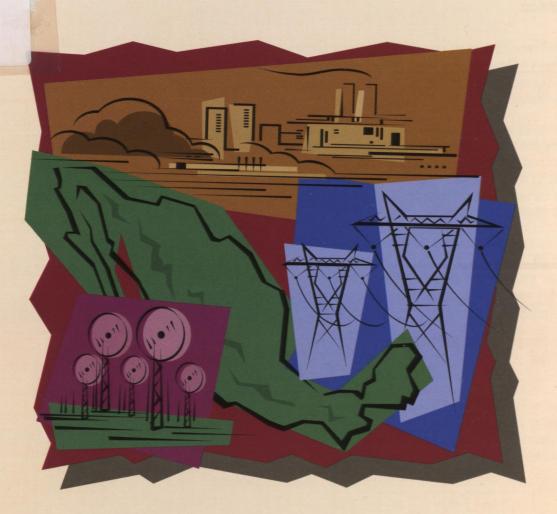
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OPPORTUNITIES IN MEXICO: POWER EQUIPMENT



Market Profile - Mexico

Opportunities in Mexico: Power Equipment was developed jointly by the Department of Foreign Affairs and International Trade (DFAIT) and Prospectus Inc. This market profile was made possible through the support of the Toronto office of Baker & McKenzie.

This market profile is designed to provide an overview of the market for electrical power generation and transmission equipment in Mexico. Although efforts have been made to avoid errors and inaccuracies in this document, it is not intended to be used as the only source of market information on this sector. We encourage the reader to use this publication as one of several resources for commercial dealings with Mexico.

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© Minister of Supply and Services, March 1996 Catalogue No. E73-9/43-1995E ISBN 0-662-23803-6

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Published by Prospectus Inc.

Printed in Canada.

Disponible en français.

OPPORTUNITIES IN MEXICO:

POWER EQUIPMENT

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With more than fifty offices in 27 countries, Baker & McKenzie is the largest law firm in the world. In Mexico, the firm has had a very significant presence since 1961. In Mexico City, the firm operates locally under the name *Bufete Sepulveda* and in all other locations in Mexico the firm is known as Baker & McKenzie. The firm currently has offices in the cities of Juárez, Mexico City, Monterrey, and Tijuana, with expansion plans to the other growing industrial regions in Mexico. A substantial percentage of all foreign companies establishing operations in the *maquiladora* regions have retained the services of Baker & McKenzie to assist them in all aspects of their endeavours in this regard.

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Mexico



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The NAFTA expands Canada's free-trade area of 270 million people into a market of 360 million—a market larger than the population of the 15 countries of the European Union and one with a total North American output of \$7 trillion.

Mexico is Canada's most important trading partner in Latin America. Two-way merchandise trade with Mexico exceeded \$5.5 billion in 1994 and is expected to exceed \$7 billion by the end of the decade.

Canadian direct investment in Mexico is growing rapidly, increasing from \$452 million in 1992 to over \$1.2 billion in 1994.

This guide has been prepared with the problems inherent to the new exporter in mind. However, it is not exhaustive. The differing circumstances, interests and needs of individual companies will influence their strategies for the Mexican market.

Further assistance can be obtained by addressing requests to the International Trade Centres (see Where To Get Help) or contact the InfoCentre at

Tel.: 1-800-267-8376 or (613) 944-4000 Fax: (613) 996-9709 FaxLink: (613) 944-4500 InfoCentre Bulletin Board (IBB): 1-800-628-1581 or (613) 944-1581 Internet: http://www.dfait-maeci.gc.ca

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A NEW ROLE FOR THE PRIVATE SECTOR

In a dramatic reversal of past policies, the Federal Electricity Commission will now rely on private sector turnkey projects for about 60 percent of its expansion program.

Beginning in 1988, the Mexican government embarked on a sweeping series of economic reforms, encompassing policies on trade liberalization, deregulation and privatization. The number of public enterprises was slashed from 1,115 in 1982 to 215 in 1994. A number of industries, including energy, were excluded from the privatization process because they are reserved for the state under the Mexican constitution as well as a number of other laws.

During the term of former president Carlos Salinas, these restrictions as applied to electricity were gradually relaxed. A new law, the Ley de Energía Eléctrica, Electric Energy Law, came into force on December 1, 1992. It retained the monopoly of the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, over the generation and distribution of all electricity sold to the public. But, for the first time, the law allowed private self-generation of electricity by industries for their own use.

In 1994, the Secretaría de Energía, Minas e Industrias Paraestatal (SEMIP), Secretariat of Energy, Mines, and State-owned Industries, issued a ten year electricity plan as part of the implementation of the revised electricity law. This plan included an expanded role for the private sector in the construction of new electricity generation facilities within CFE's jurisdiction.

The administration of President Ernesto Zedillo came to power on December 1, 1994. Three weeks later it issued an executive decree disbanding *SEMIP* and replacing it with the much smaller *Secretaría de Energía* (SE), Secretariat of Energy.

There had been much speculation that the new government would privatize the *CFE*. The decree, however, continued the previous policies. Nonetheless, the sharp devaluation of the peso in late December 1994, and the economic crisis it spawned, have placed even greater pressure on the *CFE* to use private sector resources to expand the electrical system.

Even before the crisis, SEMIP's ten-year plan contemplated a heavy reliance on private investment, largely through build-lease-transfer (BLT) and build-operate-transfer (BOT) arrangements. The plan is based on the now-implausible assumption of a 4.5 percent growth in the gross domestic product (GDP), but it is still indicative of the government's priorities.





ELECTRICITY GENERATION NEEDS NOT INCLUDED IN GOVERNMENT SPENDING PLANS

Under the SEMIP high-demand scenario, the nation will need 14,639 megawatts of new generating capacity to meet projected electricity demand in the year 2003. Of this, 6,479 megawatts are being built by the CFE. Mexico would therefore require an additional 8,160 megawatts of generating capacity from private sector sources.

Early in 1995, the *CFE* acted on these new priorities. In February, a consortium of American and Mexican utility and engineering companies received a concession to construct a thermoelectric plant in northern Chihuahua state. The plant, dubbed *Samalayuca II*, will have a total production capacity of 700 megawatts generated in three separate units. The facility, which will be constructed at a cost of US \$650 million, will be located in the outskirts of Ciudad Juárez, near the border with El Paso, Texas.

The partners include the subsidiary of the Mexican engineering and construction company *Ingenieros Civiles Asociados (Grupo ICA)*, the engineering company Bechtel Enterprises, the giant multinational company General Electric, and the Texas-based utility, El Paso Natural Gas.

The consortium will design, implement and finance construction of the plant, which will then be leased back to the CFE. According to the president of Grupo ICA, Samalayuca II is the first plant financed entirely with private funds and without government loan guarantees.

Source: Secretaria de Energia, Minas e Industrias Paraestatal (SEMIP), Secretariat of Energy, Mines, and State-owned Industries.

An earlier project in the state of Coahuila near the American border was scrapped. This coal-fired plant, known as *Carbón II*, ran into difficulty when the major partners demanded the right to set rates for electricity generated at the plant in order to pay for costly anti-pollution equipment.

Another new electricity generation facility in the planning stages is the gasfueled *Mérida III* plant, whose construction is due to begin sometime during 1995. *Mérida III* will burn natural gas with residual fuel as backup. The project will obtain its gas via a pipeline from *Ciudad PEMEX* in Tabasco. *Mérida III* will differ from *Samalayuca II* in that private companies will be hired to manage and operate the facility after completing construction. The electricity generated at the 440-megawatt plant would then be sold to the *CFE*.

In August 1995, the *CFE* announced that tenders for the construction of six electricity generation plants would be issued soon. The announcement went on to say that by the year 2000, the *CFE* would require 13 new generation plants, worth an estimated US \$8.5 billion, to be built by private producers. The plants will most likely be constructed under the BLT option allowed under Mexican law.

Industry experts caution that the ten-year plan for the development of Mexico's electricity sector is flawed in a number of respects. For one thing, it is based on GDP growth projections that are no longer realistic. Also, the plan does not take into account the effects of future energy pricing policies.



Nonetheless, in a study released in February 1995, about two months after the devaluation of the peso, the *CFE* estimated that demand for electricity in Mexico had risen by an average of 5.4 percent annually during each of the past ten years and is expected to continue at the same pace or higher in the coming years. It projected a need for investments of US \$30 billion in the electricity sector. About half of that amount will be needed for actual construction costs, while the rest will be required for support infrastructure financing and other purposes.

THE ELECTRIC POWER SECTOR

A major restructuring program is placing new emphasis on decentralization, diversification of energy sources and efficiency increases throughout the national electric power system.

Mexico's population of about 90 million is spread over a land area of approximately 2 million square kilometres. Electricity is distributed to almost 20 million households located in some 50,000 communities. The *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, is the state-owned company responsible for the generation and public distribution of electrical power throughout Mexico. *Petróleos Mexicanos (PEMEX)*, the national oil company, also generates electricity with an installed generation capacity of roughly 2,000 megawatts.

Under a ten-year electricity development plan announced in 1994, the national electricity system is being expanded, diversified and modernized. Industrial plants and isolated communities can now generate electricity for their own use. Luz y Fuerza del Centro (LyF), Central Light and Power Company, is now an independent utility with a new mandate to generate electricity as well as distribute it. This utility, which has 36,000 employees, has so far been totally dependent on the CFE for its electricity supply. In the short run, however, the CFE will continue to generate about 90 percent of Mexico's electric power.

The Mexican power generation system is divided into nine areas. The National Interconnected System includes seven of these. The two areas not included are the two states of the Baja California peninsula, which are connected under contract to the Southern California Edison system by means of a 230 KV transmission line.

CFE has a total of about 350,000 kilometres of transmission, sub-transmission and distribution lines, about 1300 substations with 120,000 MVA, and a capacity of about 100 million KVA in transmission and distribution substations.



FEDERAL ELECTRICITY COMMISSION

The Comisión Federal de Electricidad (CFE), Federal Electricity Commission, was created in 1937. Under a reorganization implemented by the government of President Ernesto Zedillo, it now reports to the new Secretaría de Energía, (SE), Secretariat of Energy. A 1960 amendment to Article 27 of Mexico's constitution gave the CFE exclusive authority for all planning, development and operation of electricity generation systems. New regulations were introduced in 1993 to expand the opportunities for small-scale, private power generation, but the CFE maintains its monopoly over power sold to the public. With an installed capacity of 33,000 megawatts, the CFE ranks among the world's 20 largest electricity suppliers. In 1994, it generated about 90 percent of Mexico's power needs.

Traditionally, the *CFE* has not operated on a full cost-recovery basis, and the federal government has filled the gap with large subsidies. This policy has resulted in inefficient use of energy, with considerable losses within the distribution system itself. In 1989, the government paid off some N \$1.3 billion pesos of the *CFE* debt, and subsidies have since been gradually reduced. In 1994 the *CFE* recovered close to 90 percent of its costs from electricity sales.

The present electrical power reserve is only about 6 percent, and the system will have to expand and modernize to meet Mexico's rapidly increasing needs. Many rural areas remain unserved, and the government's objective is to extend service to two-thirds of the rural population over the next 20 years.

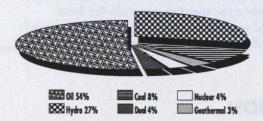
The government has acted to bring about the needed expansion and modernization. It has enacted the *Ley de Servico Eléctrico*, Electric Power Service Law, which privatizes the construction and operation of larger electrical projects. New projects will be contracted to the private sector on a turnkey basis and will no longer be managed by the *CFE* staff. The *CFE* plans to build nearly 14,000 megawatts of new generating capacity, at a cost of US \$34 billion, between 1993 and 2000.

