

and funded separately from the commercial activities of AECL. This was the case for AECL's Materials Science Program, which has been reorganized under the National Research Council, and is being considered for its Radiobiology Research Program. It is also the case for the proposed Canadian Neutron Facility (CNF).

The replacement of the now 42-year old NRU reactor by a new research reactor, the CNF, by the year 2005 is a vital element in the continued support of nuclear R&D. The CNF is essential for ongoing support and life extension of current CANDU reactors and the development of future CANDU designs. It will also provide an indispensable tool for probing the nature of materials, a need basic to the industrial base of an advanced technological economy. The CNF can be used to study a wide variety of materials, including alloys, plastics and semi-conductors, and will be influential in opening up new areas of research in biological materials. For these reasons, the National Research Council has joined with AECL in a proposal to the Federal Government for the detailed design and construction of the CNF.

CANDU AND THE HYDROGEN ECONOMY

To ensure that Canada has adequate energy in the 21st Century will require new thinking about traditional means of meeting the various demands for energy. In this respect, an exciting opportunity exists for the future conversion of Canada's transportation system from a fossil-fuel base to an electrolytic-hydrogen base. With the help of federal funding, and other public and private-sector investment, Canada is now well positioned to play a major role, both technical and economic, in a world revolution in GHG-free transportation fuels. CANDU nuclear reactors could produce the electricity for Canadian-developed high-efficiency electrolysis cells, to provide hydrogen for Canada's world-leading fuel cell technology to power cars, buses and trucks. For this to proceed on a large scale, it will be necessary to build additional CANDU reactors and to develop the necessary infrastructure. This revolution would help Canada meet its GHG commitment well beyond the period of the Kyoto agreement.

