A REPORT BY THE SECTOR TASK FORCE ON

THE CANADIAN ELECTRICAL INDUSTRY

Chairman J. Hugh Stevens

ELECTRICAL INDUSTRY TASK FORCE

REPORT ON THE

CANADIAN ELECTRICAL PRODUCTS INDUSTRY

JULY 1978

The Honourable Jack H. Horner,
Minister, Industry, Trade and Commerce,
235 Queen Street,
OTTAWA, Ontario
K1A OH5

Dear Mr. Horner:

In response to your letter of March 15, 1978 I am pleased to submit the Report of the Electrical Industry Sector Task Force. In the preparation of this Report discussions were extensive and frank and as a result no dissenting opinions are expressed.

The Sector Profile was found by the Task Force to be a realistic statement about the Industry and was modified only slightly to reflect present conditions more closely. It is attached as an appendix to this Report.

I wish to express my appreciation for the efforts contributed by the members of the Task Force who were drawn from Labour, Industry, the Provinces and the Academic community. A list of the members and observer organizations is included.

The preparation of this Report would have been a very difficult task without the dedicated assistance of Mr. A.R. Hollbach and his staff.

On behalf of the Task Force I express appreciation for the opportunity to state the concerns of the Industry and to offer recommendations toward the resolution of those issues of greater importance.

I am submitting copies of this Report to your provincial colleagues.

Respectfully submitted.

Yours truly,

J. H. Stevens
Chairman,
Electrical Industry Sector Task Force

Provincial Ministers Receiving This Task Force Report

The Honourable Robert Banman
Minister of Industry and Commerce
Province of Manitoba

The Honourable A.M. Cameron
Minister of Development
Province of Nova Scotia

The Honourable R.W. Dowling
Minister of Business Development and Tourism
Province of Alberta

The Honourable Tom Farrell
Minister of Industrial Development
Province of Newfoundland

The Honourable John H. Maloney, M.D.
Minister of Industry and Commerce
Province of Prince Edward Island

The Honourable G.S. Merrithew
Minister of Commerce and Development
Province of New Brunswick

The Honourable Don Phillips
Minister of Economic Development
Province of British Columbia

The Honourable John Rhodes
Minister of Industry and Tourism
Province of Ontario

L'honorable Rodrigue Tremblay
Ministre de l'Industrie et du Commerce
Province de Québec

The Honourable Norman Vickar
Minister of Industry and Commerce
Province of Saskatchewan

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Mr. J.L. Olsen	Phillips Cables Brockville, Ontario

Mr. Glenn Pattinson	International Union of Electrical Radio and Machine Workers Don Mills, Ontario
Mr. J. Cyprien Pelletier	Ministére de l'Industrie et du Commerce Gouvernement du Quebec
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Mr. K.G. Rose	International Brotherhood of Electrical Workers Willowdale, Ontario
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Mr. G. Wasserman	BFG Industries Ltd. St. Bruno, Quebec

SECRETARY

Mr. A.R. Hollbach	Electrical and Electronics Branch Dept. of Industry, Trade and Commerce Government of Canada

OBSERVERS

Industry Associations

Electrical and Electronic Manufacturers Association

Provincial Governments

Government of British Columbia

Government of Saskatchewan

Federal Government Departments

Department of Employment and Immigration
Department of Finance
Department of Industry, Trade and Commerce
Labour Canada
Department of Regional and Economic Expansion
Department of Supply and Services

CONTENTS

APPENDICES

ELECTRICAL INDUSTRY TASK FORCE REPORT

The Electrical Industry Task Force was asked by the Minister of Industry, Trade and Commerce to review the sector profile discussion paper prepared by his department and to indicate its acceptance or otherwise of the document. Secondly, the Task Force was asked to consider the problems and prospects facing the electrical industry and to make appropriate policy recommendations. These views are for consideration by a federal/provincial conference of Ministers of Trade and Industry and eventual inclusion as part of a report to First Ministers to be tabled this fall.

The Task Force found the electrical sector profile discussion paper generally acceptable and an accurate reflection of the industry. There were a few reservations expressed by individual members on certain points; these were communicated to the Director General, Electrical and Electronics Branch, Industry, Trade and Commerce in his capacity as Secretary to the Task Force. We are satisfied that the revised profile accommodates these expressed reservations.

INDUSTRY SUMMARY

The electrical manufacturing industry is composed of manufacturers of two types of products: material and equipment which generates, transmits or distributes electricity (e.g. generators, batteries, transformers, wire and cable) and products which utilize electricity (light bulbs, industrial equipment, appliances). Industrial activity in terms of employment and value of shipments is almost evenly divided between two categories.

For the purposes of government policy, however, it is probably more meaningful to subdivide the sector on a different basis: those firms producing limited numbers of large, customized pieces of equipment and those producing high volumes of a relatively standard product. Conditions in these two groups are different. In the former, firms are using a strong domestic technology base to produce goods which are competitive in domestic and foreign markets. It is largely due to these firms that this sector has such a thriving export business. Exports have remained steady at just under 10 per cent of domestic output in recent years, a level that exceeds both that of the United States and Japan. The firms manufacturing mass-produced goods are largely oriented to the domestic market. The small size of the Canadian market and some fragmentation of production has restricted the industry's ability to improve its competitive position through increasing scale and specialization. As a result, some of the products of these firms are vulnerable to competition from larger foreign producers who are able to achieve lower production costs.

There are more than 500 firms in the industry, employing about 70,000 people. Production is highly concentrated, however, with seven firms accounting for 40 per cent of sales. The industry is also regionally concentrated with 90 per cent of the activity located in Ontario and Quebec, although there are significant electrical firms in all provinces except Prince Edward Island. The industry, as a relatively high-technology industry, provides the kind of challenging, well-paid jobs which are sought by Canadians.

The industry is a prominent user of processed raw materials including iron, steel, copper, aluminum and plastics and provides an important market for other Canadian industrial sectors producing a variety of component parts and semi-finished goods.

BACKGROUND

The major concern of the industry in recent years has been the erosion of the domestic market by imports. Increasing foreign manufacturers' sales in Canada have accentuated the effect of the general slowdown in load growth which followed the energy crisis in 1974. In the high volume segment of the industry a decline in competitiveness has undoubtedly been a major factor in the loss of market share. Even those elements of the industry that have maintained a major degree of competitiveness have suffered, however, because major foreign competitor-countries have increased subsidies and other support for their own ailing industries.

The most dramatic effect of the situation described above has been a decline in industry profitability. While an important factor has been the decline in the business cycle and the resulting excess capacity, the impact of inflation and taxation has also contributed significantly to lower rates of return. This is of concern to firms in the industry because it is only through profits and the promise thereof that a firm is able to finance the investments in R & D and production capital that are needed to keep the company competitive.

The industry is one of the prime participants in the energy field. As such, its future is vitally affected by energy policy. Decisions about energy mix, energy investments and the economic benefits to be sought therefrom will determine to a considerable extent the rate of growth and structure of the industry, and its ability to remain competitive in the relevant domestic and foreign markets.

Internationally, the electrical industry is dominated by a handful of multinational enterprises, most of which are represented in Canada and are major factors in the sector. In addition, there are a small number of important Canadian companies successfully competing in the industry. The small size of the domestic market combined with an excess number of producers in many products has resulted in small-scale, high-cost

production. In the face of prospects for freer international trade, the industry will need to restructure itself to improve productivity gains and competitiveness. Some sub-sectors have already made significant progress in this direction (e.g. major appliances and some industrial electrical equipment). Further potential exists in these and other sub-sectors.

The Canadian electrical industry is, relatively speaking, a high-technology industry. However, because of the dominant position of foreign-owned subsidiaries, most industry technology has been imported for application in the Canadian market. There are some outstanding examples of indigenous Canadian technology which have found international applications and which provide the Canadian industry with some internationally unique advantages. Specific instances can be found in the generation of electricity, high voltage transmission and industrial drive systems. The importance of a strong domestic technology base to the competitive strength of a firm is pointed up by the fact that the exports of the sector are dominated by products having such a domestic technology base.

Labour also has an important role in determining the competitive position of the industry. Increases in remuneration in the early and mid-seventies which exceeded the rate of productivity gain, led to more rapid unit cost increases than those in the United States, our main competitor. It is recognized that the solution to this problem requires the best efforts of both management and labour. While industrial relations generally have been positive, management and unions have not worked together to develop the understanding and co-operation needed to improve productivity. The industry currently suffers from a shortage of highly-skilled workers. This shortage is likely to worsen, because existing training programs are not producing people with the appropriate skills.

ASSUMPTIONS

In addition to the above commentary on the industry's structure and characteristics, there are a number of general assumptions implicit in the Task Force's thinking which have influenced the recommendations. These can be described under the following headings:

(a) Economic Growth Rate

The Task Force considers the growth rate targets of the Minister of Finance to be unrealistic and it assumes that the average annual growth rate in GNP will not exceed 4 per cent over the next five years. At the lower rate of growth foreseen by the Task Force, it will take at least another five years for electrical load growth to absorb overcapacity. During this time the industry will be particularly susceptible to competition.

(b) International Competition

It is assumed the steadily developing foreign competitive pressures of recent years will not ease up. Indeed, it is anticipated they will intensify as a result of several trends already underway:

- increasing manufacturing of standard technology items in low-wage, Third World countries using modern production facilities;
- continuing overcapacity in industrial countries; and
- increasing government intervention in the market-place by foreign governments to promote their industries' exports.

(c) Level of the Canadian Dollar

The Task Force assumes that the continued foreign borrowing of governments and the financial requirements of scheduled very large resource development projects will exert upward pressure on the Canadian dollar, impairing the competitive position of Canadian manufacturers. Over the medium term, the Task Force felt it appropriate to plan on the basis of a Canadian dollar at par with United States currency.

(d) Multilateral Trade Negotiations

The Task Force assumes that the Canadian negotiators at the MTN will not permit freer access to the Canadian market for foreign exports until evidence exists that in return, Canadian exporters will gain meaningful access to their competitors' markets.

ISSUES

Identification of Issues:

The most significant common factor affecting all industry in Canada today is undoubtedly the "business climate", a term which embodies the totality of the conditions under which businesses must operate - the rate of inflation, the overall level of taxation, government attitudes toward business, labour-management relations, etc. In any particular sector, some of these are obviously of greater significance than others. Considering the needs of the electrical manufacturing industry, the Task Force has selected for in-depth study the following six areas which require primarily government initiative:

I Energy policy
II MTN and trade practices
III Regional development
IV Provincial utilities procurement policies
V Export marketing and financing
VI Foreign ownership

In addition, the Task Force examined some pressing industrial performance issues which require primarily industry initiatives and the support of government:

VII Productivity
VIII R & D
IX Employee relations and supply of skilled personnel
X Rationalization

Recommendations and Impact

The overriding thrusts of the recommendations are to provide a positive business climate for firms operating in Canada and to encourage and assist them in their efforts to improve their international competitiveness. A key element in this is the removal of the uncertainty in the industry which discourages the required levels of investment.

The Task Force believes that it is necessary to consider each set of recommendations within the context of the background analysis and impact statements prepared for each issue. The objectives which these recommendations have addressed can be summarized as follows:

Those relating to business climate:

- Develop a Canadian energy policy which emphasizes the role of electricity and the strategic importance of supporting the domestic manufacturing industry in the energy program.

- Create a market environment that would lead to improved trade balance through import replacement and exports. Recommendations relate to Multilateral Trade Negotiations, domestic purchasing practices and competitive export incentives.

- Maximize utilization of the industry's resources regardless of ownership.

- Achieve an effective balance between the needs for regional development and concentration for efficiency.

Those relating to industry performance:

- Strengthen the Canadian technological base through an increased level of investment in the innovative processes.

- Improve cost competitiveness through: higher levels of investment for productivity improvements and industry restructuring; closer management-labour

understanding and co-operation; and the development of training programs to add to skilled manpower resources.

Similarly, the impact statements for each of the horizontal issues point to a common set of results likely to arise from the proposals. In all cases, the impact is seen to be a much stronger, more competitive electrical industry with direct implications for:

- faster employment growth
- additional challenging and remunerative jobs
- the creation of new wealth throughout Canada
- the upgrading of Canada's natural resources
- further investment in productive operations
- the strengthening of the sector's productivity and manufacturing productivity in general
- more successful export efforts and a healthier balance of payments

The horizontal issues were fairly commonly identified by the Task Force sub-committees preparing reports on each of the sub-sectors within the electrical industry. In addition, however, there were a number of recommendations specific to the needs and concerns of individual sub-sectors. These are contained in the sub-sector reports attached as Appendix A.

BUSINESS CLIMATE ISSUES

I ENERGY POLICY

Canada faces the likelihood of a significant deficit in crude oil by the year 1990, with the consequent impact on our balance of payments and implications for our national security. Much of this problem can be avoided by acting now to take advantage of a clear energy alternative - electrical power from indigenous resources - to fill the gap.

Background:

- Growth in electrical power consumption in the past few years has suffered from artificial market constraint. On the one hand, the federal government's action to soften the impact of the rise in world oil prices in Canada has delayed market

adjustment. On the other, the shift in the advertising thrust of provincially-owned electric utilities from the promotion of greater use of electricity to counselling reduction, is inconsistent with the continuing push of private oil and gas companies to expand their markets.

- Canada's oil production from conventional sources has already peaked. To assume a new domestic oil supply from frontier regions is to gamble with very heavy stakes.

- It is theoretically possible to replace all imported oil by 1990 by substituting electrical energy; but the financial constraints of such substitution are formidable and some balance would have to be struck between electricity and other forms.

- Lead times to put electrical generating capacity in place can take up to 13 years which will take us to the period of predicted oil shortages (1990) if we start today. Immediate action will also avoid an excessive buildup of major capital projects in the mid-1980's with consequent pressure on the Canadian dollar.

- Canada is currently experiencing severe unemployment and investment is at a near standstill. The development of an "electrical alternative" will provide significant additional employment for Canadians in the mining, electrical power generation and electrical equipment manufacturing sectors.

- Canada has an ideal source of additional electrical energy in uranium. Our domestic reserves are plentiful enough to provide a bridge into the 21st century when other options will be available. We have one of the world's finest and most dependable nuclear generation technologies in the CANDU reactor.

Recommendations:

1. All of Canada's energy capabilities (including fuels, delivery systems, plant, expertise and manufacturing ability) must be treated by policy as one resource, and directed to produce maximum benefit for the country. Market forces alone will not create the energy supply and mix needed by Canada. Energy is the key to Canada's survival as a trading nation. It must be mobilized for future self-reliance, as a base for industrial health and growth and as our counter to cheap foreign labour in the production of international trade goods.

2. The Canadian government should recognize electricity as the dominant energy form of the future, as Canada's energy bridge over the next decade, and as a strategic Canadian industry.

3. An energy policy must begin with an inventory of Canada's regional energy resources, from which a joint and overall assessment can be made of how the total can be used to the best economic advantage of both the regions and the nation. A timetable would then be established to bring these resources on stream in a way that would create an orderly flow of capital and extend the life of our non-renewable resources.

4. With due regard for the importance of conservation as an immediate step, the electrical utilities should be encouraged to promote the use of electricity as a substitute for oil and gas in order to minimize Canada's dependence on imported oil, and to make fuller use of our present under-utilized manufacturing capacity.

5. The industries and utilities that support generation of electricity are "world scale" and provide a major opportunity to export finished product (electricity) to the United States and thus redress our growing balance of payment situation. In light of these strengths and the priority to the upgrading of Canada's natural resources, it is recommended that the government reassess its policy on the export of electrical power.

Impact:

An accelerated program of new electrical generation between now and the mid-80's would create far greater employment than any other recourse, and would spread out the coming pressure on energy sector capital. In addition, it could be a major factor in solving Canada's increasing balance-of-payments problem.

Without an energy policy, such as the one recommended here, our industry will continue to be operated in a climate of uncertainty and cannot effectively plan for the future. In other words, if governments do not make up their minds, we cannot make up our mind, since government policy in regard to energy obviously has a critical effect on our sector.

II MULTILATERAL TRADE NEGOTIATIONS AND TRADE PRACTICES

The concept of "free trade" being pursued at the MTN assumes the success of naturally-competitive suppliers in a market of unrestricted buyers. This assumption ignores the significant involvement of governments in the industrial development process with initiatives designed to enhance competitiveness of their own industries and to restrict access to their domestic markets. Such initiatives are particularly common in times of economic slowdown and if not countered quickly by competitors can lead to significant geographic shifts in manufacturing activity and market share.

Assumptions:

For the purposes of this paper it is assumed that:

a) Limited progress will be made in eliminating the non-tariff barriers faced in developed nations by Canadian manufacturers of electrical goods.

b) Governments recognize Canada's particularly vulnerable trade position stemming from the proximity to, and size of, the United States.

Background:

- Canada's electrical products manufacturing industry must deal with the unwilling buyers - the utilities in many of the developed nations. Members of the electrical industry have serious doubts about Canada's ability to change long-established nationalistic purchasing policies in these countries. It is difficult to visualize what equivalent-value incentive Canada has to offer.