The CFE's installed generating capacity is expected to more than double by the year 2010, as the utility extends service to previously unserved communities and keeps pace with rising demand stemming from economic growth. Consumption is forecast at about 160,000 gigawatt hours for 1995.

The CFE signed a major agreement to sell electricity to customers in California in 1987. Since then, annual exports to the U.S. have averaged 2 billion kilowatt hours, about 2 percent of the CFE's capacity. The CFE has a contract with Southern California Edison to import 70 megawatts of electricity for the Baja peninsula during the summer months.



CFE INSTALLED CAPACITY, 1994



Source: Comisión Federal de Electricidad (CFE), Federal Electricity
Commission

The government is now demanding that the *CFE* bring revenues into line with costs. Subsidies are expected to be completely eliminated by the year 2000. This is putting enormous pressure on the utility to rationalize and modernize its operations. Prices will also have to rise, stimulating demand for more efficient equipment by electricity users.

More than two-thirds of all electricity is generated by thermal plants that burn coal, oil and gas. The *CFE* is presently operating one of two nuclear units at its *Laguna Verde* plant in the state of Veracruz, supplying about 4 percent of Mexico's electricity. Most of the rest of the nation's power comes from hydro and geothermal generation plants. Small-scale private generation plants tend to use gas turbine and combined cycle technologies. By 1999, the *CFE* expects to increase its installed capacity to about 44,000 megawatts, with a large part of the increase coming from dual fuel systems.

Like other public enterprises, the *CFE* is under government pressure to reduce emissions, particularly from its thermal power plants, many of which burn high-sulfur fuel oil produced by *Petróleos Mexicanos (PEMEX)*, the national oil company.

TECHNICAL SPECIFICATIONS

Mexico's electrical system includes more than 33,000 megawatts of capacity. It operates at 60 cycles with normal voltages of 110, 200 and 400. Three-phase and single-phase 230-volt power is available. Generation is at a voltage of 4-22 KV, with transmission at 69, 114, 230 or 400 KV. The CFE operates about 350,000 kilometres of transmission and distribution lines, with about 1,300 substations.

SYSTEM EXPANSION

The Mexican electrical system is in a state of continual expansion. The ultimate objective is to supply all of the rural population. But major problems have been encountered in reaching remote villages. The *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, plans to supply about two-thirds of these communities, or about 32,000 villages, over the next 20 years using solar and wind generating systems.

More than 800,000 new users are incorporated into Mexico's electrical system every year. The electric power capacity reserve is estimated at less than 6 percent and continued expansion is essential. Electricity consumption is expected to grow at an average annual rate of about 6 percent until the year 2000. In order to meet this demand, the *CFE* will build almost 14,000 megawatts of additional generating capacity, which is to come online between 1994 and 2000.

In April 1995, the CFE announced that the opening of the second unit of the Laguna Verde nuclear power plant in the state of Veracruz had been postponed until the second half of 1995, even though construction of the facility is virtually complete. Despite the postponement, the Instituto Nacional de Investigación Nuclear (ININ), National Nuclear Research Institute, inaugurated a pilot plant in the State of Mexico to produce nuclear fuel for the second Laguna Verde reactor. The CFE does not plan to add any additional nuclear capacity.

Mexico's new Ley de Servicio Eléctrico, Electric Power Service Law, has radically changed the terms under which foreign suppliers can participate in the planned system expansion. The new law privatized electrical project construction in Mexico, and provided for private self-generation of electricity by industries for their own use. This simplifies the bidding process for Canadian firms wishing to participate as subcontractors or to supply equipment or materials for these projects. Proposals will now be directed to private sector turnkey "constructors". The CFE will continue to implement distribution projects smaller than 230 KV.



ENERGY DIVERSIFICATION

One of the major objectives of the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, over the next ten years is to diversify the energy sources used for electricity generation, and to become less reliant on hydrocarbons in general and fuel oil in particular. The following alternative energy sources are being strongly promoted.

NATURAL GAS

In the past, much of Mexico's natural gas has been wasted. Several major planned power projects will either be gas-fueled or dual-fueled, and some older facilities have been converted. According to the *CFE* data, Mexico City's main generation plant is now 97 percent fueled by natural gas, and the proportion in the Monterrey plant is 60 percent gas. The use of gas has been motivated primarily by environmental considerations and the overall proportion used in the national system as a whole has not yet increased. The recent privatization of natural gas distribution was motivated mainly by the need to transport gas to electricity generating facilities.

SOLAR ENERGY

The direct generation of electricity by solar energy is considered one of the principal alternatives for remote locations. The CFE is experimenting with solar technologies, both in the laboratory and in test installations. Photovoltaic systems are considered to have major potential, especially as part of hybrid systems. The CFE also reports encouraging progress in its experiments with a "solar basin" at a facility of Petróleos Mexicanos (PEMEX), the national oil company, in Tuzandepeti, Veracruz.



INDUSTRIAL WASTE HEAT

The CFE is developing practical co-generation systems at its thermodynamics laboratory in Baja Entalpia. A related promotion program is fostering the adoption of these technologies by industry.

WIND ENERGY

The CFE is experimenting with a number of different wind generator types, including a 100 kilowatt horizontal-axis design. It is focussing on lowering production costs by using advanced materials.

ANAEROBIC SLUDGE

The CFE has conducted laboratory experiments that suggest that sewage treatment plants can reduce their electricity consumption by up to 70 percent by generating electricity from their own sludge. This system will reportedly improve the quality of the treated water as well.

Except for natural gas, these alternative forms of energy are being promoted mainly for use in private installations, rather than those operated by the *CFE*. In 1993, the *CFE* had installed geothermal capacity of 748 megawatts, which produced some 2.6 percent of the nation's electricity. Although geothermal capacity is projected to increase by about 24 percent by 1999, the Commission's 1994 annual report does not mention any ongoing programs to encourage its development.

CFE INSTALLED CAPACITY BY TYPE

	19	Projected 1999		
	Megawatts	Percentage	Megawatts	Percentage
Thermal	17,694	54.1	18,081	41.2
Hydro	8,859	27.1	10,900	24.8
Dual	1,400	4.3	9,250	21.1
Coal	2,600	7.9	3,300	7.5
Geothermal	830	2.5	1,030	2.3
Nuclear	1,350	4.1	1,350	3.1
Total	32,733	100	43,911	100

Source: Comisión Federal de Electricidad (CFE), Federal Electricity Commission.





The 1994 annual report of the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, sets out an ambitious plan for the modernization of Mexico's electricity infrastructure. The *CFE* is struggling to adapt to the phase-out of government subsidies, and is implementing several "administrative modernization" programs designed to commercialize the organization. This includes a variety of human resources initiatives that will attempt to foster a more service-oriented corporate culture.

Technical modernization is mainly aimed at the reduction of waste under a program being carried out with financial assistance from the World Bank. This program could ultimately involve the expenditure of US \$2 billion over the next several years. The Commission's program covers every major category of waste.

TRANSMISSION AND DISTRIBUTION LOSSES

The CFE distribution division is conducting ongoing studies of energy losses within the system. It is also attempting to reduce consumption for its own use. The initiatives have included a national competition for employee suggestions.

DOMESTIC SECTOR

The CFE is operating a program to insulate several thousand homes in the cities of Mexicali, San Luis, Río Colorado, Los Mochis and Mazatlán. The objective is to reduce electricity consumption from summer air conditioning. Energy savings of up to 22 percent have been achieved. A pilot program has so far distributed 100,000 fluorescent lamps as substitutes for incandescent types. A proposed program for Guadalajara and Monterrey involves the sale of 900,000 fluorescent lamps.

AGRICULTURAL SECTOR

Irrigation systems are the target of a concerted waste reduction program, in association with the *Comisión Nacional del Aqua (CNA)*, National Water Commission. So far, more than 2,000 systems have been modernized, with energy savings ranging from 34 to 61 percent. Another program is promoting the substitution of fluorescent lamps for incandescent types in poultry operations.



INDUSTRIAL SECTOR

Energy audits were conducted for 46 companies in 12 industries. Potential energy savings of 17.5 megawatt-hours per year were detected, about 7 percent of the total consumption of the companies studied. Demonstration projects in eight selected companies achieved a 17 percent energy savings. The substitution of high-efficiency electric motors was one of the most successful techniques adopted.

COMMERCE AND SERVICE SECTOR

Twenty agreements were signed for demonstration projects in stores, hotels, hospitals, schools and restaurants. Energy savings of up to 25 percent were reported. Agreements have been reached with the major hotel associations to implement a systematic energy conservation program.

MUNICIPAL SERVICES

Major energy savings have been achieved in pilot projects involving public illumination and water pumping systems. As of mid-1994, 74 agreements for lighting modernization and seven agreements for pumping upgrades had been reached, mostly with medium-sized municipalities. Energy savings range from 30 percent for lighting and 40 percent for pumping. Total savings for the 81 projects are estimated at 30 gigawatt-hours per year.

TECHNICAL STANDARDS

The CFE is working to develop new technical standards for energy efficiency for electrically-operated devices. This is being done in cooperation with the Consejo Consultivo Nacional de Norma para la Preservación y Uso Racional de los Recursos Energéticos, (CCNNPURRE), the National Advisory Committee of Normalization for the Preservation and Rational Use of Energy Resources. So far, new standards have been developed for domestic refrigerators, air conditioners and induction motors. New standards are under development for a wide range of household and industrial equipment.

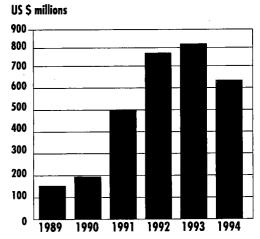
PUBLIC EDUCATION

The CFE has distributed close to two million copies of magazines and pamphlets promoting the rational use of energy.



FOREIGN TRADE

ELECTRIC POWER AND DISTRIBUTION EQUIPMENT IMPORTED BY MEXICO FROM THE WORLD



Source: Government of Mexico import data and Statistics Canada World Trade Database. Imports account for more than 60 percent of the market for electricity generation, transmission and distribution equipment. The United States captured more than one-third of import sales.

It is not possible to accurately calculate Mexico's imports of electric power generation and distribution equipment. The harmonized commodity classification system (HS) groups together a variety of electrical products that might be used for generation or distribution purposes, but which could also be used for other applications. The accompanying tables take a very broad view of the sector. Some other estimates put total imports at around half of the levels indicated.

According to United States Department of Commerce (USDOC) estimates, the total import market for electric power equipment was US \$411 million in 1993, and import penetration was 62 percent. By their estimates, the U.S. captured 36 percent of the market, followed by Germany and Japan with 15 percent and 14 percent, respectively. Other important importers were France and the United Kingdom. Canada's import market share was less than 2 percent.

ELECTRIC POWER GENERATION AND DISTRIBUTION EQUIPMENT MEXICAN IMPORTS FROM THE WORLD US \$ MILLIONS

Product	1992	1993	1994
Conduits and ducts	0	0	1
Electrical wire and cable	21.3	8.6	11.5
Nuclear reactors and equipment	1.2	1.9	1.6
Boilers and parts	83.7	130.2	27.0
Turbines	12.0	19.5	39.2
Generators and motors	119.2	164.2	122.1
Transformers	87.4	99.6	<i>7</i> 0.0
Circuit breakers, relays, terminals	108.7	80.1	83.9
Switches	127.9	125.2	147.2
Miscellaneous parts	189.1	152.5	85.0
Insulators	21.6	29.6	38.0
Total	772.1	811.4	626.5
Annual rate of change		5.1%	-22.8%

Source: Secretaría de Comercio y Fomento Industrial (SECOFI), Secretariat of Commerce and Industrial Development.



