much more knowledgeable and sophisticated in their approach, in particular North Carolina, Virginia, Georgia and Tennessee. The economic development departments in these States have depth as well as strength with experts in taxes, financing, energy and land sites prepared to brief prospective industrial clients. In these States economic development is planned and coordinated with banks and utilities. Quebec is probably closest to this standard in its SDIQ. The literature is good with precise information. It is a difficult moment for Ontario which has formulated but not yet announced the details of its new policy in the spring budget. But its literature is diffuse; it lacks the basic data to answer the questions a new and non-Ontario investor would like to ask. Both CN and CP will assist firms in making site location studies by providing physical engineering site plans and basic financial information. CN has recently received commendation for its site selection literature from the Canadian Industrial Development Association.

In the U.S., banks take an active role in the initial stages of an enquiry perhaps because they are locally based. In some States, Tennessee and Georgia as well as North Carolina, certain banks essentially fill the role of development banks becoming closely involved in all forms of financing. Except for North Carolina, however, banks do not take up industrial revenue bonds.

In Canada the banks are more passive, stressing their nation-wide links, the ease of communication between centres, their international contacts and strength of their financial resources. Some basic material is provided, mainly for distribution by local managers, but most of it is sadly out of date. The Canadian Imperial Bank of Commerce does make a special effort in the area of economic development and is the most active of all the Canadian banks in this field.

The report which follows is divided into two parts, the first of which is an analytical summary. The second section covers the major areas of substantive concern.

SECTION I: AN ANALYTICAL SUMMARY

PATTERNS OF SUPPLY AND DEMAND: WHAT THE CORE PROVINCES/STATES SELL AND WHAT INDUSTRY SEEKS

I. What the Provinces/States sell.

1. The main features of Canadian financing programs are: a) substantial integration between federal and provincial programs especially DREE, which permit a package approach, b) Targeting of incentive efforts towards areas of high unemployment, c) concern for encouragement of high technology industry to upgrade productive capacity.

2. In contrast U.S. programs fall into two distinct patterns: a) Federal programs are aimed at job creation in areas of "substantial and persistent unemployment" and will provide flexible financing for new enterprises locating in these areas, b) State programs are aimed at increasing overall economic growth with some concern for job creation, but the primary goal is maintenance of economic activity and broadening of the State's tax base.

3. Federal programs are geared to economic emergency; State programs are aggressively competitive among themselves and often contain "beggar-your neighbour" overtones. Given regional differences in outlook, the State programs' basic philosophy is sometimes very much at odds with Federal policy and philosophy. Where this feeling is strong, particularly in "Sunbelt" States, the states "sell" themselves, essentially rejecting Federal program content.

4. These competitive aspects go beyond the Federal-State level. In Canada municipalities may not offer direct financial assistance to new industries. In the U.S. municipalities and counties may offer subsidized land and buildings, municipal tax exemptions or freezes and other direct incentives.

5. From the viewpoint of a foreign company wishing to establish a manufacturing facility in North America, then the Canadian choice is essentially an integrated alternative, subject to the subsequent normal narrowing down to a specific area with some provincial differential. Infrastructure costs are also not a factor since the choices lie between banks and railways serving the whole country rather that local or regionally based firms.

6. The U.S. choice, on the other hand, involves a clear-cut two level decision: the U.S. as a location in terms of foreign trade barriers inward and outward, anti-trust legislation and other federal jurisdictional areas. The second choice is between states, each essentially a self-contained entity offering different conditions and incentives. A third minor choice may involve the competing incentives and attractions of municipalities within the States.

7. In these terms, Canada faces 48 competitors south of the border.

II What industry is looking for, at least as sellers perceive

8. In recent years this competition has intensified because foreign firms have increased their North American investments for a number of reasons:

a) desire to establish a manufacturing presence with the increasingly protectionist U.S. environment.

b) a base, and if possible a strong profit centre, removed from inordinately high taxation, e.g. in western Europe.

c) a manufacturing base within the dollar area, in a large measure because of the political stability that underlies the North American currencies.

d) manufacturing facilities removed from the social costs considered unduly onerous, coupled with job security provisions which become progressively prohibitive with the development of automation and may inhibit the restructuring of industry.

e) removal from labour attitudes which lead to unpredictable, short and distruptive work stoppages.

f) removal from the long-term threat of nationalization or expropriation.

g) escape from increasingly high cost manufacturing areas to regions where inflation rates and wages costs however high may be less than in the home base.

9. Not all these demands are expressed by all foreign investors. Some have higher priority in certain industries than in others. Investors from Europe may seek one climate of conditions, Japanese may be more concerned about another.

10. As a further reinforecement of recent moves to avoid protectionist pressures within the U.S. a number of states give attention to the product-by-product possibilities of a manufacturing/marketing interchange that might permit serving the total North American market from either a Canadian or U.S. location. It should be noted that a key element of the selling assets in U.S. states as far south as Georgia is their favourable location in relation to Canadian as well as U.S. major markets. Thus some promotion is given to the idea that the Canadian market might well be served from a U.S. location. On the other hand a number of states ignore Canada completely.

11. Within North America industry mobility is in a large measure a junction of technological change, i.e. the need, if not the opportunity to establish new factories in new locations which appear optimal in the light of the industrial process or product concerned. In this area, which is perhaps more cost conscious than that of intercontinental industrial migration, there may be considerable State competition. This aspect of inter-State competition has the longest history as it is rooted in the migration of the New England textile industry to southern states in the post-war period.

12. Historically this movement began as an escape from higher labour costs. The present trend is a movement from labour intensive to capital intensive production within the industry and it involves industries other than the textile industry.

13. There is among potential host Provinces and States a growing awareness that this trend makes for volatility in industrial siting. Where the substantial investment is in automated machinery rather than plant it often becomes economical to move that machinery to another location in the light of relatively small spread cost advantages and incentives as they develop, leaving behind empty factories and unemployment. In some cases the awareness of this volatility if inarticulate, at best expressed in a blanket desire for "stable industry".

14. A number of States and Provinces express an explicit selectivity, not just to exclude volatile industries, but also to attract industries which fit into the industrial/resource structure of the region.

15. The Canadian viewpoint is representatively expressed by Saskatchewan as follows:

> "Foreign investment in the province is acceptable to the Government of Saskatchewan, but only if this investment is consistent with the province's industrial, geopgraphic and broader development objectives. Special emphasis will be given to foregin investment which involves the introduction of new entrepreneurial, management and marketing skills to the province. Accordingly, the attraction of out-of-province and particularly foreign investment will be conducted on a selective lbasis and in a manner that ensures the fullest possible benefits for all residents of Saskatchewan. However, the need for selectivity in no way detracts from the necessity for attracting outside investment to this province.[1]

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1. Saskatchewan Department of Industry and Commerce, An Industrial Development Strategy for Saskatchewan.

16. In Texas the stress is primarily on the stability and good citizenship of the company concerned. Acceptability, as distinct from formal approval which is not involved, will lead to a smoother, faster and lower cost path to actual plant establishment in an optimal site location. Preferences are given to firms who will not rock the boat.

17. Although sellers' promotion is extensive, there is a special receptivity in both Canada and the U.S. to "name" companies whose establishment within a given province or state is regarded as an especially desirable form of prestige promotion. It is hoped, often correctly, that this is an effective attraction for other "name" companies of the same nationality.

18. It is assumed that this attraction has particular weight for two reasons: first, entry and start-up guidance from another company of the same nationality may not only attract single firms, but also may lead to a cluster of firms from the same country. Second, establishment of official representation such as a consulate or of infrastructure offices to service the incoming firms is also considered an attraction. Thus, the presence of Japanese representative banks or banking contacts in Atlanta is considered to be an advantage. Proximity to Washington and to the home country's diplomatic and commercial representative is also considered a plus in Virginia's favour. Direct air links with the home country are also considered a selling point.

III Substantive aspects and considerations

A. Financing and taxation

1. Although the provinces and states regard financing facilities offered as primarily assistance to minimize start-up difficulties thus inducing new enterprises to locate in their area, such government involvement in the new industry is also a vote of confidence. In some cases initial capital might be difficult or expensive to raise through conventional sources, but even large "name" corporations who would have no problem getting private funding, bargain fiercely to obtain state assistance. This is not only because state capital is cheaper, but also because direct government involvement in the fortunes of the new facility will be at least draw the goodwill of the economic community and may, if difficulties are encountered, prove helpful.

2. In this respect the flexibility of Canadian financing incentives should have appeal. For enterprises which require over $1 million most states have only industrial revenue bond financing to offer. Canadian Provinces may offer either a joint federal-provincial financing plan or possibly in the case of Ontario a custom built proposal. Only Ohio's Direct Loan program has similar flexibility.

3. As regards taxation, substantial interest attaches to the viewpoint of the Sunbelt states of the U.S. since one of their key promotional points is the generally low level of taxes imposed on all industries as against selective tax incentives for new companies. They see a basic low tax structure as having a stronger appeal than a time-limited system of exemptions, moratoria and reductions prevelant in the northern tier states which make for a climate of longer term operational uncertainty.

4. Local and municipal tax incentives and allowances may add more uncertainty rather than act as an incentive.

B. Industrial Structure and climate

1. Because of regional and political differences within the United States, the Sunbelt states have historically evolved structures and attitudes towards which they tend to be somewhat defensive. They are thus anxious to guide the potential foreign investor towards a degree of conformity. In particular there is concern about corporate policy towards union activity, prevailing in state wages and a comfortable fit into other structural patterns that underlie the regions economic life.

2. The South's strength in the defence industry sector rests in large measure on political strengths and considerations at the national level. This strength is offered as an intangible incentive to the potential investor, both in terms of contracts or subcontracts and in terms of the states' available services and skilled manpower infrastructure.

3. Reliance on defence related industry has its own risks. Where cancellation of projects has led to wide-spread unemployment of skilled work force concentrated efforts to attract suitable replacements have been made.

4. The assessment of the potential new investor's acceptability in these contexts is clearly a more subtle process than the substance based selectivity discusses earlier. The outcome of the selection involved is equally expressed in subtle ways to the extent to which a state industry development organization can smooth the new investor's path, or can, by witholding optimal guidance, in effect obstruct the way.