- In the domestic market Canadian manufacturers are competing not only with foreign companies, but in many cases with a joint company-government offer. Protected markets in foreign countries allow foreign producers to price their exports on a marginal basis. In addition, the foreign supplier may be supported by direct government financing or guarantees to allow it to offer firm prices even during periods of high inflation. World overcapacity in some sub-sectors makes it likely that there will be increasing foreign activity of this kind.

- In Third World markets Canadian manufacturing must compete with foreign suppliers from developed nations who are supported by their governments as described above. In addition, financing for major projects may be offered to the purchasing country at subsidized interest rates. On matters of export subsidies and concessional financing, Canadian manufacturers feel at a disadvantage.

- Canadian manufacturers are at a disadvantage with the United States as a result of DISC, notwithstanding corporate tax adjustments made by Canada.

- The use by the United States of countervail measures constitutes an important device for the protection of industry in that country which is not available to firms in Canada.

- On the matter of dumping, Canada is at a disadvantage in several ways:

  (i) goods may be relatively easily dumped into Canada because of ineffective trade barriers. Once the goods

are dumped, there is no opportunity for the Canadian manufacturers to regain the order. Even if dumping and injury are proved, the foreign supplier simply pays an additional duty up to "normal value" or raises the price to avoid paying the duty;

(ii) because of the impregnable NTB's in Japan and the EEC, Canadian electrical products suppliers do not even have the opportunity to sell in these markets at any price;

(iii) in Canada, "injury" to the industry must be proved. While this is also required in the United States, their definition of injury is such that imports into the United States are deemed to cause injury at a lower level of penetration than in Canada; and

(iv) dumping reduces the volume in Canadian plants and tends, therefore, to impede the reduction of unit costs, which in turn reflects on competitiveness.

Recommendations:

1. At the MTN, Canada should seek to delay the reduction of Canadian tariffs until it is demonstrated that relevant NTB's have, in fact, been removed.

   The key elements required to effectively remove NTB's are:

   (a) a specific documentation of which practices are permitted under the regulations, and which are not;

   (b) a sufficient transparency in each business practice (e.g. the publishing of certain details related to winning bid awards) to ensure all participants that the regulations are being complied with; and

   (c) a provision for dispute settlement on a basis that does not disrupt the normal routine of business, but rather deals with repeated, deliberate breaches of the regulations.

2. Foreign company-government offers to Canadian purchasers (utilities or major projects) sometimes include concessional financing (e.g. firm prices) that Canadian companies cannot match. The federal government should consider a Domestic Financing Corporation, similar to the EDC, to assure that Canadian manufacturers are not at a disadvantage in their own country.

3. The federal government should carefully re-examine the position of the Canadian manufacturer relative to foreign competitors on the matter of dumping, following which a joint industry-government effort should be made (perhaps through

the Electrical and Electronic Consultative Committee) to develop appropriate policy and procedures. Fundamental points in a revised policy should include:

- The objective of the anti-dumping procedures should be to prevent dumping in as far as possible.

- The time element in the finding of dumping and of injury should be as short as possible.

- The cost to the Canadian company in demonstrating that injury has taken place should be minimized. A mechanism should be developed such that if injury is proved the Canadian company is recompensed for the cost of the action.

- The definition of "injury" should not make it unreasonably difficult to establish that injury has taken place.

- Governments should require an affidavit from the foreign supplier that the goods are not being dumped.

- Governments should have a commitment not to purchase foreign goods at dumped prices.

- The federal government should not overrule the Tribunal as in the recent case of steel.

4. Canada should work toward neutralizing the United States DISC program.

5. Canada should work toward eliminating the advantage held by the United States on the matter of the definition of "injury" for countervail purposes.

6. Industry and government should develop a contingency plan now in the event of non-removal of existing NTB's or the introduction of new NTB's by foreign countries.

7. Other countries recognize the economic benefit derived from a healthy electrical industry, and support home manufacturers through local purchasing. Federal and provincial governments should make every effort to assure that the Canadian economy reaps similar benefits for Canadian industry by either assuring access to foreign markets or by devices designed to assure Canadian manufacturers a "fair" chance in the Canadian market.

8. The federal government should assure that the lowering of Canadian tariffs does not put Third World countries in a preferred position in the Canadian market. Some Third World countries, using aid granted by Canada (or other countries) for industrial development are becoming an increasing threat to Canadian manufacturers.

Impact:

- It is felt at this time that the results of lower tariffs will have, at least for the medium term, a negative effect on the electrical industry's:

  . employment
  . investment
  . profits

  The reduction in prices resulting from the greater access to Canada for foreign suppliers will result in loss of market share for the domestic industry. It should be noted that a five-point drop in a tariff level would have a 25 or 30 per cent impact on corporate profits and could endanger a large number of jobs in the industry.

- A drop in tariff levels will not result in significantly increased Canadian sales to the United States, to Europe or Japan, if effective access is still somehow blocked or if, for reasons relating to the general business climate, the potential exporter elects instead to build a plant where the market is (e.g. in the United States).

- Action to neutralize or prevent the adverse impact of foreign subsidies and concessional financing packages in the domestic market will reduce uncertainty and encourage investment and employment as well as strengthening the industry's potential for exports. Resolution of the dumping issue will have the same effect.

- Assuring that concessional financing on foreign bids is competitive will increase employment in Canada.

Adjustment:

Given the assumption that Canada's participation in the MTN will lead to an agreement to reduce tariffs, the Task Force feels it is vital that governments have available a well thought out and adequately funded program of assistance to minimize dislocation and speed the process of structural adjustment. In this respect, the following recommendations are offered:

1. Adjustment policies and plans should be developed at the earliest possible date, that is, before the tariff reductions come into effect.

2. Each sub-sector will have its peculiar problems and will need to work out specific impacts in order to develop appropriate adjustment programs.

3. Adjustment programs must be aimed at making the sub-sectors genuinely competitive with the new level of competition. Such assistance should not be based on an indefinite "support" program.

4. Adjustment programs, to the extent possible, should be based on economic considerations and not political considerations.

5. Adjustment programs must recognize the impact on employees, on companies, and on communities.

III REGIONAL DEVELOPMENT

Provincial governments have a legitimate concern to promote the growth of industry within their jurisdictions. However, efforts to induce new manufacturing activity in slow growth regions can hurt the competitive position of industry by aggravating fragmentation and overcapacity.

Background

- Concentration of manufacturing activity in Canada's central provinces is dramatically exemplified by the electrical products industry with 82 per cent of establishments and 92 per cent of gross revenues located there.

- While such concentration may be justified by proximity to markets and suppliers, it contributes to economic hardship and alienation in the other regions.

- Government programs to redress the situation have been counterproductive in instances where uncompetitive production units and overcapacity have been encouraged. Rather than generating stable new employment, such programs are disruptive if the new industry they initiate is not viable.

- Location factors which originally attracted manufacturing plants to certain areas are not necessarily still valid. Under favourable conditions, relocation to an underdeveloped region may be feasible. This type of shift can contribute to regional development and to competitiveness. Current federal government programs do not provide assistance in these cases.

- For firms with plants in more than one province, intrafirm rationalization of production into specialized plants can improve competitiveness while retaining decentralized operations. The current provincial practice of giving purchasing preferences only for those products a firm manufactures within the jurisdiction, works against economic efficiency and ignores the fact that specialized plants usually are exporting considerable amounts of output to other parts of Canada.

Recommendations:

1. Development priorities and opportunities should be discussed in the first instance with manufacturers who are already established in Canada or who have developed a market here for their products sufficient to support a viable manufacturing facility.

2. While recognizing the fundamental importance of regional development and a more balanced distribution of manufacturing activity in Canada, application of DREE and other financial assistance should be predicated on long-term prospects and a realistic feasibility analysis which evaluates all relevant criteria. Such analyses should be reviewed by industry experts and adjusted where necessary before being used to encourage new investment.

3. The desirability of DREE assistance for a project should be assessed in the light of various criteria including security of employment, extent of import replacement, technology content (particularly if new), export opportunities and prospects for growth.

4. Co-operation should be sought by government agencies and industry from provincially-owned utilities for guidance on market opportunities and import replacement strategies.

5. Encouragement should be given to studies which assess the economic feasibility and consequences of moving entire plants to new locations. In the interests of avoiding fragmentation, DREE should drop its requirement that when a new investment by a domestic firm is being assisted, that firm may not close existing capacity. Some further measure may have to be considered in this respect to assist companies and communities to minimize effects of dislocation and to encourage a positive adjustment.

6. Provincial governments should extend any existing purchasing preferences to the full range of products made by a firm and not just to those items made within the province. The provinces should commit themselves to studying the ways of extending this application of preference to cover sub-sectors or groups of producers of a common product.

Impact:

Many current regional development initiatives hinder industry's efforts to improve its competitiveness. A shift in the focus of regional policy from regional development for its own sake to the development of competitive industry in all regions of Canada would lead over time to a stronger electrical sector and healthier regional economies.

The recommended change in DREE regulations to permit the substitution of new regional capacity for existing operations would significantly alter the regional distribution of activity, by encouraging relocation and upgrading of inefficient or outmoded production units in other regions. Provincial procurement policies could thereby be based on a more rational and cost-competitive industrial structure.

IV PROVINCIAL UTILITIES PROCUREMENT POLICIES

The absence of consistent, mutually shared procurement policies among publicly-owned utility companies in Canada, supportive of electrical products made in Canada, is detrimental to the Canadian manufacturing industry and inconsistent with practices in other countries.

Background:

- Utilities account for 50 per cent of industrial electrical products purchased in Canada.

- Provincially-owned utilities in Canada account for 90 per cent of all utility purchases of electrical equipment.

- More than 40 per cent of Canada's installed electrical generating capacity is outside the provinces of Ontario and Quebec; less than 10 per cent of electrical equipment industry employment is outside these two provinces.

- Utilities must quite naturally consider their own self interest and that of their customers in making purchasing decisions. The incentive this creates to buy at lowest cost is generally reinforced by legislation in the case of publicly-owned utilities.

- In provinces where manufacturing facilities are located, calls-to-tender generally apply terms and conditions compatible with the capabilities of local suppliers, and sometimes assign price preference to such sources. Provinces with a less-developed electrical products industry are more receptive to foreign bidders and often impose terms and conditions that are commercially unacceptable except to foreign bidders with access to government-supported risk coverage.

- While discrimination may be practised by utilities within one province against bidders located outside that province, this is deemed to be less of an issue than the terms and conditions set by the buyer and the encouragement of offshore bidders.

- Since much of the equipment is made to order, dumping is difficult to prove; in any event, anti-dumping procedures do not prevent such practices and fines have not been imposed on proven offenders.

Recommendations:

1. First Ministers should recognize the significant ill-effects of uncontrolled interprovincial competition for industrial development. High priority should therefore be placed on the identification of an equitable formula for sharing the benefits of manufacturing activity and the development of mechanisms to facilitate and encourage support of Canadian manufacturing regardless of provincial location. These might include an equalization fund or offset arrangement, for example.

2. All utilities must be encouraged to recognize the economic benefits of placing orders for electrical equipment within Canada and to exercise a preference for Canadian-made products.

3. Provincial utilities should be encouraged to make it a condition of bids, or at least to require written confirmation from bidders, that prices quoted are not below fair market value in their country of origin and are not based on government subsidies as to cost or risk coverage.

4. Where foreign purchases cannot be avoided, offset arrangements should be made part of the procurement package.

Impact:

- Electrical utilities are the most important single market for industrial electrical equipment and wire and cable; their buying practices significantly influence the opportunity for growth and technological development of Canadian-based manufacturers.

- Canadian utilities are highly regarded internationally. Their use of Canadian-made equipment and their participation with Canadian manufacturers in the development of advanced designs can provide important leverage in export markets.

- Concerted action between industry and the utilities, within an agreed framework of interprovincial sharing of manufacturing benefits, could provide the growth in activity necessary to facilitate location of new production units in provinces now without sufficient electrical manufacturing strength.

- Voluntary revision of regional imbalances in production activity within the framework of financial viability would fulfil regional development objectives and enhance overall domestic market opportunity: a "positive sum game".

- Restricted calls-to-tender and self-imposed policing of bids by utility companies to exclude marginal pricing from foreign suppliers would minimize the costly and unrewarding appeals by Canadian manufacturers to inhibit dumping.

V EXPORT MARKETING AND FINANCING

A significant amount of the international trade in electrical products takes place between industrialized and less-developed countries. Canada must compete in these markets against offers from foreign competitors which combine industry and government support. There is a continuing need for supportive and competitive Canadian programs to neutralize the role of foreign governments in these markets.

Background:

- Exports of Canadian electrical products in 1976 totalled $260 million with the industrial electrical sub-sector accounting for 40 per cent of these. More than a third of the exports of industrial electrical equipment go to less-developed nations. These countries also constitute significant markets for wire and cable, batteries and miscellaneous electrical products.

- The strongest export performers in the sector are generally products developed from a Canadian technology base.

- Canadian companies have demonstrated an ability to compete against the major foreign competitors in selected product areas, but the total Canadian offer has often not been competitive against foreign bids with more attractive government-supported financial packages, including protection against inflation of fixed price contracts, and the timely offer of competitive interest rates.

- Canada ranks high among nations in the percentage of GNP which is dispersed to the aid of developing countries; however, there is insufficient visible collaboration between CIDA, EDC and ITC in the selection of the projects which would match the particular project and manufacturing skills of Canadians with the needs of these developing nations; Canadian consultants receiving CIDA funding do not support the supply of domestic equipment and service to the same extent as consultants from other countries.

- Given the current world overcapacity in the electrical products manufacturing sector, the international agreement limiting the subsidy element in concessional financing can be expected to come under increasing pressure. Concessional financing in support of foreign bids continues to pose a threat in Canada and provides an advantage to offshore suppliers which Canadian suppliers cannot match.

- Support has been given to Canadian export activities by the ITC Program for Export Market Development and by the informed members of the Trade Commissioner Service in most countries around the world.

- Increasingly, to achieve export success in the markets of the developing countries requires the offer of "turnkey packages"; Canadian industry has not had a successful experience in bringing together participating companies into effective bidding consortia.

Recommendations:

1. ITC should continue the Program for Export Market Development with periodic review and updating, taking into account the rising costs of marketing work in most countries as a result of the decline in the value of the Canadian dollar.

2. EDC should reconsider its policy of making a profit at the expense of Canadian competitiveness on foreign bids under these circumstances. In cases where Canadian bids are competitive in all other aspects, EDC should provide, on a timely basis, financial packages that are competitive in interest rates and in terms, including protection against inflation. EDC financial capacity to support export offers should be increased.

3. Contrary to the current philosophy in government, tied aid can be justified and should be emphasized. It should be a fundamental guideline of Canada's aid policy to use Canadian consultants, Canadian specifications and Canadian products.

4. ITC, EDC, and CIDA should collaborate to optimize financing programs in support of domestic manufacturers' exports (e.g. through blended rate financing) and to select aid projects which, in a practical way, match the particular skills of Canada's manufacturing industry with the needs of developing countries.

5. The government should continue to press for a stronger international agreement limiting the provision of concessional financing to developed countries. Recognizing that this is a partial solution, the government should monitor the level of financing coming into Canada, with a view to neutralizing its effect when it is used to finance products which compete directly with Canadian products.

VI FOREIGN OWNERSHIP

There appears to be a resurgence of "anti-foreign-ownership" feeling in Canada. The strong feelings on this issue often are not based on any systematic examination of the benefits and drawbacks of foreign-ownership. Such a situation contributes to economic uncertainty and thus adversely affects all business decisions.

Background:

- From the point of view of Canada's economy, the performance of a firm is important. The ownership is not.

- Foreign-owned companies have made a major contribution to the stability and growth of the Canadian economy. Such companies not only have provided needed capital, they have brought technology, marketing connections and access to R & D.

- The multinational has an advantage over many Canadian companies in the area of worldwide marketing and distribution. This is a strength which can be readily exploited through programs like the Pathfinder Program, restructuring product lines, specialization and concentration on technology development in areas which will increase exports.

- While foreign ownership in some cases has made Canadian subsidiaries vulnerable to policy decisions of foreign governments or has restricted the ability of a subsidiary to pursue new opportunities, many foreign-owned firms are free to respond to events in the marketplace and have been able to work aggressively to take advantage of new opportunities.

- Uncertainty about how government plans to treat foreign-owned firms, and concern that discrimination will be practised against subsidiaries and in favour of Canadian-owned companies, would be discouraging to foreign investment and would have a negative impact on the Canadian economy.

- A semi-annual survey of capital investment intentions of major businesses of Canada, carried out by ITC, indicates that foreign-controlled firms included in the survey are planning to increase their capital expenditures at a much faster rate than Canadian-controlled firms.

Recommendations:

1. Business and government should investigate further means by which the link between subsidiaries and parent companies can be used to benefit Canadian firms and to strengthen their performance.