Imports fell significantly in 1994, compared with the previous year. The drop was largely attributed to a decline in imports of boilers, which fell by more than US \$100 million. Canada's sales of boilers virtually disappeared. There was also a sharp reduction in parts imports. It is not clear whether this resulted from import replacement or a change in the maintenance practices of the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission. Some observers believe that the *CFE* capital expenditures were cut back in anticipation of major private sector projects that were due to be commissioned. There are no estimates of overall market size available for 1994.

ELECTRIC POWER GENERATION AND DISTRIBUTION EQUIPMENT Mexican Imports From Canada US \$ '000s

Product	1992	1993	1994
Conduits and ducts	0.0	0.0	8.6
Electrical wire and cable	4.6	22.2	7.7
Boilers and parts	4,075.2	7,535.2	323.5
Turbines	27.0	9.5	397.6
Generators	499.9	243.7	417.2
Transformers	2,621.1	944.7	1,117.3
Circuit breakers, relays, terminals	347.2	544.2	833.4
Switches	669.7	1,626.0	579.3
Miscellaneous parts	1,348.3	1,044.0	469.6
Insulators	28.7	125.0	492.5
Total	9,621.7	12,094.5	4,646.7
Annual rate of change		25.8%	-61.6%

Sources: Government of Mexico import data and Statistics Canada World Trade Database.



CUSTOMERS

BAJA CALIFORNIA ELECTRIC GENERATION PROJECTS

The Gomisión Federal de Electricidad (CFE), Federal Electricity Commission, announced plans in December 1994, to deal with the shortage of electricity on the Baja California peninsula. The shortfall has been filled temporarily by imports from Southern California Edison under a contract which will run until the summer of 1996.

The two states of Baja California are served by four 75 megawatt thermoelectric plants and six 100-megawatt gas turbine units. According to the *CFE*, the peninsula requires additional generating capacity of up to 800 megawatts over the next several years.

Under the Ley de Servico Eléctrico, Electric Power Service Law, of December 23, 1992, the CFE can purchase this power from the private sector on a build-operate-transfer (BOT) basis, provided that a public tender is issued. The CFE has said that it will issue appropriate tenders for El Rosario and Mexicali thermoelectric projects before the end of 1995.

MÉRIDA III POWER PROJECT

Construction of the gas-fueled Mérida III plant in Yucatán was due to begin during 1995, but the concession award had not been announced as of early November,

Mérida III will differ from other recent projects in that private companies will be hired to manage and operate the facility after completing construction. The electricity generated at the 440-megawatt plant would then be sold to the GFE. This is considered a model for most major power developments in the future.

Concessions for *Mérida III* were originally due to be announced by mid-January of 1995. The delay in the announcement may affect the timetable for construction of the plant, which was due to open in two phases, one in April 1998 and the other in April of the year 2000. The plant is expected to cost about \$1 billion pesos.

A number of foreign companies are included in the list of those bidding for the concession, including four corporations from Japan, three from the U.S., and one each from Germany, Canada, Spain, and Brazil. In addition, most major Mexican engineering companies have also placed bids. According to press accounts, Gutsa is the Canadian company involved.

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Consortia of Mexican and foreign companies will develop most large electric power projects in the future, and will become the biggest purchasers of equipment and services.

Since the electric power company was nationalized in 1964, the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, has been the principal end-user of electric power generation, transmission and distribution equipment. The *CFE* generates approximately 90 percent of Mexico's electric power, and the private sector generates most of the other 10 percent. In August 1995, the *CFE* announced that six new facilities would be put out to tender for private construction.

In 1994, the Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company, became an independent utility. It is now responsible for all generation and distribution of electricity in the greater Mexico City area. The limits of its jurisdiction have been determined by technical factors, and do not correspond to any political entity. LyF has several major procurements in the planning stages.

In addition, *Petróleos Mexicanos (PEMEX)*, the national oil company, has some power plants to generate electricity for its own use. However, there are no statistics available on power generation by *PEMEX*.

Private companies, including many in the steel, sugar, chemical, metals and cement sectors, now generate their own electric power. A typical example is *HYLSA*, a company that manufactures tin plate and foil. In 1993, it generated about 46 million gigawatt-hours of electricity. In early 1995, new licences were issued for nine new private self-generation or co-generation facilities.

Government plans call for most major new power plants to be built on a turnkey basis by private developers, either on a build-lease-transfer (BLT) or a build-operate-transfer (BOT) basis. As these plans proceed, major multinational corporations and consortia of Mexican and foreign firms will become the major customers for electric power equipment and services in Mexico. The CFE will no longer be directly involved in the procurement of equipment for these major projects, although it will continue to implement distribution projects smaller than 230 KV.



ENERGY SOURCE BY INDUSTRIAL SECTOR, 1991

PERCENTAGE

MÉRIDA III POWER PROJECT

continued from page 18

The Mexican bidders include such prominent engineering and construction companies as Grupo Acerero del Norte, Grupo Protexa, Grupo Mexicano de Desarrollo and Mexico Compañía Constructora. The engineering company Tribasa is bidding in conjunction with Spain's Gogentrix-Ednesa.

SAMALAYUCA II POWER PROJECT

In February 1995, the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, announced that a contract had been awarded for the construction of the Samalayuca II combined cycle electricity generating plant. The new plant will have generating capacity of 700 megawatts and will cost US \$650 million. It will consist of three generating units, the first of which will be completed in 27 months.

The consortium that will build the project includes General Electric, ICA/Fluor Daniel, Bechtel and El Paso natural gas. The partners will provide US \$120 million in equity capital, and the balance will be borrowed from major American financial institutions. For Samalayuca II, the consortium will design, implement and finance construction of the plant. Once the project is concluded, operation of the facility will be transferred over to the CFE. Under the terms of the agreement reached after two years of lengthy negotiations, the consortium will recover its investment through leasing rights paid by the CFE.

According to the president of the *Grupo ICA*, Samalayuca II is the first plant financed entirely with private funds and without government loan guarantees. About US \$125 million of the initial investment will be provided by General Electric. The remaining US \$525 million will come from three American-based financial institutions: Citibank, Citicorp and Paine Webber.

Construction of the plant is expected to generate 1,000 direct jobs and 7,000 indirect positions.

The contract provides for a build-lease-transfer (BLT) financing arrangement. The plant will be operated by the *CFE* when it is completed. Industry observers believe that this will be the last plant financed this way, since BOT schemes are expected to become standard under the new government.

	Electricity	Natural Gas	Diesel	Oil	Liquified Petroleum Gas	Coke	Trash	Kerosene
Aluminum	53.3	36.9	9.3	0.0	0.0	0.0	0.0	0.0,
Automobile	47.5	35.6	4.9	0.0	12.0	0.0	0.0	0.0
Mining	31.8	40.0	8.6	9.0	0.3	10.3	0.0	0.0
Tobacco	28.6	57.1	0.0	14.3	0.0	0.0	0.0	0.0
Bottled beverages	22.6	26.4	23.9	16.0	- 11.1	0.0	0.0	0.0
Construction	17.8	0.0	82.2	0.0	0.0	0.0	0.0	0.0
Rubber	16.7	65.6	10.2	7.4	0.1	0.0	0.0	0.0
Chemical	15.6	48.9	1.8	33.2	0.5	0.0	0.0	0.0
Cellulose, paper	14.9	35.9	1.7	46.9	0.6	0.0	0.0	0.0
Fertilizers	12.8	83.1	1.1	3.0	0.0	0.0	0.0	0.0
Steel	12.4	45.2	0.3	13.6	0.5	28.0	0.0	0.0
Cement	11.1	9.5	0.0	79.4	0.0	0.0	0.0	0.0
Glass	9.0	82.3	1.9	4.0	0.1	2.7	0.0	0.0
Beer	8.2	38.5	3.6	48.5	1.2	0.0	0.0	0.0
Sugar	0.2	0.0	0.1	34.4	0.0	0.0	65.3	0.0
Other	31.7	37.6	11.7	13.7	4.6	0.0	0.0	0.7

Source: Secretaria de Energía, Minas e Industria Paraestatal (SEMIP), Secretariat of Energy, Mines, and State-owned Industries.



COMPETITION

Domestic manufacturers are under pressure to rationalize their operations to compete in the new private sector dominated market for electric power equipment.

The Mexican power equipment manufacturing industry comprises about 2,000 manufacturers employing 150,000 people. Major global firms have manufacturing ventures in Mexico and, along with domestic companies, supply almost 40 percent of market demand. Production of equipment and materials used in the electrical sector is well integrated with suppliers and customers, and manufacturers are looking for imports to replace abandoned product lines as the industry rationalizes. These products, along with more sophisticated equipment not made in Mexico, provide opportunities for Canadian suppliers.

Domestic production of electric power generation, transmission and distribution equipment was estimated by the United States Department of Commerce (USDOC) at approximately US \$370 million in 1994. According to the Cámara Nacional de Manufacturas Eléctricas (CANAME), National Chamber of Electrical Equipment Manufacturers, domestic manufacturers of this type of equipment account for 9 percent of Mexico's manufacturing output and 2 percent of gross domestic product (GDP). Products include the full range of home, office and industrial electrical equipment, as well as power generation and distribution equipment.

Mexico has an active transformer manufacturing industry consisting of about 40 companies. The industry is primarily engaged in supplying the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, but it also produces for export. According to the *CANAME* data, the industry produces about 100,000 distribution transformers and 6,000 power transformers annually.

The domestic industry has developed over many decades in a protected environment. The CFE was the only major customer, and it gave preference to Mexican suppliers. But now, consortia of private companies will have control over equipment procurements for most major new electric power projects. The companies in this industry will therefore be under great pressure to rationalize their operations to retain market share. This is creating increased interest in technological partnerships with foreign suppliers. Canadian companies seeking partnerships with Mexican manufacturers or engineering firms should be prepared to provide capital as well as technical expertise.



MAJOR MEXICAN PRODUCERS OF ELECTRICITY GENERATION AND DISTRIBUTION EQUIPMENT

ABB Equipos y Sistemas	power generators, transformers, substations and control panels
ABB Motores	electric motors, switches and relays
Brelec	substations, switches, control equipment, connectors and fuses
Burndy México	connectors and accessories to fix transmission lines
Conductores Latincasa	wires, cables and connectors
Conductores Monterrey	wire, cables, connectors, conductors and transformers
Controles y Servicios	DC controls, resistances and controls for electric motors
Cutler-Hammer Mexicana	transformers, switches, magnetic starters, connectors, plugs and relays
Delta Conectores	connectors
Diseño y Equipos Eléctricos de México	transmission and distribution transformers
Driescher y Wittjohann	insulators, fuses and switches
Electrohm	resistors
Electrotécnica Balteau	transformers, insulators and capacitors
Electrotécnica	distribution transformers and accessories for transformers
Energia y Equipos Industriales	distribution, three-phase and control transformers
Equipos Westinghouse	control panels, switches, protection and telemetry controls
Federal Pacific de México	magnetic starters, fuses, and switches, distribution panels and conductors
Ferranti — Packard de México	transformers
Hubbell de México	connectors and plugs
Industria Electromecánica Roldán	knife switches, distribution panels and open substations
Industrias Confad	single and three-phase, induction, open and sealed electric motors
Industrias Conelec	cable and wire
Industrias Karp	fuses
Leviton	switches, plugs and connectors
Maquinaria Eléctrica PISA	substations, three-phase and distribution transformers
Melco de México, D.F.	traction motors, CD substations and static converters
Nacional de Conductores Eléctricos	cable, wire, distribution transformers, connectors and insulators
Plantas Eléctricas México	CA generators and starters
continued on next page	

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Productos Eléctricos Comerciales	control panels and substations		
Productos Eléctricos ELMEX	knife switches, substations and control panels		
Productos Eléctricos y Electrónicos	fuse holders and insulators		
Prolec	mobile substations, insulators and distribution transformers		
Relevadores Magnéticos	magnetic relays, connectors and energy saving equipment		
Schrack Mexicana	electromagnetic relays		
Siemens	connectors, insulators, control panels, switches, relays, motors, substations and transformers		
Square D	magnetic, vacuum and hand starters, relays, control panels, transformers, switches and substations		
SyC Selmec	fuses, knife switches and all types of insulators		
Tragesa	transformers		
Transformadores y Tecnología	transformers		
Unimega	induction motors, CD motors and CA generators		
Viggers Hermanos	transformers		
Voltran	transformers		

Source: United States Department of Commerce.