C. Integral facilities and services

1. A study such as this underlines the difficulties facing the potential investor in the site selection process. Very large firms with unique structural characterictis may have extensive professional and technical resources to, for

example, site, design and supervise the building of new plant. Smaller, and even medium sized firms may require integrated guidance and assistance. This may be particularly true of overseas forms who are not familiar with legal and environmental considerations and their costs.

2. For these reasons, a strong range of prepared and developed sites at various price levels represents a strong attraction, especially to the overseas investor. Where a highly reputable local or regional authority, municipality or service oriented public company will provide guidance, supervision and implementation services there is a strong additional pull. Many railways, including CP and CN, some public utilities such as Georgia Power and local authorities do provide some of these services.

3. An increasily complex and sophisticated industrial structure and the related infrastructure create a demand for integrated even "one-stop-shopping" site selection services. Only the largest of manufacturers may be able to devote the time and expertise required to assemble what is after all only the basic foundation for manufacturing activity. For foreign investors the cost of this assembly is particularly expensive.

4. In this respect a degree of attraction may also attach to areas where there are strong industrial development services coupled with information and guidance on the part of banks. Canadian bands have potentially a strong selling point in this regard. In the U.S. in a number of southern states banks have formed the Southeastern Development Banking Group to provide this service.

D. Specific geographic guidance

1. While the combined federal-provincial structure of Canadian investment incentives clearly spells out the specific geographic areas in which the governments will support the entry of new enterprises, the U.S. states express their interest in attracting new investors to specific areas in part through guidance at the state development office level and through entirely local incentive measures. Federal U.S. mechanisms for regional development are based on incidence of unemployment.

2. Where guidance is concerned, it is generally responsible and realistic, seeking mainly to determine whether a given new enterprise might meet the overall needs of that state's less favoured areas. Only if the two match, the industy requirements and the area needs, is attention drawn to such local incentives as low local taxes, low cost land and low wage rates.

3. Land costs represent a commonly used local incentive; many municipalities or counties purchase and develop land on their own account for resale at an attractive price, often with such added improvements as access roads at no cost to the buyer. Private interests may provide similar facilities, for instance, through a public interest foundation, in order to enhance an areas's economic base. This is the case on the Mexican border areas of Texas where unemployment is high and where concern at state administration level is limited.

4. Beyond the incidence of unemployment, the motivation and policy aims at the state level differ widely. In North Carolina target areas include the periphery of larger cities where textile workers are unemployed due to automation. At the same time alternative employment is also sought for marginal and underemployed farmers in the same general areas. In Virginia, employment is sought in areas where there are large service installations as servicemen's wives, in part under inflationary pressures want to enter the labour market. In Vermont special attention was drawn to areas where the closing of a plant had left skilled workers unemployed or commuting long distances to other available jobs. In other states in large urban areas a population bulge at the labour market entry age gives rise to concern.

5. In many cases this guidance was as much for the client as for the area in need and indicates the excellent use of local knowledge to fit needs to requirements.

6. Canadian Provinces as well as U.S. states are looking for new jobs. Canadians are perhaps more selective in their goals for industrial development since they are more conscious of their need for foreign capital while being concerned about foreign control. Canada is particularly anxious to grow beyond being the hewer of wood, the seller of power. For example, the new Ontario policy statements describe the direction of this concern. We are tired of being the home of the little branch plant which is closed down as soon as the economy contracts even slightly. We are willing to take risks to be the place where it happens, where decisions are made, where research is done.

SECTION II : SUBSTANTIVE COST DATA

A. FINANCE AND TAXATION

FINANCIAN ASSISTANCE AND INCENTIVES

1. Canada

Both Quebec and Ontario incentive programs are designed to assist small and medium sized businesses in their own province rather than as encouragement for new, outside industries. The programs are also aimed at enterprises which might have some difficulties obtaining captial from conventional sources. Both provinces also work more closely with federal programs than seems generally to be the practice in the U.S.

SDIQ (Société de développement industriel du Québec) may provide subsidies on interest rates, loans at low interest rates, and even minority shareholding in new firms. The average loan for the period April 1977-March 1978 was $365,600 and the average grant was just under $220,000. The federal DREE programs are designed specifically to provide loans and grants for new enterprises in areas of special need. These grants can cover between 15-25% of capital expenditures. Provincial assistance will be provided to supplement the DREE program. For example, a project such as the one proposed might receive a DREE grant of 20% and the province might supplement this with an additional 10% grant, but this would depend on circumstances.

The Montreal area is eligible for such federal assistance because of its high unemployment rate. Although one of the ceiling criteria for DREE grants is the capital per job created ($30,000 per job) the SDIQ is also concerned with level of technology, how the firm fits into the existing industrial pattern in Quebec, the potential productivity, the financial profile of the firm and the export potential.

There is no doubt that a large transport equipment manufacturing enterprise would be made extremely welcome in Quebec. Past experience has shown that the Provincial government is willing to make funds available as for GM, for example. For special large projects up to 75% of infrastructure costs may be provided with financial assistance, but jointly with DREE. It is almost impossible to separate what proportion of this would come from the Province.

In general the Quebec programs are designed to supplement and complement federal programs rather than stand on their own or be competitive with them.

Ontario incentive programs are particularly difficult to quantify at the moment since there has been a policy shift which will only be fully clarified when the budget is read in mid-April. Until recently industrial incentives have been aimed at small and medium sized businesses in Northern and Eastern Ontario. Enterprises in Northern Ontario, for example, have been eligible for loans up to $500,000 covering 90% of assets with deferral of repayment and interest forgiveness for five years.

Under the new policy projects will be assessed individually. Ontario is now looking for large scale investment in high technology industry. "World product mandate" is the new buzz phrase which seems to mean support for companies willing to identify themselves and their products with Ontario rather than companies who merely set up branch plants while maintaining decision making and research in a central and distant location. Job creation will continue to be an important factor especially in areas of high unemployment, but firms which include substantial R&D facilities within their plans will also be favoured. Companies with long range potential particularly in import replacement or with export possibilities will also be highly considered. Incentives will be tailored rather than offered off the rack. Ontario recognizes that help with the initial investment where starting costs are high, may tip the balance. As well as the construction assistance offered to Ford, Ontario has also moved to help smaller firms with construction loans and start up costs.

For this policy to be successful incentives will have to be generous as well as custom-fitted. When you sell to a quality market you have fewer customers, but the price is higher. A high risk factor, economically and politically is implicit in such a policy. Careful tailoring may take time. The danger may be that potential firms will chose the more predictable open programs which offer up-front promises.

Federal Programs:

As DREE grants are an important factor in the industrial strategy of Quebec the following paragraph explains more clearly what the qualifications for the DREE grants are. The underlined portions are relevant for a project such as the transport equipment plant. It should also be noted that this ia a <u>grant</u> whereas the major incentive funding in the U.S. is a <u>loan</u>.

REGIONAL DEVELOPMENT INCENTIVES (REE)

For the establishment of new manufacturing firms or the expansion or modernization of existing plants, Québec industries may avail themselves of grants offered by the federal government.

For the purposes of this incentive program, Québec has been divided into two regions. The first contains the cities of Sherbrooke, Drummondville and Louiseville and the rest of Québec to the east and north. Within this region, investments under $1,5 million are subsidized at a rate of 25% of eligible capital costs plus 15% of the average annual wages and salaries paid during the second and third years of operation. Grants representing 20% of capital costs are also available for modernizations, or volume expansions. Where investment exceeds 41,5 million projects are evaluated individually and the subsidy awarded according to the anticipated economic impact.

The second region is composed essentially of Montréal and the surrounding area, which includes the cities of Sorel, Saint-Hyacinthe, Granby, Saint-Jérôme and Joliette. Within this region, incentives are granted for manufacturing projects in the following sectors only:

- Convenience and fast-frozen foods
- Metal products
- Machinery
- Transportation equipment
- Electrical and electronic products
- Chemical products
- Scientific and professional equipment
- Toys and sporting goods

Incentives may represent up to 25% of capital costs in the case of a new facility and 20% for expansion or modernization projects. The minimum investment required to qualify for these grants is $100 000. The maximum amount of incentive may not exceed $30 000 for each direct job created or 50% of the capital employed in the project.

From Québec Economique, March-April 1978, Minister of Industry and Commerce, Québec.

2. United States

As in Canada, the majority of the United States financial assistance and incentive programs at state level are aimed at job creation, although specifics of motivation vary from absorbing workers displaced or about to be displaced by basic industrial change, to combatting actual unemployment or providing job opportunities for new entrants into the labour market. The primary "displacement" industries targeted are textiles and the needletrades (e.g. North Carolina, Tennessee, Virginia), and the declining aircraft industry in Georgia which has suffered technological setbacks as well as the loss of political patronage.

New industries entering the areas under discussion, and especially the "Sunbelt" states show a sizeable increase in capital investment per manufacturing unit:

> Regional observers of Industrial Revenue Bond financing note that whereas up to between eight and ten years ago new facilities were financed in the range of $100 000 and perhaps up to $300 000 per unit, the most recent entries have involved bond issues of between $2 million and $5 million each.

Although there are areas in the south-eastern United States which would qualify for federal development aid whose extended impact clearly touches on industrial development in the private sector, there is in this region a marked reluctance to accept such federal aid because it would involve compliance with federal equal-opportunity and other labour-organisation related rules. There is a strong feeling that such compliance would destroy the Sunbelt's cost advantages.

A primary difference between the southern tier states and those of the North-East covered in this study lies in the fact that, in particular the tax rates shown in section B of this chapter have remained relatively stable over the past five to ten years in the South, and either balanced budgets or surpluses suggest that stability will continue. It is these aspects that are among the South's strongest "selling points"--in essence, an intangible incentive. In the North-East, it is the State of Maine that has in the most recent years begun to develop a somewhat analogous tax climate, among others through the abolition of franchise and inventory taxes and through other aid-to-industry services--in particular the establishment of a substantial number of industrial parks and industry-siting clusters discussed in the appropriate chapter of this report.

a. Industrial Revenue Bonds

At the individual state level, the primary financing mechanism for new enterprises is represented by Industrial Revenue Bonds which are, with few exceptions, issued by local (city, town, county) industrial development boards under basic state-level enabling legislation. Among the states covered in this study, both basic legislation and implementing procedures are essentially uniform, with some notable exceptions or variations discussed below. It is also noted that although appropriate enabling legislation is on its books, Texas has not, as a matter of principle, implemented that legislation.

