



PHOTO: ATOMIC ENERGY OF CANADA LIMITED

ELECTRICAL

Canada is the world's third-largest per-capita user of electrical power. It is not surprising, then, that electricity and related products and services are cornerstones of its economy.

Plentiful, inexpensive energy is essential to provide heat in a northern climate, to transport goods in the second-largest country in the world and to run a large industrial economy. A good supply of high-quality electricity is also essential to support Canada's rapidly growing information economy. In spite of all the demands and challenges placed on Canada's electrical power industry, consulting engineering firms, equipment manufacturers and project developers have succeeded in making Canada a world leader.

Canada's great needs for electricity are met by the availability of abundant energy resources — water, coal, natural gas and uranium. Sixty-four percent of Canada's electrical power is generated from hydro sources, 20 percent from thermal and 16 percent from nuclear. Its electrical power industry had assets

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of \$148 billion in 1997 and earns \$35 billion in revenue annually. Canadian utilities directly employ about 78 000 people, with an additional 25 000 working for manufacturing and engineering companies.

Canadians have developed a wealth of knowledge and experience in building systems to generate, transmit and distribute power. They have designed, built and operated some of the world's largest and most complex electrical projects, such as the James Bay and Niagara Falls projects in Canada. In the last 10 years, the industry has focussed on its strengths in niche markets. To provide solutions for today's utility needs, Canadian suppliers are now emphasizing short lead times, flexible product offerings, more standardized products, performance guarantees and strong support services.

NUCLEAR

Atomic Energy of Canada Limited is the third-largest global supplier of nuclear energy systems, offering a unique technology in its CANDU power system. Units have been running successfully in Canada for more than 25 years, and in the Republic of Korea and Argentina for more than 15 years. In 1996, the first CANDU system in Europe, Cernavoda Unit 1, began operating in Romania, while two other CANDU-6 units are under construction at the Qinshan site in China.

In the non-nuclear power generation area, export products range from small hydro installations, to modular, efficient gas turbines for distributed generation, to power boilers, to the world's largest air-cooled hydro generator in Venezuela. Canadian expertise in hydro power has been applied to many projects in China, including Geheyuan (1280 MW), Ertan (3300 MW) and Three Gorges (18 000 MW).



PHOTO: BALLARD POWER

NEW-GENERATION TECHNOLOGIES

New-generation technologies, including wind power and photovoltaic and fuel cells, which possess considerable environmental advantages, are currently being developed in Canada. Some of these emerging technologies are also well suited to filling increasing requirements for distributed generation and customized energy services. One example is the Ballard Generation System 250-kilowatt natural gas-powered fuel cell power plant for stationary power applications.

With suitable hydro sites in Canada often located far from the marketplace, Canadian companies have had to be innovative in securing efficient power transmission. New Canadian transmission