ELECTRICAL POWER GENERATION AND DISTRIBUTION EQUIPMENT - MEXICAN IMPORT SHARES, 1993



USA 70%

Japan 9% Section 6%

Brazil 2% IIII Rest 7%

Source: Government of Mexico impart data and Statistics Canada World Trade Database.

FOREIGN COMPETITORS

In 1993, import penetration in the market for electricity generation, distribution and transmission equipment was about 62 percent, according to United States Department of Commerce (USDOC) estimates.

The U.S. claimed 70 percent of the import market, followed by Japan and Spain with 9 percent and 6 percent, respectively. Other important competitors include Germany, France and Brazil. Canada's import market share was 1.3 percent.





•	
3M Aero Box, Inc.	Gould Shawmut Div.
Allied Electronics, Inc.	Hamlin, Inc.
AMP Amrace Corp.	Hatch, Inc.
General Products Division Ark-Les Special Products	Honeywell, Inc.
Babbit International, Inc.	Hubbell, Inc.
Baker Instrument Co.	ITT Power Systems Corp.
Baldor Electric Busler Electric Coilcraft, Inc.	Leviton Mfg. Co. Inc.
Combustion Engineering, Inc.	Littelfuse, Inc.
Condor, Inc.	Magnetek, Inc.
DC Power Supplies Cooper Electrical Distribution	Marcat Manufacturing
Products Cooper, Inc.	Namco Controls
Delta Products Co.	Onan Corp.
Digit Power Corp.	Portage Electric Products
Dravo Corp.	Power One, Inc.
Eaton Corp.	Singer Co.
Cuttler Hammer Products Electrical South, Inc.	Southern Machine and Tool Co.
Emerson Electric Co.	Strandberg Engineering, Inc.
Engelhard Corp.	Superior Electric Co.
General Electric Co.	TDK Texas Co.
Gleason Reel Corp.	Valmont Electric
Gould, Inc.	Westinghouse Electric Corp.
•	O

Source: United States Department of Commerce.



Mexico uses the metric system and this is perceived as a handicap by some American manufacturers. The fact that the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, is obligated by law to consider Mexican manufacturers first is another handicap for all foreign suppliers. On the other hand, foreign companies that have manufacturing operations in Mexico are considered domestic manufacturers. Under the North American Free Trade Agreement (NAFTA), American and Canadian companies will have improved access to this market.



Technological innovation and financing are the keys to success for foreign firms interested in capturing this market. American manufacturers have an advantage due to geographical proximity and their record in terms of quality and service. But future penetration will depend on offering better financing plans. Japanese and German companies have been especially successful in the use of attractive financing as a marketing tool.

Canadian suppliers suffer from the disadvantage that they are not well-known in Mexico, mainly because they have not had a long-term market presence. On the other hand, Canadian technological expertise is well respected in Mexico. Technical cooperation agreements between the *CFE* and Ontario Hydro and Hydro Québec, may also serve to raise awareness of Canadian technology.

MAJOR OFFSHORE COMPANIES DOING BUSINESS IN MEXICO

Manufacturer	Country	Products	
AEG AG	Germany	transformers, relays, starters, switches and substations	
Asea Brown Boveri, AG	Switzerland	turbines, motors, cables and transformers	
Ansaldo, SPA	Italy	steam generators, substations, turbines, Canada CD motors, wind and solar generators and transformers	
Cegelec, S.A.	France	electric generation plants	
Driescher und Wittjohann	Germany	fuses, knife switches and epoxic insulators	
GEC Alsthom	France	substations, relays and control panels	
lcar	Italy	capacitors	
Klockner Moeller	Germany	relays, magnetic starters and switches	
Mitsubishi	Japan	electric equipment for public transportation	
Phoenix Elektrizitactsge Sellchaft	Germany	connectors and relays	
Siemens, AG	Germany	motors, substations, relays and control panels	
Sulzer Escher Wyss	Germany	turbines	

Source: United States Department of Commerce.



PRODUCT TRENDS AND OPPORTUNITIES

Small-scale self-generation plants, alternative energy systems and technologies to improve energy efficiency are niche markets of special interest to small- and medium-sized Canadian companies.

PRIVATIZATION

The Mexican government has implemented an aggressive program to stabilize the economy following the December 1994 devaluation of the peso. The initiatives have included a 50 percent increase in the *impuesto al valor agregado (IVA)*, value-added tax, increased petroleum exports, restraints on government budgets and accelerated privatization plans. There has been much speculation that these efforts might include privatization of the energy sector, including *Petróleos Mexicanos (PEMEX)*, the national oil company, and the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission.

The government has made it clear that neither of these entities will be privatized outright. On the other hand, the first few months of 1995 brought several announcements of plans to increase the participation of private investors in the energy sector. Developments in the primary energy sector are closely related to those in electricity generation.

In the case of *PEMEX*, the transmission of natural gas was opened to private operators partly as a means of supplying the proposed *Mérida III* power plant with natural gas. The *CFE*, for its part, has announced that the generation facilities at the city of Mérida will be the first of a new wave of privately-operated build-operate-transfer (BOT) generation plants. Until now, private participation has been through build-lease-transfer (BLT) arrangements based on guaranteeing the value of future production.

The alternative forms of BOT and build-operate-own (BOO) involve much greater risk, but they also offer the greatest potential for raising private investment for infrastructure development. Risks are associated with potentially unpredictable fuel price increases by *PEMEX*, with possible labour disputes and with uncertainty concerning future electricity prices. All of these factors are manageable, given appropriate government guarantees. It is not yet clear whether the Mexican government can deliver the necessary arrangements. Although there have been high expectations and many promises, no actual construction had taken place as of the third quarter of 1995.

There have been a number of false starts to the privatization program. For example, the proposed coal-fired *Carbón II* plant that was to be built in the state of Coahuila was scrapped because the investor-operators demanded the right to set rates for electricity generated at the plant in order to pay for costly antipollution equipment. *Grupo Acerero del Norte* and the Texas-based Mission Energy were the principal investors involved.

Another proposed private electricity plant, *Mérida III*, has attracted bidders from Japan, the United States, Germany, Spain and Brazil, as well as Gutsa from Canada. Several Mexican engineering firms are also on the bidder's list. Concessions were due to be announced in early 1995, but the project has reportedly been delayed. This gas-fired plant, to be located in the Yucatán, has been in the planning stages since 1992.

In August 1995, the *CFE* announced that it would issue tenders for the construction of six generation plants by the end of the year. The announcement added these were the first of 13 plants, worth about US \$8.5 billion, that would be needed by the year 2000. These plants are expected to be financed under the BLT option, which has already been used by the *CFE* for seven previous projects.

The six plants included four thermoelectric facilities including one in Campeche, one in Sonora and two in Baja California. The other two tenders will be for hydroelectric projects in El Cajón in the state of Nayarit and La Parota in the state of Guerrero.

MEXICO CITY CENTRAL LIGHT AND POWER

Until recently, the Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company, was operated as a subsidiary of the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, and it was responsible only for distribution in the Mexico City metropolitan area. In February 1994, LyF became an independent utility and it will now be responsible for generation as well as distribution. Initially, the company is looking for consultants to train its staff. Several tenders for projects to upgrade existing facilities are expected over the next two years. Included are an increase from 45 megawatts to 75 megawatts for both the Tepexic and Patla plants. Several new build-operate-transfer (BOT) power generation projects are expected over the period 1996 to 1998.



Union Management of Central Power and Light

Mexican trade unions have always played an important role in the management of paraestatales, state-owned companies. In some cases they hold up to half of the seats on the board of directors. Privatization is threatening this traditional function, and the government has experimented with alternative approaches.

In February 1994, the government reached an agreement with the Sindicato Mexicano de Electricistas (SME), Mexican Electrical Workers Union, to legally transfer management of the Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company, to the union. The government reorganized LyF and its three subsidiaries, creating a new company called Luz y Fuerza del Centro (LyF), Central Light and Power. The subsidiaries are the Compañía de Luz y Fuerza de Pachuca, Light and Power Company of Pachuca, the Compañía de Luz y Fuerza de Toluca, Light and Power Company of Toluca and Compañía Mexicana Meridional de Fuerza, Power Company of Southern Mexico. Technically, the new company remains a government-owned property, but all decisions will be made by union-appointed executives.

As part of the deal, the administration of former president Carlos Salinas agreed to assume the US \$6 billion debt of the former company, which has operated at a deficit for the past 20 years. Industry experts point out that the operation will not earn a profit because the company generates only about 4 percent of the electricity it sells. The remaining power is bought from the Comisión Federal de Electricidad (CFE); Federal Electricity. Commission, at higher-than-market rates.

In the future, however, LyF will operate its own generation plants, but this will require large investments to compensate for the lack of maintenance in past years, and to expand the infrastructure.

The company, which supplies electricity to Mexico City and communities in the states of Hidalgo, Mexico, Morelos and Puebla, serves more than four million of Mexico's 20 million electricity consumers. This excludes an estimated 1.4 million users who obtain electricity through illegal connections.

PRIVATE POWER GENERATION

The Ley de Energía Eléctrica, Electric Energy Law, provides for four types of private electricity generation.

- Self-generation is defined as generation for self-use where energy is provided by plants dedicated to the needs of the owners or co-owners. With government approval, shares can be sold so that the plant can be expanded to accommodate any new partners.
- Co-generation is the production of electricity from steam or any other secondary form of thermal energy that is a by-product of a production process. This is defined to include the combustion of materials derived from the production process. Co-generated electricity must be for consumption by establishments associated with the co-generator.
- Independent power plants are those with a capacity of 30 megawatts or more, to be sold exclusively to the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, or to export customers. Applicants for independent power generation licences must be domiciled in Mexico.
- Small production is defined as production from plants with a capacity less than 30 megawatts, mainly in isolated areas which receive no electricity from the CFE. Permits are granted provided that the plant does not conflict with the CFE's plans for the region involved. Permits for small production in rural areas are usually granted to consumer cooperatives or other community organizations.
- In each case, an annual report on operations must be submitted to the Secretaria de Energía (SE), Secretariat of Energy. The SE may also issue licences for the distribution of electricity purchased abroad.

Under the law, private power plants can sell their surplus electricity only to the CFE, and they may be required to do so in an emergency. The CFE has developed methods of interconnecting private generation plants within the national power grid. So far, 14 independent power stations have been interconnected and could potentially supply 161 megawatts to the public system. The CFE is working to interconnect existing power plants owned by Petróleos Mexicanos (PEMEX), the national oil company, as well as the new private systems allowed under the 1993 Electric Energy Law.



PRIVATE GENERATION PERMITS

In May 1994, the Secretaría de Energía, Minas e Industria Paraestatal (SEMIP), Secretariat of Energy, Mines, and State-owned Industries, awarded four generation permits.