As will be seen below, the practical impact of Industrial Revenue Bond financing is strongest in a cluster of "Sunbelt" states such as Georgia, North Carolina and Tennessee where the essential financial-services infrastructure is strongest and where a significant market for such bonds has thus evolved.

The financing mechanism offered by Industrial Revenue Bonds is circumscribed by (federal) Internal Revenue Service rules which impose a ceiling of $10 million on any given issue in favour of one beneficiary, and that ceiling encompasses all other capitalisation by the beneficiary within three years prior to the bond issue and three years after the issue. If the combined total of capitalisation, by whatever instrumentalities, during that period exceeds $10 million, the bond issue loses its tax-exempt status (for the bond holder) with the exception of a grace portion of $1 million. In practical terms, loss of tax exemption will normally destroy the issue's economic viability.

The proceeds of a bond issue, made by a local Industrial Development Board in response to an inducement offer made by the borrower, may be applied to the purchase or construction of land, buildings, machinery and other tangible property and to related services (engineering, architects' fees); it may not be applied to the creation of inventories or of working capital.

The bonds are generally placed privately, often through specialised investment banks, and to some extent the viability of this financing mode depends on the availability, at least on a regional scale, of such specialists, for it is their skill which in the end determines the success of an issue. Normal bond lifetime is 20 years, though maturities to 30 years are not uncommon.

From the borrower's point of view, the attraction of this mechanism lies in an interest rate that will, in the case of AAA-rated companies, lie between 2 and 3 percentage points below the commercial loan rate. In practice, the $10 million loan ceiling is viable if combined with leasing arrangements in respect of capital-goods requirements in excess of that ceiling.

As noted, the effectiveness of Industrial Revenue Bonds as a capitalisation mode rests largely on the availability of skilled issuing and marketing services; to some extent it also depends on local or regional financial custom, and both facets are highly developed in the "Sunbelt" states centered on the financial facilities offered in the cities of Atlanta, Nashville and Raleigh which provide both the infrastructure and, perhaps equally important, the financial climate necessary for turning a mechanism into a viable economic-development instrument.

In North Carolina, high-rated bond issues will normally be taken up by local banks (usually to maturities of 12-15 years, while longer maturities then to be bought by insurance companies: sequential marketing, with dual interest rates, is not uncommon.

Regulatory or procedures variations

North Carolina: (State) Department of Commerce approval of all Industrial Revenue Bond issues is required, and there is state monitoring of issue conditions and adherence to state guidelines, e.g., borrower obligation to adhere to prevailing wage levels in the local-government entity concerned. The major guideline criterion for approval is the creation of one new job per $50 000 in bonds issued, or 20 jobs per $1 million.

Only Tennessee grants variable local property-tax concessions to the borrower. In practice, these consist of a total exemption which is, at local option, offset by an In-lieu-of-taxes payment for the lifetime of the bond issue. Such in-lieu payments tend to range from 20 to 80 per cent of the taxes normally due, and may go to 100 per cent (e.g., in Nashville), but such arrangements normally allow some negotiable flexibility, e.g., start-up moratoria, or a sliding scale of percentage rates.

Both Tennessee's in-lieu-of-taxes provision and the other states' decision not to grant state or local tax concessions to Industrial Revenue Bond borrowers rest on the premise that product fiscal mamangement prohibits such concessions, and that it would discriminate against existing industries, adding to their tax burden.

b. Other state financing mechanisms

Maine: In a variant related to the Industrial Revenue Bond avenue, the Maine Guarantee Authority (MGA) may make direct loans to Industrial Development Boards, or may guarantee the loans made by the local boards. In both variants, there is a stronger involvement of the state's full faith and credit, enhancing the marketability of the bonds.

MGA may also finance the construction of community industrial (shell) buildings for sale or lease to new industries.

Massachusetts: Industrial loans resulting in the creation of new jobs may be assisted by the Massachusetts Industrial Mortgage Insurance Agency: debt thus insured tends to be more readily marketable to conventional lenders and result in a fractional interest-rate reduction.

Vermont: The state may provide loan guarantees of up to 90 per cent of project financing at conventional bank loan rates, at a guarantee fee of between 1/2 and 1 per cent.

Ohio: The Ohio Development Financing Commission may provide to 100% in loan guarantees for new or expanding industries in respect of land, buildings, machinery and equipment.

c. Federal grants

The Federal Economic Development Administration (EDA)

EDA's financial assistance programs apply to those areas designated by the U.S. Department of Commerce as having "substantial unemployment" (Title 1) or "substantial and persistent unemployment" (Title IV).

Municipalities and community development corporations in Title I areas may be eligible to receive direct grants for public works. This may cover up to 50% of a project's cost.

Title IV areas may be eligible for a wider variety of programs. For instance:

Loans for public works, similar to Title 1 grants, for periods of as much as 40 years, at interest rates set by the Secretary of the Treasury.

Business development loans covering up to 65% of project cost, paid directly to firms providing long-term employment, with maturity of up to 25 years at interest rates set by the Secretary of the Treasury. (The local development corporation must provide as much as 5% of the total project cost. The Connecticut Department of Commerce may provide up to 50% of this local share. Private capital must participate in the non-local share of the loan.)

Guarantees of working capital loans to businesses from banks (in conjunction with business development loans), covering up to 90% of the outstanding prepaid balance.

Title III of the EDA act makes public and private organizations eligible for grants with which to engage private consultants for the purpose of studying the economic needs and development potential of designated areas.

Ohio has a direct loan program providing funds at low interest for new or expanding firms, in effect like a second mortgage program. The amount is limited to that available in the loan fund. Amounts over $1 million may require a special appropriation. For porjects such as the model it was indicated that funds probably would be available.

A description of the limits of development bonds, direct loans and guarentees plus a list of firms who have been granted loans since the program began in June 1978 is appended on the next page.

In Ohio if revenue bonds or state loans are used to finance construction, union scales must be paid.

THE OHIO DEVELOPMENT FINANCING COMMISSION SUMMARY OF PROGRAMS:

	Tax-Free Economic Development Bonds	Direct Loans	Guarantees
Eligible Borrowers	Manufacturers Commercial Research & Development Port Facility Public Recreational Public Garage Facility Distribution Facility	Manufacturers Research & Development Distribution Facility	Manufacturers Research & Development
Types of Projects	Land & Buildings Machinery & Equipment Public Recreational Facilities Stadiums & Coliseums Parking Garages	Normally Land & Buildings	Land & Building Machinery & Equipment
Maximum Project Financing	$10,000,000-$20,000,000 when & where Urban Development Actions Grants are used Public use facility-- No maximum limit	Limited by status of direct loan appropriations	5,000,000
Maximum Term	30 years	20 years	25 years
Interest Costs	Between 1 and 3 percent below conventional rates. Varies with company's credit and term of bond.	Currently 1-3%	Conventional or Tax-Free Rates

1978 Direct Loan Program

Company	Types of Projects	Location	ODFC Loan	Local Participation	Bank Financing	Project Cost	Number of Existing Jobs	Number of New Jobs	Total Employment When Project Completed	Expansion of New Facility
Gilford Instrument	Manufacturing	Oberlin	$ 576,900	$192,300	$ 1,175,000	$ 2,250,000	550	175	725	Expansion
Mitchellace	Manufacturing	Portsmouth	232,500	177,500	365,000	775,000	180	170	350	Expansion
Quality Mattress	Manufacturing	Cleveland	195,000	65,000	390,000	650,000	22	19	41	Expansion
McDowell Wellman	Manufacturing	Cleveland	403,037	134,646	807,875	1,346,458	391	200	591	Expansion
Monroe	Warehouse Distribution	Solon	225,000	120,000	855,000	1,200,000	114	56	170	Expansion
Helios	Manufacturing	Hebron	336,000	112,000	None	1,120,000	0	200	200	New
AMC	Manufacturing	Toledo	8,500,000	None	19,000,000	27,500,000	4000	2000	6000	Expansion

Taxation

These comparison tables do not cover the total corporate tax burden which would include federal taxes. The U.S. federal corporate income tax of 48% added to the State corporate taxes is usually a larger proportion of the corporate income than the combined Canadian federal and Provincial corporate taxes. On the other hand there are a number of additional federal taxes, both in the U.S. and Canada, and tax allowances which complicate the calculations of total corporate tax burdens. Since the federal area was outside of the terms of reference of this study no calculation was attempted, but the Department of Finance has recently published a study on the two tax systems which suggests that the tax burden in the U.S. is heavier (See The Tax Systems of Canada and the United States, Dept. of Finance, Ottawa, Nov. 1978.)

U.S. municipalities impose a number of additional taxes such as inventory taxes and city income taxes which are an additional tax burden and make the calculation of the total tax cost to a new corporation additionally complex. Sometimes the removal, permanently or temporarily, of these taxes is used as an incentive. Assessment practices may also vary depending on the city. In some cases inventory values are assessed rigourously and sometimes not.

B. TAXATION

1. Taxation at Canadian provincial and U.S. state level

a. Income taxes

	Corporate tax	Personal tax	Notes and comments
Ontario	13%	A proportion of federal income tax	
Quebec	12%	A proportion of federal income tax	Corporate tax subject to a 50% credit for new investment, depending on size and location.
Georgia	6%	1-6%	Corporate tax levied only on income earned in state based on property, payroll, sales allocation factors.
Maine	4.9% to $25 000; 6.93% thereafter	1-10% of federal adjusted gross income	Corporate tax credit equal to federal investment credit, max. $300 000 or amount of tax otherwise due, whichever is less, if firms (1) invest at least $5 million in a given year qualifying under federal investment credit rules; (2) increase wages subject to Maine unemployment insurance by $1.2 million in the same year (e.g., 200 employees @ $6 000 in wages).
Massachusetts	9.5%	5.5% + 7.5% surcharge	A 3% corporate tax credit is allowed for new investments (through 1982) in buildings, machinery and equipment.
New York			
North Carolina	6%	2, 4 or 6%	Corporate tax levied only on income earned in state based on property, payroll, sales allocation factors.

Provincial income taxes - cont'd.

