

Who benefits?

Nuclear power exports flow from the success of a unique Canadian crown corporation, Atomic Energy of Canada Ltd. (AECL) and its CANDU nuclear power design. Although AECL plays the lead role in CANDU product design, 80 percent of the CANDU project work is contracted to private sector firms throughout Canada. The achievements of CANDU in the world markets are also the achievements of Canadian manufacturers, suppliers and workers. The China CANDU project alone represents direct business opportunities for over 150 Canadian companies and translates into about 27,000 person-years of work for Canadians over the seven-year construction life of the project.

CANATOM NPM INC.

of Montreal, Quebec and Oakville, Ontario provides procurement services, and site project, construction and commissioning management services to the project. It is the largest firm of its kind dedicated solely to the nuclear industry. Its owners are SNC-Lavalin, AGRA Industries and BFC Construction.

CAE ELECTRONICS LTD.

of St. Laurent, Quebec provides the digital control computers for CANDU power plants. CAE developed its first power plant simulator in Canada for a CANDU in 1973, today it applies its know-how to reactors around the world.

THE CANADIAN NUCLEAR WORKERS COUNCIL

of Toronto, Ontario is an organization of workers represented by unions or other employee groups working in the nuclear industry in areas such as uranium mining, research, manufacturing and electric power generation. The jobs of many of these nuclear workers are export-based.

NEWMAN HATTERSLEY LTD.

of Mississauga, ON are producers of various types of high quality valve designs for important safety applications for Canadian, offshore CANDU and other nuclear projects. Continuous development will open new markets and ensure a growing work force in the future for their Canadian facility.

DRESSER VALVE

Dresser Valve Division products have been utilized in the power industry for over 100 years. Dresser Valve Division's Burlington facility is a dedicated supplier of control valves, safety valves and controls for specialized CANDU nuclear power systems in Ontario, Quebec, New Brunswick, Romania, Korea and China.

NU-TECH PRECISION METALS

of Arnprior, Ontario manufactures and exports zirconium alloy pressure tubes for CANDU reactors. Although its core business is nuclear-based, Nu-Tech also provides a range of services related to manufacturing reactive and other metals.

HYDRO QUEBEC

has provided training in China on theoretical aspects of nuclear power generation, and is currently providing nine-month practical training programs for five groups from China at its Gentilly-2 CANDU plant in Quebec. This company has participated in CANDU nuclear projects in Korea and Argentina, and produces Cobalt-60 for nuclear medicine procedures.

ES FOX

With over 1,000 employees this Niagara Falls-based company has provided quality components to both domestic and export nuclear projects. Its products include vapour recovery equipment for the China CANDU project.

THORBURN EQUIPMENT

and its 70 employees of Pointe Claire, Quebec recently designed and built eight huge expansion joints to meet an emergency shutdown at a power plant in Poland. Team Thorburn is also a supplier to the Qinshan, China and other CANDU projects throughout the world.

VELAN INC.

of Montreal, Quebec with over 1,000 employees in Canada and 400 employees in six other countries has become one of the world's leading manufacturers of valves. The Qinshan CANDU project in China is one of Velan's important export projects.

LAKER ENERGY PRODUCTS LTD.

of Burlington, Ontario supplies nuclear grade pipe, fittings, pumps, compressors and fuel handling equipment to domestic and foreign CANDU power plants. Laker is a young company counting on continued growth from more CANDU sales.

ATLAS IDEAL METALS

of Toronto, Ontario is one of Canada's largest suppliers of top quality specialized metal alloys. With 650 employees in Canada, Atlas Ideal supplies products that meet the extreme quality specifications required in the nuclear industry.

ROCTEST LTD.

