CANADA'S NUCLEAR EXPORT INDUSTRY

THORBURN EQUIPMENT INC.
Pointe Claire, Québec
Flexible Piping Specialist

This Pointe Claire company is to flexible piping as Porsche is to automobiles: a model of precision and state-of-the-art technology. Operating under a strategy of global presence in niche markets, the business is structured to consistently meet and exceed customers’ expectations of quality and value.

Robert Thorburn speaks with great pride of a typical example of “Team Thorburn” in action which, during December 1998 and January 1999, designed and built in record time, eight custom Loopseal expansion joints measuring 3m x 2m (four tons) each. To meet an emergency shutdown at a fossil fuel plant in Poland, these joints, bearing a stamp of the Canadian flag with “Made in Canada” in big bold red letters, were flown to Frankfurt, then trucked across Germany to arrive J-I-T (Just-In-Time).

Such success is only achieved through the consistent commitment of the 70 Thorburn employees whose combined competencies build value and ensure customers’ total satisfaction. This accumulated expertise has allowed Thorburn to qualify for the Qinshan CANDU project in China. The engineering, manufacturing and quality standards required in the nuclear industry are such that only the best companies can qualify; Thorburn is one of them.

ZIRCATEC PRECISION INDUSTRIES
Port Hope, Ontario
Environment-Friendly Exports

Zircatec is the world’s largest producer of CANDU fuel for Canada’s marquee nuclear export, the CANDU reactor. To date Zircatec has produced 700,000 fuel bundles for 28 reactors worldwide. These fuel bundles have produced as much electricity as 450 million tonnes of coal and avoided the production of more than 500,000,000 tonnes of carbon dioxide. A good deal for the global environment! And a good deal for Zircatec’s 250 workers, too!

Colin Carrie is an Industrial Mechanic Millwright who has worked at Zircatec since 1976. After a quarter of a century Colin says working at Zircatec is as interesting now as it was when he started.

“The company I work for provides an excellent working environment with the utmost respect for health and safety issues and in general the best interests of the employees. I’m confident that, given time, people will begin to understand all the good things that have come from this industry and recognize its potential has not yet been achieved.”

For more information...

Atomic Energy Control Board............198.103.98.211
Canadian Nuclear Association..............www.cna.ca
Canadian Nuclear Society......................www.cns-snc.ca
Canadian Nuclear Workers Council.....hsafety@pwu.ca
Atomic Energy of Canada Limited.......www.aec.ca
International Atomic Energy Agency..www.iaea.or.at
MDS Nordion.................................www.mds.nordion.com
Natural Resources Canada...............www.nrcan.gc.ca
Organization of CANDU Industries...Fax (416) 369-0515

This information supplement was prepared by Keewatin Publications for public distribution with cooperation from over 50 firms involved in nuclear export activities. All views are the responsibility of the publisher. Comments are invited on this publication. We can be reached by email at: keewatin@sk.sympatico.ca
Putting Canadians to Work

ATOMIC ENERGY OF CANADA LIMITED
Mississauga, Ontario

Teamwork and Leadership

Nuclear power exports flow from the success of a unique Canadian Crown corporation, Atomic Energy of Canada Limited (AECL) and its CANUD™ nuclear power design. CANUD has been recognized by the Engineering Centennial Board, as one of the ten most important Canadian scientific and engineering achievements of the 20th century.

Although AECL plays the lead role in CANUD product design, 80 per cent of the CANUD project work is contracted to private sector firms throughout Canada. An AECL sale supports a business and employment opportunity in Canada. AECL’s role in the CANUD project involves the selection and development of specialized suppliers, the critical components, and the end products required for the complete CANUD power plants.

CANUD has become an export success story, with contracts for CANUD, CANUD Design reactors, and CANUD parts and components in several foreign countries.

Jobs and Business for Canadians

There are 428 nuclear units operating in the world. The recent sale by AECL of two CANUD reactors to China brings immediate business and employment opportunities to Canada. Future CANUD sales in the Asia-Pacific region and south-eastern Europe are based on growth in those regions which have 44 units under construction and more in the planning stages.

The China CANUD project alone represents direct business opportunities for over 150 Canadian companies in a wide range of equipment and component manufacturing. Each of these companies in turn employs the products and services of dozens of other suppliers, increasing the involvement of Canadian business to several thousand firms. In employment terms, this China CANUD project translates into about 27,000 person-years of work for Canadians over the seven-year life of the construction project.