	Corporate tax	Personal tax	Notes and comments
Ohio	imposes a tax which is the greater of: 1.5 mills of the net worth or 4% of the first $25,000 plus 8% on net income above $25,000		Ohio income tax is based on federal adjusted gross income of the individual with some adjustments allowed under Ohio law from ½-3½% of taxable income.
Tennessee	--	--	
Texas	--	--	
Vermont	5% to $10 000 6% on $10 001-25 000 7% on $25 001-250 000 7 1/2% over $250 000	25% of federal tax liability	Both corporate and personal tax levied only on income earned in state; the former based on property, payroll and sales allocation factors.
Virginia	6%	2-5 3/4%	No corporate tax levied on income from business done in states where the company is also subject to income tax.

b. Other business taxes at provincial/state level

	Excise/sales/use taxes	Notes and comments
Ontario	7%	Exemption for production materials
Quebec	8%	Machinery, equipment accessories, raw materials, exempt.
Georgia	3%	4% in the counties in which Atlanta is located. Raw materials and machinery exempt.
Maine	5%	New machinery and equipment for manufacturing and research are exempt.
Massachusetts	5%	Machinery, tools, materials, fuels, as well as exports exempt.
New York	7%	Items used in production and manufacturing exempt.
North Carolina	3% state + 1% county (local option)	
Tennessee	6%	
Texas	4% average (state + locality)	No exemption for capital equipment.
Vermont	3%	Materials used in production exempt.
Virginia	4%	Raw materials for processing, machinery, fuels, power, energy, pollution-abatement equipment exempt.

c. Franchise, inventory taxes and other provincial/state levies

	Franchise tax	Inventory and other levies	Notes and comments
Ontario	0.3%	--	
Quebec	0.2%	--	
Georgia	Corporate net worth tax	--	Corp. net worth tax ranges from 0.001% to 0.0023% to a maximum tax of $5 000.
Maine	(Repealed)	(Repealed)	
Massachusetts	--	--	
New York			
North Carolina	$1.50 per $1 000 (see note 1)	Machinery tax: 1% of value (see note 2)	(1) based on 55% of appraised value of property in the state subject to local taxation + assessed value of intangible property subject to taxation (multi-state corporations may choose basis of capital stock + surplus + undivided profits apportionable to North Carolina). (2) Maximum tax: $80 per individual item.
Ohio	see income tax		
Tennessee	0.15%	--	On outstanding stock, surplus and undivided profits.
Texas	$4.25 per $1 000 net worth x percentage of in-state sales	3¢ per $100 ad valorem of plant, buildings, equipment.	At 1968-1971 valuations.

Franchise, inventory taxes and other provincial/state levies, cont'd.

	Franchise tax	Inventory and other levies	Notes and comments
Vermont	--	--	Inventory taxes may be applied by some municipalities.
Virginia	(See note 1)	Capital tax at 0.3% book value of inventory held in state at Jan. 1 (see note 2).	1. Franchise tax based on maximum authorised capital stock at $1 million to $50 million: tax at $400 + $20 for each $100 000 or fraction thereof over $1 million. 2. Inventory includes excess of receivables over payables, as well as office furniture and fixtures. Also included: raw materials, goods in process or in transit (if ownership is held in Virginia), finished goods. Averaging of Jan. 1 and preceding Aug. 1 data acceptable if a lower value is thus established.

2. Taxation at municipal (Canada & U.S.) and county (U.S.) levels

a. Property taxes other than real estate levies

	Property taxes	Notes and Comments
Ontario	--	(See real estate taxes)
Quebec	--	Business and real estate taxes are treated as a unit in the ensuing section on real estate taxes.
Georgia	Combined property and real estate taxes typically average $12.20 per $1 000 outside major cities, and $18.20 in the cities.	At local option, certain "freeport" counties exempt, selectively, given classes of property related to manufacturing or trading from a proportion of local taxes. In most cases, the extent and method of application is still under consideration.
Maine	--	(See real estate taxes)
Massachusetts	Minimum 5% based on 15-40 year tax agreements at local option.	Certain localities grant tax reductions to 49% plus added credits for new manufacturing, R&D, warehousing facilities for up to 10 years. Equipment and inventory exempt from local property taxes.
New York	--	

Property taxes other than real estate levies -- continued

	Property taxes	Notes and Comments
North Carolina	Combined weighted state average, property and real estate taxes, $7.20 per $1000 valuation.	Valuation is at 100% of market value, adjusted every eight years.
Ohio	Varies between $35-65 per $1000 Columbus mill rate $41.62	Valuation is 35% of assessed value.
Tennessee	Median rate of 3.48% of assessed value	The median actual assessment ratio on industrial and commercial property is currently at 18% (against a legal ratio of 30%).[1]
Texas	Total, state + local: 1.5 to 1.75%.	At 1968-71 valuation. Local tax moratoria may be negotiated in south Texas (e.g., Harlingen-El Paso area, with net tax reductions up to 25%).
Vermont	6.7%	approx. 50% valuation.
Virginia	Statewide average: 0.8% of original cost.	

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[1] Property exemptions apply to facilities established through Industrial Revenue Bond financing if the city or county retains title to the property concerned, leasing it to the bond issue's beneficiary. In such instances, most localities levy an In-lieu-of-taxes payment, further described in section A, Financial Assistance and Incentives, above.

b. Real estate taxes (primarily at the local-government level)

	Taxes on real estate or based on real estate values	Notes and comments
Ontario	Eastern Ontario sample range: $40-45 per $1 000 (see Note 1)	1. Industrial property is, in addition, subject to a mfg. business tas of 60% of the real estate tax, i.e. $24-$27 per $1 000.
	Combined rate w. mfg. business tax (Note 1), $64 to $72 per $1 000	Market values are assessed by municipalities, but the assessment is being converted to a uniform Provincial system. Local mill rates are thus modified by a Provincial equalisation factor.
Quebec	Combined local taxes based on real-estate building values = average range of 4 to 8% of valuation, depending on location	Included in the range parameter is a business tax on property rental value (to a maximum tax element of $5 000).
		Quebec municipalities may not offer tax concessions, but may offer technical services assistance to industry and business.
Georgia	Combined rate with property taxes, see preceding table (a).	
Maine	Median c.$17.60 per $1 000; range from $6.72 to $28.45.	
Massachusetts		Existing wide variations are currently the subject of intense debate with view to revision, with no realistic range parameters available.

Real estate taxes (primarily at the local-government level) - cont'd.

	Taxes on real estate or based on real estate values	Notes and comments
New York	$106.90 per $1 000	Based on mean tax rate, up-state New York, at 50% valuation (hypothetical 1956 basis roll-back).
North Carolina	Combined rate with property taxes, see preceding table (a)	
~~Ohio~~		
Tennessee	See property taxes, preceding table (a)	The real estate portion of the combined tax is, however, assessed on an actual valuation of 24%.
Texas	Total state + local: 1.7-2.0%	At 1968-71 valuation. Local portion of taxes is subject, selectively, to moratoria that may be negotiated in south Texas (e.g., Harlingen-El Paso area) with net tax reductions up to 25$.
Vermont	Typical median-range rate: $57.00 per $1 000 listed value	Based on adjusted 1977 fair market value, less 50 per cent.
Virginia	State-wide average: $9.40 per $1 000.	

Real estate taxes (primarily at the local-government level) - cont'd.

	Taxes on real estate or based on real estate values	Notes and comments
New York	$106.90 per $1 000	Based on mean tax rate, up-state New York, at 50% valuation (hypothetical 1956 basis roll-back).
North Carolina	Combined rate with property taxes, see preceding table (a)	
Tennessee	See property taxes, preceding table (a)	The real estate portion of the combined tax is, however, assessed on an actual valuation of 24%.
Texas	Total state + local: 1.7-2.0%	At 1968-71 valuation. Local portion of taxes is subject, selectively, to moratoria that may be negotiated in south Texas (e.g., Harlingen-El Paso area) with net tax reductions up to 25$.
Vermont	Typical median-range rate: $57.00 per $1 000 listed value	Based on adjusted 1977 fair market value, less 50 per cent.
Virginia	State-wide average: $9.40 per $1 000.	

B. LAND AND BUILDINGS

Land and Buildings

Accurate quotations for land costs can only be approximated. For a factory employing between 500-1500 workers at least 30-40 acres would be required. In many areas such a large lot of developed land would not be available, but the prices quoted are for those industrial parks in which at least 30 acres is free for occupation. Prices for undeveloped, unserviced land would be lower, but costs of servicing would be considerable. Most of the prices quoted are for industrial parks which are municipally owned. Prices in privately owned parks would be double or more. In Ontario and Quebec municipalities are not allowed to give financial incentives or subsidize land costs, but it is likely that prices are very close to cost price. In the U.S. land costs may be negotiated and some municipalities may partially subsidize land purchase or sell ready made industrial buildings which have been constructed by the municipality as an investment.

Vacant existing industrial buildings are available in some areas. For example, Burlington Mills (textiles) is selling three mills in North Carolina. The largest of these has 335,000 square feet of manufacturing area, 253,000 sq. feet of warehousing on 29 acres with an additional 11 acres available. The price is $2,750,000 (published price). Rockwell International is offering its 5 year old Columbus Ohio plant of 237,000 sq. ft. on a site of 28 acres, suitable for heavy industry for about $4.5 million.

Land costs

(Per acre in public or private industrial parks, zoned for heavy industry, services lots)

Ontario	Land costs vary from area to area, but some typical prices quoted in 1978 for Eastern Ontario municipalities: Peterborough, $15,000; Trenton, $10,000; Belleville, $14,500; Kingston, $20,000; Prescott, $5,000; Cornwall, $6,500; Hawkesbury, $4,000; Pembroke, $1,500-$9,000; Renfrew, $4,500.
Quebec	Montreal Island market prices; Baie d'Urfe, Pointe aux Trembles, $28,000; Pointe Claire, Kirkland, $65,000; St. Laurent, Montreal, $98,000. Average of industrial park prices: Becancour, south of Trois Rivières, $6,500-$7,400; Trois Rivières Ouest, $8,700; near Quebec City; $6,500-30,000; less than 20 miles south of Montreal, $11,500; between 20 and 30 miles south of Montreal, $8,000+.
Georgia	$5,000-$6,000 per acre; Atlanta, $15,000-$16,000 an acre lower or subsidized costs available only in very small communities.
Maine	$4,000-$11,000, prepared sites in industrial parks.
Massachusette	Average estimated at $20,000 an acre. Developed industrial part sites available $6,000+. Boston vicinity $125,000 and acre.
New York	N.A.
North Carolina	$16,000-$40,000 in industrial parks; elsewhere $5,500-$7,500 near large towns. County provides access roads, water sewage links.
Ohio	From $40,000 to 10,000 depending on location. In the vicinity of Columbus land is available at $15,000 an acre.
Tennessee	$15,000-$50,000; $6,500-$10,000 in municipalities eager to attract industry (West Tennessee) State will build road to industrial sites.
Texas	$16,500 prepared for construction (Fort Worth) per acre. Unprepared range: $4,000-$20,000, rail served.
Vermont	Some typical industrial park prices: St. Albans, $6,800; Swanton, $6,200; Rutland, $9,000; Middlebury, $10,000; Ludlow, $4,000; Barre, $8,500.
Virginia	Developed sites, $6,000-$12,000; Access road program to property line up to value of 10% of firms capital investment to maximum cost of $150,000, then matching funds to $100,000; total maximum for access roads $350,000.