2. To remove uncertainty, all companies should be measured against a code of business conduct related to Canadian economic and social priorities (e.g. the ITC Principles of International Business Conduct, or the OECD Guidelines) and firms which qualify should be treated equally by governments irrespective of the nationality of their ownership or control.

INDUSTRY PERFORMANCE ISSUES

VII PRODUCTIVITY

Significant gains in the productivity element of cost competitiveness must be achieved to offset other cost increases if the industry is to respond to increasing foreign penetration of the domestic market and to export opportunities.

Background:

- While exports of the electrical products sector have increased to more than 8 per cent of factory shipments in 1976, indicating competitiveness in some products, the decline in the overall competitiveness of the sector is indicated by the growth of the negative trade balance from $189 to $877 million during the period 1965 to 1976. Over this period industry shipments as a percentage of the domestic market fell from 87 per cent to 79 per cent. This has been a key factor affecting the productivity performance and growth of the industry.

- Within the domestic economy the growth in productivity in the electrical industry has been at a rate below the average for all of manufacturing. This may partly reflect the maturity of many of the industry's products and the already high level of productivity.

- In comparison with foreign competitors, especially the United States, the level of Canadian productivity is lower in industries producing high volume standardized goods. This gap arises from the small size of the market and the fragmentation of production which inhibit firms' abilities to gain the benefits of greater scale and specialization. For firms producing large custom-built pieces of equipment, productivity levels are comparable with United States counterparts. Through the growth of the domestic market, entry into some export markets, and the vigorous efforts of the industry, productivity growth rates exceeded those of the United States industry and the gap narrowed until the recession of 1974. Since that time overcapacity has held down further productivity improvement. Given the structural nature of the constraints to productivity improvement, a major drive above and beyond the ongoing efforts of the industry is required if its competitive position is to be improved significantly.

- Gains in cost competitiveness will become increasingly difficult to achieve in a period marked by lower market growth and increasing production costs. Under such conditions, productivity gains are of particular importance in restraining price increases which heighten the risk of further loss of both domestic and foreign markets.

- Productivity gains require investment in a range of functions, including modernization of production plant and machinery, process development for more efficient use of energy and materials, and improved distribution systems. To reduce the unit cost of output, investment will also be needed to achieve restructuring within the industry to obtain more efficient units of production. These investment plans require an improvement in the profitability of the industry in order to generate some of the needed capital and to offer the prospect of rates of return that will compensate investors for the risk and effort involved.

Recommendations:

Industry must identify areas of product excellence where specialization would improve cost competitiveness, and must be prepared to commit the necessary investment funds to achieve and maintain this. For Canadian subsidiaries, which represent a significant portion of this industry, an appropriate strategy would be to seek world product mandates from their parent organizations.

Initiatives for the improvement of productivity must originate within industry and must include measures affecting all aspects of a company's operations - technology, production, marketing, finance and management. Government policies and programs may be necessary to remove constraints to improvements in these areas and specifically to permit a return on investment that is competitive with other countries and that will stimulate capital formation here. Recommendations in respect of the latter objective are as follows. Recommendations on related areas can be found elsewhere in the issue papers.

1. The federal government should amend corporate tax legislation to recognize and allow for the impact of inflation on corporate profits.

2. Increase the present investment incentive credit to 15 per cent of eligible capital expenditures as a direct reduction of corporate income taxes otherwise payable.

3. Remove present provision by which capital costs of the acquired assets are reduced by the amount of the incentive for capital cost allowance purposes.

4. Reduce the period in which the cost of the eligible capital expenditures can be written off for tax purposes from two years to one year.

5. Expand the investment incentive program to cover all capital expenditures in the industrial sector rather than limiting these, as at present, to expenditures for manufacturing plant and equipment only.

6. Shorten the period for write-offs for tax purposes of building investments to encourage expansion needed to support programs related to investment for productivity improvement.

7. Recognize, within investment incentives definitions, the cost of restructuring within the industry for production efficiencies.

Impact:

Improvement of industry productivity is critical to overcoming the competitiveness gap which has been undermining the weaker sub-sectors of the industry. It is also important in the stronger sub-sectors if they are to improve their trade and employment performance and make a full contribution to economic recovery.

VIII RESEARCH AND DEVELOPMENT (R & D)

Increased levels of R & D are essential to achieve the national goal of a stronger, more independent technology base and a level of new development to give Canada a significant base of unique and competitive products for domestic and international markets.

Background:

- If Canada's manufacturing industries are to contribute fully to future growth of the economy, it is important that they remain abreast of the advance of technology. Failure to do so will make them increasingly susceptible to competition from low-wage developing countries.

- The Canadian expenditure on R & D has steadily dropped since 1968, from 1.2 per cent of GNP to about 0.9 per cent. The decline has been even more severe in the electrical and electronic industries. Their share of total Canadian industry R & D has dropped from about 30 per cent to 23 per cent in the same period.

- In Canada the key to productive R & D must be selectivity and the need to focus on areas of advantage where the identified R & D costs can be carried competitively in the selling price. Such areas may include low, medium and high technology industries.

- The Canadian electrical product manufacturing industry has a proven track record in the development of technology-based products in response to indigenous needs and with world export potential. Examples range from high voltage DC equipment, hydro generators and industrial drive systems in the industrial electrical field, through fibre optics in wire and cable, to electric kettles and dehumidifiers in the appliance industry.

- Foreign ownership is significant in the Canadian electrical industry and undoubtedly has some effect on the levels of R & D performed by electrical products manufacturers in Canada. This situation is partly reflective of differences in the "product profile" of parents and subsidiaries, but more so of the relative attractiveness of the business climate in the respective countries.

- R & D activity is employment-intensive and provides high-quality, high-income work.

Recommendations:

1. The present R & D tax incentives should be increased and applied to "base" as well as incremental expenditures. In addition to continuing to qualify for 100 per cent write-off as a normal expense, eligible R & D expenditures should qualify for an effective 25 per cent tax rebate. Existing programs for small and medium-size business should also be enhanced in order to equalize the opportunity of benefit.

2. The definition of R & D expenditures eligible for the above treatment should be broadened to cover expenses which are essential to: the development of new or improved products or processes (e.g. direct labour, direct material, subcontracts and consultants, overhead) including industrial design services and the costs of construction prototypes, pilot plants and special test equipment. In addition, the following pre-production expenses should be eligible for support where they are related directly to the commercial exploitation of the results of the development project: the preparation of production drawings, process data, reports, specifications, instructions and bills of material, and the design of production tooling, inspection and test equipment, and other non-recurring, pre-production activities of similar nature.

3. Canadian R & D incentive programs should have long-term continuity, recognizing the need to provide the time and stability for staff build-up and retention, as well as design and development, and the transition to manufacturing engineering and production. The federal government should commit itself to the support of these measures for a period of not less than 10 years.

4. The Department of Industry, Trade and Commerce and the Department of Energy, Mines and Resources should establish, with appropriate representation from the provinces, a Task Force or Action Group to formulate policies and related programs, with the objective of facilitating electric power system interconnections and networks, utilizing and supporting the capability of Canadian manufacturers to design and produce the required equipment and systems. Such policies and programs should be designed in support of, and related to, the R & D programs.

Impact:

- A recent in-depth analysis in the United States of certain aspects of high and low-technology industries discovered that:

  a) high-technology industries grew almost three times as fast as low-technology industries;

  b) output-per-employee in high-technology industries is double that of the low, and this favourable labour productivity is mirrored in a price record of much more resistance to inflation in the high-technology industries;

  c) output-per-employee gains were not at the expense of employment; employment in the high-technology industries has been growing at a rate nine times that of the low-technology groups;

  d) high-technology products generated a significant trade surplus while those with a low-technology content showed a deficit.

  Such performance should be equally attainable in Canada, given adequate support for the industry.

- The extent to which an enriched tax rebate will directly generate more R & D is difficult to estimate with any degree of precision. At the maximum, if the full amount of the tax rebate's incremental benefit were to be reinvested in R & D, a company's individual R & D expenditures could be increased by around 15 per cent.

  Realistically, however, it would seem unlikely that the full amount would flow through as increased R & D. Over a period of time there would be a substantial increase, particularly by the successful tax-paying companies in the industry. In addition, a more generous tax treatment of R & D expenditures would have a positive influence on the overall business climate and should encourage more optional R & D to be performed in Canada, particularly in the high-technology industries with strong international characteristics.

Thus an increased R & D tax credit would have a twofold impact. In the first instance, it would permit more investment in R & D by those companies already successfully involved, and in the second, it would enhance the attractiveness of Canada vis-à-vis other countries as a place in which to invest in R & D facilities. Both would stimulate Canadian technology-based industries.

IX EMPLOYEE RELATIONS AND AVAILABILITY OF SKILLED MANPOWER

Productivity of the electrical manufacturing industry is impaired by some employees' lack of understanding of the industry's decreasing competitive position and the factors that influence it. The industry is also at a disadvantage vis-à-vis the United States because of higher unit employment costs. Management and labour unions have not generally worked together to develop better understanding and co-operation to improve productivity. The industry is also suffering from a shortage of highly-skilled, experienced tradesmen and technical workers which is expected to become more pressing over the next three to five years.

Background:

- Productivity is much more than production worker output per hour. It is the effect on output by all the inputs including R & D, design, plant, equipment, methods, systems, etc. Particularly important inputs, however, are co-operative attitudes and effective work by all employees.

- During the 1960's and early 1970's Canadian wage rates rose more rapidly than those in the United States. Up to 1972 improved output per man-hour more than offset these increases, but since then Canadian productivity performance has not matched the pace in the United States. The resulting competitive disadvantage has been further aggravated by reductions in the Canadian tariff following the Kennedy Round, and up to 1975 by the appreciation of the Canadian dollar.

- Since the end of the Second World War, Canada has relied upon the immigration of skilled workers, largely from Britain and Europe, to meet the major portion of its needs in this respect. As a result, there was little pressure upon government, business or labour to make significant efforts to train new workers in the relatively high-level skills required in many of the advanced-technology industries.

- Rising standards of living in Europe, tighter immigration procedures and growing demand for workers with technical skills have acted together to tighten the market for this type of manpower. These pressures likely will continue over the foreseeable future. Skilled tradesmen such as electricians and machinists are in short supply despite high

unemployment levels. Specialty skills such as transformer coil winders must be trained internally, enticed away from competitors or obtained through immigration. The factors that influence this situation are indicative of an increasing Canadian problem that requires solution if the electrical high-technology industry is to develop and improve its international competitiveness.

- The geographic size of Canada, its political subdivisions and internal differences of culture and language and the cost of relocation have tended to reduce the role that could be played by internal worker mobility in easing imbalances of labour supply and demand in different regions of the country.

- Business and labour have some concerns which have inhibited their willingness to support systematic private sector efforts to train workers. On the part of firms, there is concern that the mobility of workers can mean that the firm can lose the services of any employee after time and money have been invested in him. On the part of labour there is concern that learning workers not be used as a cheap substitute for fully-qualified employees and that in times of slow economic activity more senior workers are not laid off so that learning workers may continue their education.

Recommendations:

1. Government, industry associations and labour unions must work co-operatively to develop information material on the factors that influence productivity, including the contribution of employees' positive attitudes and motivation to effective work and low absenteeism.

2. Industry management and labour unions, together and separately, must communicate with and involve workers in productivity improvement programs.

3. The government sector should not lead industry in wage, salary and benefit increases.

4. Federal and provincial labour legislation should be revised to provide secret ballots for strike votes.

5. Industry and labour with the assistance, where necessary, of governments should develop a more flexible approach to apprenticeship-training programs with a view to better balancing the needs of apprentices to complete their training and the needs of more senior skilled workers for protection against loss of jobs in periods of low activity.

6. Incentives should be developed to encourage entry into, and completion of, apprenticeship programs. This could be achieved through interprovincial harmonization of training and apprenticeship programs aided by a system of certificates which provide greater recognition of the skills possessed.

7. Industry, labour and government should establish and support a training program for the electrical industry to set standards for certification of various trades. Demographic manpower projections should be made periodically to identify projected needs of the various skilled occupations.

8. Increase the size and scope of government training programs; encourage greater on-the-job training; and establish a "co-operative" system of education at the level of the community college, technical school or CGEP whereby students would alternate between formal education and practical, shop-floor experience.

9. Provide a tax incentive for employers to upgrade the skills of their employees by offering a 150 per cent write-off against taxable income of expenses incurred in providing approved forms of worker training.

10. As a means of improving mobility to fill short-term regional needs, mechanisms should be developed to recompense workers for extra costs of temporary dislocation.

X RATIONALIZATION

The Canadian electrical products manufacturing industry must be restructured if it is to survive in a "freer" world trading environment and to reduce the substantial trade deficit of the sector.

Background:

- Canada is running a large and increasing trade deficit on electrical products in spite of a respectable level of exports of 9 per cent of shipments.

- The sector contains a wide range of products from large, high-technology, high-unit cost, custom-engineered products and systems to standardized, low-unit cost products most economically produced in long production runs. In addition, reference is made below to turbine drives for generator systems (hydraulic, steam and gas) produced by the generator manufacturers because they are sold as packaged systems.

- At present the sector has four major characteristics:

  1. the small domestic market and the excessive number of manufacturers in many product lines have resulted in small scale, higher cost production. Fragmentation of manufacturing activity has resulted from DREE and some provincial government procurement policies;

  2. the relatively small size of firms in Canada does not support the level of investment in R & D necessary to create "free standing" product lines that can compete worldwide;

  3. exports from this sub-sector are dominated by products in which the technology base resides in Canada; and

  4. most production comes from the Canadian subsidiaries of multinationals, and this is unlikely to change.

- There has already been a significant amount of consolidation and rationalization in the Canadian electrical industry. Furthermore, a number of free-standing product lines have been developed through Canadian R & D or by assignment from parent company of world charter. E.g. waterwheel generators, bulk oil and air blast power circuit breakers, drive systems for mine, mill and transportation systems, industrial gas turbines and small steam turbines, hydraulic turbines, HVDC, EHV and UHV power transformers, solid-state excitation systems for hydraulic generators, and a variety of utility control and instrumentation systems.

  In the case of major appliances, the recent formation of the Canadian Appliance Manufacturing Company (CAMCO) through the combination of three of the larger manufacturers is a prime example.

Recommendations:

1. Federal policies (e.g. DREE, FIRA, combines legislation) should encourage, or at least not interfere with, market forces tending to concentrate Canadian manufacturing.

2. Provincial governments should be dissuaded from following purchasing practices which tend to fragment the industry.

3. R & D incentives and internationally competitive taxation and trade policies are required to make it attractive for multinational companies to assign international product charters to Canadian operations.

4. Government and industry should identify key projects with potential national scale, e.g. export of electricity, and should encourage these.

5. Industry should initiate identification of sub-sectors and/or products which would benefit from international rationalization where domestic rationalization alone cannot provide competitive economies of scale or the range and variety of product designs. Also, industry and government should undertake joint discussions with the United States regarding the possibility of a tariff-free continental market for them.

Impact:

- Greater concentration of production will improve competitiveness through lower unit costs and increased capability for R & D.

- An improved investment climate achieved through government action on R & D incentives and internationally competitive taxation and trade policies will greatly assist Canadian subsidiaries in their efforts to earn additional world charters for selected product lines from within their multinational structure. Such action could also attract new R & D centres or manufacturing facilities to locate in Canada.

The end result will be greater specialization by Canadian manufacturers, lower prices to Canadian customers, an expanded technology base, increased exports of some products, and depending on the degree of competitiveness achieved, a reduction in level of imports of some products.

SUB-SECTOR - SPECIFIC ISSUES

The Task Force considered the issues and concerns arising within each of the sub-sectors comprising the electrical industry. The sub-sectors are: Industrial Electrical, Wire and Cable, Major Appliances, Small Appliances, Batteries and Miscellaneous Electrical Products. The views, analysis and recommendations of the Task Force relating to each of these subsectors are contained in Appendix A.

For all of the sub-sectors, it was found that the horizontal issues discussed above were of great importance. Conditions and concerns unique to each sub-sector led to particular emphasis being placed on various horizontal issues for the different sub-sectors. For two sub-sectors, Major Appliances and Small Appliances, the Task Force made additional recommendations concerning matters beyond the horizontal issues.

CONCLUSIONS

A common concern running through all the issue papers is the need for the electrical industry to redouble its efforts to strengthen its competitive position. This is a task that will require the best co-operative efforts of management, labour and government. In the area of general business climate issues, the Task Force identified in its issue papers a number of areas where government policy changes would enable the industry to broaden and strengthen its special capabilities and more generally, create an environment more conducive to healthy economic growth. In the case of the industry performance issues, the Task Force highlighted several areas where labour and management must increase their efforts to strengthen productivity and competitiveness and indicated public policy changes that would assist in this process.

As a major participant in the supply and distribution of energy, the electrical industry is in the unique position to increase Canada's domestic supply of energy and to provide significant industrial benefits in the process. However, to achieve this, it is important to have an energy policy that encourages the replacement of foreign oil imports with domestic energy. A focus upon accelerated development of electrical power will ensure that more money stays in Canada, more attractive manufacturing jobs are created, and a world competitive technological base is maintained.

