AECL and NRC have demonstrated that the design and operation of the facility meets all safety requirements. The environmental assessment will meet the requirements of the Canadian Environmental Assessment Act (CEAA). A Comprehensive Study will be carried out and an Environmental Impact Statement prepared for submission to the Canadian Environmental Assessment Agency.

Current costing and project scheduling for most efficient use of funding assume the close availability of nuclear infrastructure, including hot cells and appropriate human resources. Chalk River Laboratories has been the reference site and is the preferred site for the CNF. It is the most cost-effective in terms of existing supporting nuclear infrastructure, human resources and co-located R&D and advanced materials programs. Additionally, the waste and future liabilities associated with the CNF are confined to, and manageable at, a single site. AECL and NRC will produce a detailed CNF Decommissioning Plan for the AECB. This will be based on a 40-year operating life for the CNF, followed by a 70-year decommissioning period. Experience gained in the decommissioning planning for the MAPLE 1 and MAPLE 2 isotope reactors at Chalk River will provide an invaluable template for the CNF Decommissioning Plan.

"The Canadian Neutron Facility offers unprecedented potential for the advancement of materials research in Canada and is indispensable for the continued success of Canada's nuclear power program." - Bertram Brockhouse, Canadian Nobel Laureate (Physics)

CNF Economic Impact

The CNF project will yield significant benefits for companies that are vendors and subcontractors for components and services. The CNF will include advanced electronics, computing hardware and software, custom design and engineering and heavy equipment. Canadian companies will be employed to supply, assemble and commission 90 per cent of the components for the reactor, CANDU development facilities, and the neutron beam laboratory. The stringent demands of the project will require firms to develop new skills and technologies that will improve their subsequent competitiveness. The new expertise will encourage the marketing of new products, business expansion and creation of new jobs. The tax revenues from direct contracts and expanded capabilities will be a significant return to Canada. After project completion, suppliers can look forward to 40 years of revenue from maintenance, upgrades and new equipment over the lifetime of the facility.

In addition to the direct stimulus of economic activity, the research and development conducted at the CNF will help ensure Canada's global competitiveness. In the CANDU business, for example, the Wolsong Units 2, 3, 4 CANDU project in the Republic of Korea benefited from nuclear technology largely developed through research-reactor proof-testing. The project returned about $1 billion to the Canadian economy. The Qinshan Project in China, two CANDU 6 reactors, is providing 27 000 person-years of high-tech and industrial jobs for Canada. This economic stimulus is ongoing, with the additional off-shore CANDU sales projected over the next 10 years. The neutron beam laboratory will provide powerful insights to help Canadian companies solve materials problems and efficiently develop new products. The economic returns from advanced materials applications are equally impressive. Building Canadian materials expertise over the lifetime of the CNF will return to Canada an estimated 10-20% annually on the investment made today.

Summary

The CNF will provide an essential testing facility to advance the CANDU power reactor design, to ensure the future competitiveness of the Canadian nuclear industry, and to have CANDU available to Canada now and in the future to provide environmentally-sound electricity. Additionally, the CNF will provide insights to resolve technological issues facing other Canadian industry sectors beside nuclear: aerospace, oil and gas, automotive, materials production and manufacturing. The CNF will include unique new measurement capabilities that enable industrial developments in the newly-emerging fields of bio-materials, polymers, complex fluids and electronic devices. Young materials researchers who are trained at the CNF will provide talent that is urgently needed by Canadian industry and Canadian universities to foster Canada's transition to a knowledge-based economy.

With a strategic investment in the CNF, the federal government can lay the foundation for a revitalized materials research infrastructure to support innovation, knowledge and productivity for Canada in the next century.

Figure 6. As with the project to build two MAPLE reactors for MDS Nordion at Chalk River, the CNF Project will yield significant benefits to Canadian suppliers.