Building Costs

(Per square foot costs for a standard industrial building with no special features)

Building System	Average $/f^2	% total
Foundations	$ 1.74	6.8 %
Superstructure	6.16	24.0
Exterior walls	3.74	14.6
Roofing	1.38	5.4
Partitions	0.90	3.5
Interior wall finish	0.52	2.0
Floor finishes	0.36	1.4
Ceilings	0.29	1.1
Specialties	0.12	0.5
Conveying systems	0.18	0.7
Plumbing	1.52	5.9
Fire Protection	0.55	2.1
HVAC	2.86	11.1
Electrical	3.58	13.9
General	1.24	4.8
Net Building Cost	25.14	97.8
Equipment	0.56	2.2
Gross Building Cost	25.70	100.0
Site Work	1.07	4.2
Construction Cost	26.77	
Allowance for inflation	8%	
Adjusted Building Cost	$28.91	

Adjusted for location	
Ontario	Ottawa $26.60
	Toronto $28.62
Quebec	Montreal $24.33 ($20-22)
Georgia	Atlanta $21.39
	Savannah $26.60
Maine	Portland $26.31 ($15)
Massachusetts	
	Boston $28.91
	Springfield $30.36 ($20)
New York	Albany $27.76
	Buffalo $29.78
	Rochester $29.78
North Carolina	($15+)
	Charlotte $21.39
	Wilmington $24.57
Ohio*	Cincinnati $28.33
	Cleveland $31.80
	Columbus $27.75
	Youngstown $28.62
Tennessee	Chattanooga $25.15
	Memphis $25.73
	Nashville $22.84
Texas	Austin $22.55
	Dallas $26.31
Vermont	Burlington $27.47 ($23-25)
Virginia	Norfolk $24.57
	Richmond $24.86 ($15-18)

Sources: The costs given here are quoted from the 1978 edition of Dodge Construction Costs, published by McGraw-Hill. Costs for each locality are calculated using location adjustment factors given. Figures in parentheses are rough estimates from local sources and may not include all costs.

* If state financing sources are used for construction, union scales must be paid.

C. LABOUR

Labour

Comparable measures of labour costs and productivity are particularly difficult. The most common figure used is the average State/Provincial wage, but the first table shows the weakness of this measure very clearly. The average wage reflects the State/Provincial industrial structure and skill of the labour force as well as its general wage level. Also wages tend to be higher in cities where highly skilled labour is employed. There is a considerable divergence between metropolitan areas within States/Provinces.

The data for specific skills are less readily available and less reliable since job descriptions may vary from place to place. But when average wages for specific jobs are compared then it appears that the wage differentials between industrial metropolitan areas is narrower than general State/Provincial average wage rates would indicate.

The same sort of qualifications apply to measures of productivity using total value of output or shipments per wage dollar or man hour. Volume output rather than value added may be a more reliable measure, but would require more detailed information.

A number of States stress their low union membership levels and right-to-work laws as positive incentives. In Canada it seems that skills and size of plant are determinants of union membership level. It is very likely that an enterprise employing more than 500 highly skilled workers in or near an industrial region in Canada would be unionized. But it is also true that the general level of wages for skilled workers in the area determine the wage levels to be paid by new enterprises.

Average Manufacturing Earnings in Canada and the U.S.

Canada: Average Weekly wages for Manufacturing workers April 1978

	C$	U.S.$		C$	U.S.$
Ontario	$268.75	$235.42	Toronto	$284.14	$248.91
			Hamilton	$292.20	$255.97
			Sarnia	$357.01	$312.74
			London	$251.72	$220.51
			Belleville	$220.63	$193.27
			Kitch-Wat	$245.41	$214.98
Quebec	$246.25	$215.71	Montreal	$234.75	$205.64
			Trois Riv.	$259.35	$227.19
			Quebec	$253.74	$222.28
			St. Jean	$195.05	$170.86

Source: Employment, Earnings, Hours, Statistics Canada, 72-002

U.S.A.	Georgia	$206.74	Atlanta 232.83, Savannah $280.36
	Maine	$202.10	Lewiston $160.18, Portland $202.40
	Mass.	$224.53	Boston $245.96, Springfield $233.19, Fall River $157.88
	North Carolina	$183.26	Charlotte $189.11, Raleigh $206.74, Ashville $184.37
	Ohio	$317.34	Cincinnati $296.52, Cleveland $330.42, Columbus $273.10, Youngstown $362.34
	Tennessee	$211.00	Chattanooga $216.60, Knoxville $253.37 Nashville $228.48
	Texas	$247.64	Austin $191.78, Dallas $228.02, Houston $321.47
	Vermont	$214.35	Burlington $245.38
	Virginia	$211.41	Bristol $182.02, Norfolk $237.38

Source: Monthly Labor Review, January 1979, Table C-13, "Gross hours and earnings of production workers on manufacturing payrolls by State and selected areas" p135-139

Note: It should be noted that Canadian figures refer to April 1978 and U.S. figures to October 1978, but since the average dollar rate fell from .876 to .848 between April and October it is likely that this drop offset the increase in wages. (Rate used for conversion monthly average from the Financial Post)

Wage Rates for Skilled Workers

Welders	Structural Metal Trade	Metal Stamping	Misc. Machinery	Oct. 1977 WTED Average	Oct. 1978	U.S.$
Montreal	$6.19	$6.52	$6.63	$6.44	$7.30	$6.21
Quebec	$6.45	$6.86		$6.52	$7.39	$6.28
St. Catherines'	$6.96		$7.07	$7.01	$7.95	$6.76
Toronto	$6.60	$6.30	$6.70	$6.64	$7.53	$6.40
Hamilton		$6.63	$6.58	$6.59	$7.48	$6.35
Windsor		$6.70		$6.70	$7.60	$6.40
London-St. Thomas			$6.45	$6.45	$7.31	$6.22

	low	high	wted av.	(Dec. 1978)
Georgia				
arc welders	$2.65	$10.80	$5.36	
spot welders	$2.65	$ 6.45	$4.52	

Virginia — Welders (defined as welding metal parts together according to layouts) Oct. 1978

Bristol	$5.15
Roanoke	$4.71
Waynesboro	$6.38
Richmond	$6.18
Los Angeles	$6.79
Chicago	$6.89
Milwaukee	$7.30

Sources: Canada: Wages, Rates, Salaries, Hours of Labour, Oct. 1977, Dept. of Labour Survey, 1978 figures calculated using average wage increase for machinery industry, Stats Can 11-003 table 4-14.

Georgia: Georgia Manufacturing Wage Rates, Statewide Summary, Dec. 1978, published by the Research Dept. of the Georgia Dept. of Industry and Trade.

Virginia: 1978, Wage Rates and Fringe Benefits, Job Sevice, Virginia Employment Commission.

Other Areas: Potential Cost Savings in Manufacturing non-Electric Machinery in Virginia, figures published referred to Jan. 1977, adjusted to 1978 level by average manufacturing wage increase for metropolitan area.

Wage Rates for Skilled Workers

General Machinists in Machine Shop

	Oct. 1977	Oct. 1978	U.S.$
Montreal	$6.39	$7.24	$6.16
Trois Rivieres	$6.24	$7.08	$6.01
Hamilton	$7.77	$8.81	$7.49
St. Catherines'	$7.12	$8.07	$6.89
Toronto	$6.48	$7.35	$6.25

Georgia	low	high	wted av.	(Dec. 1978)
Machinist I	$3.15	$9.86	$7.53	
Machine operator heavy duty	$3.00	$7.80	$6.07	

Virginia — Machinist (sets up and operates machine tools) — Oct. 1978

Bristol	$5.03
Roanoke	$5.24
Waynesboro	$5.54
Richmond	$7.84
Los Angeles	$7.53
Chicago	$7.55
Milwaukee	$7.86

Sources: see previous page

Wage rates for skilled workers

South Carolina August 1978 (hourly rates including incentive earnings)
Hourly wages paid to experienced workers

		min	max	ind. av.
Maintenance electrician		$5.29	$6.08	$6.08
Machinist senior		$5.27	$6.11	$5.48
2cd class		$4.54	$5.30	$4.97
Maintenance mechanic		$5.21	$6.21	$6.21
Sheet metal worker		$4.26	$5.05	$4.73
Tool and die maker	A	$6.04	$6.78	$6.64
	B	$5.13	$5.96	$5.83
	C	$4.72	$5.37	$5.17
Welders	arc	$4.67	$5.41	$5.39
	MIG	$4.29	$5.25	$5.25
	spot	$3.75	$4.25	$4.14

Texas, Dallas Fort Worth average hourly earnings of maintenance and plant workers

	(number reporting)	median hourly earnings
maintenance electricians	750	$7.38
maintenance machinists	260	$6.90
Mechanics, motor vehicle	1528	$6.15
Mechanics, machinery	1826	$6.46
Tool and die maker	378	$7.16

Ohio Sept. 1978 (based on a mail survey taken to assist foreign investors)
49% response

		number	low	high	wted av.
Maintenance electrician	A	124	$5.04	$9.82	$8.35
	B	65	$5.24	$9.25	$7.82
Maintenance machinist	A	26	$5.04	$9.54	$7.20
	B	77	$4.72	$8.87	$7.59
Columbus			mid range		
Machinist A		183	$6.92-9.83		$7.83
Tool and die maker A		170	$8.44-9.86		$9.05
Welder arc A		323	$6.55-8.34		$7.24
B		60	$5.46-6.57		$6.09

Montreal (in Canadian dollars) October 1978

Machinists	A	$6.69-6.89
	B	$5.88-6.08
Sheet metal worker	A	$7.23-7.67
	B	$6.11-6.45
Welder	A	$6.92-7.34
	B	$6.11-6.45
Tool maker	A	$7.58-8.07
	B	$6.39-6.76
maintenance electrican		$7.23-7.67

Wage rates for skilled workers

Tennessee, Nashville (excluding overtime but including incentive payments)
July, 1978

	number	mean	median
Maintenance mechanics (machinery)	422	$7.40	$8.22
maintenance mechanics (motor vehicles)	417	$7.41	$6.65
tool and die makers	240	$7.01	$6.82
maintenance electricians	204	$7.96	$8.22
Knoxville October 1978			
maintenance electricians	525	$8.15	$8.13
maintenance machinists	397	$8.88	$9.61
mechanics (machines)	153	$6.72	$7.63
maintenance mechanics (m.v.)	110	$6.95	$8.10
tool and die maker	82	$7.19	$7.75

Wage/output indicators

The data shown below are essentially an indicator of the type and extent of economic activity per wage unit: they are thus a value indicator that reflects in part the accident of industrial activity and location. This caveat must be entered here because these data are conventionally presented as productivity yardsticks--a context in which they have little if any true validity.

