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Nuclear energy supply in Ontario increased to 54 per cent of the province's supply mix in 2006. That's 84.4 terawatt hours of power helping to keep Ontario's industries in production, businesses operating and residents comfortable in their homes.

News Room

Long-time AECL R&D Advisory Panel member Dr. Ernest A. McCulloch named to the Order of Ontario (page 5)

Link

CANDU Canada - Canada's nuclear energy source. This website answers your questions about CANDU nuclear power and gives you the opportunity to find out more about the future of Ontario's energy supply.

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AECL and Partners Ramp Up for Startup of Cernavoda 2

Significant Progress Achieved in 2006

AECL and its partners in the Cernavoda 2 project have successfully set the stage for startup of the Romania-based nuclear power plant following the project's transition from construction to commissioning phase last year.



At the end of 2006, the project was 97.9 per cent complete and on track to meet the June 2007 completion date.

A consortium of AECL and Ansaldo Energia of Italy, with owner Societatea Nationala Nuclearelectrica (SNN), is managing the completion of the partial construction of the Cernavoda Unit 2 power plant - the second in a series of CANDU 6™ power plants that began construction in the early 1980s.

Cernavoda Unit 1, which started commercial operation more than a decade ago in December 1996, has since been successfully operating with an average capacity factor of more than 87 per cent.

AECL and Ansaldo were contracted in 2003 to complete construction and commissioning of Unit 2, about 50 per cent complete and with much of the original large equipment already installed. The startup of the plant will bring Romania's reliance on clean and reliable nuclear power to approximately 18 per cent.

The consortium's scope of work has included home office engineering; procurement; specialized technical services; work orders as required during implementation; site management services, including project management, engineering, material management, construction management and commissioning, performed through an integrated management team (MT) at the site. The MT is comprised of personnel from AECL, Ansaldo and SNN.

"Owing to the length of time the plant was in a suspended state and the need to bring the plant into service, many unique elements had to be considered," said Larry Powers, AECL Project Director for Cernavoda. "Some of the challenges we addressed were bringing into service major equipment that had been inspected and refurbished, including circulating cooling water pumps and motors, raw service water pumps and motors, and all major motors in the Nuclear Steam Plant and reactivity mechanism drives; the inspection and refurbishment of more than 4,500 valves; and stress analysis of pipe supports and resulting on-site modifications, all of which progressed very well."

Some of the numerous highlights that occurred during the past year included:

- Turnover to commissioning of virtually all systems of the project
- Successful delivery and loading of heavy water in the moderator system
- Successful delivery and storage of nuclear fuel
- Completion of the reactor building proof pressure and leak rate test that focused on protecting the public and keeping the project schedule on track. The tests demonstrated that the containment structure is able to withstand maximum pressure during normal and accident conditions and that possible leaks will not exceed permitted levels.
- Successful on-site repairs to pressurizer and degasser condenser weld defects on nozzles incurred during manufacturing in the 1980s
- Hot conditioning of the primary heat transport system, the Emergency Core Cooling dynamic test fire and standby diesel generator load testing was completed
- Manual loading of the fuel into the reactor will start in late January 2007; the unit will achieve criticality in early April; first synchronization and connection to the grid will occur in May; and the plant will be in service in June 2007, said Mr. Powers.

"With the successes of 2006 under our belts, the team at Cernavoda continues to work hard to achieve the ultimate end goal of completing this critical project on time, on budget and with the safety of our employees, the public and the environment foremost in our minds," said Mr. Powers. "There are still challenges we will need to address, but we are confident in our ability to deliver excellence for our customer."

Point Lepreau Waste Facility Construction Completed a Year Ahead of Schedule

AECL Focuses on Retube and Refurbishment Phases



AECL has wrapped up construction on the Point Lepreau Solid Radioactive Waste Management Facility (SRWMF) a full year ahead of schedule, marking a major milestone in the Point Lepreau Refurbishment Project.

A flagship of the CANDU industry, the Point Lepreau Generating Station is undergoing one of the most important upgrades in the history of CANDU technology. As the first CANDU 6 unit to be licensed for operation and to begin commercial operation, it will be the first CANDU 6 to undergo full refurbishment for life extension.