The electrical industry is proud of its strong performance in export markets, in the face of intense competitive pressures. However, the active intervention of foreign governments in support of their electrical producers both in their domestic and foreign markets presents the industry with unfair competition at home and abroad. Until meaningful progress is made on the international removal of NTB's and export support programs, the Canadian electrical industry must be assured of competitive support if it is to prosper. To this end, it is important that the Canadian market be secured for domestic producers through the active use of trade and procurement policies, and that the export sales of Canadian firms receive export financing support from government which is as attractive as that offered by foreign producers.

Over the longer run, the prospects of the industry will be determined by the ability of firms to improve their productivity and maintain and extend their technological strengths. The industry is anxious to pursue these goals, and indeed already is doing so. Both require the investment of substantial sums of money. To make such investments financially worthwhile and to secure the capital needed for them, the profits of the industry must recover from their current levels. Government's contribution in this area should be to reduce its "take" and to re-orient its spending priorities towards the support of industrial activities which promise to create a larger pool of wealth.

If the industry were to achieve the policy changes and improvements it is seeking, it would be able to contribute even more than it currently does to national economic goals, providing a significant number of attractive new jobs, a strong contribution to national productivity, impressive export earnings, reduced import penetration, greater energy self-sufficiency and increased national income.

APPENDIX A

SUMMARY OF ELECTRICAL INDUSTRY SUB-SECTORS

INDUSTRIAL ELECTRICAL EQUIPMENT

Introduction:

- The purpose of the report is to identify objectives for an increased contribution by the industry sub-sector to Canada's economic well-being and to put forward recommendations directed toward these.

  The objectives are:

  . A Canadian energy policy appropriately recognizing the role of electricity and the strategic importance of a supporting domestic manufacturing industry in the energy program.

  . A strengthened Canadian technological base through an increased level of investment in the innovative processes.

  . An improved sub-sector trade balance by import replacement and exports through recommendations related to multinational trade negotiations, domestic purchasing practices, and competitive export incentives.

  . A better cost competitiveness through an improved business environment encouraging investment for productivity improvement and industry restructuring.

Background:

- The Industrial Electrical Equipment Sub-Sector is the largest of the electrical industry sub-sectors accounting for 30 per cent of industry shipments, 40 per cent of exports, 35 per cent of employment and experiencing 36 per cent of industry imports.

- The products of the sub-sector include the broad range of products of SIC 336 for the generation, transmission and distribution of electricity and equipment for the conversion of this electricity into other forms of energy for broad applications in resources, transportation, and primary and secondary manufacturing industries. The products themselves cover a broad mixture from heavy-electrical, high-technology, custom-built power generators and transformers to mass-produced electrical components and devices for industrial and contractor markets. In between these extremes are such products as large and medium-sized motors and control systems for steel and paper machine drives, mine hoists, ship propulsion and transportation systems.

- The sub-sector employs a wide range of technologies and types of manufacturing facilities, the latter ranging from the high investment, specialized machinery needed to produce generators, large motors and power transformers, to the relatively light type of facility required for the mass production of components such as ballasts, capacitors and distribution transformers. The cost of entry and the types of technology vary across the sub-sector with a high level of design and custom-manufacturing competence dominating for the heavy equipment and mass-production techniques important for the lighter products.

- Compared to the total Canadian electrical industry, the Industrial Electrical Equipment Sub-Sector has had a somewhat better performance over the period 1965-1975. The market and factory shipments had a slightly higher growth rate than for all electrical products and the percentage increase in the sub-sector's exports outpaced the export growth for the industry. The percentage growth in imports was lower than for all electrical products. And during the period since 1974, when the total industry employment was shrinking by more than 10,000, this sub-sector held about even.

- The quality of employment is high in the electrical products industry compared to all manufacturing, as illustrated in the following table:

	Electrical Equipment	All Manufacturing
Managerial	22%	18%
Sales	5%	6%
Science and Engineering	7%	4%
Production	62%	66%

The relatively high-technological content of the products and processes of the sub-sector suggests an even higher level of technically-skilled employees.

- From an international viewpoint, the sub-sector has increased exports from 7 per cent of shipment in 1965 to 11 per cent in 1975, a level which compares favourably with exports of about 8 per cent of factory shipments for electrical products for the U.S. and 7 per cent for Japan. In the same period, however, the trade deficit of the sub-sector increased by $190 million to $278 million, and further to $312 million in 1976. Trade data for the sub-sector suggest that the cause of the deficit is not so much a low rate of exports, but rather a very high penetration of our domestic markets by foreign manufacturers. Despite a domestic market that is significant relative to the large producer countries of electrical products (i.e. 90 per cent of France, 65 per cent of Britain, and 23 per cent of Germany), Canada is the only country among the large producers with a negative trade balance in electrical products.

- The sub-sector has significant resources and has demonstrated the skills to employ them; it contributed to the Canadian economy products and services to the value of $940 million in 1976; it achieved a level of export sales of $104 million, and provided employment for over 26,000 people. However, the level of imports to the Canadian market strongly indicates the need for policies supportive of import replacement and industry consolidation of the domestic market.

Recommendations:

- The sub-sector analysis fully supports the important horizontal issues and the proposed recommendations identified by the Task Force. Recommendations on the following issues have a particularly significant impact on the industrial electrical equipment sub-sector:

    (1) Provincial Utilities Procurement Policies
    (2) Rationalization
    (3) Export Marketing and Financing.

INDUSTRIAL ELECTRICAL EQUIPMENT SUB-SECTOR
SUMMARY DATA SHEET

Products included are:

Pole Line Hardware	Transformers of all sizes
Turbo-generators	Circuit Breakers
Generators AC of all sizes	Switches
Motors AC of all sizes	Fuses
Motors DC of all sizes	Capacitors
Generators DC of all sizes	Switchgear
Welding Apparatus	Industrial Control
Ballasts	Converter Equipment

1976 performance data compared to Canadian electrical industry

29.3% of industry shipments	- ($940 million)
36.4% of industry imports	- ($416 million)
39.1% of industry exports	- ($104 million)
35.4% of industry employment	- (26,250 employees)

Growth in output and market compared to Canadian electrical industry

- Electrical Industry

	Domestic Market	Shipments	Exports	Imports	Trade Balance
1965	1,506	1,317	78	267	-189
1975	3,673	2,956	256	976	-720
Change $	2,167	1,639	178	709	-531
%	143.9	124.4	228.2	265.5	280.9

- Industrial Electrical Equipment Sub-Sector

1965	464	376	25	113	- 88
1975	1,161	883	97	375	-278
Change $	697	507	72	262	-190
%	150.2	134.8	288.0	231.9	215.9

Electrical Industries

	1974 Domestic Market	Shipments	Exports % Shipments	Imports % ADM
U.S.	33,773	34,900	7.9	4.8
Japan	26,602	28,200	7.1	1.5
F.R.G.	14,790	17,600	24.6	10.3
Britain	5,133	5,436	25.1	20.7
France	3,720	4,100	40.3	34.2
Canada	3,362	2,656	9.0	28.1

Canadian Industrial Electrical Sub-Sector (1975)

1,161	883	11.0	32.3

WIRE AND CABLE

Introduction:

- The purpose of the report is to make practical recommendations that will assist in making the Canadian wire and cable industry competitive with similar industries in other industrialized countries, specifically the United States.

Background:

- The wire and cable industry includes firms that manufacture electrical wire and cable, both insulated and uninsulated. Among the applications for wire and cable are telephone and telegraph systems, electrical power transmission and distribution, and other equipment manufacturers' products using magnet wire in generators, transformers, motors, control equipment, etc. In 1976, it was the second largest electrical sub-sector accounting for 22 per cent of the total sector shipments.

- In 1976, the domestic and export business was carried out by 15 companies operating 38 plants. There was at least one wire and cable plant in every province except Prince Edward Island and Newfoundland.

- The demand for wire and cable in the early 1970's was increasing at an average double digit rate per year. This heavy demand triggered plant expansions across the country based on a forecast of continued growth. When the demand peaked in 1974, the industry was left with significant overcapacity with most competitors trying to capture a larger share of a static market. The result was price deterioration and the erosion of profitability.

- Under the above circumstances, the industry should be in a position to increase its export shipments. In fact, because of the structure of the industry and its markets, the industry has been losing its share of the export market, and has been in a deficit position since 1973.

- There are a number of issues facing the industry which have important impacts on its competitiveness. These include productivity, overheads, the MTN, material costs, and plant capacity.

- The productivity of the industry is lower than that of its United States competitors, but rationalization of production to achieve comparable economies of scale and specialization is considered difficult under current Canadian competition legislation. In addition, the purchasing policies of provincial governments have had the effect of inducing uneconomic fragmentation of some facilities.

- Management and labour in the Canadian industry have not been as productivity-conscious or as agressive in cutting costs as in some other industrialized nations. Furthermore, productivity has suffered from the shortage of skilled labour arising from the lack of apprenticeship-type training programs, and the lack of enthusiasm for such programs by students who have the basic capabilities. This, in turn, is largely due to the current labour legislation framework and the way in which labour contracts are negotiated. The thrust towards the equalization of pay between the lowest skill and the highest skill in the plant means there is little incentive to improve one's skills.

- Overheads that are beyond the control of management are higher in Canada than in the United States. Many of these, such as the recent Ontario proposal for OHIP increases, are for social programs imposed by governments.

- There has been continued concern in the wire and cable industry that government negotiations in the MTN are continuing to treat this sub-sector as a part of the conductor-materials sector. The problems of the two are vastly different and this approach could mean the sacrificing of this sub-sector as a part of a total compromise.

- The cost of material to Canadian producers is a factor in the export performance of the industry. Insulating materials are priced higher in Canada than in the United States, and conductor material prices are adjusted upward to reflect the differential in the value of the Canadian and the United States dollar.

- New entrants into the industry, or existing competitors, can obtain grants for new facilities or expansion, which result in uneconomic decisions, and further aggravate the over-capabity problem to the detriment of the entire industry.

Recommendations:

- The sub-sector analysis fully supports the recommendations in the horizontal issues papers. The recommendations on productivity, rationalization, the MTN, and manpower are particularly important to the sub-sector.

Impact:

- If the recommendations on the horizontal issues are implemented, the industry should be able to retain its share of the domestic market and grow as the market expands. In addition it may be able to develop a sufficiently high level of exports to once again be a net exporter and contribute to an improved merchandise trade balance. The industry would continue to provide an effective vehicle for adding value to Canadian raw materials such as copper, aluminum and plastics.

- A strong industry will be better able to withstand the reduction in tariffs resulting from the Tokyo Round MTN and will require less adjustment assistance as tariffs are reduced. In the event steps are not taken to provide for the reduced tariffs, it should be recognized that the impact is likely to fall first on the smaller regionally dispersed plants.

MAJOR APPLIANCES

Introduction:

- There is serious concern about the continued existence of the major appliance industry in Canada because of increased competitive pressure from imports, the disappearance of historical cost advantages of manufacturing in Canada and the threat of reductions in tariffs.

Background:

- The major appliance sub-sector has been losing market share to imports which now account for 25 per cent of the domestic market, up from 13 per cent ten years ago.

- The tariff on major appliances imported into Canada is 20 per cent (15 per cent for dishwashers and room air conditioners which are classified as machinery for tariff purposes).

- The competitive position of Canadian appliance manufacturers is impaired by lower productivity in Canadian plants vis-à-vis American. Shorter production runs, lower capital investment per employee and higher component costs all contribute to the higher cost position and consequent lack of competitiveness of the Canadian manufacturers with their key competitors in the United States.

- The industry has undergone major restructuring in the last 15 years, both in production facilities and corporate ownership. The process of merger and rationalization provides the industry with the potential of developing long-term cost viability. However, industry commitment to further consolidation and investment in productivity improvement is required in order to meet international competitive pressures.

Recommendations:

Sub-sector analysis supports key recommendations in the horizontal issue papers. The following specific recommendations are made:

1. Encourage continued industry rationalization.

2. Tariff reductions on appliances resulting from the MTN must be phased in over a five to ten-year period and must not exceed 20 per cent of current rates.

3. Include dishwashers and room air conditioners (two high growth products) under the appliance tariff for duty purposes.

4. Change the application of the federal manufacturers' sales tax so that imports do not derive a competitive advantage over Canadian manufactured appliances.

5. Ensure that electrical code standards and energy conservation standards are effectively and realistically introduced and applied.

Impact:

- The domestic major appliance market exceeds $700 million sales annually, employs 12,000 Canadians directly, is the second largest user of sheet steel in Canada, and supports a domestic component manufacturing industry of almost equivalent size.

- Given the appropriate policy mix, the industry has the potential of increasing direct industry employment by up to 3,000 jobs (plus an additional 6,000 indirect jobs) currently being lost to imports. In addition, the industry has indicated an increasing commitment to R & D projects and export sales programs which could further build its employment base.

- Consistent support of the sector recommendations will allow the industry to maintain long-term viability.

SMALL APPLIANCES

Introduction:

- The implications of the disappearance of historic cost advantages enjoyed by manufacturing in Canada and the possible loss of the protection provided by tariffs for the continued existence of the small appliance industry, are a cause for very real concern.

Background:

- During the past ten years the small appliance sector has been losing market share to imports at an ever increasing rate - from 30 per cent of total market in 1965 to 42 per cent in 1975. At the present time imports are increasing at twice the rate of products being manufactured in Canada.

- Tariffs on small appliances imported into Canada are now 15 per cent for motor driven products and 20 per cent for heated products.

- Product and model proliferation in Canada's small and geographically extended market results in low productivity that is impairing the ability of Canadian manufacturers to compete. The short production runs do not permit the industry to invest in automatic equipment.

- Because of the loss of market share to imports, Canadian plants are operating at less than capacity.

- Lack of R & D over the past years has led to few original Canadian engineered products being developed.

- The dominant position of mass merchandisers contributes to multiplicity of products and their buying power helps to increase the sale of imported goods.

- The manufacturing segment of the industry is at a disadvantage insofar as the levying of federal sales tax is concerned. This tax is levied at the landed price plus duty on imported goods - however, it is levied at the price at which the manufacturer sells to trade on manufactured goods.

- Low return on investment has resulted in a lack of capital investment having been made by the industry in recent years.

Recommendations:

1. Sub-sector analysis supports the general recommendations in the horizontal issue papers. In addition: this industry has a special need to phase out uneconomical products and commit itself to a rationalization program. This can be of world-wide scope as well as in Canada. It must specialize in those areas in which it can compete and become effective in international markets.

2. The phase-in period for the lowering of tariffs must not be shortened as was done after the Kennedy Round. Sudden substantial drops will destroy the industry. Tariff cuts on small appliances should not exceed 20 per cent over five to ten years.

3. A program whereby manufacturers can purchase parts and assemblies at favourable duty rates should be set up - this should be done by a credit system based on Canadian purchased parts and assemblies.

4. The current federal sales tax program should be revised, and those products which are imported should have sales tax levied at the same level of sale as manufactured products.

5. A major "Buy Canadian" program should be launched and run at least twice a year with government sponsorship.

Impact:

- The phasing-out of uneconomic products will enable the industry to become more effective and concentrate on those items in which it can compete in world markets.

- A gradual lowering of tariffs will enable the industry to adjust to these conditions in an orderly manner.

- Being able to purchase parts and assemblies from outside Canada at favourable duty rates could greatly assist companies to enter into the manufacture of high-cost products, which at present are imported complete.

- The establishment of a federal sales tax program which did not discriminate against manufactured products, would enable manufacturers to compete more effectively against imports.

- A major information program directed at the consumer to "Buy Canadian-Made Products" would greatly enhance the sale of these products and make the consumer aware of the benefits of buying "Homemade Goods".

BATTERIES

Introduction:

- The purpose of the report is to make meaningful observations and recommendations about the Canadian battery manufacturing industry, in context with the electrical industry, and with regard to the overall manufacturing industry in Canada.

Background:

- The industry in Canada is dominated by eight or nine multi-national corporations.

- During recent years, a technologically driven market decline, combined with a "unique" loss-of-market situation (Auto Pact with the United States), has brought about a significant production overcapacity and a relatively large unfavourable trade imbalance. However, there are some export opportunities and at least one specific large new market opportunity (electric vehicle batteries). If these are aided by appropriate government policies (e.g. MTN) the current production and trade imbalances should become redressed soon.

- The industry which is regionally dispersed has a generally satisfactory history of stability and adequate return on investment.

Recommendations:

- The sub-sector fully supports the analysis and recommendations related to the horizontal issues. Of particular importance to the sub-sector are recommendations on productivity, MTN, regional development, and manpower resources.

Impact:

- If Canada's investment climate would improve, and if Canada contains its relative inflation, its battery industry will continue to thrive. There is prospect that this industry might again become a significant growth industry, and this possibility needs to be nurtured by appropriate tariff and export aid treatments. The reward can be a doubling or tripling of jobs, and a reversal of trade imbalance.

