

# The CNF - Leading Edge Technology for Canada's Future

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## **Executive Summary**

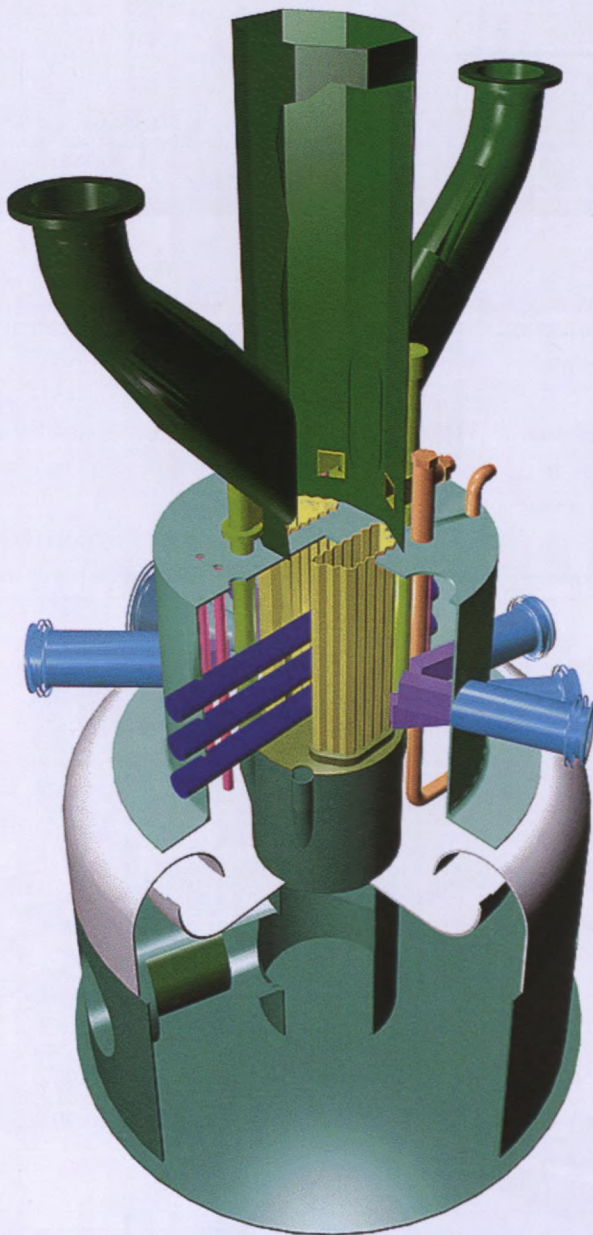
The National Research Council of Canada and Atomic Energy of Canada Limited are proposing to government a new Canadian Neutron Facility for Materials Research (CNF). The CNF (Figures 1 and 2) will ensure the continuation and augmentation of two critical functions now performed at Chalk River Laboratories by the NRU research reactor (Figure 3), which will not operate beyond 2005: to be an

essential testing facility to advance the CANDU® power reactor design ensuring that CANDU is available now and in the future to provide environmentally-sound electricity; and to be a world-class neutron beam laboratory that supports advanced materials research in Canadian universities and industry.

The CNF will provide economic benefits to Canada by generating unique information on the structure and performance of materials in a wide range of industrial applications, using neutron techniques. As well as being a cornerstone of CANDU reactor development, the CNF will support the development of the totally new fields of science and technology that will drive Canadian industries of the next century.

## **Background**

In the past five decades, Canada has been well-positioned internationally in the field of advanced materials research—for the Canadian nuclear industry, for other industrial applications and for university research. This was, in a large part, due to the ingenuity and foresight of the nuclear research community and the Canadian government in designing and building the world-renowned NRX and NRU (Figure 3) research reactors at AECL's laboratories at Chalk River. However, the NRX research reactor is now permanently shut down and the NRU reactor—Canada's pre-eminent research reactor since 1957—will be shut down before the end of the year 2005.



*Figure 1. Sectional view of the CNF reactor.*