NB Power, Atlantic Canada's only nuclear utility, awarded AECL fixed price/firm schedule contracts in July 2005. As general contractor, AECL is managing and executing all of the fieldwork and is responsible for three aspects of the overall project:

- Construction of the SRWMF
- Retubing - in which all 380 fuel channels and associated feeder tubes will be removed and replaced, and,
- Refurbishment, during which aging components and outdated technology will be removed and upgraded

The SRWMF extension, completed at the end of November, will store waste created during refurbishment and the extended operation of the Point Lepreau Generating Station.

"This is a huge success for our team, which completed this activity a year ahead of schedule and on budget, despite the less than ideal construction weather experienced in Saint John this summer, including almost continuous rain in May and June," said Dave Scott, AECL's General Manager, CANDU 6.

"This achievement really sets the tone for the balance of the project, which we plan to deliver with the same degree of enthusiasm and attention to safety, quality and the protection of the environment," said Dave, adding the SRWMF team completed 50,000 work hours with no lost time incidents.

SRWMF Project Manager Tom Beese credited the success of the construction project to "tremendous team work" and AECL's commitment to hire and work closely with qualified local labour and suppliers. For example, New Brunswick native Marcel Arseneault, AECL's Site Supervisor, managed subcontractor OPRON Maritime Construction Ltd. On Marcel's team was Mike Briggs, a recent Civil Engineering graduate from the University of New Brunswick. Local company, Sunny Corner Enterprises of Miramichi, New Brunswick, supplied the 35 cylinders required for the project.

"On any construction job, there's a tempo you need to generate at the start of the job and that tempo was carried straight through to completion," Tom said. "Everyone was very focused on the task at hand and were committed to doing the job to the highest standard of quality for our customer."

With the waste facility under its belt, AECL's Point Lepreau team is working on completing the engineering, procurement of materials and tools and finalize detail planning of the outage for the retube and refurbishment phases of the project set to begin April 1, 2008.

Plant owner NB Power is responsible for other aspects of the project including: normal shut down of plant for refurbishment outage; removal of fuel; heavy water; normal maintenance during outage; providing new fuel; reloading heavy water and returning the station to service. The project is to be completed in 2009.



Construction of the SRWMF vaults and canisters, which will house radioactive waste removed from the retube operations during the generating station's refurbishment, was completed a year ahead of schedule.

Committed To Our Communities

AECL and New Brunswick Community College Team Up to Support Education and Employment

AECL is partnering with New Brunswick Community College (NBCC), Saint John campus, to promote the nuclear industry and introduce career opportunities for the College's engineering technology program students.

And as part of the initiative, the College has joined the roster of local suppliers supporting AECL's role on the Point Lepreau Refurbishment Project.

"AECL is committed to hiring and working closely with qualified local labour and suppliers," said Jim Akeroyd, AECL Point Lepreau Project Director. "The nuclear industry is in a growth cycle and a career in the nuclear energy sector is a viable option. AECL can provide opportunities for satisfying employment and career growth."



*Jim Akeroyd,
AECL's Point
Lepreau Project
Director*



Mechanical engineering technology student Anthony Traer (right) accepts his AECL scholarship from AECL representative Mike Verner.

"The benefits to local businesses to which we contract are excellent as well. In addition to supplying goods and services for the Point Lepreau project, we expect that these businesses will benefit from future refurbishment projects as well."

AECL, which is general contractor on the refurbishment project, recently established two \$500 scholarships to support academically successful second year students studying mechanical, electrical, chemical, power or industrial controls engineering as part of the engineering technology programs. The scholarships are intended to encourage the students to consider a career in nuclear energy, which will in turn help support AECL's recruitment needs for the Point Lepreau project and elsewhere.

This year's inaugural AECL Scholarship Award recipients were Mechanical Engineering Technology student Anthony Traer and Power Engineering Technology student Sean LaViolette.

As part of its partnership, AECL recruitment officers recently spent three days at the campus, introducing the company and its employment opportunities to the engineering technology students.

The response following the visit was excellent – more than 60 resumes were submitted to AECL, the majority of which were identified as potential future hires.

AECL also recently awarded two contracts to NBCC. The first contract involves student and instructor development of a web-based Orange Badge safety and radiation protection-training program to enhance AECL's existing training process and the development of a general employee training CD for pre-site training.

The second contract scope involves student design and fabrication of feeder tube mock-up stations that will be used to develop procedures and train workers in AECL's shops at its Saint John shipyard site.