Three of the permits were awarded to the Dirección General de Construcción y Operación Hidraulica del Departamento del Distrito Federal, Construction and Hydraulic Operations Agency of the Department of the Federal District. The agency is expected to spend about \$45 million pesos for the plants. The electricity will be used to power water pumps and street lights in the municipalities of Cuajimalpa and Miguel Hidalgo.

The fourth permit went to the mining company, *Minera Hecla*, to install a plant at its mine in the state of Sonora. The mine is located more than 50 kilometres from the nearest *CFE* distribution facility.

In early 1995, the Secretaría de Energía (SE), Secretariat of Energy, awarded nine additional licences for private generation plants. The plants will generate about 167 megawatts and will cost more than US \$160 million. Of the nine permits, six are for co-generation and three for self-generation plants. This brings the total number of permits issued to 28, with a capacity rated at 675 megawatts.

SELF-GENERATION AND CO-GENERATION LICENCES GRANTED, 1995

Sponsor	Location	MW
Cartonajes Estrella	Tizayuca, Hidalgo	26
Compañía Eléctrica de Cozumel	Cozumel, Quintana Roo	30
Tazcomex	Ecatepec, Estado de México	47
Pritsa Power	Atitalaquia, Hidalgo	30
Aceitera La Junta	Tlaquepaque, Jalisco	2
Agrogen	Querétaro, Querétaro	12
Papelera Veracruzana	Rafael Delgado, Veracruz	2
Troy Industrias	Coatzacoalcos, Veracruz	6
Ingenio San José de Abajo	Plant expansions at 4 locations	4

Source: United States Department of Commerce.





There are many opportunities for the construction of power plants for the private sector and for the Comisión Federal de Electricidad (CFE), Federal Electricity Commission. In addition, under the new ten-year electricity development plan, Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company, will be responsible not only for distributing electricity in the Mexico City metropolitan area, but also for the construction of electric power plants. This former CFE subsidiary is now an independent company.

In 1994, the CFE had projects worth more than US \$6.2 billion under construction. Many of these plants are being fully or partially constructed by private companies under turnkey contracts. Most new CFE projects under consideration in 1995 will be financed under build-lease-transfer (BLT), build-operate-transfer (BOT) or other investment-based financing schemes. The greatest opportunities for small- and medium-sized Canadian engineering companies and equipment suppliers are in joint ventures with Mexican or foreign firms that will be bidding on these projects. Canadian companies might also consider forming consortia with other Canadian companies to enter this market.

CFE PROJECTS IN PROGRESS, 1994

Project	Total Cost (US \$ million)	Scheduled Completion
Aguamilpa, expansion of 960 megawatts	937.6	June 1994
Zimapán, expansion of 280 megawatts	802.9	September 1995
Laguna Verde, expansion of 675 megawatts	781.7	December 1994
Petacalco, construction of units five and six with a capacity of 350 megawatts each	762.5	January 1995
Petacalco, construction of units three and four with a capacity of 350 megawatts each	695.0	January 1994
Río Escondido, construction of two units with a capacity of 350 megawatts each	675.2	January 1995
Adolfo López Mateos, construction of two units with a capacity of 350 megawatts each	574.6	July 1994
Petacalco, units one and two with a capacity of 350 megawatts each	573.3	December 1997
Topolobampo II, units one and two with a capacity of 160 megawatts each	374.5	August 1994
Pitirera, installation of miles of cable	24.2	August 1994
Tepic II-Tesistán, installation of 118 miles of cable	23.0	October 1994
Texcoco, installation of miles of cable	16.6	February 1994
Total	6241.1	

Source: Comisión Federal de Electricidad (CFE), Federal Electricity Commission.



Several other thermoelectric generating plants that were originally intended for development by the *CFE* are likely to be put up for bids for private sector participation. There are also a number of potential projects for which feasibility studies are in progress or have been recently completed.



POSSIBLE PRIVATE PROJECTS ORIGINALLY INTENDED FOR DEVELOPMENT BY THE CFE

Area	Probable Location	Total Capacity (megawatts)	
Northwest Puerto Libertad		700	
Baja California Norte	Rosarito I (Expansion)	600	
Northeast	Puerto Altamira	2,600	
Baja California Sur	Punta Prieta II (Expansion)	38	
Baja California Sur	Puerto San Carlos	38	
East	Colmi	2,600 220	
Peninsular	Valladolid		
Baja California Norte	Tijuana	220	
East	El Chino (Geothermal)	40	
Central	Zumpango	300	
Central	Tenancingo	300	
Central	Beristain	400	
Total		8,055	

Source: Comisión Federal de Electricidad (CFE), Federal Electricity Commission.

ALTERNATIVE GENERATION TECHNOLOGIES

The plans of the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, include a continuing emphasis on alternative forms of electricity generation, to reduce the reliance on hydrocarbons.



During 1993, 319 small towns installed photovoltaic generation systems under a joint *CFE-SOLIDARIDAD* program. Photovoltaic installed capacity was 3.7 megawatts in 1991, 4.1 megawatts in 1992 and 4.8 megawatts in 1993. This electricity is used mostly for pumping water, communications in isolated locations, traffic signaling and illumination in public areas. The *CFE* is assessing photovoltaic generation potential in the states of Hidalgo, Sonora and Baja California Sur.

Wind generation installed capacity was 330 kilowatts in 1991, 380 kilowatts in 1992 and 430 kilowatts in 1993. Electric power generated through wind systems is used mainly for water pumping and illumination of public areas. The *CFE* is studying the feasibility of a 1 megawatt wind generation plant in Zacatecas.

HYDROELECTRIC PROJECTS WITH FEASIBILITY STUDIES COMPLETED OR IN PROCESS

Area	Project	Location	Capacity (mw)	Configuration	Average Generation in GWH
East	El Ajón	Nayarit	750	3×250	1630
West	La Parota	Guerrero	765	3x255	1332
West	Atexcaco	Puebla	120	3×40	336
West	El Gallo	Guerrero	60	2x30	167
West	Copainala	Chiapas	240	3×80	680
Northwest	Soyopa	Sonora	50	2×25	195
East	Arroyo Hondo	Jalisco	170	2×85	366
East	Trojes	Jalisco	8	2×4	- 41
North	La Ciudad	Durango -	110	2x55	240
East	Trigomil	Jalisco	18	2x9	42
East	San Francisco	Jalisco	328	2x164	716
West	Xuchiles	Veracruz	225	3x75	653
West	Omitlán	Guerrero	135	3x45	321
Total	· · ·		2,979		6719

Source: Comisión Federal de Electricidad (CFE), Federal Electricity Commission.





BEST SALES PROSPECTS

PROJECTED VOLUME FOR 1994

	US \$ million
Parts for steam or vapour generators	33.9
Transformers, capacity over 10,000 KVA	27.0
Hydraulic turbines, power over 10,000 KVA	21.4
Fuses	16.9
Transformers, capacity over 500 KVA	9.5
Transformers, one or three phases	9.4
Transformers, capacity over 650 KVA	8.3
Thermic or induction switches	8.1
Circuit breakers over 46 KVA	7.9
AC generators, output over 8,952 KVA	6.9
AC generators, 1,500 to 2,000 KVA output	6.8
Electric conductors	6.8
Electric insulators	4.6
Liquid dielectric transformers	3.8
Suspension type insulators	3.6
Stranded wires, stainless steel	3.6
Relays	3.2
Auxiliary devices for steam generators	3.0
Generators, output over 375 kilowatts	2.8

Source: Import figures provided by the Secretaria de Comercia y Famento Industrial (SECOFI), Secretariat of Commerce and Industrial Development.

CONSULTING, MAINTENANCE AND RENOVATION

Many of the existing generation plants owned by the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, will be updated in the coming years. The Commission has an active program underway to increase the efficiency of all of its existing plants. Some will be converted from oil to natural gas fuels. Luz y Fuerza del Centro (LyF), Central Light and Power, will also be under intense pressure to modernize its operations and improve efficiency. Both



utilities are facing the total removal of government subsidies over the next few years. This creates an opportunity for Canadian companies that can provide technical and consulting services, possibly in partnership with Mexican engineering firms. The *CFE* has technical cooperation agreements with both Ontario Hydro and Hydro Québec, and Canadian expertise is well-respected in this sector.

TRANSMISSION

The objectives of the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, are to expand the electrical transmission system, as well as to reduce transmission losses. Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company, also has needs in both areas. This company is also seeking training for its staff. These activities will generate demands for both consulting services and the supply of transmission equipment, such as substations and towers. In addition to hardware, there is also a need for software and expertise for managing and controlling the network.

DISTRIBUTION

Distribution requirements include technology for the construction of underground distribution networks in urban centres. Good quality poles and accompanying hardware are also in demand, and light towers are needed in the major urban centres.

THE REGULATORY ENVIRONMENT

The new Secretariat of Energy has broad responsibilities on paper, but it is too soon to judge whether it will wield any real clout in the policy arena.

On December 28, 1994, the Mexican government dismantled the old Secretaria de Energía, Minas e Industrias Paraestatal (SEMIP), Secretariat of Energy, Mines, and State-owned Industries, and created a much slimmed-down Secretaria de Energía (SE), Secretariat of Energy. Mining policy responsibilities were shifted to the Secretaría de Comercio y Fomento Industrial (SECOFI), Secretariat of Commerce and Industrial Development. Observers are doubtful that the new energy secretariat will have a great deal of influence, because the directors of both Petróleos Mexicanos (PEMEX), the national oil company, and the Comisión Federal de Electricidad (CFE), Federal Electricity Commission, will continue to have independent access to the President of Mexico.

Article 33 of the executive decree that created the new energy secretariat defines its functions.

- Conduct Mexico's energy policy.
- Exercise the public jurisdiction over hydrocarbons, nuclear energy, and all assets and resources required to generate, transmit and supply electricity as a public service.
- Manage public activities in the exploitation of hydrocarbons and the generation of electricity, with due respect for the ecological laws.
- Participate in international consultations and advise the Secretaría de Relaciones Exteriores (SRE), Secretariat of Foreign Affairs, concerning international agreements and treaties.
- Promote the participation of the private sector in the generation and efficient use of energy.
- Carry out medium- and long-term energy planning, including defining the role of state-owned enterprises.
- Grant energy concessions, authorizations and permits.
- Conduct and promote studies and research on a variety of energy issues, including efficiency, infrastructure, marketing, prices and tariffs.
- Regulate and issue official norms relevant to the energy sector.
- Regulate and issue *Normas Oficiales Mexicanas (NOMs)*, official standards, with respect to radioactive materials and nuclear power.
- Conduct the national petroleum inventory.
- Carry out other tasks required by laws and regulations.



Recently, the finance committee of the Chamber of Deputies recommended eliminating four secretariats, including the SE. Under the proposal, the secretariats would either be replaced by commissions, or their duties would be assumed by other secretariats. The administration of President Ernesto Zedillo had not formally replied to this proposal as of October 1995.

If this proposal proceeds, the most likely scenario is that the functions of the SE would be assumed by a National Energy Commission. The greatest concern raised about the elimination of the SE, is that the move could be a first step in the privatization of PEMEX and the CFE, even though this would be a violation of the Mexican constitution.