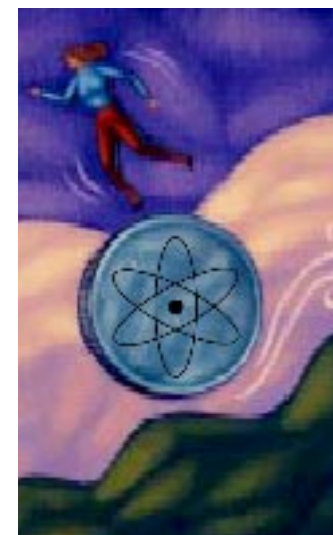
of St. Lambert, Quebec manufactures a full range of monitoring instruments used for testing and surveillance of CANDU reactor buildings. Roctest's instruments are incorporated in all CANDU projects around the world, including Qinshan in China.

Dissenting views

Not every Canadian is in favor of nuclear power and there are some that oppose this energy form in Canada and abroad. They have attempted to stop CANDU projects in Canada as well as the export of CANDU technology to other countries. Their objective is to shut down nuclear power activity everywhere. Certain of these groups have filed a writ in federal court challenging the Federal Government's export financing authority for the recent sale of CANDUs to China.

The matter is presently before the courts. The intent of this court challenge is to frustrate the financing arrangements already in place for the China CANDU project which is currently under construction. In addition to its potential impacts on CANDU exports, such an action, if successful, could render all export sales subject to Canada Account financing to be subject to Canadian regulations even though the projects receiving assistance were in another country. This obviously has some implications related to the traditional view of national sovereignty.

The implications of this case go far beyond nuclear sales since some of these advocacy organizations are on record as opposing all commercial energy production methods. Their objective has the potential to affect a significant number of export sales in all energy producing fields as well as forestry, mining and other natural resources, construction and even agricultural sectors where they are supported by Canada Account financing.



Guidelines level playing field

Guidelines developed by the Organization for Economic Cooperation and Development (OECD) govern the manner in which export credits from government agencies can be used to fund nuclear export projects. These regulations are designed to create a level playing field for all exporters.

Under OECD rules, a maximum of 85% of the value of the export contract and costs occurring in the importing country for up to 15% of the value of the export contract are eligible for export credits. The balance of the foreign and local costs must come from commercial credit and owner's equity. Terms for these loans are not to exceed 15 years.

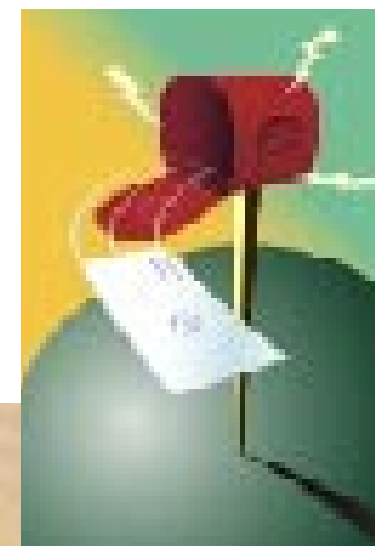
INTEREST RATES PUBLISHED

Generally, the minimum interest rate for export credits that receive state financial support are the so-called commercial interest reference rates (CIRRs) for the currencies being used. Such rates are updated on a monthly basis and published on the internet: (http://www.oecd.org/news_and_events/new-numbers/cirr/cirrlist.htm). In the case of nuclear exports, an additional .75 percent is added because of the longer lending terms for nuclear construction projects. As of January 15, 2000 the rate charged was 8.13 percent.



For more info contact:

- International Atomic Energy Agencywww.iaea.or.at
- Canadian Nuclear Associationwww.cna.ca
- Atomic Energy of Canada Limitedwww.aecl.ca
- MDS Nordion.....www.mds.nordion.com
- Organization of CANDU Industrieswww.oci-aic.org
- Sierra Club of Canada.....www.sierraclub.ca
- Export Development Corporationwww.edc.ca
- Canadian Nuclear Societywww.cna-snc.ca
- Natural Resources Canadawww.nrcan.gc.ca
- Nuclear Workers Councildshier@pwu.ca



Financing Canada's Nuclear Exports



Where does the money come from and do Canadians benefit?