A Showcase of Canadian Capability

A major capital export such as the AECL CANUD sale to China allows Canadian high-tech companies to showcase their capabilities on world markets, and with this, the possibility of obtaining further export orders, in nuclear and other value-added fields.

Canada’s Prosperity

The Canadian Nuclear Industry:

- Contributes $4.5 billion to Canada’s GDP annually
- Maintains 35,000 high quality jobs in over 150 Canadian companies
- Adds $700 million in federal income and sales taxes annually
- Produces a ‘net’ export industry - recently approaching $1 million per year
- Creates spin-off technologies to the robotics, aerospace and telecommunications and engineering industries
- Is a world leader in the production of medical, industrial and food processing isotopes
- Is the world’s leading supplier of uranium, for zero-emission electricity production

Clean-Air Energy

AECL and CANUD have made a remarkable contribution to the environment. Canada can be proud that it is exporting a clean, safe energy technology, designed and proven in Canada.

Each year CANUD plants in Canada avoid emissions of about one hundred million tonnes of carbon dioxide into the atmosphere by not burning coal, oil or natural gas. Without CANUD in Canada, greenhouse gas emissions from electricity production would double, making it impossible to achieve the target Canada set for itself at the recent Kyoto Environmental Summit.

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Brunswick and to create his own company Adtech. “Did I have to leave the Maritimes to find satisfying technical work?” He decided to stay in New Brunswick, which produces equipment for Korean Wolsong 2, 3, and 4 reactors and for the Qinshan 1 and 2 reactors in China. Today, in addition to nuclear, Adtech’s customers now include the aerospace and defense industries as well as the semiconductor manufacturing industry. More than 90 per cent of Adtech’s production is exported.

Cosmos not only created his own job. He created 22 high-technology jobs in a region of Canada struggling with high unemployment. Canada thanks you, Cosmos!

THE CANADIAN NUCLEAR WORKERS COUNCIL
Toronto, Ontario

Workers Aware of Benefits

The Canadian Nuclear Workers Council is an organization of workers represented by unions or other employee groups working in various areas of the nuclear industry, including mining, research, manufacturing, and electric power generation. The CNWC represents over 20,000 Canadians directly employed by research, manufacturing, and electric power generation. The Canadian Nuclear Workers Council is an organization of workers represented by unions or other employee groups working in various areas of the nuclear industry, including mining, research, manufacturing, and electric power generation. The CNWC represents over 20,000 Canadians directly employed by research, manufacturing, and electric power generation. The Canadian Nuclear Workers Council is an organization of workers represented by unions or other employee groups working in various areas of the nuclear industry, including mining, research, manufacturing, and electric power generation. The CNWC represents over 20,000 Canadians directly employed by research, manufacturing, and electric power generation.

ATLAS IDEAL METALS
Toronto, Ontario

Special Metals and Special Service

Hedi Othman is Quality Control Representative with Etobicoke and Brampton, Ontario-based Atlas Ideal Metals, one of Canada’s largest suppliers of very high quality specialized metal alloys. With 650 employees in 14 distribution centers across Canada and annual sales of $400 million this company makes a significant contribution to the Canadian economy. Many industrial products must operate in the most demanding environments, the extreme cold of the Arctic or the extreme heat inside a nuclear reactor. Hedi and his team are in charge of making sure that the quality the customer needs goes into what they deliver.

“A kid is playing with a toy and the toy breaks. Why do we have to return consumer products to the store so often because they don’t perform? My job at Atlas is to make sure what we sell is suited to the job. I and my team take a great deal of pride in making sure that what goes out the door doesn’t come back.”

ROCTEST INC.
St. Lambert, Québec

Projects in 75 Countries

“In a nuclear reactor building, water and air tightness, stability, and structural integrity are critical,” states Pierre Choquet, engineer and Doctor of rock mechanics. “They must be tested after construction and then periodically during the entire working life of the project.”

The highly qualified personnel of St. Lambert, Québec-based Roctest have worked on important projects in more than 75 countries including the CANDU nuclear power plants at Gentilly, Québec; Point Lepreau, New Brunswick; Cordoba, Argentina; Wolsong, South Korea; Cernavoda, Romania; and laboratories and experimental storage sites such as Pirasoa, Manitoba in Canada; Carlsbad and Yucca Mountain in the United States; Monti Terri and Grimsel in Switzerland; Mol in Belgium and Apos in Sweden. China has recently opened up to Roctest with the Qinshan project. “The first of a long series, we hope.” concludes Pierre Choquet.