In the absence of data by Canadian provinces, national totals for Canada and the U.S. are compared initially.

	Value added per production worker's wage dollar 1976
Canada	4.303
U.S.A.	3.72
Georgia	3.76
Maine	3.02
Massachusetts	3.94
New York	4.20
North Carolina	3.51
Ohio	3.36
Tennessee	3.53
Texas	4.88
Vermont	3.85
Virginia	3.68

Sources: Statistics Canada, 11-003, Table 4-2

U.S. Dept. of Commerce, Bureau of the Census, 1976 Annual Survey of Manufacturers' Feb. 1978.

3. Workforce training programmes

a. Introductory review

The Canadian joint federal/provincial manpower training programme geared to two basic purposes: (1) to provide skill training for new workers; and (2) to enable workers now in employment to upgrade themselves through similar training. From the viewpoint of the new manufacturing investor, the programme constitutes a basic infrastructural resource in creating a pool of trained workers, available as needed.

The programme will, however, also offer specific-skill training to fit a new employer's needs if these cannot be supplied from the existing pool. Thus, while the programme does not, in its broad purpose, have the specificity of the US counterpart programmes described below, it offers the new employer a freer choice -- a consideration that retains its validity despite the fact that, in the U.S. counterpart programme, the employer is free to accept or reject any worker specifically trained to meet his needs.

A majority of the U.S. states covered in this study, but in particular the "Sunbelt" states as well as Vermont, stress their industrial training programmes as a major and highly tangible incentive to new industry. The central, and common, feature of these programmes is the training of a specific-skill workforce, tailored to the needs of the prospective employer, but generally without commitment on the part of the employer to accept a given person so trained, or a commitment on the worker's part to accept a job offered.

Beyond that, however, there are philosophical differences in programme goals: in Georgia, for instance, the training programme is largely limited to persons who hold a job but wish to improve their skills and earnings; the programme will not accept persons currently unemployed. Other states place no such restriction on candidates, but the programme thrust is essentially to find alternative employment for workers displaced by changes in the state's industrial profile, e.g., the fast-evolving automation of the North Carolina textile industry, the declining needle-trade industries of Tennessee, North Carolina and Virginia, and others. In the Northeastern states and also in Virginia, there is stress on providing jobs for the substantial number of new entrants into the labour market during the current population "bulge".

The specific composition of Provincial/state programme input is shown in the table beginning below, together with indications of average per-worker programme value to the prospective employer where such data can be validly calculated in terms of programme averages.

b. Programme content and scope

	Programme content and scope	Per-worker input value parameters
Canada	A joint federal-provincial industrial training programme administered by Manpower Canada provides instructors' salaries up to $100 per day, plus travel costs and living expenses. A proportion of trainees' wages are also paid, as follows -- New workers 60% of wages; Upgrading of workers currently employed: 40% Maximum contributions per worker: $130 per week for up to 52 weeks. There is provision for covering one half of the trainee's travelling and living expenses, as well as for the cost of all training materials. 1977-78 per-industrial trainee expenditures --	
	Ontario	$1,601
	Quebec	$1,013

	Programme content and scope *	Per-worker input value parameters
Georgia	Quick-start programme designed to train semi-skilled assembly/machine operators to entry-level: provide instructors, premises, materials, full programme and manuals, as well as standard machine tools. Basic programme becomes employer's property on completion, initial programme. Where foreign companies with principal plants abroad are concerned, the state will absorb cost or a programme assessment at that plant, as well as translation into English of any foreign-language training manuals.	80-120 hours, aver. Quantified average: $271 per worker. Actual cost per student may run to $600 and over.
Maine	The state operates a strong vocational education programme, including 14 regional technical vocational centres.	. .
Massachusetts	The Commonwealth will absorb the cost of inplant or outside (e.g. at vocational schools) training programs involving at least 10 skilled jobs per programme.	. .
North Carolina	The state will pay up to 50% of in-training wage cost; average duration c. 3 months; it will also provide training at vocational institutions. Key foreign instructors would be brought in, with salaries and travel paid.	Upper limit for a skilled metalworker may be up to $2,000.
Ohio	Aptitude testing and pre-screening service. The state has an extensive vocational education system.	. .
Tennessee	The state will absorb staff costs, training costs, housing for trainees if away from home; audio visual aids, etc.	Basic parameter of $200-$2,000 per job.

* Not included here is a 50% job-training contribution originating at the federal level under the Comprehensive Employment Training Act (CETA), but channelled through state agencies. The programme involves compliance with federal standards and thus finds little acceptance in the Sunbelt states.

	Programme content and scope	Per-worker input value parameters
Texas	State will carry a (negotiable) portion of cost of a training program designed by the company concerned, utilising state's vocational education system.	Average contribution $76.40/per workers.*
Vermont	The state provides a comprehensive on-the-job and pre-employment training programmes adjusted to manufacturer's specific labour needs. There are 15 vocational education centres, supplemented by Univ. of Vermont and Vermont's State Colleges.	. .
Virginia	State will absorb instor salary at $7/hour and provide full programme, payable to the company for in-house staff services. In the case of foreign companies, the state will pay to one half of an outside instructor's air fare plus subsistence to 6 months at company's home plant to evolve design of a Virginia-based programme.	Per-person maximum $8,500

4. Labour-related Fringe Costs

Basic wages for employment cover only 70-65% of the total wage bill. The remaining proportion, which is steadily increasing, is made up of various additional payments for overtime, holidays, bonuses as well as compulsory payments such as unemployment insurance and Workmen's Compensation. Bopth the CPP(1.6) and the U.S. Social Security contributions are federally administered and rates are standard.

In Canada Workmen's Compensation is administered by the Provinces. Rates vary considerably from industry to industry. In the U.S. while some coverage is compulsory employers may self-insure or buy insurance from an approved company. The rate will depend on the employers experience and could be negotiated. It would be possible for an employer who had branch plants in several States to negotiate a single rate.

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* The state's profit per newly-trained worker is estimated at $198.40 in State taxes.

5. Labour-related insurance costs

Note: In the U.S. section of the tabular presentation, below, there appears the concept of an employer's "experience rating" in the unemployment insurance context. Under this concept, contribution rates are differentiated between a new employer without a proven record of employment stability, and--usually after 3 years--an established employer.

	Unemployment ins.		Workmen's compensation insurance
	New employer	Employer w. experience rating (average)	(Mfg. industry average unless otherwise stated)
	(Per cent of payroll[1])		
Ontario	--	1.89	1.8
Quebec	--	1.89	2.7
Georgia	2.7	2.0 *	
Maine	. .	3.3 *	Sheet-metal ind. $5.40/$100 Electromech. ind. 1.38
Massachusetts	. .	3.7 *	
New York	3.7	3.4 *	
North Carolina	2.7	2.0 *	1.25
Ohio	3.5	2.8 *	2.31
Tennessee	2.7	1.9	Range: $0.60-$2.00/100
Texas	2.7	0.7 *	
Vermont	3.0	1.7	
Virginia	1.4	0.6 *	Sheet-metal ind. $3.11/$100 Electromech. ind. 0.84

* State-wide averages, essentially reflecting experience rating but including new employers also.

[1] To $6,000 annually (tax base).

6. Trade union membership; work stoppages

	Trade union membership	Right-to-work law	Work stoppages (1976) Number	Days lost /yr.	Percent of est'd. non-agr. working time
a. National comparisons					
Canada	31.0	. .	1,039	. .	0.29 *
USA	24.8	. .	5.648	. .	0.18 *
b. By provinces/states					
Ontario	n.a	--	279	1,671.09	n.a.
Quebec	n.a.	--	351	6,465.65	n.a.
Georgia	14.2	v	55	269.1	0.40
Maine	17.8	-	68	628.1	0.20
Massachusetts	24.6	-	129	741.6	0.13
New York	37.1	-	345	1,926.5	0.11
North Carolina	6.8	v	36	431.3	0.08
Ohio	31.5	-	549	8,838.6	0.47
Tennessee	18.3	v	110	1,077.2	0.27
Texas	12.0	v	115	816.4	0.07
Vermont	17.8	-	5	42.8	0.10
Virginia	13.7	v	203	570.2	0.12

* Jan.June 1978

Percent of working time lost through strikes by jurisdiction
(preliminary estimates)

	1976	1977
Newfoundland	0.41	0.30
Prince Edward Island	0.11	0.00
Nova Scotia	0.35	0.04
New Brunswick	0.54	0.08
Quebec	1.24	0.25
Ontario	0.22	0.15
Manitoba	0.12	0.02
Saskatchewan	0.25	0.05
Alberta	0.07	0.04
British Columbia	0.72	0.07
Federal public employees	0.02	0.02
Federal industries*	0.19	0.42
Canada	0.55	0.15

*railways, airlines, etc.