MISCELLANEOUS ELECTRICAL PRODUCTS

Introduction:

- The objective of this study is to define in clear terms the scope and nature of the industry sub-sector; to identify the major issues which are currently having an impact on it and which seem likely to do so in the future; to propose some strategies involving both industry and government, which address themselves to the key issues identified; and to suggest actions which should be included in an industrial strategy as it relates to this industrial sub-sector.

Background:

The sub-sector embraces firms producing a broad range of diverse electrical products including lamps, lighting fixtures, wiring devices, conduits and fittings. Even within each of these categories, there is considerable diversity of output.

- Imports far exceed exports in this sub-sector and the gap is widening. The trade deficit on these products has risen from $46 million in 1965 to $153 million in 1976.

- This is a highly fragmented industrial sub-sector. It contains 34.6 per cent of the establishments in the electrical industry, but accounts for only 18 per cent of the industry's sales and employs just over 20 per cent of the industry's workforce. Establishments are concentrated in the industrial centre of Canada - 56 in Quebec, 108 in Ontario and nine in British Columbia. Ownership ranges from giant multinational to local owner/entrepreneur.

- Traditionally this has not been a highly profitable industry sector. The technology base is generally low so there is little R & D carried on - nor is there scope for much.

- Certainly in a national strategy sense this sector does not present a large number of opportunities for long-term improvement. However, since it does employ 20 per cent of the work force in the electrical products sector, selective strategic programs directed to productivity, stabilization of employment levels could be beneficial.

Recommendations

The miscellaneous electrical sub-sector fully supports the recommendations in the horizontal issue papers. Of major importance to the sub-sector are the recommendations on rationalization, particularly the identification of markets and/or products which would benefit from international rationalization where domestic rationalization alone cannot provide competitive economies of scale or the range and variety of product designs.

Impact:

The pressure of normal market forces should lead to a process of rationalization. There likely will be some decline in activity and employment within the sub-sector as a result of increased imports of some goods and some productivity improvement. This trend toward a smaller but more efficient sub-sector probably is inevitable, but those firms which are competitive should be able to survive and prosper.

APPENDIX B

SUMMARY OF TASK FORCE RECOMMENDATIONS

BUSINESS CLIMATE ISSUES

Energy Policy

1. All of Canada's energy capabilities (including fuels, delivery systems, plant, expertise and manufacturing ability) must be treated by policy as one resource, and directed so as to produce maximum benefit for the country. Market forces alone will not create the energy supply and mix needed by Canada. Energy is the key to Canada's survival as a trading nation. It must be mobilized for future self-reliance, as a base for industrial health and growth and as our counter to cheap foreign labour in the production of international trade goods.

2. The Canadian government should recognize electricity as the dominant energy form of the future, as Canada's energy bridge over the next decade, and as a strategic Canadian industry.

3. An energy policy must begin with an inventory of Canada's regional energy resources, from which a joint and overall assessment can be made of how the total can be used to the best economic advantage of both the regions and the nation. A timetable would then be established to bring these resources on stream in a way that would create an orderly flow of capital and extend the life of our non-renewable resources.

4. With due regard for the importance of conservation as an immediate step, the electrical utilities should be encouraged to promote the use of electricity as a substitute for oil and gas, in order to minimize Canada's dependence on imported oil, and to make fuller use of our present under-utilized manufacturing capacity.

5. The industries and utilities that support generation of electricity are "world scale" and provide a major opportunity to export finished product (electricity) to the United States and thus redress our growing balance of payment situation. In light of these strengths and the priority to the upgrading of Canada's natural resources, it is recommended that the government re-assess its policy on the export of electrical power.

Multilateral Trade Negotiations and Trade Practices

1. At the MTN, Canada should seek to delay the reduction of Canadian tariffs until it is demonstrated that relevant NTB's have, in fact, been removed.

The key elements required to effectively remove NTB's are:

(a) a specific documentation of what practices are permitted under the regulations, and which are not;

(b) a sufficient transparency in each business practice (e.g. the publishing of certain details related to winning bid awards) to ensure all participants that the regulations are being complied with; and

(c) a provision for dispute settlement on a basis that does not disrupt the normal routine of business, but rather deals with repeated, deliberate breaches of the regulations.

2. Foreign company-government offers to Canadian purchasers (utilities or major projects) sometimes include concessional financing (e.g. firm prices) that Canadian companies cannot match. The federal government should consider a Domestic Financing Corporation, similar to the EDC to assure that Canadian manufacturers are not at a disadvantage in their own country.

3. The federal government should carefully re-examine the position of the Canadian manufacturer relative to foreign competitors on the matter of dumping, following which a joint industry-government effort should be made (perhaps through the Electrical and Electronic Consultative Committee) to develop appropriate policy and procedures. Fundamental points in a revised policy should include:

   . The objective of the anti-dumping procedures should be to prevent dumping in as far as possible.

   . The time element in the finding of dumping and of injury should be as short as possible.

   . The cost to the Canadian company in demonstrating that injury has taken place should be minimized. A mechanism should be developed such that if injury is proved the Canadian company is recompensed for the cost of the action.

   . The definition of "injury" should not make it unreasonably difficult to establish that injury has taken place.

   . Governments should require an affidavit from the foreign supplier that the goods are not being dumped.

   . Governments should have a commitment not to purchase foreign goods at dumped prices.

. The federal government should not overrule the Tribunal as in the recent case of steel.

4. Canada should work toward neutralizing the United States DISC program.

5. Canada should work toward eliminating the advantage held by the United States on the matter of the definition of "injury" for countervail purposes.

6. Industry and government should develop a contingency plan now in the event of non-removal of existing NTB's or the introduction of new NTB's by foreign countries.

7. Other countries recognize the economic benefit derived from a healthy electrical industry, and support home manufacturers through local purchasing. Federal and provincial governments should make every effort to assure that the Canadian economy reaps similar benefits for Canadian industry by either assuring access to foreign markets or by devices designed to assure Canadian manufacturers a "fair" chance in the Canadian market.

8. The federal government should assure that the lowering of Canadian tariffs does not put Third World countries in a preferred position in the Canadian market. Some Third World countries, using aid granted by Canada (or other countries) for industrial development are becoming an increasing threat to Canadian manufacturers.

9. Adjustment policies and plans should be developed at the earliest possible date, that is, before the tariff reductions come into effect.

10. Each sub-sector will have its peculiar problems and will need to work out specific impacts in order to develop appropriate adjustment programs.

11. Adjustment programs must be aimed at making the sub-sectors genuinely competitive with the new level of competition. Such assistance should not be based on an indefinite "support" program.

12. Adjustment programs, to the extent possible, should be based on economic considerations and not political considerations.

13. Adjustment programs must recognize the impact on employees, on companies and on communities.

Regional Development

1. Development priorities and opportunities should be discussed in the first instance with manufacturers who are already established in Canada or who have developed a market here for their products sufficient to support a viable manufacturing facility.

2. While recognizing the fundamental importance of regional development and a more balanced distribution of manufacturing activity in Canada, application of DREE and other financial assistance should be predicated on long-term prospects and a realistic feasibility analysis which evaluates all relevant criteria. Such analyses should be reviewed by industry experts and adjusted where necessary before being used to encourage new investment.

3. The desirability of DREE assistance for a project should be assessed in the light of various criteria including security of employment, extent of import replacement, technology content (particularly if new), export opportunities and prospects for growth.

4. Co-operation should be sought by government agencies and industry from provincially-owned utilities for guidance on market opportunities and import replacement strategies.

5. Encouragement should be given to studies which assess the economic feasibility and consequences of moving entire plants to new locations. In the interests of avoiding fragmentation, DREE should drop its requirement that when a new investment by a domestic firm is being assisted, that firm may not close existing capacity. Some further measure may have to be considered in this respect to assist companies and communities to minimize effects of dislocation and to encourage a positive adjustment.

6. Provincial governments should extend any existing purchasing preferences to the full range of products made by a firm and not just to those items made within the province. The provinces should commit themselves to studying the ways of extending this application of preference to cover sub-sectors or groups of producers of a common product.

Provincial Utilities Procurement Policies

1. First Ministers should recognize the significant ill-effects of uncontrolled interprovincial competition for industrial development. High priority should therefore be placed on the identification of an equitable formula for sharing the

benefits of manufacturing activity and the development of mechanisms to facilitate and encourage support of Canadian manufacturing regardless of provincial location. These might include an equalization fund or offset arrangement, for example.

2. All utilities must be encouraged to recognize the economic benefits of placing orders for electrical equipment within Canada and to exercise a preference for Canadian-made products.

3. Provincial utilities should be encouraged to make it a condition of bids, or at least to require written confirmation from bidders, that prices quoted are not below fair market value in the country of origin and are not based on government subsidies as to cost or risk coverage.

4. Where foreign purchases cannot be avoided, offset arrangement should be made part of the procurement package.

Export Marketing and Financing

1. ITC should continue the Program for Export Market Development with periodic review and updating, taking into account the rising costs of marketing work in most countries as a result of the decline in the value of the Canadian dollar.

2. EDC should reconsider its policy of making a profit at the expense of Canadian competitiveness on foreign bids under these circumstances. In cases where Canadian bids are competitive in all other aspects, EDC should provide, on a timely basis, financial packages that are competitive in interest rates and in terms, including protection against inflation. EDC financial capacity to support export offers should be increased.

3. Contrary to the current philosophy in government, tied aid can be justified and should be emphasized. It should be a fundamental guideline of Canada's aid policy to use Canadian consultants Canadian specifications and Canadian products.

4. ITC, EDC, and CIDA should collaborate to optimize financing programs in support of domestic manufacturers' exports (e.g. through blended rate financing) and to select aid projects which, in a practical way, match the particular skills of Canada's manufacturing industry with the needs of developing countries.

5. The government should continue to press for a stronger international agreement limiting the provision of

concessional financing to developed countries. Recognizing that this is a partial solution, the government should monitor the level of financing coming into Canada, with a view to neutralizing its effect when it is used to finance products which compete directly with Canadian products.

Foreign Ownership

1. Business and government should investigate further means by which the link between subsidiaries and parent companies can be used to benefit Canadian firms and to strengthen their performance.

2. To remove uncertainty, all companies should be measured against a code of business conduct related to Canadian economic and social priorities (e.g. the ITC Principles of International Business Conduct or the OECD Guidelines) and firms which qualify should be treated equally by governments irrespective of the nationality of their ownership or control.

INDUSTRY PERFORMANCE ISSUES

Productivity

Industry must identify areas of product excellence where specialization would improve cost competitiveness, and must be prepared to commit the necessary investment funds to achieve and maintain this. For Canadian subsidiaries, which represent a significant portion of this industry, an appropriate strategy would be to seek world product mandates from their parent organizations.

Initiatives for the improvement of productivity must originate within industry and must include measures affecting all aspects of a company's operations - technology production, marketing, finance and management. Government policies and programs may be necessary to remove constraints to improvements in these areas and specifically to permit a return on investment that is competitive with other countries and that will stimulate capital formation here. Recommendations in respect of the latter objective are as follows. Recommendations on related areas can be found elsewhere in the issue papers.

1. The federal government should amend corporate tax legislation to recognize and allow for the impact of inflation on corporate profits.

2. Increase the present investment incentive credit to 15 per cent of eligible capital expenditures as a direct reduction of corporate income taxes otherwise payable.

3. Remove present provision by which capital costs of the acquired assets are reduced by the amount of the incentive for capital cost allowance purposes.

4. Reduce the period in which the cost of the eligible capital expenditures can be written off for tax purposes from two years to one year.

5. Expand the investment incentive program to cover all capital expenditures in the industrial sector rather than limiting these, as at present, to expenditures for manufacturing plant and equipment only.

6. Shorten the period for write-offs for tax purposes of building investments to encourage expansion needed to support programs related to investment for productivity improvement.

7. Recognize within investment incentives definitions, the cost of restructuring within the industry for production efficiencies.

Research and Development (R & D)

1. The present R & D tax incentives should be increased and applied to "base" as well as incremental expenditures. In addition to continuing to qualify for 100 per cent write-off as a normal expense, eligible R & D expenditures should qualify for an effective 25 per cent tax rebate. Existing programs for small and medium size business should also be enhanced in order to equalize the opportunity of benefit.

2. The definition of R & D expenditures eligible for the above treatment should be broadened to cover expenses which are essential to: the development of new or improved products or processes (e.g., direct labour, direct material, subcontracts and consultants, overhead) including industrial design services and the costs of construction prototypes, pilot plants and special test equipment. In addition, the following pre-production expenses should be eligible for support where they are related directly to the commercial exploitation of the results of the development project: the preparation of production drawings, process data, reports, specifications, instructions and bills of material, and the design of production tooling, inspection and test equipment, and other non-recurring, pre-production activities of similar nature.

3. Canadian R & D incentive programs should have long-term continuity, recognizing the need to provide the time and stability for staff build-up and retention, as well as design

and development, and the transition to manufacturing engineering and production. The federal government should commit itself to the support of these measures for a period of not less than 10 years.

4. The Department of Industry, Trade and Commerce and the Department of Energy, Mines and Resources should establish, with appropriate representation from the provinces, a Task Force or Action Group to formulate policies and related programs, with the objective of facilitating electric power system interconnections and networks, utilizing and supporting the capability of Canadian manufacturers to design and produce the required equipment and systems. Such policies and programs should be designed in support of, and related to, the R & D programs.

Employee Relations and Availability of Skilled Manpower

1. Government, industry associations and labour unions must work co-operatively to develop information material on the factors that influence productivity, including the contribution of employees' positive attitudes and motivation to effective work and low absenteeism.

2. Industry management and labour unions, together and separately, must communicate with, and involve workers in, productivity improvement programs.

3. The government sector should not lead industry in wage, salary and benefit increases.

4. Federal and provincial labour legislation should be revised to provide secret ballots for strike votes.

5. Industry and labour with the assistance, where necessary, of governments should develop a more flexible approach to apprenticeship training programs with a view to better balancing the needs of apprentices to complete their training and the needs of more senior skilled workers for protection against loss of jobs in periods of low activity.

6. Incentives should be developed to encourage entry into and completion of apprenticeship programs. This could be achieved through interprovincial harmonization of training and apprenticeship programs aided by a system of certificates which provide greater recognition of the skills possessed.

7. Industry, labour and government should establish and support a training program for the electrical industry to set standards for certification of various trades. Demographic manpower projections should be made periodically to identify projected needs of the various skilled occupations.

8. Increase the size and scope of government training programs; encourage greater on-the-job training; and establish a "co-operative" system of education at the level of the community college, technical school or CGEP whereby students would alternate between formal education and practical, shop-floor experience.

9. Provide a tax incentive for employers to upgrade the skills of their employees by offering a 150 per cent write-off against taxable income of expenses incurred in providing approved forms of worker training.

10. As a means of improving mobility to fill short-term regional needs, mechanisms should be developed to recompense workers for extra costs of temporary dislocation.

Rationalization

1. Federal policies (e.g. DREE, FIRA, combines legislation) should encourage, or at least not interfere with, market forces tending to concentrate Canadian manufacturing.

2. Provincial governments should be dissuaded from following purchasing practices which tend to fragment the industry.

3. R & D incentives and internationally competitive taxation and trade policies are required to make it attractive for multi-national companies to assign international product charters to Canadian operations.

4. Government and industry should identify key projects with potential national scale e.g. export of electricity, and should encourage these.

5. Governments should work with industry to identify sub-sectors and/or products which would benefit from international rationalization and should initiate discussions with the United States regarding the possibility of a tariff-free continental market for them.

SUB-SECTOR - SPECIFIC ISSUES

Major Appliances

1. Tariff reductions on appliances resulting from the MTN must be phased-in over a five to ten-year period and must not exceed 20 per cent of current rates.

2. Include dishwashers and room air conditioners (two high growth products) under the appliance tariff for duty purposes.

3. Change the application of the federal manufacturers' sales tax so that imports do not derive a competitive advantage over Canadian manufactured appliances.

4. Ensure that electrical code standards and energy conservation standards are effectively and realistically introduced and applied.

Small Appliances

1. The phase-in period for the lowering of tariffs must not be shortened as was done after the Kennedy Round. Sudden substantial drops will destroy the industry. Tariff cuts on small appliances should not exceed 20 per cent over five to ten years.

2. A program whereby manufacturers can purchase parts and assemblies at favourable duty rates should be set up - this should be done by a credit system based on Canadian purchased parts and assemblies.

3. The current federal sales tax program should be revised, and those products which are imported should have sales tax levied at the same level of sale as manufactured products.

4. A major "Buy Canadian" program should be launched and run at least twice a year with government sponsorship.

SECTOR PROFILE

THE CANADIAN ELECTRICAL PRODUCTS INDUSTRY

The following profile of the Canadian Electrical Industry was developed by the Sector Task Force on the Canadian Electrical Industry from a profile prepared by the federal Department of Industry, Trade and Commerce.