GOVERNMENT AGENCIES IN THE ELECTRICITY SECTOR

Secretaría de Energía (SE), Secretary of Energy	oversees the development of the new rules
Comisión Federal de Electricidad (CFE), Federal Electricity Commission	planning and development of Mexico's electricity system
Compañía de Luz y Fuerza del Centro (LyF), Central Light and Power Company	planning and development of the electricity system in the Mexico City metropolitan area.
Comisión Reguladora de Energía (CRE), Energy Regulatory Commission	responsible for awarding permits, licences and concessions in both the gas and electricity sectors
Comisión Nacional Para el Ahorro de Energía (CONAE), National Commission for Energy Conservation	responsible for the Programa de ahorro de energía del sector eléctrico (PAESE), energy conservation program for the electrical sector, which involves devising norms and programs for saving energy
Instituto de Investigaciones Eléctricas (IIE), Electrical Research Institute	conducts research into the generation and transportation of electrical energy
Instituto de Investigaciones Nucleares (ININ), Nuclear Research Institute	responsible for research in the domain of nuclear energy supplies, the construction of nuclear power plants, the storage of atomic waste and the development of safety measures and norms.



Market Entry Strategies

Selling to private corporations is displacing traditional government procurement procedures as the key strategy for entering the power equipment market.

The traditional way of selling imported electric power generation, transmission and distribution equipment to the electrical sector in Mexico is through agents or distributors. Distributors tend to specialize in particular types of equipment. They maintain contact with the *Comisión Federal de Electricidad (CFE)*, Federal Electricity Commission, and other buyers, and provide local service, obtaining spare parts from foreign sources. Some manufacturers service their own equipment and some have a marketing unit which provides liaison with distributors.

Since the CFE is a state-owned company, it must adhere to government purchasing regulations which require that above a certain limit, which is reviewed every year by the Secretaría de Hacienda y Crédito Público (SHCP), Secretariat of Finance and Public Credit, all purchases must be made through public tenders.

The CFE's purchasing department is divided into two areas: one handles domestic suppliers and the other deals with international suppliers. Nevertheless, in 1990, the Commission adopted a new decentralized purchasing policy, enabling regional administrative offices to procure some of their materials independently.

All international suppliers must have their technical, financial and maintenance capacity approved by the *CFE* in order to have their bids considered. Prospective international suppliers must have their financial standing certified through a Mexican Consulate.

Manufacturers of these types of products usually advertise in business and specialized magazines, newspapers and the yellow pages. Brochures or technical literature in Spanish are essential for promoting these products.

Major manufacturers have sales offices, subsidiaries and sales representatives throughout the country. They also have sales offices for large customers such as government and original equipment manufacturers.



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In the future, sales strategies will change to reflect the new private sector orientation of the electricity sector. Increasingly, marketing efforts will have to be directed at the private groups that are successful bidders for electricity concessions. Where the lead bidder is a foreign company, initial approaches may have to be made outside of Mexico.

Partnerships or joint ventures with Mexican engineering companies are another way for Canadian firms to enter this market. Generally, Mexican firms have the necessary local market knowledge and political contacts but lack the technical expertise to execute complete turnkey projects. In the current economic environment, they also have a great deal of difficulty in raising capital.

FINANCING

The Comisión Federal de Electricidad (CFE), Federal Electricity Commission, often borrows from the major international development banks. It also depends upon commercial bank loans as well as financing provided by suppliers. Payments for purchases made by CFE may take three to six months since payment must be reported and approved by the Secretaría de Hacienda y Crédito Público (SHCP), Secretariat of Finance and Public Credit. Other Mexican customers usually pay for their international purchases with an irrevocable letter of credit (L/C), although many have been asking for extended terms since the devaluation. European and Japanese companies usually arrange concessionary financing. Turnkey projects are entirely financed by the winning bidder and are usually backed by international commercial lenders. Large corporations usually have accounts in foreign banks. Finally, international purchases may be paid through Mexican development banks such as Nacional Financiera (NAFIN), an agency providing financing for small- and medium-sized enterprises in Mexico.

VHERE TO GET LEEP

CANADIAN GOVERNMENT DEPARTMENTS AND SERVICES IN CANADA

DEPARTMENT OF FOREIGN AFFAIRS AND INTERNATIONAL TRADE (DFAIT)

DFAIT is the Canadian federal government department most directly responsible for trade development. The InfoCentre should be the first contact point for advice on how to start exporting. It provides information on exportrelated programs and services, acts as an entry point to DFAIT's trade information network, and can provide copies of specialized export publications and market information to interested companies.

InfoCentre

Tel.: 1-800-267-8376 or (613) 944-4000

Fax: (613) 996-9709 FaxLink: (613) 944-4500

InfoCentre Bulletin Board (IBB): 1-800-628-1581 or (613) 944-1581 Internet: http://www.dfait-maeci.gc.ca

The Latin America and Caribbean Branch promotes trade with Mexico. There are several trade commissioners at the Embassy of Canada in Mexico City, as well as in the satellite offices in Monterrey and Guadalajara. Trade commissioners can provide a range of services including introducing Canadian companies to potential customers in Mexico, advising on marketing channels, assisting those wishing to participate in trade fairs, helping to identify suitable Mexican firms to act as agents, and compiling strategic business intelligence on potential foreign customers.

Latin America and Caribbean Branch

Department of Foreign Affairs and International Trade Lester B. Pearson Building

125 Sussex Drive

Ottawa, ON K1A 0G2 Tel: (613) 996-5547 Fax: (613) 996-6142

INTERNATIONAL TRADE CENTRES

International Trade Centres have been established across the country as a convenient point of contact to support the exporting efforts of Canadian firms. The centres operate under the guidance of DFAIT and all have resident trade commissioners. They help companies determine whether or not they are ready to export, assist firms with market research and planning, provide access to government programs designed to promote exports, and arrange for assistance from the trade commissioners in Ottawa and trade officers abroad. Contact the International Trade Centre nearest you:

Newfoundland

International Trade Centre

P.O. Box 8950. Atlantic Place 215 Water Street Suite 504

St. John's, NF A1B 3R9 Tel.: (709) 772-5511 Fax: (709) 772-2373

Prince Edward Island International Trade Centre

P.O. Box 1115

Confederation Court Mall

134 Kent Street Suite 400

Charlottetown, PE C1A 7M8

Tel.: (902) 566-7400 Fax: (902) 566-7450

Nova Scotia

International Trade Centre P.O. Box 940, Station M 1801 Hollis Street Halifax, NS B3J 2V9 Tel.: (902) 426-7540 Fax: (902) 426-2624

New Brunswick

International Trade Centre

1045 Main Street

Unit 103

Moncton, NB E1C 1H1 Tel.: (506) 851-6452 Fax: (506) 851-6429



Quebec

International Trade Centre

5 Place Ville-Marie Seventh Floor

Montreal, PQ H3B 2G2 Tel.: (514) 496-4636 Fax: (514) 283-8794

Ontario

International Trade Centre Dominion Public Building

1 Front St. West Fourth Floor

Toronto, ON M5J 1A4 Tel.: (416) 973-5053 Fax: (416) 973-8161

Manitoba

International Trade Centre

P.O. Box 981

330 Portage Avenue

Eighth Floor

Winnipeg, MB R3C 2V2 Tel.: (204) 983-4540 Fax: (204) 983-2187

Saskatchewan

International Trade Centre The S.J. Cohen Building 119-4th Avenue South

Suite 401

Saskatoon, SK S7K 5X2 Tel.: (306) 975-5315 Fax: (306) 975-5334

Alberta

*Edmonton office is also responsible for Northwest Territories International Trade Centre

Canada Place 9700 Jasper Avenue Room 540

Edmonton, AB T5J 4C3 Tel.: (403) 495-2944 Fax: (403) 495-4507

International Trade Centre 510-5th Street S.W.

Suite 1100

Calgary, AB T2P 3S2 Tel.: (403) 292-6660 Fax: (403) 292-4578

British Columbia

*Vancouver office is also responsible for the Yukon International Trade Centre 300 West Georgia Street

Suite 2000

Vancouver, BC V6B 6E1 Tel.: (604) 666-0434 Fax: (604) 666-8330

WORLD INFORMATION NETWORK FOR EXPORTS (WIN EXPORTS)

WIN Exports is a computer-based information system designed by DFAIT to help Canada's trade development officers abroad match foreign needs to Canadian capabilities. It provides users with information on the capabilities, experience and interests of more than 23,000 Canadian exporters. To register on WIN Exports, call (613) 996-5701, or fax 1-800-667-3802 or (613) 944-1078.

PROGRAM FOR EXPORT MARKET DEVELOPMENT (PEMD)

PEMD is DFAIT's primary export promotion program. It supports a variety of activities to help Canadian companies expand into export markets.

PEMD shares up to 50 percent of eligible expenses. Program financial assistance is a repayable contribution, not a grant, and must be approved in advance. Funded activities include:

- Market Development Strategies, which consist of a package of support for visits, trade fairs, and market support initiatives, under one umbrella of the company's marketing plan.
- New to Exporting Companies, which provides a vehicle for these companies to seek out individual export opportunities, either through a market identification visit or participation in an international trade fair.
- Capital Projects Bidding for specific projects outside Canada involving international competition/formal bidding procedures.
- Trade Association Activities undertaken by non-sales national trade or industry associations on behalf of their member companies.

Support is provided for certain types of governmentplanned activities, such as outgoing trade missions of Canadian business representatives and incoming missions to Canada of foreign business persons and officials who can influence export sales. For general information, call the InfoCentre at 1-800-267-8376. For applications for assistance, call the International Trade Centre nearest you.



INTERNATIONAL FINANCING

DFAIT helps Canadian exporters interested in pursuing multilateral business opportunities financed by international financing institutions (IFIs). Canadian exporters and trade associations can access market data, obtain a better understanding of the competition, and determine if an IFI-funded market opportunity is practical and worth pursuing. DFAIT can provide information and advice on the availability of Canadian government-funded assistance programs and can assist companies in developing effective export marketing. For further information, contact:

International Financing Division

Department of Foreign Affairs and International Trade Lester B. Pearson Building 125 Sussex Drive Ottawa, ON K1A 0G2

Tel.: (613) 995-7251 Fax: (613) 943-1100

TECHNOLOGY INFLOW PROGRAM (TIP)

Managed by DFAIT and delivered domestically by the National Research Council, TIP is designed to help Canadian companies locate, acquire and adopt foreign technologies by promoting international collaboration. The Department of Industry (DI) also helps in program promotion. TIP officers respond to requests to identify technology sources and opportunities for cooperation between Canadian and foreign firms. The Program also helps Canadian firms make exploratory visits abroad to identify and gain first-hand knowledge of relevant foreign technologies, as well as how to negotiate to acquire them. For information, call (613) 993-5326.

INVESTMENT DEVELOPMENT PROGRAM

The Investment and Technology Bureau (TID) promotes Canada as an attractive, competitive destination for business investment to potential foreign investors. It actively encourages investments that take the form of new plant and equipment, joint ventures or strategic partnerships. The Bureau is especially interested in attracting investment that introduces new technology into Canada, which is key to creating new jobs and economic opportunities. It also helps Canadian companies to find international investment partners and to access international sources of capital and technologies. TID provides support to the chief executive officers of Canadian subsidiaries of multinationals which are seeking to attract manufacturing and R&D mandates to

Canada. It also monitors and analyzes investment trends and perceptions of Canada as an investment site. TID works closely with the "geographic" branches of DFAIT and the investment counsellors at Canadian missions around the world, as well as with provincial and municipal authorities, and professional and business organizations. For more information, contact:

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Investment and Technology Bureau (TID)

Department of Foreign Affairs and International Trade Lester B. Pearson Building 125 Sussex Drive Ottawa, ON K1A 0G2

Tel.: (613) 995-4128 Fax: (613) 995-9604

DEPARTMENT OF INDUSTRY (DI)

DI was created with a broad mandate to make Canada more competitive by fostering the growth of Canadian businesses, by promoting a fair and efficient marketplace for business and consumers, and by encouraging commercial ventures in scientific research and technology. In the area of small business, it has been given specific responsibility to:

- develop, implement and promote national policies to foster the international competitiveness of industry; the enhancement of industrial, scientific and technological development; and the improvement in both the productivity and efficiency of industry;
- promote the mobility of goods, services, and factors of production within Canada;
- develop and implement national policies to foster entrepreneurship and the start-up, growth and expansion of small businesses;
- develop and implement national policies and programs respecting industrial benefits from procurement of goods and services by the Government of Canada; and
- promote and provide support services for the marketing of Canadian goods, services and technology.