This table illustrates the variation from year to year

D. ENERGY

ENERGY COSTS

Note: Unless otherwise noted, all energy costs shown rest on the following requirements of the hypothetical plant:

Electricity: 10,000 kW demand; 5 million kWh per month, 90% load factor, at firm demand rates (not interruptible);

Natural gas: 12 million cu. ft. per year.

Unless otherwise noted, all rates are those in force at end March 1979. All rates reflect, unless otherwise stated, total cost, including, for the U.S., fuel adjustments (electricity) and purchased gas adjustments.

The table also indicates, wherever appropriate, power line or pipeline connection costs from the nearest transmission line or pipeline to the property perimeter, indicating how these costs (and those of a transformer substation) are likely to be apportioned between supplier and customer, assuming "reasonable" distance from main transmission line and an absence of right-of-way problems.

	Total electricity cost: cents per kWh	Total natural gas cost, cents per 100 cu. ft.	Apportionment of connection and substation costs
CANADA			
Ontario	2.154	22.1	Electricity: Negotiable. Est'd. cost of transmission line, $22.86-$30.48/ft.; substation cost, approx. $100,000 + Gas: No pipe connection charge for major customer (cost, 2" line, $6/ft.)
Quebec	1.757	23.2	Electricity: Negotiable. Joint federal-Provincial financing would be available 75% of cost (customer portion). (G.M. was offered a 10 yr. electricity rate freeze)

Energy costs - cont'd.

	Total electricity cost: cents per kWh	Total natural gas cost, cents per 100 cu. ft.	Apportionment of connection and substation costs
U.S.A.			
Georgia	2.58	17.3 (N. Georgia)	Electricity: Power co. would assume cost of substation (c.$125,000-$150,000) and of line extension (c.$9.50/ft.) Gas: Connection cost (2" pipe $3.19/ft.; 6" pipe at $11.54/ft.) may be refunded to customer over 7 yrs., e.g. where line length does not exceed 1/2 mile.
Maine	2.293 + 5% sales tax	. .	Apportionment negotiable.
Massachusetts	4.22	40.7	Apportionment negotiable.
New York			
North Carolina	2.305	26.0-26.5, interruptible; 10.40 BTU value.	Connections, etc. at suppliers' cost.
Ohio	3.38	18.7-19.5	At present, gas companies are not allowed to accept new industrial customers. Ban may go June 1st.
Tennessee	2.439 (at 50,000 kW demand (36.5 mn. kWh/month)	21.07	Electricity: Free connection to major customer (equivalent cost: 161 kV line: $19/ft. approx; 13 kV line: $9.50/ft. approx. *

Energy costs - cont'd.

	Total electricity cost: cents per kWh	Total natural gas cost, cents per 100 cu. ft.	Apportionment of connection and substation costs
U.S.A. cont'd			
Texas	3.00	20.0-21.5	Electricity: Free connection + substation to major customer; gas: free pipeline connection.
Vermont	3.5 (median)		Negotiable.
Virginia	3.169	23.6-26.5	Electricity: Power co. will absorb substation + (short) connecting-line cost to approx. 4 x customer's annual power consumption value.

* Substation cost would be at customer's charge within the TVA supply area.

Assurance of electric power supply

Given the probability that near-term power supply assurance rests primarily on new or expanded hydro and coal-powered generating facilities, the tables reproduced below provide an indication of the supply security outlook for the areas covered in this study (marked in the tables).

The integrated hydro-power resources of Ontario Hydro and Hydro Québec are matched, to some extent, by the fact that some of the major U.S. Sunbelt power companies which include TVA, also own coal mines so that they, too, offer a substantial forward-supply assurance.

CANADA

Generation added or planned

Province and Prime Mover	(1) Mw added 1977	(2) Mw planned for 1978	(3) 1979	(4) 1980	(5) after 1981	(6) Total Mw planned
Alberta						
Fossil steam....	165	165	....	....	1,122	1,287
IC.....	1	10	2	3	.....	15
Comb. turbine...	3	....	....	....	.....	.....
Total	169	175	2	3	1,122	1,302
British Columbia						
Hydro.....	441	....	350	1,258	1,800	3,408
Comb. Turbine...	....	54	....	.....	.....	54
Total.....	441	54	350	1,258	1,800	3,462
Manitoba						
Hydro.....	224	476	420	.....	1,080	1,976
New Brunswick						
Hydro.....	....	....	220	.....	.....	220
Fossil steam....	335	....	200	.....	.....	200
Nuclear.....	....	....	....	630	.....	630
Total.....	335	....	420	630	.....	1,050

CANADA (cont'd)

Generation added or planned

Province and Prime Mover	(1) Mw added 1977	(2) Mw planned for 1978	(3) 1979	(4) 1980	(5) after 1981	(6) Total Mw planned
Newfoundland-Labrador & P.E.I.						
Comb. turbine...	.....	....	....	25	.....	25
Nova Scotia						
Hydro.....	.....	200	....	....	.....	200
Fossil steam....	150	....	....	150	450	600
Comb. turbine...	120	....	....	....	.....	.....
Total.....	270	200	....	150	450	800
Ontario						
Hydro.....	107	14	....	....	.....	14
Fossil steam....	1,177	1,263	82	411	3,343	5,099
Nuclear.....	1,464	537	642	693	8,702	10,574
Comb. turbine...	40	19	....	23	141	183
Total	2,788	1,833	724	1,127	12,186	15,870
Quebec						
Hydro.....	175	579	....	1,959	10,824	13,362
Nuclear.....	.....	....	637	.....	.....	637
IC.....	12	18	....	.....	43	61
Comb. turbine...	108	....	240	202	1.136	1,578
Total.....	295	597	877	2,161	12,003	15,638
Saskatchewan						
Hydro.....	.....	....	....	.....	90	90
Fossil steam....	280	....	280	.....	280	560
Total.....	280	....	280	.....	370	650
Total Canada						
Hydro.....	947	1,269	990	3,217	13,794	19,270
Fossil steam....	2,107	1,428	562	561	5,195	7,746
Nuclear.....	1,464	537	1,279	1,323	8,702	11,841
IC.....	13	28	2	3	43	76
Comb. turbine...	271	73	240	250	1,277	1,840
Total.....	4,802	3,335	3,073	5,354	29,011	40,773

Source: Electrical World, New York, N.Y., March 15, 1978

UNITED STATES

a. Installed capacity of utility generating plants by states and type (12.31.77; prelim.)

	No. of utilities*	No. of plants*	Total Mw*	Hydro		Steam		Nuclear		Gas turbine		Internal combustion	
				No.	Mw	No.	Mw	No.	Mw	No.	Mw	No.	Mw
United States	1,155	3,623	558,818	1,148	68,312	951	385,609	49	49,880	524	47,738	953	5,281
New England	87	278	20,933	135	2,692	48	12,234	8	4,405	44	1,313	45	289
Middle Atlantic	49	349	76,154	125	7,009	85	46,916	11	10,059	89	11,870	39	200
East North Central	178	570	97,978	158	2,847	178	77,380	10	10,301	90	6,498	138	952
West North Central	410	748	42,322	58	3,161	173	29,182	5	3,579	73	4,323	441	2,077
South Atlantic	100	400	101,785	128	8,695	130	70,855	9	12,796	91	11,052	42	387
East South Central	29	138	49,751	55	5,543	55	36,728	2	4,344	23	3,121	3	15
West South Central	122	333	73,389	42	2,557	153	65,887	1	902	42	3,375	95	658
Mountain	118	318	31,113	161	7,538	75	20,659	0	0	29	2,582	53	336
Pacific Contiguous States	54	354	61,073	272	30,143	44	24,546	5	3,494	32	2,808	11	82
Pacific Noncontiguous States	30	125	2,320	15	129	12	1,222	0	0	11	464	86	275
New England													
Maine	13	64	1,744	37	345	5	459	1	830	3	45	18	65
New Hampshire	3	22	1,567	13	379	5	1,093	0	0	4	95	0	0
Vermont	13	60	940	45	193	2	34	1	563	5	130	7	20
Massachusetts	21	81	10,015	25	1,639	23	6,787	2	840	17	588	14	161
Rhode Island	6	8	281	1	2	3	256	0	0	0	0	4	23
Connecticut	11	43	6,386	14	134	10	3,605	2	2,172	15	455	2	20
Middle Atlantic													
New York	25	203	31,288	115	4,969	34	17,738	5	4,141	30	4,332	19	108
New Jersey	7	44	12,623	2	389	14	6,098	2	1,720	25	4,414	1	2
Pennsylvania	17	102	32,243	8	1,651	37	23,080	4	4,198	34	3,224	19	90

	No. of utilities*	No. of plants*	Total Mw*	Hydro		Steam		Nuclear		Gas turbine		Internal combustion	
				No.	Mw	No.	Mw	No.	Mw	No.	Mw	No.	Mw
East South Central													
Kentucky	10	36	13,023	7	747	21	12,005	0	0	6	257	2	14
Tennessee	5	39	14,336	28	2,212	8	10,090	0	0	3	2,034	0	0
Alabama	5	37	17,219	20	2,584	11	9,687	2	4,344	4	604	0	0
Mississippi	9	26	5,173	0	0	15	4,946	0	0	10	226	1	1
West South Central													
Arkansas	12	35	4,907	11	1,076	10	2,570	1	902	3	308	10	51
Louisiana	29	56	12,902	0	0	30	12,621	0	0	6	91	20	208
Oklahoma	25	66	9,205	10	963	19	7,269	0	0	10	812	27	161
Texas	56	176	46,357	21	518	94	43,427	0	0	23	2,164	38	248
Mountain													
Montana	8	31	3,010	22	1,932	6	1,028	0	0	2	47	1	3
Idaho	10	42	1,697	37	1,635	0	0	0	0	1	50	4	12
Wyoming	13	27	3,297	14	220	7	3,062	0	0	0	0	6	15
Colorado	29	64	4,579	25	741	18	3,305	0	0	5	458	16	75
New Mexico	14	28	4,489	1	24	17	4,303	0	0	3	46	7	116
Arizona	10	40	8,704	11	2,105	14	4,820	0	0	13	1,768	2	11
Utah	24	59	1,687	45	197	7	1,439	0	0	1	16	6	35
Nevada	8	27	3.650	6	682	6	2,702	0	0	4	197	11	69
Pacific Contiguous States													
Washington	19	65	18,204	54	15,808	4	1,468	1	800	3	124	3	4
Oregon	9	59	7,771	50	5,687	3	112	1	1,216	3	750	2	6
California	26	240	35,098	168	8,648	37	22,966	3	1,478	26	1,934	6	72
Pacific Noncontinguous States													
Alaska	24	104	927	14	126	3	68	0	0	8	540	79	193
Hawaii	6	21	1,393	2	3	9	1,154	0	0	3	154	7	82

* Total includes 102 duplications because of utilities having generating plants in more than one state.
* Each type of prime mover at combination plants is counted as a separate plant. * Due to rounding, 16 Mw has been added to the total U.S. capacity.
Source: Energy Information Administration/DOE

Source: Op. cit.

b. Future electric generating capability additions by regions, Mw.