"Both projects will be an excellent learning experience for the students, who will gain knowledge in learning how to develop the product, in addition to actually manufacturing the product for a given client," said Jim.



AECL scholarship winner Sean LaViolette, a power engineering technology student, (center) with AECL representatives Mike Verner (left) and John Brake.

Voice Your Choice for CANDU Nuclear in Ontario

Team CANDU, in cooperation with the Organization of CANDU Industries (OCI), has introduced a new program to encourage stakeholders and the 30,000 employees working for Team CANDU member companies to advocate for CANDU in Ontario.



It's called *Voice Your Choice* and it's the newest section of CANDUCanada.ca, a comprehensive web-based source of information about Ontario's CANDU nuclear industry introduced by Team CANDU last summer.

"The Ontario government recognizes that new nuclear power plants must be part of the solution to our growing energy gap," said Martyn Wash, President of OCI. "Ontario's nuclear industry is a \$4 billion per year industry supported by more than 25,000 workers. We need our employees' help to tell politicians and the media why the Government of Ontario must choose CANDU technology. And that's where *Voice Your Choice* comes in."

Sponsored by OCI, *Voice Your Choice* is divided into two sections. The first is called "Voice Your Support," which provides background information, key messages and resources that Team CANDU's proponents would need to write and send letters or emails to key politicians and the media. Using this section, stakeholders and employees can tell decision makers that they support a made-in-Canada nuclear technology.

OCI represents 86 Canadian companies supplying goods and services for CANDU reactors in domestic and export markets. OCI companies provide engineering services and manufactured components for the CANDU industry and although it functions separately from design authorities and utilities, OCI members participate in design, manufacture, construction and commissioning of CANDU plants.

The second section is called "Set the Record Straight," which allows supporters to craft and submit letters to newspaper editors in response to critical columns or articles about CANDU. While AECL and the other Team CANDU companies write their own letters to the Editor and often engage some of their supporters to do the same, Team CANDU recognizes that encouraging a whole host of people to do this on its behalf will make a much greater impact.

"While the provincial government acknowledges the need for nuclear power in Ontario, they also need to know how strongly Ontarians feel about all of the benefits of choosing Canadian CANDU nuclear technology over foreign competition," said Martyn. "So, visit the CANDUCanada.ca website and *Voice Your Choice*!"

AECL R&D Advisory Panel Member Named to the Order of Ontario



Dr. Ernest A. McCulloch, a long-time AECL R&D Advisory Panel member, was recently named to the Order of Ontario for his pioneering discovery of the existence of stem cells more than 40 years ago. Dr. McCulloch was named along with his colleague, scientist James Till.

The Order of Ontario is the province's most prestigious official honour. It was created in 1986 by the Government of Ontario to recognize the highest level of individual excellence and achievement in any field.

In addition to his role as AECL R&D panel member, Dr. McCulloch is a senior scientist in the Ontario Cancer Institute's Stem Cell and Developmental Biology division at Princess Margaret Hospital in Toronto, Ontario.

As well as being named to the Order of Ontario, Dr. McCulloch has been honoured by the Lasker Foundation with the 2005 Albert Lasker Award, known as "America's Nobel's," for Basic Medical Research. He is also a past recipient of the Gairdner Foundation's Gairdner Award, which recognizes

the world's top medical research scientists.

As an AECL R&D Advisory Board Panel member, Dr. McCulloch's role is to advise the Board of Directors on strategic needs, alliances and the direction of AECL's R&D activities. The Panel is made up of scientists and nuclear experts from academia and industry. It assists the Board of Directors' Science and Technology committee, which is responsible for setting policy, monitoring and providing oversight, and reviewing and assessing risk associated with AECL's science, technology and environmental programs.

About AECL

AECL is a full service nuclear technology company providing services to nuclear utilities around the world. Established in 1952, AECL is the designer and builder of CANDU technology including the CANDU 6, one of the world's top performing reactors.

AECL specializes in a range of advanced nuclear energy products and services that are an important component of clean-air energy programs on four continents. Its 4,000 employees provide research and development support, design and engineering, construction management, specialized technology, refurbishment, waste management and decommissioning in support of CANDU reactor products. More information on AECL and CANDU technology can be found at www.aecl.ca.

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Atomic Energy of Canada Limited (AECL)
2251 Speakman Drive
Mississauga, Ontario
L5K 1B2
(905) 823-9040



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info@aecl.ca.