This information supplement was prepared by Keewatin Publications for public distribution. All views and opinions are the responsibility of this publisher. Keewatin Publications can be reached by e-mail at Keewatin@sk.sympatico.ca or by writing to Box 24083, Broad Street, Regina, Canada S4P 4J8.



Canada lives on exports!

Exports presently account for about 40 percent of Canada's total economic output, the highest in the industrialized world. Exports help drive economic growth, job creation and prosperity in Canada, a country endowed with enviable natural resources, world-class technology, and ample talent, but relatively small in population. One in every three Canadian jobs is tied to exports. Growing and diversifying our export base is key to Canada's future well-being. Exports are a fundamental cornerstone to the Canadian economy.

Government financing of exports occurs in many different sectors. Canada's spectacular international success in aerospace (Canada's Bombardier is the world's third largest civilian aircraft manufacturer) has been accomplished through participation of export financing initiatives of the Canadian Government. Our forestry industries are among the largest users of export financing credits. Canada's nuclear industry also received support for nuclear fuel products, CANDU nuclear power reactors, nuclear medicine and research activities. This pamphlet is intended to address some of the aspects of funding nuclear exports, and to identify some of the Canadian firms and communities that benefit from these activities.



The Export Development Corporation

HELPING CANADIAN EXPORTERS

The Export Development Corporation (EDC) is the principal government agency involved in financing nuclear related exports. Although owned by the Government of Canada, the EDC operates as a commercial financial institution, and has earned a profit in all but one of its 54 years. Over the past five years, Canadian exports increased by approximately 90 percent and during the same period, EDC's support to exporters has grown nearly fourfold.

In 1998, EDC assisted 4,183 customers who generated 34.8 billion dollars in export sales from Canada, and in the process has helped create hundreds of thousands of jobs in Canada. Over the years, EDC has provided financing services for projects in 155 countries. EDC financing is commercial in nature, and repayment and credit conditions reflect this reality.

Most large energy projects rely on export financing and Canada has a long history with such projects. Canadian expertise in energy production is world-renowned, whether it is nuclear power, hydro-electric, oil sands recovery or other energy fuels.



Other countries involved

It's not just Canada that is involved in financing exports; most of the world's exporting nations maintain what are known as ECAs or Export Credit Agencies. These agencies are created to expand a country's exports and international trade, both of which contribute to higher standards of living.

Because of the size and complexity of many nuclear exports, it is a common practice to develop partnerships with contractors, manufacturers and suppliers from other countries. The governments of Japan, Korea and the United States are also providing export financing to the two CANDU projects currently under construction in China. This involvement is determined by the presence of firms from these nations participating in the project.

Financing for the CANDU sale in Romania was also shared with the export development agency of Italy due to the involvement of an Italian contractor in the project. Similar arrangements have been made on other CANDU projects.

Financing nuclear exports

INTERNATIONAL COOPERATION

Nuclear technology is closely controlled internationally. Nuclear products are subject to many national and international requirements that do not apply to most other commercial transactions. This is, of course, due to the concern that nuclear technologies have differing safety requirements than other energy producing systems. Others concerns relate to important national and international security. Over the years, the United Nations, through the International Atomic Energy Agency as well as many other national and international organizations, has established requirements for the development, use and sale of nuclear-related products.

SPECIAL REQUIREMENTS

Because of the complexity and size of nuclear projects, normal commercial financing organizations are unable, or in some cases unwilling, to finance entire projects. In most cases, the parties seek government participation to ensure that the necessary national and international approvals have been met, and that all of the necessary technical and financial safeguards are in place to ensure the security of the project. The general practice is to insist upon some form of sovereign involvement.

REPAYMENT RECORD GOOD

Canada began selling CANDU 6 nuclear reactors on a commercial basis in the 1970s. To date, eight CANDUs and one research reactor have been sold to customers in Argentina (1), Romania (1), South Korea (5) and China (2). Six of these projects were financed in part by the Export Development Corporation.