PROFILE OF THE ELECTRICAL PRODUCTS INDUSTRY IN CANADA

The electrical manufacturing industry in Canada consists of a number of diverse subsectors. This profile is, therefore, divided into two main sections. The first provides an overview of the industry's subsectors and sets out some of its general characteristics. Included is a comparison of the performance of the Canadian industry in the aggregate with that of Canada's main competitors. The second section covers each of the main subsectors of the industry, highlighting the problems and prospects of each.

AN OVERVIEW OF THE ELECTRICAL INDUSTRY

The electrical industry produces three classes of equipment: equipment which generates electricity (hydro and thermal generators, batteries); equipment which transmits and distributes electricity (wire and cable, transformers, conduit, switches); and equipment which uses electricity to perform some other function (light bulbs, appliances, motors).

For practical and analytical purposes these three classes of equipment have traditionally been assigned to six industry subsectors: (1) industrial electrical equipment; (2) wire and cable; (3) major appliances; (4) small appliances; (5) miscellaneous electrical products; and (6) batteries (see Canadian Electrical Industry chart). Each subsector differs markedly from the others in terms of the technology employed, production techniques and markets served. In these circumstances, the material set forth in the overview part of the profile should be treated with caution. In particular, it should be noted that, while it is possible to make statements of general validity about the industry as a whole, there will frequently be exceptions to these at the subsector level.

GENERAL CHARACTERISTICS OF THE ELECTRICAL MANUFACTURING INDUSTRY IN CANADA

Growth

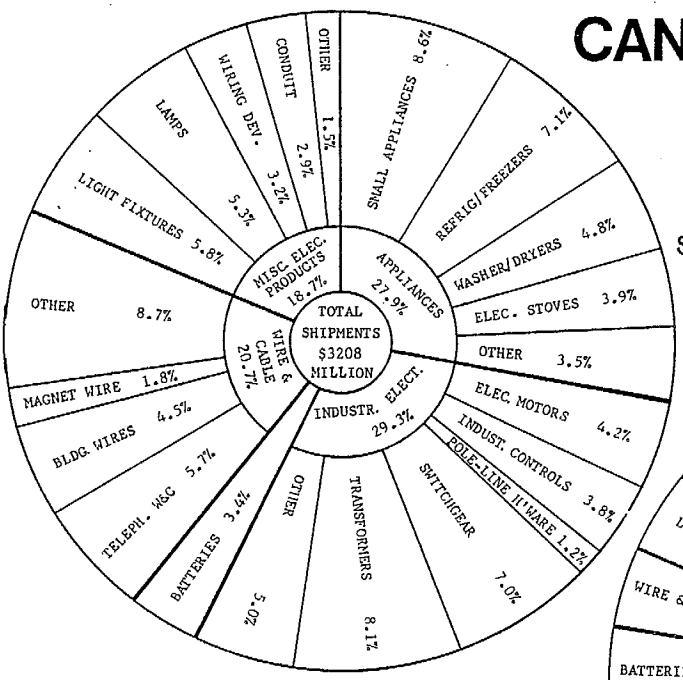
As a point of reference for what follows, Table I sets out the electrical industry's growth in Canada for the years 1971–1976.

TABLE I

Growth of Canadian Electrical Industry 1971–76

	1971	*1976*		*Av. ann. Growth Rate*	
	current $ (millions)	*current $ (millions)*	*1971 $ (millions)*	*current $*	*1971 $*
Shipments	1,878	3,208	2,212	11.3%	3.4%
Imports	487	1,143	788	18.6%	10.1%
Exports	155	266	183	11.4%	3.4%
App. Dom. Mkt.	2,210	4,085	2,817	13.1%	4.9%
Trade Balance as percentage of App. Dom. Mkt.	−15.0	−21.5			
GNP	94,450	190,027	118,484	15.0%	4.6%
Shipments/GNP	1.99%	1.69%	1.87%		

CANADIAN ELECTRICAL INDUSTRY – 1976



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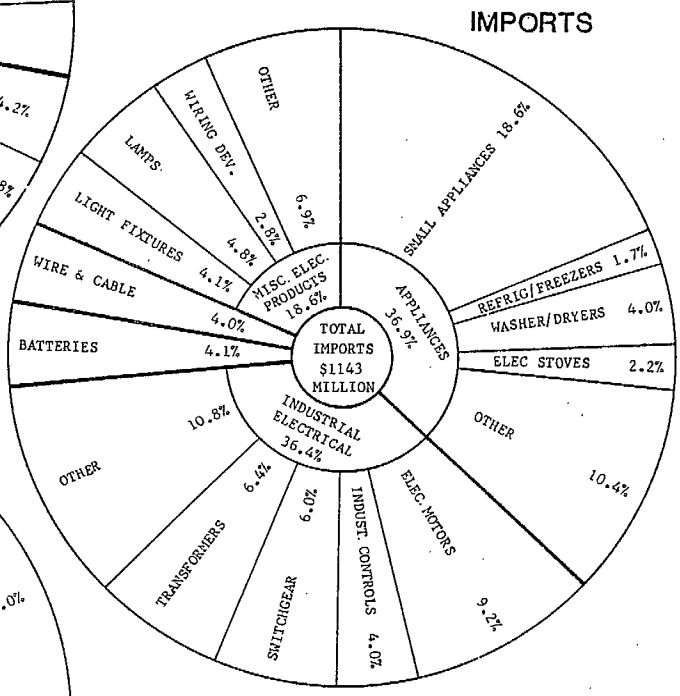

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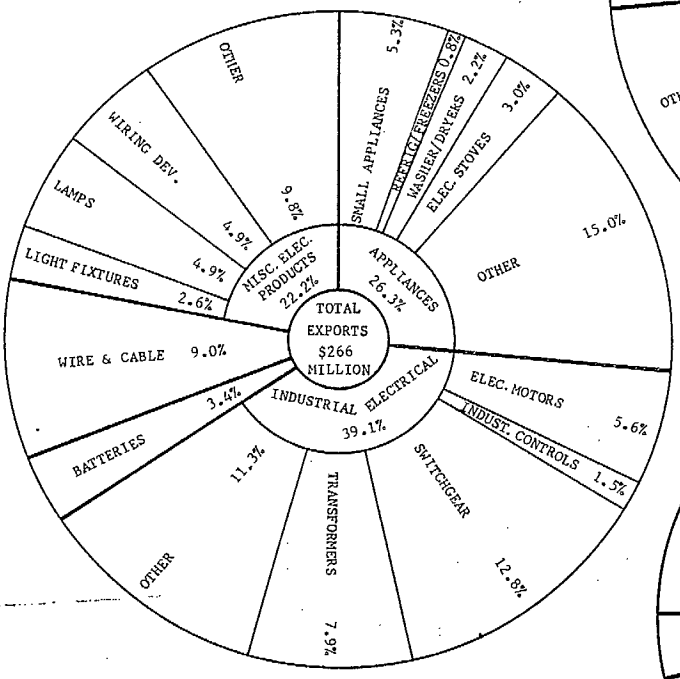

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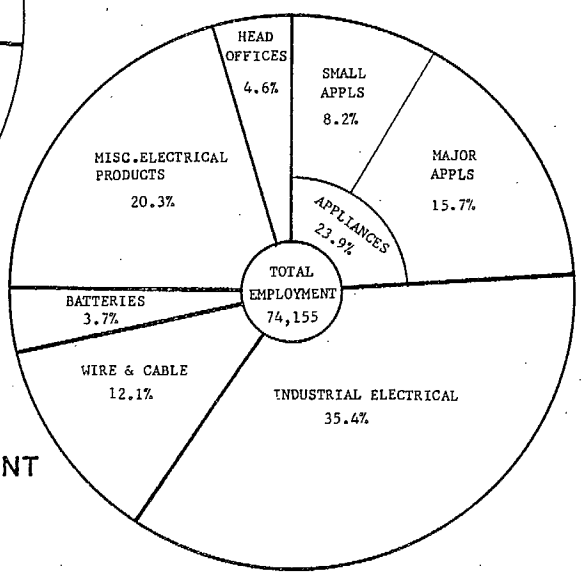


EMPLOYMENT

ELECTRICAL & ELECTRONICS BRANCH

Although in real terms the market for electrical products in Canada has grown more rapidly than GNP, the prime beneficiaries have been foreign suppliers. During this period import penetration grew from 22 to 28 per cent of the domestic market while exports remained at a constant 8.2 per cent of shipments. As a result, the trade deficit grew from $332 million to more than $600 million (1971 constant dollars).

The performance of the industry over the last five years is in marked contrast to the preceding five-year period (1965–1970). During the 1965 to 1970 period exports more than doubled from $78 million to $191 million (current dollars) or from 5.9 per cent of shipments to 10.9 per cent. Import penetration increased from 17.7 per cent to 21.2 per cent. The trade deficit increased slightly in absolute terms — from $190 million to $227 million — and relative to the domestic market, the imbalance actually fell from 12.6 to 11.5 per cent. During the period 1971–76 the trade imbalance relative to domestic market grew from 15.0 per cent to 21.5 per cent.

The picture that emerges is one of the electrical industry slowly losing its market share. Unlike some other industries, there is no simple explanation for these difficulties, such as a sudden tide of low-cost imports or a domestic market decline. The factors at work are many and varied and often differ from one subsector to another. They will be explored in the following sections of the profile.

Company Size and Ownership

In 1975 there were 532 electrical manufacturers in Canada employing 77,000 workers. These manufacturers operated 670 establishments and generated gross revenues of $3.55 billion. Ten years earlier the industry's gross revenues amounted to $1.5 billion and employment was 68,000.

There is a reasonably high degree of concentration in the industry. The seven largest firms (1.3 per cent of the total number) account for more than 35 per cent of employment and more than 40 per cent of sales. As illustrated in Table 2, 55 firms, each with sales of more than $10 million annually, account for more than 70 per cent of total employment and 80 per cent of gross revenue.

TABLE 2

Employment and Revenues by Company Size — 1975

	Companies		*Employees*		*Gross Revenues**	
	number	%	*number*	%	*million*	%
Large, more than $100 m	7	1.3	28,100	36.6	1,515	42.6
Medium, $10 m–$100 m	48	9.0	26,900	35.0	1,304	36.7
Small, $1 m–$10 m	409	39.3	18,600	24.3	661	18.6
Very Small, less than $1 m	268	50.4	3,100	4.1	76	2.1
TOTAL	532	100.0	76,700	100.0	3,556	100.0

*It should be noted that gross revenues is a different measure than shipments or domestic market used elsewhere in this profile and thus the three sets of figures do not correspond to each other.

In spite of a relatively high degree of concentration, even the largest of Canadian electrical firms is small by international standards. In 1975, Canada's largest electrical producer, Canadian General Electric, manufactured and sold more than $500 million of electrical products out of total company sales of $820 million. Throughout the world there are between 15 and 20 manufacturers larger than CGE, many with sales larger than Canada's total demand for electrical products. (Appendix I lists some the the world's more important electrical producers.)

Most of Canada's electrical manufacturing industry is foreign-owned. Although Canadian-controlled companies (274) number more than half of all electrical manufacturers with operations in Canada, they generate only 30 per cent of the industry's gross revenue and employ only 30 per cent of the industry's work force. American-controlled companies are responsible for 60 per cent of industry revenues and employment, while companies owned in other countries (mainly British, Dutch, French and German) are responsible for 10 per cent of revenue and employment.

Of the 55 largest companies, 41 are foreign-controlled and foreign control is strongest in the industrial electrical sector. In only one sector — wire and cable — do Canadians have a controlling interest.

Regional Distribution

At least 90 per cent of the industry's activity and employment is in Ontario and Québec. (See Appendix II for distribution of activity by province.) The distribution of the industry reflects concern for production efficiency, the continuing importance of the Québec and Ontario markets, and the location decisions of the pioneer firms in the industry. While the prominence of the market in central Canada has diminished over the years, it was this region that provided the industry with its first significant market in Canada. Once established, these early facilities have, by and large, stayed in place and attracted new investments.

With the increasing importance of economic activity in other parts of the country, however, Ontario's share of industry employment declined by 6 per cent between 1965 and 1974. Québec increased its share marginally, but the largest increase went to the other eight provinces which increased their employment share by 4.4 per cent, primarily in industrial electrical equipment and wire and cable.

This slow dispersion to other regions will continue where economically justified and when aided by selected business incentives.

Employment

Employment in the electrical industry has shown considerable annual variation since 1965 when it was 63,000, but in general, it increased until 1974 when it peaked at 80,700. Since that time employment has dropped by more than 10,000 to an estimated 70,500 in mid-1977.

Variations in employment have closely followed changes in the rate of growth in industry shipments. In the period 1965 to 1968, for example, employment fell by 5.8 per cent. During this three-year period there was virtually no growth in the Canadian market or in shipments by Canadian manufacturers. On the other hand, between 1970 and 1974 when electrical shipments grew by more than 60 per cent (current dollars), employment increased by almost 20 per cent.

Like the drop in employment between 1965 and 1968, the decline in employment over the last 2½ years can also be traced to weak markets and no real growth in shipments. However, the current fall in employment appears to be somewhat more serious than previous declines, since it is far larger in both relative and absolute terms.

Technology

The technological intensity of the electrical industry varies by sector but, taken as a whole, it employs a higher than average number of technically skilled workers as illustrated by the following table:

	Electrical Equipment	*All Manufacturing*
Managerial	22%	18%
Sales	5%	6%
Science and Engineering	7%	4%
Production	62%	66%

Most of the industry's fundamental technology on standard products is provided by parent corporations. Canadian efforts are, in large part, directed at custom engineering; new product developments and modifications to meet Canadian standards and unique Canadian conditions and market preferences; and product or process redesign necessitated by shorter production runs. Examples of new product developments are wire and cable; extra high voltage utility equipment such as 745 kV transformers, air blast breakers and line reactors, advanced hydraulic turbine and generator designs; and industrial drive systems for industry and marine propulsion. However, in general the industry's overall existing capacity for original product development is weaker than that of its large international competitors. Agreements with parents to take responsibility for certain product lines is a potential method of increasing manufacturing with an accompanying upgrading of design and development activities. This is a particularly attractive method since it allows companies to meet stiffer competition and also acts to increase the depth of R&D activities.

Prices, Productivity and Return on Investment

Given the heterogeneous nature of the industry, it is difficult to give a composite picture of the industry's price productivity and profit performance. (The task is also made difficult because of technical problems in measurement.) Nevertheless, these factors generally attract widespread interest and are among the more important measures for comparing various sectors of industry. In the circumstances, the following observations, while far from definitive, are offered in order to give some indication of the electrical industry's performance compared with other Canadian manufacturing industries.

Although the electrical manufacturing industry has been subject to the same inflationary pressures as other industries, its rate of price increase, in the aggregate and for each of its subsectors, has been lower than the average for all manufacturing. After the relative stability of the 1960s, when the industry selling price index increased by 14 per cent, the price index increased by 45 per cent between 1971 and 1976. One-half of this increase took place in 1974 alone. In spite of this rapid increase in prices, it was considerably lower than the 67 per cent increase in prices for all manufacturing. In fact, only one manufacturing industry had a lower price increase than the electrical industry between 1971 and 1976. During 1976, the industry's prices increased at slightly more than one-half the rate for all manufacturing.

Part of the industry's price performance may be explained by its relatively high level of productivity. In a study by the Department of Industry, Trade and Commerce of productivity in 20 Canadian manufacturing industries, the electrical and electronics industry placed fourth overall in terms of primary factor productivity (i.e. the combination of labour and capital productivity). These results must be treated with some caution since they combine the electronics industry with the electrical industry.

However, productivity in the Canadian electrical industry was almost 12 per cent lower in 1972 than it was the the U.S. electrical industry. On a subsector basis, this disadvantage ranged from 4 per cent for industrial electrical production to more than 30 per cent for major appliances and lighting fixtures.

The combination of lower price increases and higher relative productivity did not result in superior corporate performance for the whole sector measured in terms of Return on Total Assets and Profit on Net Worth. In 1974 (the latest year for which figures are available) Return on Total Assets and Profit on Net Worth for the electrical industry were 7.7 per cent and 13.5 per cent respectively, while the figures for all manufacturing were 9.1 per cent and 16.2 per cent.

Prices and profits have been constrained by the pressures of capacity under-utilization resulting from the economic slowdown. Price levels have not kept pace with rising costs and this has led to low rates of return. Low price level effects have not been offset by volume, productivity or product mix. This low return will have a long-term adverse effect on the industry.

THE CANADIAN ELECTRICAL MANUFACTURING INDUSTRY IN AN INTERNATIONAL CONTEXT

Among the 20 countries of the OECD, three countries — the U.S., Japan and Germany — dominate the electrical industry. Collectively they account for between 70 and 80 per cent of the market and output of electrical products. Remaining production, exports and markets are shared among a further seven "important" producers — Britain, France, Italy, Canada, The Netherlands, Switzerland and Sweden. Production, trade and market data for the five largest producers plus Canada are provided in Table 3.