	Prime Mover	Added 1977	Planned for 1978	1979	1980	1981 & beyond	Total additions now planned
New England	Conventional hydro	.....	.....	.....	.....	95	95
	Pumped storage	.....	.....	.....	.....	.....	.....
	Fossil steam	.....	527	.....	.....	818	1,345
	Nuclear steam	.....	.....	.....	.....	6,831	6,831
	IC	.....	11	.....	6	27	44
	Comb. turbine	95	.....	.....	.....	191	191
	Total	95	538	.....	6	7,962	8,506
Middle Atlantic (1)	Conventional hydro	.....	.....	.....	31	205	236
	Pumped storage	.....	.....	.....	.....	1,215	1,215
	Fossil steam	2,372	357	1,132	395	4,085	5,969
	Nuclear steam	1,288	880	1,032	1,870	16,796	20,578
	IC	.....	.....	.....	.....	240	240
	Comb. turbine	.....	.....	.....	.....	130	130
	Total	3,660	1,237	2,164	2,296	22,671	28.368
East North Central	Conventional hydro	.....	.....	40	.....	.....	40
	Pumped storage	.....	.....	.....	.....	.....	.....
	Fossil steam	4,205	4,131	3,082	2,693	13,083	22,989
	Nuclear steam	673	1,283	1,878	1,958	20,727	25,846
	IC	6	20	.....	10	15	45
	Comb. turbine	.....	213	.....	.....	.....	213
	Total	4,884	5,647	5,000	4,681	33,825	49,133
West North Central	Conventional hydro	.....	.....	.....	.....	.....	.....
	Pumped storage	.....	.....	160	.....	.....	160
	Fossil steam	3,196	2,412	1,705	2,686	11,390	18,193
	Nuclear steam	.....	.....	.....	.....	5,626	5,626
	IC	4	8	6	16	36	66
	Comb. turbine	266	904	144	198	1,360	2,606
	Total	3,466	3,324	2,015	2,900	18,412	26,651
South Atlantic	Conventional hydro	.....	.....	.....	113	366	479
	Pumped storage	250	340	240	208	3,670	4,458
	Fossil steam	2,044	1,369	515	4,245	13,875	20,004
	Nuclear steam	2,642	1,588	2,342	900	21,122	25,952
	IC	18	.....	1	.....	38	39
	Comb. turbine	329	288	20	820	820	1,948
	Total	5,283	3,585	3,118	6,286	39,891	52,880

	Prime Mover	Added 1977	Planned for 1978	1979	1980	1981 & beyond	Total additions now planned
East South Central	Conventional hydro	70	.....	.....	135	138	273
	Pumped storage	.....	1,300	.....	.....	.....	1,300
	Fossil steam	1,300	1,655	460	995	7,280	10,390
	Nuclear steam	1,927	1,148	2,325	3,250	11.381	18,104
	IC	.....	.....	.....	.....	.....	.....
	Comb. turbine	.....	.....	.....	.....	50	50
	Total	3,297	4,103	2,785	4,380	18,849	30,117
West South Central	Conventional hydro	.....	.....	.....	218	.....	218
	Pumped storage	.....	.....	.....	.....	100	100
	Fossil steam	2,992	4,496	4,238	4,874	14,911	28,519
	Nuclear steam	.....	912	.....	585	10,584	12,081
	IC	.....	.....	.....	.....	.....	.....
	Comb. turbine	300	.....	.....	.....	1,198	1,198
	Total	3,292	5,408	4,238	5,677	26,793	42,116
Mountain	Conventional hydro	.....	98	240	13	1,116	1,467
	Pumped storage	.....	.....	100	110	1,123	1,333
	Fossil steam	400	825	2,263	1,785	7,687	12,560
	Nuclear steam	.....	330	.....	.....	1,632	1,962
	IC	.....	.....	.....	.....	.....	.....
	Comb. turbine	117	.....	190	.....	.....	190
	Total	517	1,253	2,793	1,908	11,558	17,512
Pacific (2)	Conventional hydro	1,368	6,267	3,570	110	3,029	12,976
	Pumped storage	235	400	135	50	1,470	2,050
	Fossil steam	.....	653	683	646	5,507	7,489
	Nuclear steam	.....	2,120	2,200	1,198	18,616	24,134
	IC	.....	.....	.....	.....	.....	.....
	Comb. turbine	500	694	56	958	2,550	4,258
	Total	2,103	10,134	6,644	2,952	31,172	50,912
Total Contiguous U.S.	Conventional hydro	1,438	6,365	3,850	620	4,949	15,784
	Pumped storage	485	2,040	635	368	7,578	10,621
	Fossil steam	16,509	16,425	14,078	18,319	78,636	127,458
	Nuclear steam	6,530	8,261	9,777	9,761	113,315	141,114
	IC	28	39	7	32	356	434
	Comb. turbine	1,607	2,099	410	1,976	6,299	10,784
	Total	26,597	35,229	28,757	31,076	211,133	306,195

	Prime Mover	Added 1977	Planned for 1978	1979	1980	1981 & beyond	Total additions now planned
Alaska & Hawaii	Conventional hydro	.....	.....	.....	.....	35	35
	Pumped storage	.....	.....	.....	.....	.....	.....
	Fossil steam	.....	.....	.....	141	46	187
	Nuclear steam	.....	.....	.....	.....	.....	.....
	IC	12	9	15	14	49	87
	Comb. turbine	.....	105	85	65	.....	255
	Total	12	114	100	220	130	564
Puerto Rico	Conventional hydro	.....	.....	.....	.....	.....	.....
	Pumped storage	.....	.....	.....	.....	.....	.....
	Fossil steam	.....	.....	.....	.....	.....	.....
	Nuclear steam	.....	.....	.....	.....	.....	.....
	IC	.....	.....	.....	.....	.....	.....
	Comb. turbine	200	.....	.....	.....	.....	.....
	Total	200	.....	.....	.....	.....	.....

(1) Includes 32 Mw solid waste in 1978.

(2) Includes Geothermal 1978, 161 Mw. 1979, 245 'wē 1091 and beyond, 1,204 Mw.

Source: Op. cit.

A further indication of overall energy-supply security, by U.S. regions, may be measured in terms of the origins of the region's oil supply, illustrated in the charts shown below. The oil-origin data permit at least a subjective political evaluation of supply security based on reasonably probabilities.

BREAKDOWN BY U.S. REGIONS OF OIL DEMAND AND SUPPLY, WITH ORIGIN INDICATIONS

Approximate estimates. It should be noted that the data shown do not track inter-regional traffic (e.g., Region 3 imports are substantially re-exported in refined form to other regions).

Region 1 (East Coast, incl. New England) Region 2 (Middle West)

Source: The Boston Globe, Boston March 18, 1979

E. TRANSPORT

TRANSPORT COSTS

Statutory provisions both in Canada and in the United States preclude incentive rates by customer or route on the railways, although there is in both countries tariff-making latitude where individual commodity rates can be established.

Essentially similar considerations have applied to the trucking industry, but impending deregulation of the industry in the United States throws the subject of comparative rates and possible rebates into the ares of speculation.

Within its mandate relating to quantifiable cost parameters and incentive, this study confines brief discussion of transport cost elements to the principal topical area within which incentives or quasi-incentives operate. This covers the connecting links between an existing railway track and a factory site.

As shown in the table on the following page, the main incentive element--often negotiable--relates to the switch or turnout at which the new spur leaves the existing main line. The cost range shown reflects difference in signalling and traffic control, with the higher cost applicable where there is CTC (Central Traffic Control), while the lower cost relates to simpler systems. Other cost differentials between areas and companies reflect labour cost variations.

Both CN and CP as well as some U.S. railways offer industrial development siting services. CN has a particularly well publicized site selection department.

Rail Connection Costs and Rail Rates
(not available for all areas)

Canada	Canadian Pacific	Grading, drainage and special features are the responsibility of the customer. Trade belongs to customer. CP builds from ballast up at $50 per foot. CP also does maintenance, snow removal at plant's cost. If volume is heavy track/siding may be provided on a rental basis.
	Canadian National	$3400. for first 100 feet, this includes switch, each additional foot $1.50. Track belongs to railway. Annual rental $800 per 100 feet. Track is built by railway, but land must be graded West of Toronto and in the U.S. Track construction may be subcontracted.

Rates are not subsidized, but volume does affect level

Georgia and North Carolina	Track cost is $42-45 per foot excluding cost of prepared roadbed. Total cost would be $60-70. Siding cost $15,000-30,000, refundable at $10 per car up to 5 years. Siding track costs may be refunded in industrial parks or where heavy rail traffic is generated. Siding cost is lower where there is no central traffic control, $12,000.
Tennessee	Track cost is $35. per foot, normally 600-700 feet would be required. Siding costs vary from $15,000-35,000. Earned bonus (refund of cost) based on use during first five years.
Texas	Track cost is $50. per foot and siding cost is $30,000-40,000. Refundable basis is negotiable.
Virginia	Track cost is $30-35 per foot. Siding costs vary from $18,000-30,000. Siding cost refunded based on usage; $7.50 per car for first 8 years.

Where commodity rates can be established reduced rates are negotiable. The railways indicate responsiveness to volume traffic.

Rail connection costs

Ohio	Ohio's two largest rail systems are Contrail and Chessie. Siding costs vary from $15,000-$50,000 depending on how many switches and signals are involved. Contrail estimates siding costs from $27,000-45,000. A simple industrial service track (non signaled branch) would cost about $20,000-25,000. Both railways will refund siding costs for five years. Refunds vary from $5-$25 per car, but may be as much as $40 per car depending on potential revenue of siding. Customer owns and maintains the track.

- APPENDIX -

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