Of those projects which have received EDC loans, three have been completely repaid, two are in good standing with repayments scheduled over the period 1990 to 2006. The loan to China is still being disbursed and repayment will not commence until construction is completed in 2003.

It should be noted that not all export sales have required Canada Account financing. Canada has sold four CANDUs to Korea for its Wolsong site. The first sale, Wolsong 1 was a turnkey project that involved export credits from Canada. The following three CANDUs which were sold, Wolsong 2, 3 and 4 were all financed internally by the Korean Electric Power Company and involved no export credits. The Canadian scope of work was paid entirely in cash.

In addition to the above, Canada has provided export financial assistance to Mexico for technical design, and Indonesia for a nuclear laboratory. The Mexican loan has been entirely repaid and repayment of the Indonesian loan, is up to date.



Impressive business partners

Businesses, like people, are often judged by the company they keep and if that is the case, the Qinshan CANDU power project in China is served by impressive world class suppliers. In addition to the list of premier Canadian suppliers, some of the top firms from other countries are also participants in the project. Although AECL is the prime contractor and has overall responsibility, it has subcontracts with Hitachi from Japan and Bechtel from the United States for the conventional, non-nuclear part of the plant. In addition Hanjung of Korea supplies some of the nuclear components and Chinese construction companies provide additional products and services. Each of the sub-contractors brings export credits from its national government with Chinese contractors financed by China.

The participation of these firms from other countries reduces the need for Canada to provide export financing for the whole project, since each nation supports its own firm's financing requirements. And these partnerships also provide a lot of mutual learning. Bechtel, for example, has built over 50 nuclear power stations in the world, but never a CANDU. For its part, Hitachi is a major industrial corporation and sells and services many power generation products, including nuclear power reactors in Japan. The work on the China project provides Hitachi the opportunity to demonstrate that its equipment works well with CANDUs. These partnerships form the basis for future export sales in other regions of the world, which is good for Canada and good for our international partners.



Who benefits?

The Organization of CANDU Industries (OCI) is a private sector organization that incorporated in 1979, and is composed of firms engaged in the supply and services of CANDU Nuclear Steam Plants in Canada and throughout the world. OCI acts as a conduit for industrial collaboration between the private sector of Canada's nuclear industry and international purchasers of CANDU power plants. OCI and its member companies are working for Canadians, putting Canadian expertise and skills to work in the global market, today and tomorrow.

ABB ALSTOM ENERGY

of Tracy, Quebec employs over 1,500 Canadians. Alstom supplies the calandrias for China and other CANDU projects.

CAMECO CORPORATION

of Saskatoon, Saskatchewan and Port Hope, Ontario is the world's largest nuclear fuel supplier, providing uranium fuel to nuclear utilities throughout the world.

ADTECH MANUFACTURING LTD.

of Fredericton, New Brunswick is a small company built on its skill at manufacturing extreme temperature measurement equipment.

SULZER PUMPS

of Burnaby, British Columbia supplies the larger pumps for CANDUs and other nuclear reactor designs. It provides quality jobs to over 100 people at its plant.

ONTARIO POWER GENERATION

of Toronto, Ontario is one of the largest nuclear utilities in the world with 20 CANDU reactors. OPG's international operating services include feasibility studies, training, simulation and a wide variety of engineering and operations services.

KVAERNER QTC

of St. Laurent, Quebec was founded as a family business in 1948 and in 1995 became associated with the Kvaerner Group, one of the world's great industrial conglomerates. The company is a supplier of large nuclear components and pressure vessels.

PRAIRIE MACHINE LTD.

This Saskatoon, Saskatchewan firm has provided equipment for CANDU projects in Korea and China.



Over the last 45 years, Canada has financed nuclear exports to Korea, China, Argentina, Romania, India, Pakistan, Taiwan, Mexico, and Indonesia. To date, all loans have either been repaid or are in good standing.