General Developments

As recently as 1965, the export of electrical products from western industrialized countries and Japan amounted to little more than 8.5 per cent of shipments and no major producer relied on the export market for more than 18 to 20 per cent of sales. The Japanese industry was then the world's third largest, 4/5 the size of the German industry and only 1/5 the size of the American. Then as now, Japan, Germany and the U.S. held the lion's share of production but in the export market Britain and France were also important. Although Japan was the third largest producer, it ranked only on a par with France as an exporter, trailing well behind the U.S., Germany and Britain.

In general terms, the industry appears to have changed little over the last decade, except that it now has a much higher level of output. The major producers are the same, as are the main exporters. The export intensity of the industry has increased very little (from 8.8 per cent of shipments in 1965 to only 13.3 per cent in 1974). But these general appearances mask developments which could have a fundamental bearing on the future of the industry. The most important has been the extraordinary growth of the German and Japanese industries. The German electrical industry during the late 60's and early 70's grew at almost twice the growth rate of the industry in most other industrialized countries. But the Japanese industry grew almost twice as fast again, at an average annual rate of 23.4%. (See Table 4). The Japanese industry is now the world's second largest, well over one and a half times as large as the German and more than 4/5 the size of the U.S. industry.

Table 3.

Electrical Industry: Six Countries

Country	*Year*	*Shipments $ M*	*Imports $ M*	*Exports $ M*	*ADM $ M*	*Trade Balance $ M*	*Imports % of ADM*	*Exports % of Ship.*	*Trade Balance % of ADM*
U.S.	65	18789	286	831	18244	+545	1.6	4.4	+3.0
	74	34900	1637	2764	33773	+1127	4.8	7.9	+3.3
Japan	65	4245	57	348	3954	+291	1.4	8.2	+7.0
	74	28200	400	1998	26602	+1598	1.5	7.1	+6.0
F.R.G.	65	5390	284	905	4769	+621	6.0	16.8	+13.0
	74	17600	1524	4334	14790	+2810	10.3	24.6	+19.0
Britain	65	3279	183	585	2877	+402	6.4	17.8	+14.0
	74	5436	1060	1363	5133	+303	20.7	25.1	+5.9
France	65	1999	247	340	1906	+93	13.0	17.0	+4.9
	74	4100	1273	1653	3720	+380	34.2	40.3	+10.2
Canada	65	1317	242	75	1484	−167	16.3	5.7	−11.3
	74	2656	945	239	3362	−706	28.1	9.0	−21.0

Source: Shipments: The Engineering Industries in OECD Member Countries, Volume I, Deliveries of "100" Selected Products.
Imports/Exports: UN Trade Data Bank.

TABLE 4

Average Annual Growth Rate — 1965–1974
(Based on current dollars)

	Production	*Imports*	*Exports*	*App. Dom. Market*
U.S.	7.1%	21.4%	14.3%	7.1%
Japan	23.4%	24.2%	21.4%	23.6%
Germany	14.1%	20.6%	19.0%	13.4%
Britain	5.7%	21.6%	9.8%	6.7%
France	8.3%	20.0%	19.2%	7.7%
Canada	8.1%	16.4%	13.7%	9.5%

In export markets, both Japan and France have overtaken Britain which has dropped to fifth position. Germany has consolidated its position as the leading exporter of electrical products by increasing its share of world markets. For Britain, Germany and France, export dependency has grown to between 25 per cent and 40 per cent of output (from less than 20 per cent in 1965).

The industry in the United States, while still the world's leading producer, has grown much more slowly than its closest rivals and threatens to be overtaken by Japan within a few years. Britain which, in a relative sense, had the most favourable balance of trade in electrical products a decade ago may become a net importer.

Over the last decade there has, therefore, been a significant shift in the relative importance of the world's leading producers of electrical equipment. Propelled by rapid growth in their domestic markets,

Japan and Germany have greatly increased their share of world output. They have also increased their share of international trade but by a less striking amount. All countries have, to a certain extent, felt the impact of German and Japanese growth but it has been particularly pronounced for the U.S. and Britain which have seen their shares of export markets steadily eroded.

For the future, it is difficult to foresee the Japanese and German markets maintaining their historical growth rates. When their domestic market growth falls to more moderate levels, it is not unreasonable to expect that they will look to foreign markets for growth and will put greater pressure on electrical manufacturers in other countries than has already been the case.

Canada's Position

Among OECD countries, Canada occupies seventh position in the production of electrical products accounting for about 2.5 per cent of the total output of these countries. It ranks behind the U.S., Japan, Germany, Britain, France and Italy. Ten years ago, Canada was in sixth position but was overtaken by Italy in 1970. As an exporter, Canada ranks eleventh in absolute terms behind countries with much smaller electrical industries such as Belgium and The Netherlands. It is a major importer, however, and as shown in Table 5 is by far the largest net importer of electrical products among the major and minor producers of electrical products in the OECD.

TABLE 5

Dollar of Exports/Dollar of Imports, 1974

Japan	$3.75
Germany	2.73
U.S.	2.08
Britain	1.35
Switzerland	1.28
France	1.24
Italy	1.02
Denmark	.92
Austria	.84
The Netherlands	.82
Sweden	.81
Belgium	.57
Canada	.33
OECD average	1.32

It is, therefore, not surprising that Canada has a large and growing deficit in electrical products, as illustrated in Figure 1.

While Canada has always been a net importer of electrical products, its agregate deficit was only moderately important until the early 1970s. Since that time it has grown steadily. In 1965, for example, it was $189 million. By 1970 it had reached $227 million, and in 1976 was $877 million. In each year since 1970 without exception, the Canadian industry has lost about one per cent of its share of the domestic market and has failed to make up this lost ground through increasing the share of production going to exports. In fact, exports fell from 10.9 per cent of shipments in 1970 to 8.3 per cent in 1976.

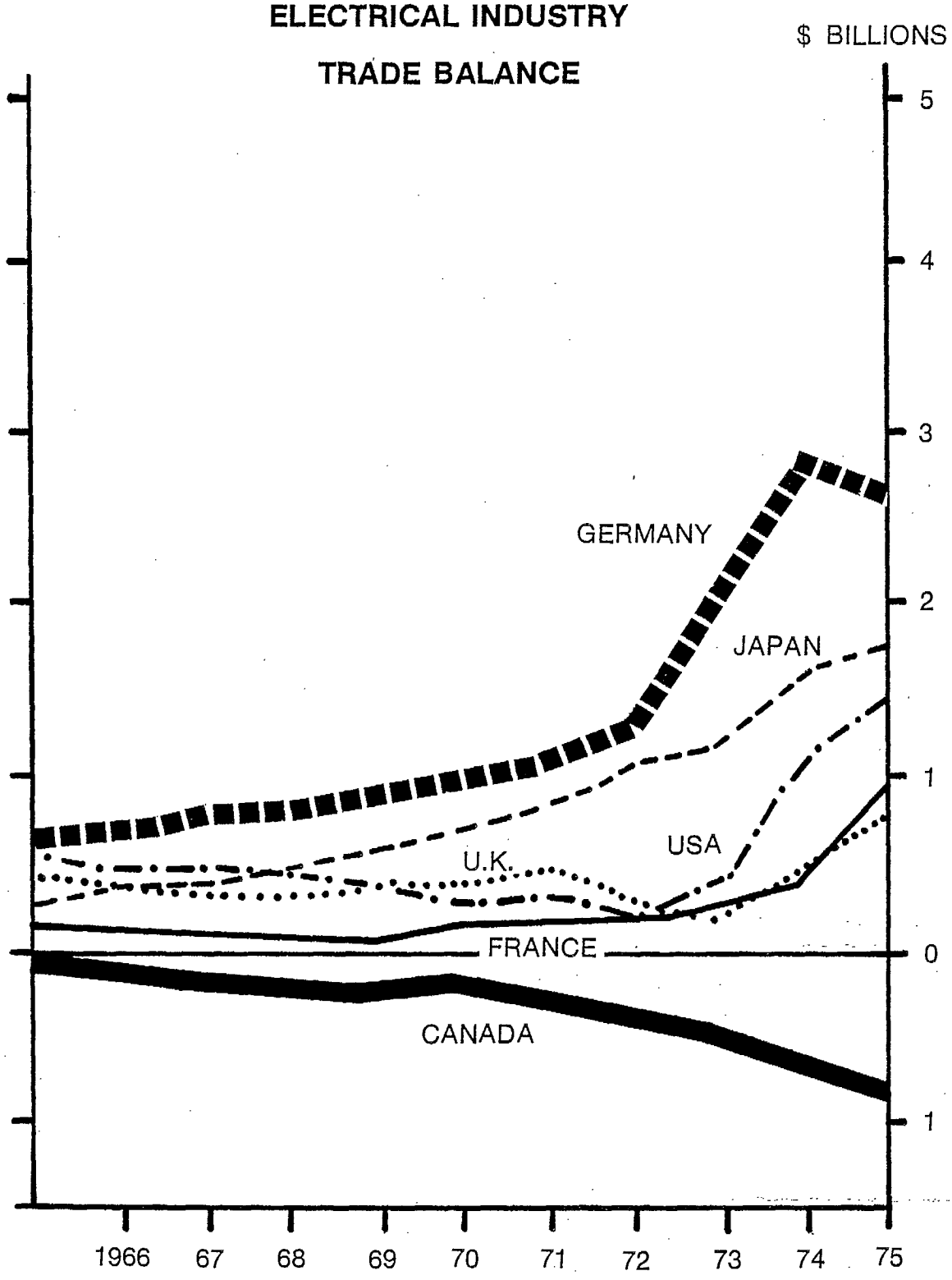
The superior performance of the world's three leading producers may be explained, at least partially, by their large size and consequent advantages in undertaking large R&D projects, achieving production efficiencies and mounting worldwide marketing efforts. However, these factors cannot explain why Canada trails other countries in trade performance — many with much smaller electrical industries — by such a wide margin, and why the industry's performance deteriorated so markedly during the 1970s.

Many representatives of the Canadian electrical industry have claimed that the industry lost more than it gained following the Kennedy Round. No detailed studies are available to substantiate this thesis. As it happens, the onset of the steady decline in the industry's trade balance coincides with the beginning of tariff cuts under the Kennedy Round. By itself, however, this does not explain why more ground was lost than gained. Even after the Kennedy Round, Canadian tariffs were still higher than those in many other industrialized countries. It might have been expected, therefore, that the Canadian

FIGURE 1

ELECTRICAL INDUSTRY

TRADE BALANCE



industry would have fared better rather than worse from moderately high protection at home and lower tariffs abroad. Other factors at work seem to have precluded that possibility.

Among many factors presented in explanation of this situation, the four below, not in order of importance, stand out above all others:

(1) the effects of the ownership pattern and structure of the Canadian industry;
(2) the fragmented production and small scale combined with the effects of rapid inflation and the increased value of the dollar when it was initially floated in the late 1960s;
(3) non-tariff barriers to trade with other industrialized countries;
(4) pricing practices of and foreign government support for foreign competitors in exporting.

As indicated earlier, more than 70 per cent of the output of the Canadian electrical manufacturing industry is produced by foreign-controlled firms. Most of these companies were established in Canada to serve the domestic market behind high levels of tariff protection. Frequently, export marketing rights were denied the Canadian subsidiary. Even if they were not, there was little incentive to export as long as the protected Canadian market provided an adequate level of plant loading and a satisfactory return on investment.

Since many of the facilities in Canada were miniature replicas of much larger and more efficient foreign plants, Canadian producers were simply not price-competitive in many product lines. By way of contrast, many of the moderately sized electrical industries in foreign countries have at least one large domestically-owned manufacturer (e.g. Britain, France, Sweden, Switzerland, Italy). They have the freedom to enter the export market and can rationalize their production to become internationally competitive in at least some products. The Canadian industry was not in a position to do so and, in face of rapid inflation in factor costs and the upward movement of the Canadian dollar when it was floated, the industry's balance of trade progressively declined.

Any assessment of international trading relationships must acknowledge the overwhelming importance of the U.S. to the Canadian electrical industry. In aggregate, over the period 1965–75, 70 to 80 per cent of electrical imports came from the U.S., while exports to the U.S. market varied between 50 and 70 per cent of Canadian exports. Performance of individual subsectors, of course, varied but it is unusual if the imports from or exports to the U.S. are less than 50 per cent of the external trade of any subsector, while levels of 80 to 90 per cent are not uncommon. The trade balance is negative in every subsector and the overall trade imbalance with the U.S. in 1976 was approximately $700 million. The U.S. market, despite the existence of some non-tariff barriers (NTBs), is by no means as tightly closed as other developed countries. For example, electrical power utilities number more than 1,000 with some 70 per cent of these under federal or municipal control, but about 50 per cent of this market is considered to be open. There is, then, considerable opportunity for Canadian suppliers in the American market, but the effects of extensive U.S. ownership of the Canadian industry must also be considered. To the extent that U.S./Canadian corporate relationships are supportive of rationalization and specialization efforts to benefit Canadian subsidiaries, the corporate connections will be a positive factor. If not, then those ties will be negative influences in the development of the Canadian electrical industry and its subsectors.

While the effects of foreign ownership may provide a partial explanation for the relatively low level of Canadian exports, non-tariff barriers in many industrialized countries are probably at least as important an explanation for certain classes of electrical products. As mentioned, international trade in electrical products grew from only 8.8 per cent of shipments in 1965 to 13.3 per cent of shipments in 1974, much of it with non-OECD countries. (By comparison in 1974, international trade in electronics products amounted to 30 per cent of shipments.) That the increase in trade has not been more substantial is a reflection, in large measure, of the continuation of significant non-tariff barriers. The most important of these are the procurement practices of foreign government-owned utilities which affect the industrial electrical equipment sector and, to a lesser extent, the wire and cable sector. Also of importance are standards which affect trade in miscellaneous electrical products (wiring devices and lamps) and in appliances.

Although, following the Kennedy Round, Canadian tariffs on electrical products remained higher than those in many other industrialized countries, the Canadian market proved to be more accessible to suppliers in many of those countries than their markets were to Canadian exporters. This is due, in part, to (a) the greater importance of non-tariff barriers to imports of electrical equipment in most other industrialized countries than in Canada; and (b) the difference between tariffs and non-tariff barriers in that tariffs are relative barriers while non-tariff barriers tend to be absolute. While the tariff can often be absorbed by the foreign supplier, there is little, if anything, the supplier can do to overcome a non-tariff barrier such as discrimination in favour of indigenous suppliers in purchases by government-owned

utilities with no opportunity for foreign suppliers to bid. The non-tariff barriers in many otherwise attractive industrialized markets are such that Canadian suppliers generally cannot bid. On the other hand, foreign suppliers have won contracts in Canada. Their ability to compete on the basis of lowest price, despite the tariffs, may be due to marginal pricing in which fixed costs are covered by sales in their protected home markets and, in some instances, government support measures. Moreover, in the industry's view tariffs represent a relatively stable barrier whereas non-tariff barriers can be exercised with great flexibility. In these circumstances, it is difficult to develop a long-term export marketing plan for a country with significant non-tariff barriers because access to that market can be totally denied at any time.

To the extent that the multilateral trade negotiations provide improved access to protected markets and bring greater international scrutiny and discipline to bear where there is discriminatory purchasing, or subsidization, the parts of the industry affected by these factors would benefit. Similarly, the trade distorting effects of standards will be addressed in these negotiations.

Future Developments

In view of the factors at work in the electrical industry both at home and abroad, it is perhaps not surprising that the Canadian industry has steadily lost ground in its own market and has been unable to make it up in foreign markets. Recent mergers in the applicance subsector hold promise for its future performance. Similarly, other subsectors need equally positive measures to strengthen their potential.

Nevertheless, there is widespread concern among Canadian industry executives about the impact on the electrical industry of the current round of multi-lateral trade negotiations (MTN). While the impact of the negotiations will probably vary from subsector to subsector, all parts of the industry are virtually unanimous in calling for tariffs to be maintained at existing levels. In some cases (electrical generation equipment) there appears to be a willingness to accept a drop in the level of Canadian protection in return for a real reduction in non-tariff barriers (NTBs) abroad.

The industry has doubts, however, as to the willingness of other participants in the trade negotiations to move towards freer trade, particularly in terms of reducing the effects of their non-tariff barriers. They are skeptical such trade liberalization will occur in the context of the first comprehensive negotiation of non-tariff barriers because, heretofore, there has been no evidence of unilateral opening of markets.

Implementation of the trade negotiation results is not expected to be fully carried out before the mid-to-late 1980s. The problems and opportunities of trade liberalization, while important for the medium-term, should not overshadow the basic problems of the industry nor the increasing pressures of international competition now occurring. The problems which need to be studied by the industry, to realize its full potential and exploit new market opportunities in future, include a re-orientation of attitudes and operating procedures and greater authority for the management of some important Canadian manufacturers.