The regional offices of DI work directly with Canadian companies to promote industrial, scientific and technological development. They help clients recognize opportunities in a competitive international marketplace by providing services in the areas of business intelligence and information as well as trade and market development. DI also promotes and manages a portfolio of programs and services.



The following are areas in which DI regional offices have special competence:

- access to trade and technology intelligence and expertise;
- · entry points to national and international networks;
- industry-sector knowledge base;
- co-location with International Trade Centres connected to DFAIT and Canadian posts abroad;
- client focus on emerging and threshold firms; and
- business intelligence.

For more information, call (613) 941-0222.

Business Service Centre

Department of Industry 235 Queen Street First Floor, East Tower Ottawa, ON K1A 0H5 Tel.: (613) 952-4782 Fax: (613) 957-7942

NAFTA Information Desk

Department of Industry 235 Queen Street Fifth Floor, East Tower Ottawa, ON K1A 0H5 Fax: (613) 952-0540

THE BUSINESS OPPORTUNITIES SOURCING SYSTEM (BOSS)

BOSS is a computerized databank that profiles over 25,000 Canadian companies. It lists basic information on products, services and operations of use to potential customers. The system was established in 1980 by the Department of Industry (DI) in cooperation with participating provincial governments. BOSS was originally established so that trade commissioners posted around the world by DFAIT could find Canadian companies that might be able to take advantage of foreign market opportunities. Today, more than 11,000 domestic and international subscribers use the system, not only to locate Canadian suppliers, but also to obtain market intelligence and identify market opportunities. The majority of subscribers are Canadian companies. For more information, call (613) 954-5031.

MARKET INTELLIGENCE SERVICE (MIS)

MIS provides Canadian businesses with detailed market information on a product-specific basis. The service assists Canadian companies in the exploitation of domestic, export, technology transfer and new manufacturing investment opportunities. The intelligence is used by Canadian businesses in decisions regarding manufacturing, product development, marketing and market expansion. A request for information can be custom-tailored to meet each client's particular need. Previously-published customized reports are also available on request. The database is updated quarterly and annually. MIS is offered free of charge by fax, letter or telephone. For more information, contact:

Strategic Information Branch

Department of Industry 235 Queen Street First Floor, East Tower Ottawa, ON K1A 0H5 Tel.: (613) 954-5031 Fax: (613) 954-1894

Natural Resources Canada

International Energy Division Natural Resources Canada 580 Booth Street Eighteenth Floor Ottawa, ON K1A 0E4 Tel.:,(613) 996-3927 Fax: 613) 995-5576

REVENUE CANADA

Revenue Canada, Customs Program Branch provides a NAFTA Help Desk telephone line with service available in Spanish. Revenue Canada publications and customs notices are available by calling or faxing the NAFTA Information Desk. For more information, contact:

NAFTA Spanish Help Desk

Tel.: (613) 941-0965

NAFTA Information Desk

Revenue Canada, Customs Programs Branch 191 Laurier Avenue West Sixth Floor Ottawa, ON KIA 0L5 Tel.: 1-800-661-6121, or (613) 941-0965

Fax: (613) 952-0022



CANADIAN INTERNATIONAL DEVELOPMENT AGENCY (CIDA)

An important possible source of financing for Canadian ventures in Mexico is the special fund available through CIDA under the Industrial Cooperation Program (CIDA/INC). This program provides financial contributions to stimulate Canadian private-sector involvement in developing countries by supporting long-term business relationships such as joint ventures and licensing arrangements. INC supports the development of linkages with the private sector in Mexico by encouraging Canadian enterprises to share their skills and experiences with partners in Mexico and other countries. A series of INC mechanisms help enterprises to establish mutually beneficial collaborative arrangements for the transfer of technology and the creation of employment in Mexico.

There are five INC mechanisms that help eligible Canadian firms to conduct studies and that provide professional guidance and advice to potential clients. Where a project involves environmental improvement, technology transfer, developmental assistance to women, job training or job creation, early contact with CIDA's Industrial Cooperation Division is suggested. An important CIDA criterion is that the project creates jobs in Mexico without threatening jobs in Canada. In fact, most CIDA-assisted projects have produced net increases in Canadian jobs. For more information, contact:

Industrial Cooperation Division

Canadian International Development Agency 200 Promenade du Portage Hull, PQ K1A 0G4

Tel.: (819) 997-7905/7906 Fax: (819) 953-5024

ATLANTIC CANADA OPPORTUNITIES AGENCY (ACOA)

Atlantic Canadian companies seeking to develop exports to Mexico may be eligible for assistance from the ACOA. The Agency works in partnership with entrepreneurs from the Atlantic region to promote self-sustaining economic activity in Atlantic Canada.

ACOA provides support to businesses as they look to expand existing markets through the development of marketing plans. Efforts include monitoring trade opportunities arising from global economic change, communications efforts to promote the region, trade missions and associated activities, as well as better coordination with federal and provincial bodies that influence trade and investment opportunities. For more information, contact:

Atlantic Canada Opportunities Agency

Blue Cross Centre 644 Main Street P.O. Box 6051 Moncton, NB E1C 9J8

Tel.: 1-800-561-7862 Fax: (506) 851-7403

Western Economic Diversification Canada (WD)

WD is responsible for federal economic development activities in Western Canada. The Department works in partnership with the western provinces, business, industry associations and communities to stimulate the western Canadian economy.

WD's "New Directions" program will work to enhance the export position of western companies by boosting their competitiveness in domestic and global markets.

The Department no longer provides repayable loans to individual companies, but seeks new innovative partnerships within both the public and private sectors. These partnerships will address the needs of small- and medium-sized enterprises for information, business services and capital, particularly for high growth industries critical to Western Canada's economic diversification.

One of WD's new products focused on export development is the International Trade Personnel Program. This federal-provincial initiative links export-focused western firms with recent post-secondary graduates. The program accomplishes two important socio-economic goals: it gives companies the extra person-power they need to penetrate new markets, and it gives recent graduates valuable work experience. Under the new program, the length of export-development projects may vary from one to three years. Approved projects will be eligible for assistance ranging from C \$7,500 for one year, to a maximum of C \$37,500 per graduate over the 3 year period. For more information, contact:

Western Economic Diversification Canada

The Cargill Building 240 Graham Avenue Suite 712 P.O. Box 777 Winnipeg, MB R3C 2L4 Tel.: (204) 983-4472

Fax: (204) 983-4694



EXPORT DEVELOPMENT CORPORATION (EDC)

EDC is a customer-driven, financial services corporation dedicated to helping Canadian businesses succeed in the global marketplace. EDC provides a wide range of risk management services, including insurance, financing and guarantees to Canadian exporters and their customers around the world.

EDC's products fall into four main categories:

- · export credit insurance, covering short- and medium-term credits:
- performance-related guarantees and insurance, providing cover for exporters and financial institutions against calls on various performance bonds and obligations normally issued either by banks or surety companies;
- foreign investment insurance, providing political risk protection for Canadian investments abroad; and
- export financing, providing medium- and long-term export financing to foreign buyers of Canadian goods and services.

EDC has established relationships with leading commercial and public sector institutions in Mexico and Latin America. Exporters can call (613) 598-2860 for more information.

Smaller exporters, with annual export sales under C \$1 million, should call the Emerging Exporter Team at 1-800-850-9626.

Exporters in the information technology sector can call EDC's Information Technologies Team at (613) 598-6891.

For information on the full range of EDC services, contact any of the following EDC offices:

Ottawa

Export Development Corporation

151 O'Connor Street Ottawa, ON K1A 1K3 Tel.: (613) 598-2500 Fax: (613) 237-2690

Vancouver

Export Development Corporation

One Bentall Centre 505 Burrard Street

Suite 1030

Vancouver, BC V7X 1M5 Tel.: (604) 666-6234 Fax: (604) 666-7550

Calgary

Export Development Corporation

510-5th Street S.W.

Suite 1030

Calgary, AB T2P 3S2 Tel.: (403) 292-6898 Fax: (403) 292-6902

Winnipeg *office also serves Saskatchewan

Export Development Corporation

330 Portage Avenue

Eighth Floor

Winnipeg, MB R3C 0C4 Tel.: (204) 983-5114 Fax: (204) 983-2187

Toronto

Export Development Corporation

National Bank Building

150 York Street Suite 810 P.O. Box 810

Toronto, ON M5H 3S5 Tel.: (416) 973-6211 Fax: (416) 862-1267

London

Export Development Corporation

Talbot Centre 148 Fullarton Street

Suite 1512

London, ON N6A 5P3 Tel.: (519) 645-5828 Fax: (519) 645-5580

Montreal

Export Development Corporation

Tour de la Bourse 800 Victoria Square

Suite 4520 P.O. Box 124

Montreal, PQ H4Z 1C3 Tel.: (514) 283-3013 Fax: (514) 878-9891

Halifax

Export Development Corporation

Purdy's Wharf, Tower 2 1969 Upper Water Street

Suite 1410

Halifax, NS B3J 3R7 Tel.: (902) 429-0426 Fax: (902) 423-0881



National Research Council (NRC)

Canadian companies hoping to succeed in the Mexican marketplace may require additional technology to improve their competitiveness. The NRC works with Canadian firms of all sizes to develop and apply technology for economic benefit. The Council manages the Industrial Research Assistance Program (IRAP), a national network for the diffusion and transfer of technology.

The IRAP network supports the process of developing, accessing, acquiring, implanting and using technology throughout Canadian industry. IRAP has been in existence for 50 years and has acquired a reputation as one of the most flexible and effective federal programs. IRAP takes advantage of an extensive network of more than 190

different locations within approximately 90 communities across Canada, including numerous provincial technology centres, the NRC's own laboratories and research institutes, federal government departments, and technology transfer offices in Canadian universities. For further information, contact:

Industrial Research Assistance Program

National Research Council Montreal Road Building M-55 Ottawa, ON K1A 0R6 Tel.: (613) 993-1770

Fax: (613) 952-1086

KEY CONTACTS IN CANADA

SPONSORING ORGANIZATIONS

BAKER & MCKENZIE

Baker & McKenzie is one of the largest international law firms with offices in 35 countries. They presently have four offices in Mexico, in the cities of Juárez, Mexico City, Monterrey and Tijuana. In addition to providing legal advice, the firm's offices in Canada and Mexico work to assist Canadian companies to find the right partner to enable them to establish or expand their activities in Mexico. For more information, contact:

Baker & McKenzie
Barristers & Solicitors

BCE Place 181 Bay Street Suite 2100 Toronto, ON M5J 2T3 Tel.: (416) 865-6910/6903 Fax: (416) 863-6275

BUSINESS AND PROFESSIONAL ASSOCIATIONS

Canadian Electricity Association One Westmount Square Suite 500 Montreal, PQ H3Z 2P9

Tel.: (514) 937-6181 Fax: (514) 937-6498

Electro Federation Canada Inc.