THE ORGANIZATION OF CANDU INDUSTRIES
Canada’s Private Sector

Supplying Clean Energy to the World

The Organisation of CANDU Industries (OCI) is a private sector organization 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 members support Canada’s nuclear power export and domestic industries, they also participate in the development, promotion and marketing of CANDU plants and their related services.

OCI member firms range from some of the largest Canadian industrial corporations to medium and smaller business enterprises dispersed throughout Canada. Its members share a common vision of supplying clean energy to the world through producing quality products and services for a global market.

OCI acts as the focal point for industrial collaboration between the private sector of Canada’s nuclear industry and international purchasers of CANDU power plants. OCI functions separately from AECL, but participates with AECL in the design, manufacture, construction and commissioning of export CANDU reactors. OCI and its member companies assist purchasers of CANDU plants by:

- Sponsoring visits to Canadian companies to familiarize engineers and manufacturers from the client country with CANDU engineering and manufacturing techniques
- Providing expert personnel to assist client countries to incorporate CANDU engineering and manufacturing techniques
- Proposing conditions for the transfer of Canadian expertise to countries wishing to embark upon long-term programs for the construction and operation of CANDU reactors
- Coordinating the transfer of OCI member expertise to the client country

Specific Cooperative Interests

OCI member companies are prepared to enter into long term commitments to introduce CANDU engineering expertise and proven manufacturing techniques to local industry.

 OCI and its member companies are working for Canadians, putting Canadian expertise and skills to work in the global market, today and tomorrow.
CAE Electronics Ltd. (CAE) manufactures simulators for the training of nuclear and fossil fuel-fired power plant operators. These simulators reproduce the physical and environmental properties of the plant control room and function operationally in exactly the same manner as the actual plant being simulated. There are a variety of options available to meet utilities’ specific training requirements including: generic simulators at off-site training centres, computer-based instruction and classroom training, part-task training systems and plant-specific or full scope simulators. CAE also provides simulator upgrades and retrofit services.

CAE developed its first power plant simulator in 1973 for a CANDU nuclear power plant. Since then, CAE has applied its know-how to developing nuclear power plant simulators for many CANDU, PWR and BWR plant configurations around the world.

In business for over 50 years, CAE is firmly entrenched to know-how to developing nuclear power plant simulators for CANDU nuclear power plants. Since then, CAE has applied its expertise to the nuclear industry. Its owners are SNC-Lavalin, AGRA Industries and BFC Construction. Some of the largest engineering construction firms in Canada. Canatom NPM provides project procurement, site and construction management services to AECL. This involves the selection of Canadian suppliers for the thousands of components that make up a CANDU power station.

Ongoing projects are located in Cernavoda, Romania; Wolsong, Korea; Qinshan, China and Hong Kong, China; Chalk River and the Ontario Hydro sites of Pickering, Bruce and Burlington. President and CEO, René Godin, knows his people very well, and believes that “Keeping families happy on site assignments is a key element to the success of a project. Canatom NPM is a growth oriented company and is proud to be a major player in the Canadian nuclear arena.”

The firm builds nuclear simulators.
To many people, a valve is about as exciting as a ball bearing. We all know they are there but what do they do? A valve is a key component of any mechanical system. It is a device that opens, closes, or controls the flow of a fluid such as water, oil, or air. Valves are essential in a wide range of applications from plumbing systems to industrial processes. They are used in everything from simple everyday tasks like turning on a faucet, to complex industrial processes like the control of flow in a petrochemical plant. Valves are critical components in any system where it is necessary to control the flow of a fluid. They are used in a variety of industries, including manufacturing, transportation, and energy generation. So, the next time you turn on a faucet or fill up your gas tank, remember that the operation of these everyday tasks is made possible by the technology and expertise of companies like Newman Hattersley.
CANADA'S NUCLEAR EXPORT INDUSTRY

Exporting to the World

Exports are an important part of Canada’s economy. They provide jobs in Canada and produce foreign currency earnings which enable Canadians to purchase goods and services from other nations. Historically Canadian exports have been commodity based and are the basis for the phrase “hewers of wood and drawers of water”. Nuclear industry exports represent an entirely different approach, high technology, precision manufacturing and research based products, made to the most exacting standards. While commodity exports will always be important to Canada, higher value-added products, such as nuclear industry exports contribute significant benefits to Canadians, both in terms of immediate impacts and because they also significantly contribute to Canada’s overall manufacturing and research and development capabilities. Recently over $120 million worth of components were loaded onto this ship for transport to the AECL CANDU project at Qinshan, China. The largest single item was the reactor core, called a calandria, which was fabricated in Tracy, Quebec. This core weighs over 640 tonnes.