With respect to structure, it is apparent that in a freer trade environment, companies will have to change their method of operations in order to remain competitive. As previously indicated, many foreign-owned companies first came to Canada to serve the domestic market which was protected by high tariffs. They established facilities appropriate to this environment, i.e. multiproduct plants with limited production runs.

In a freer trade environment, these plants will find it increasingly difficult to compete against imports produced in dedicated facilities abroad. In these circumstances, Canadian manufacturers will have to concentrate on fewer products manufactured for a world market. But to the extent that overseas markets remain substantially closed to import competition and that corporate structures in Canada impede the growth of sales in the U.S., the Canadian industry is unlikely to undertake the necessary investment in specialization. Hence, Canadian manufacturers will have to find some other means to retain an adequate share of the domestic market.

SUBSECTOR ANALYSIS

Before looking at each of the industry's subsectors, it should be noted that one common concern they share is the climate for business in Canada. This has, for a number of years, been an overriding pre-occupation of the electrical industry.

The government has recently taken budgetary action to help alleviate the concerns voiced by the business community. It is important that Canada be perceived as an attractive country in which to invest. Otherwise, the solution of the particular problems facing the various subsectors of the electrical industry may be for naught.

The Industrial Electrical Industry

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	464	376	25	113	−88
1975	1,161	883	97	375	−278
% Change	150.2	134.8	288.0	231.9	215.9

The industrial electrical industry is the largest of the electrical industry's subsectors, generating about 30 per cent of total shipments and employing more than 26,000. Its products find their way into two main markets: utilities (generators and transformers), and capital equipment for other industries (motors and industrial control equipment).

The two largest firms are Canadian General Electric and Westinghouse Canada Ltd., with annual sales of $900 million and $400 million respectively. (These sales volumes include activities in areas other than industrial electrical.) While large by Canadian standards, these companies are small compared with their top international competitors (See Appendix I).

One-half of the industrys' output consists of heavy electrical equipment required by the primary and secondary manufacturing industries, examples of which are drive systems for the mining, steel, pulp and paper industries. This is a very diverse market with no single element as large or easily identified as the electrical power equipment market. Hence this profile concentrates on the problems related to electrical utility equipment.

The other half of industrial electrical industry's output is sold to the 21 electrical power utilities and companies that produce power for their own use. Of these 21 companies and utilities, six provide 77 per cent of the market as illustrated in Table 6.

TABLE 6

Installed Capacity MW

Ontario Hydro	19,289	31.5%
Hydro Quebec	11,356	18.2%
Churchill Falls Corp.	5,500	9.0%
B.C. Hydro	4,950	8.1%
Alcan	3,170	5.2%
Manitoba Hydro	2,724	5.0%

With six customers representing 77 per cent of the market, the utility market could be considered highly concentrated. While true in comparison with the Canadian market for other electrical products, it is fragmented when compared with the utility market in most other countries. In many countries, the purchasing practices of the utilities are often dictated by the industrial or economic policies of the country, with strong support given to national equipment manufacturers.

On the basis of sales in their protected domestic markets, foreign equipment suppliers can cover their fixed costs and offer low export prices. Such price offerings are difficult to refuse for Canadian utilities whose charters require the generation of electricity at least cost to the consumer.

In contrast with the industry in most other countries, Canadian manufacturers do not, therefore, have a strong domestic base. This is a considerable handicap in competing with foreign firms in Third World countries. In approaching these markets, Canadian suppliers claim they are further hampered by the lack of measures to reduce down-side risk in major capital equipment projects, such as protection against currency fluctuations and inflation which is available to some foreign competitors.

Also, there is currently a world production overcapacity resulting from a rapid expansion of the industry in recent years, particularly in Japan and Germany. While this is causing problems for the industry throughout the world, many foreign manufacturers are strongly supported by their governments which have continued to protect the domestic market and provided financial and export support such that marginal pricing is possible. Canadian manufacturers do not have this degree of support. As already noted, such trade-distorting measures may be subject to new rules governing their use as a result of the multilateral trade negotiations.

The main strengths of the Canadian industry lie in such products as hydro generators, transformers, circuit breakers, long-distance transmission equipment and drive systems for industrial and marine applications. In all of these products the Canadian industry is generally internationally competitive and in some of them it has developed technology of the highest standards. While the Canadian industry has very real strengths in these areas, on balance the industry's weaknesses outweigh its strengths.

While competitive in hydro and long-distance transmission, its ability to compete in thermal generators and in some industrial applications is doubtful. This is becoming a major drawback as market requirements shift. For example, electrical generation is shifting toward thermal generation, both fossil fueled and nuclear. Where possible, generating stations are located closer to demand centres and are thus not as dependent on long-distance, high-voltage transmission. There is concern that the capabilities of the industry are becoming an increasingly poorer match with market requirements.

The industry's efforts to compensate for these domestic market problems by export activity have been hampered by the lack of turnkey or systems integration capability. The principle problem is identifying and managing the high risk factors of construction and financing. In addition there are the effects of the tendency of Canadian electrical utilities to develop their own systems capability and to rely on the manufacturing industry for products only. Thus in the export market where Canadian technology might be appropriate (e.g. hydro installations in developing countries), the Canadian industry often faces difficulties because of its limited turnkey capability. One solution might be to have the utilities and the manufacturers work more closely together to strengthen the industry and reduce its costs.

By working more closely together, the Canadian utilities and the manufacturers might be able to foster development of additional product lines in Canada and enhance the systems capabilities of the manufacturers allowing them to compete more effectively for domestic and export contracts. The market for heavy electrical equipment for industrial applications also represents significant market opportunities, particularly in the resource-based industries and energy-related projects.

The Electrical Wire and Cable Industry

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	263	275	21	9	12
1975	666	646	31	51	−20
% Change	153.2	134.9	47.6	366.7	

The wire and cable industry differs from all others in the electrical industry in its relatively high degree of Canadian control (60 per cent) and its more or less balanced position in international trade. It is the second largest electrical subsector accounting for 22 per cent of total sector shipments and employing 9,500, down 1,000 since 1974 but up from 7,900 in 1965.

There are a variety of factors which account for the industry's relative balance of trade in wire and cable over the last 10 years. Among them are the availability and price of raw materials, particularly

copper which accounts for a substantial proportion of cost; the size of the Canadian market and the purchasing practices of the more important domestic customers; technical and management skills; and a tradition of market-located production throughout the world.

For a number of years, there has been a North American producer's price and a world price for copper. Over the period 1961 to 1970, the North American price was consistently below world prices, ranging from a few percentage points in the early 1960s to as much as 60 per cent lower in the speculative boom of 1965–66. Since 1974, the Canadian price has been an average of 10 per cent higher than world prices and is currently 20 per cent higher.

Another important factor in explaining the industry's performance is the large demand in Canada for electrical energy and telecommunications service combined within a large geographical area. The result is in a relatively large domestic market for wire and cable. With this, plus the nature of the production process used in the manufacture of wire and cable, it has been possible for cable manufacturers to decentralize their activities throughout Canada. There are now manufacturing plants in all but one province. In recognition of local production, provincially-owned utilities (telecommunications and electrical power) usually give first preference to Canadian based companies.

Management of Canadian wire and cable companies is of a high calibre. They have invested in R&D, attempted to meet provincial industrial development aspirations and have pursued international activities to a greater extent than other subsectors of the electrical industry. For example, in response to the tendency of both developed and developing countries to aspire toward self-sufficiency in wire and cable, Canada Wire and Cable has established more than 20 joint ventures outside Canada.

A final factor of importance in explaining the industry's performance is the fact that wire and cable constitute a little-traded commodity. Most developed countries give a preference to domestic suppliers and even many developing countries, because of the relatively straightforward production technology employed, supply their own needs.

The wire and cable industry in Canada satisfies more than 90 per cent of domestic demand. There are, however, some potential problems for the industry. Higher material and labour costs in Canada and worldwide capacity under-utilization have contributed to turning Canada's modest surplus to a deficit. The industry's problems could become more serious if tariffs were substantially reduced since the dispersed Canadian industry would then be threatened by American imports produced in much larger production runs.

In the longer term, therefore, it will be important to reduce or offset higher costs and deal with small-scale and fragmented production in order to maintain the strength of the industry.

Major Appliances

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	307	284	17	40	−23
1975	610	504	46	152	−106
% Change	98.7	77.5	170.6	280.0	360.9

Employment in the major appliance subsector was about 12,000 in 1975. It has varied considerably over the decade, ranging between 10,700 in 1970 and 13,700 in 1966.

This is a relatively mature subsector in which production technology is far more important than product technology. Scale of production has become increasingly important in recent years and has resulted in a series of consolidations, both at the individual manufacturing plant level and at the corporate level. At the plant level, fewer but larger establishments now produce a larger share of the industry's output. At the corporate level, these large establishments are operated by fewer and fewer companies.

The industry is currently in the process of adapting to its most recent and significant round of consolidation. One is the acquisition by White Consolidated of the appliance business of Westinghouse Electric in the U.S., including the use of the Westinghouse trade name in Canada. The other is the joint venture comprising the appliance operations of Canadian General Electric (CGE) and GSW Limited,

which has acquired the appliance production facilities of Westinghouse Canada Limited. The new company, the Canadian Appliance Manufacturing Company (CAMCO), employs about 5,000, and should account for about one-third of the Canadian market and rank fifth in North America. It has made a number of public commitments concerning its operations, including maintenance of employment, increased capital investment and efforts toward attaining international competitiveness in some products.

A firmer basis for building a more competitive industry would, therefore, appear to have been laid and, in addition to the rationalization process under way, significant capital investment is being undertaken in the industry in a drive to achieve increased productivity levels.

Export opportunities on a specialized basis are also being identified and pursued. The possibility of further consolidation in the industry remains, as does the prospect of a higher degree of vertical integration and increased sourcing of appliance components in Canada. The phasing of tariff cuts over a period of time should allow the industry to consolidate its reorganization. For smaller firms, it may also be necessary to pursue a high degree of product specialization through agreements with parent organizations or other manufacturers in order to achieve competitive and efficient production.

Small Appliances

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	143	104	4	43	– 39
1975	400	248	19	171	–152
% Change	179.7	138.5	375.0	297.7	283.7

Imports account for more than 40 per cent of the domestic market, a share that has been increasing steadily over the past decade. Foreign ownership is high in this subsector, most of the major suppliers being divisions or subsidiaries of foreign electrical equipment suppliers. Most of the production establishments are relatively small and mainly concerned with assembling products to foreign designs for the Canadian market.

The major importers are Canadian manufacturers who are finding it increasingly difficult to justify Canadian production in the face of lower-priced alternatives from their parents or affiliates. Canadian production continues to exist for the more traditional small appliances such as toasters, kettles, irons, while imports are dominant in the newer type of appliances which enjoy the highest growth rates.

In addition, the industry faces difficulties with the method of application of the federal sales tax. Newly introduced small appliances require high gross margins in order to cover the heavy promotional expenses involved in new product introduction. A large proportion of this gross margin is included in the tax base if it is a product manufactured in Canada but excluded if it is manufactured abroad. As the product matures, the gross margins decline and the tax bases for both Canadian-made and imported products tend to converge. However, by the time that occurs the foreign manufacturer would have had considerable production experience, providing an absolute production cost advantage that may not have been present at the time of product introduction. Hence, the sales tax tends to retard or prevent the production of new products in Canada.

With the exception of a few traditional appliances, this is a sector in which cosmetic design, packaging, advertising and the ability to respond quickly to fickle market demands are most important. Many of the new products have a short commercial life. The market expands rapidly following product introduction, has a relatively short plateau and declines rapidly. Success depends upon getting a large volume of a product through production and into distribution channels very quickly to catch the peak. The Canadian industry, fragmented and with a small market, finds it difficult to operate in such an environment.

The subsector clearly faces substantial and fundamental changes in its operation and organization. A few of the larger establishments may be in a position to modify their activities and adjust to the new environment of trade liberalization and increased international competition. For the majority, enhanced design capability, product responsibility and access to larger markets will be necessary.

Miscellaneous Electrical

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	270	224	9	55	−46
1975	667	539	56	184	−128
% Change	147.0	140.6	552.2	234.5	178.2

This subsector covers a diverse range of products, the major groups being conduit and fittings, lamp bulbs, wiring devices and lighting fixtures. Total employment is more than 15,000.

The lamp bulb group is highly concentrated, with four firms, all subsidiaries of foreign-owned companies, dominating the business. Most of the products are manufactured in high volume, capital-intensive facilities. Price competition is severe among the major suppliers as they attempt to maintain market share for essentially undifferentiated products. Profit margins are depressed in some lamp bulb areas because of increasing foreign competition. Recognizing that maintaining market share is more important to them than maintaining Canadian production, Canadian manufacturers are looking to their parents or affiliates for an increasing amount of product. In fact, it is not unreasonable to expect that one or more Canadian manufacturers with smaller market shares will abandon Canadian production entirely within the next few years.

The other commodity groups have done fairly well serving the domestic market. They have been assisted by both tariff protection and to some extent by the application of standards. These groups are composed of a large number of small companies, in many cases serving localized or specialized market. All are sensitive to international competition in varying degrees. Least sensitive is the conduit and fittings group. These products, of very simple technology, have a high weight-to-cost ratio and accordingly tend to be produced close to the market. The residential or consumer portion of the lighting fixtures business may also be less sensitive to international competition. This is largely a fashion or style business and, to the extent that Canadian suppliers can maintain a high level of design capability, they should be able to retain their market share.

The remaining miscellaneous electrical producers, those involved in commercial and industrial lighting fixtures and wiring devices, may not be so fortunate. Their products tend to be standardized and lend themselves well to long production runs in capital-intensive factories. Few, if any, of the Canadian establishments have such facilities. Most manufacture for a small Canadian market to U.S. designs, with tooling often provided by U.S. companies.

The outlook for the miscellaneous electrical sector is therefore mixed — some product groups are able to hold their own against foreign competition but others are faced with mounting pressures from imports.

Batteries

Growth in Output and Market
Canada 1965–1975
$ Millions

	Domestic Market	*Shipments*	*Exports*	*Imports*	*Trade Balance*
1965	59	54	2	7	−5
1975	145	109	7	43	−36
% Change	145.8	101.9	250.0	514.3	620.0

The battery industry world-wide is dominated by about 14 multinational corporations, nine of which are active in Canada. Their production facilities plus a few others, are widely dispersed across Canada.

This regional dispersion reflects the high weight-to-cost ratio of the products necessitating that manufacturing be established close to markets.

This transportation factor together with a relatively high tariff explains why there has been minimal international trade in battery products. With the exception of some original equipment automotive batteries, some low-cost, low-quality dry cells and some low-volume special batteries, Canadian manufacturers continue to dominate the domestic market. The loss of a portion of the OEM automotive market followed the establishment of the Canada – U.S. Automotive Agreement.

Market growth for batteries has been constrained by technological improvements resulting in lengthened shelf and service life. This slow market growth, combined with losses in market share mentioned above has resulted in significant under-utilization of capacity.

The future of the industry is expected to be little different from the recent past. Electrical vehicles offer a possible exception. While development activity is still in its early stages, the realization of the forecasts for electrically powered vehicles would present significant growth potential for the Canadian battery industry. Its response to this opportunity would depend upon an ability to maintain its competitive position, the attractiveness of the Canadian investment climate and the acquisition of the necessary technology.

APPENDIX I

MAJOR PRODUCERS OF ELECTRICAL PRODUCTS

		1976 Sales (U.S. $ Millions)
General Electric	U.S.	15,697
Siemens	Germany	8,060
Hitachi	Japan	6,680
Westinghouse	U.S.	6,145
AEG	Germany	5,351
Toshiba	Japan	4,460
GEC	Britain	3,721
Brown Boveri	Switzerland	3,374
G.d'E.	France	3,283
Mitsubishi Electric	Japan	2,273
ASEA	Sweden	1,929
Kraftwerk Union	Germany	1,874
Alsthom Atlantique	France	1,689
CGE	Canada	892
Fuji Electric	Japan	619
Westinghouse Canada	Canada	461

APPENDIX II

DISTRIBUTION OF ELECTRICAL INDUSTRY BY PROVINCE
1975

	**Establishments*		*Employment*		*Gross Revenues*	
Province	*Units*	*% Distr.*	*Units*	*% Distr.*	*$ Millions*	*% Distr.*
Ontario	420	58.0	53,100	69.3	2,353	66.2
Quebec	189	26.1	18,000	23.4	939	26.4
Manitoba	29	4.0	1,900	2.5	88	2.5
B.C.	45	6.2	1,300	1.7	64	1.8
N.B.	9	1.3	1,000	1.2	36	1.0
Alberta	23	3.2	800	1.0	33	0.9
Sask.	3	0.4	400	0.5	27	0.8
N.S.	5	0.7	200	0.4	15	0.4
Nfld.	1	0.1	Negl.	-	NA	-
TOTAL	724	100.0	76,700	100.0	3,555	100.0

*There are approximately 670 manufacturing plants and establishments located across Canada. For analytic purposes, it has been necessary to further break these down into 724 "production units" by treating separately each of the activities of multiproduct establishments.