10 Carlson Court Suite 210 Etobicoke, ON M9W 6L2 Tel.: (416) 674-7410 Fax: (416) 674-7412

Canadian Council for the Americas (CCA)

The Council is a non-profit organization formed in 1987 to promote business interests in Latin American as well as Caribbean countries. The CCA promotes events and programs targetted at expanding business and building networking contacts between Canada and the countries of the region.

The Canadian Council for the Americas

Executive Offices 360 Bay Street Suite 300 Toronto, ON M5H 2V6 Tel.: (416) 367-4313 Fax: (416) 367-5460

Canadian Exporters' Association

Suite 250 Ottawa, ON K1P 6B9 Tel.: (613) 238-8888 Fax: (613) 563-9218

99 Bank Street



an

Canadian Manufacturers' Association

75 International Boulevard Fourth Floor Etobicoke, ON M9W 6L9 Tel.: (416) 798-8000 Fax: (416) 798-8050

The Canadian Chamber of Commerce

55 Metcalfe Street Suite 1160 Ottawa, ON K1P 6N4 Tel.: (613) 238-4000 Fax: (613) 238-7643

Forum for International Trade Training Inc.

155 Queen Street Suite 608 Ottawa, ON K1P 6L1 Tel.: (613) 230-3553 Fax: (613) 230-6808

Language Information Centre

240 Sparks Street RPO Box 55011 Ottawa, ON K1P 1A1 Tel.: (613) 523-3510

Open Bidding Service

P.O. Box 22011 Ottawa, ON K1V 0W2 Tel.: 1-800-361-4637 or (613) 737-3374

Fax: (613) 737-3643

Canadian Standards Association

178 Rexdale Blvd. Rexdale, ON M9W 1R3 Tel.: (416) 747-4000 Fax: (416) 747-4149

Standards Council of Canada

45 O'Connor Street Suite 1200 Ottawa, ON K1P 6N7 Tel.: (613) 238-3222 Fax: (613) 995-4564

MEXICAN GOVERNMENT OFFICES IN CANADA

The Embassy of Mexico and Mexican consulates can provide assistance and guidance to Canadian companies in need of information about doing business in Mexico. For more information, contact:

Embassy of Mexico

45 O'Connor Street Suite 1500 Ottawa, ON K1P 1A4 Tel.: (613) 233-8988 Fax: (613) 235-9123

Mexican Consulate in Ottawa

45 O'Connor Street Suite 1500 Ottawa, ON K1P 1A4 Tel.: (613) 233-6665 Fax: (613) 235-9123

OTHER MEXICAN CONSULATES GENERAL IN CANADA

Consulate General of Mexico

2000 Mansfield Street Suite 1015 Montreal, PQ H3A 2Z7 Tel.: (514) 288-2502/4916 Fax: (514) 288-8287

Consulate General of Mexico

199 Bay Street Suite 4440 P.O. Box 266, Station Commerce Court West Toronto, ON M5L 1E9 Tel.: (416) 368-2875/8141/1847 Fax: (416) 368-8342

Consulate General of Mexico

810-1139 West Pender Street Vancouver, BC V6E 4A4 Tel.: (604) 684-3547/1859 Fax: (604) 684-2485



MEXICAN FOREIGN TRADE COMMISSIONS

Banco Nacional de Comercio Exterior (Bancomext) is the

Mexican Foreign Trade Commission and has offices in

Canada. It offers credits, export guarantees and counselling
services to Mexican companies seeking to do business in

Canada.

MEXICAN BANKS WITH OFFICES IN CANADA

Banco Nacional de México (Banamex), Banco de Comercio (Bancomer), and Banca Serfin are private-sector banks which offer specialized services through their international trade information centres. The centres participate in a computerized communications network with access to numerous economic, governmental and financial databases throughout the world. These banks are located throughout Mexico and maintain offices in Toronto.

Banco Nacional de México (Banamex)
1 First Canadian Place
Suite 3430
P.O. Box 299
Toronto, ON M5X 1C9
Tel.: (416) 368-1399

Fax: (416) 367-2543

Banco de Comercio (Bancomer)
The Royal Bank Plaza
South Tower
Suite 2915
P.O. Box 96
Toronto, ON M5J 2J2
Tel.: (416) 956-4911
Fax: (416) 956-4914

Banca Serfin
BCE Place
Canada Trust Tower
161 Bay Street
Suite 4360
P.O. Box 606
Toronto, ON M5J 2S1
Tel.: (416) 360-8900
Fax: (416) 360-1760

CANADIAN GOVERNMENT DEPARTMENTS AND SERVICES IN MEXICO

TRADE AND ECONOMIC DIVISION THE EMBASSY OF CANADA IN MEXICO

The Trade and Economic Division of the Canadian Embassy in Mexico can provide vital assistance to Canadians venturing into the Mexican market. The trade commissioners are well-informed about the market and will respond in whatever measures possible to support a Canadian firm's presence in Mexico.

Note: to telephone Mexico City, dial 011-52-5 before the number shown. For contacts in other cities in Mexico, consult the international code listing at the front of your local telephone directory for the appropriate regional codes.

Trade and Economic Division
The Embassy of Canada in Mexico
Schiller No. 529
Apartado Postal 105-05
Col. Polanco
11560 México, D.F.
México
Tel.: 724-7900

Canadian Consulate

Edificio Kalos, Piso C-1 Local 108-A Zaragoza y Constitución 64000 Monterrey, Nuevo León México

Tel.: 344-3200 Fax: 344-3048

Canadian Consulate

Hotel Fiesta Americana Local 30-A Aurelio Aceves No. 225 Col. Vallarta Poniente 44110 Guadalajara, Jalisco México

Tel.: 616-6215 Fax: 615-8665



Fax: 724-7982

KEY CONTACTS IN MEXICO

GOVERNMENT DEPARTMENTS

Federal Electricity Commission

Comisión Federal de Electricidad (CFE)

Río Lerma 334

Col. Cuahtemoc

06598 México, D.F.

México

Tel.: 683-2341

Fax: 595-5400 ext. 5205

Secretariat of Energy

Secretaría de Energía (SE)

Francisco Marquez 160, Piso 5

Col. Condesa

06140 México, D.F.

México

Tel.: 553-9014

Fax: 286-2752

Secretariat of Commerce and Industrial Development

Secretaría de Comercio y Fomento Industrial (SECOFI)

Morena 811

Col. Narvarte

03020 México, D.F.

México

Tel.: 639-4700

Fax: 639-9814 (request fax tone)

Construction and Hydraulic Operation Agency

Department of the Federal District

Dirección General de Construcción y Operación Hidráulica del

Departamento del Distrito Federal

Viaducto Río de la Piedad No. 507, Piso 3

Col. Granjas México

08400 México, D.F.

México

Tel.: 650-2028 & 657-4103

Fax: 654-5795

Secretariat of Finance and Public Credit

Secretaría de Hacienda y Crédito Público (SHCP)

República del Salvador 47, Planta Alta

Col. Centro

06000 México, D.F.

México

Tel.: 709-6675, 709-6532

Fax: 709-3272

National Development Bank

Nacional Financiera (NAFIN)

Insurgentes Sur 1971

Col. Guadalupe Inn

01020 México, D.F.

México

Tel.: 325-7300/7301

Fax: 325-6299

Secretariat of the Environment, Natural Resources

and Fisheries

Secretaría del Medio Ambiente, Recursos Naturales y Pesca

(SEMARNAP)

Periférico Sur No. 4209

Col. Jardines en la Montaña

14210 México, D.F.

México

Tel.: 628-0602/0605

Fax: 628-0643/0644

Secretariat of Social Development

Secretaría de Desarrollo Social (SEDESOL)

Programas Solidaridad

Av. Constituyentes 947, Edificio "B", Planta Baja

Col. Belem de las Flores 01110 México, D.F.

México

Tel.: 271-8217, 515-45008

Fax: 261-1407, 272-0118

Secretariat of Foreign Affairs

Secretaría de Relaciones Exteriores (SRE)

Eje Central Lázaro Cardenas No. 257

Ala "A", Piso 1

Col. Guerrero

06960 México, D.F.

México

Tel.: 782-3765

Fax: 782-3626

Central Light and Power Company

Compañía de Luz y Fuerza del Centro (LyF)

Av. Melchor Ocampo No. 171

Col. Tlaxpana

11379 México, D.F.

México

Tel.: 592-0655, 546-7770

Fax: 546-8409

National Oil Company

Petróleos Mexicanos (PEMEX)

Gerencia Técnica de Proyectos Hidroeléctricos

Izazaga No. 89

06000 Col. Centro

México, D.F.

México

Tel.: 709-7683, 229-4800 ext.. 4805

Fax: 709-7683, 229-4800 ext.. 4805

Energy Regulatory Commission

Comisión Reguladora de Energía (CRE)

Puente de Tecamachalco 26

Col. Lomas de Chapultepec

11000 México, D.F.

México

Tel.: 520-1110/0450, 540-0686 ext. 5018

Fax: 520-0796

National Commission for Energy Conservation

Comisión Nacional para el Ahorro de Energía (CONAE)

Francisco Márquez 160

Col. Condesa

06140 México, D.F.

México

Tel.: 553-9000

Fax: 553-9020

Electrical Research Institute

Instituto de Investigaciones Eléctricas (IIE)

Av. Reforma No. 113

Col. Palmira

62490 Temixco, Morelos

México

Tel.: 18-3811 ext. 7157

Fax: 18-2628

National Water Commission

Comisión Nacional del Aqua (CNA)

Insurgentes Sur No. 2140, Piso 2

Cd. Ermita San Angel

01070 México, D. F.

México

Tel.: 661-3806/4555/5304

Fax: 661-0840, 237-4137

Business and Professional Associations in Mexico

National Chamber of Electrical Equipment Manufacturers

Cámara Nacional de Manufacturas Eléctricas (CANAME)

bsen 13

Col. Chapultepec Polanco

11560 México, D.F.

México

Tel.: 280-6658 & 280-6042

Fax: 202-1440

Mexican Confederation of National Chambers of Commerce

Confederación de Cámaras Nacionales de Comercio

(CONCANACO)

Balderas No. 144, Piso 3

Col. Centro

06079 México, D.F.

México

Tel.: 709-1559

Fax: 709-1152

Confederation of Industrial Chambers

Confederación de Cámaras Industriales (CONCAMIN)

Manuel María Contreras No. 133, Piso 1

Col. Cuauhtémoc

06597 México, D.F.

México

Tel.: 592-0529, 566-7822

Fax: 535-6871

National Chamber of Manufacturing Industry

Cámara Nacional de la Industria de Transformación

(CANACINTRA)

Av. San Antonio No. 256

Col. Ampliación Nápoles

03849 México, D. F.

México

Tel.: 563-3400

Fax: 563-5381



National Association of Importers and Exporters of the Mexican Republic

Asociación Nacional de Importadores y Exportadores de la República Mexicana (ANIERM) Monterrey No. 130 Col. Roma 06700 México, D.F. México

Tel.: 564-8618/9218 Fax: 584-5317

Canadian Chamber of Commerce in Mexico

Cámara de Comercio de Canadá en México c/o Bombardier Paseo de la Reforma No. 369, Mezzanine Col. Juárez 06500 México, D.F. México

Tel.: 729-9903, 207-2400

Fax: 208-1592

National Chamber of Commerce of Mexico City

Cámara Nacional de Comercio de la Ciudad de México (CANACO)
Paseo de la Reforma No. 42
Col. Juárez
06030 México, D.F.
México

Tel.: 592-2677/2665 Fax: 705-7412, 592-3571

MEXICAN COMPANIES

Hojalata y Láminas, S.A. (HYLSA) Av. de los Angeles No. 352 Oriente Col. Garza Cantú 66452 San Nicolás de los Garza, Nuevo León México Tel.: 328-1620

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