

Also, all users of electricity benefit from the new trend to lower rates through greater demand. The Canadian designs of nuclear power reactor appear capable of adapting to the largest capacities desired and of taking advantage of changes in the market value of natural uranium and of reprocessed fuel to reach even lower power costs as the scale of operations increases.

The first commercial food irradiator using Cobalt-60 radiation is operating near Montreal, Que.

A major advance in instrumentation, precision gamma-ray spectrometry, based on specially prepared germanium crystals pioneered at Chalk River, is revolutionizing many techniques, particularly isotope and element analyses by radioactivation by neutrons.

Organizational Arrangements.—Three Federal Government organizations have the basic responsibilities for atomic energy in Canada: (1) the Atomic Energy Control Board (AECB), responsible for all regulatory matters concerning work in the nuclear field; (2) Eldorado Mining and Refining Limited (EMRL), with a double function as a producer of uranium and as the Government's agent for the purchase of uranium from private mining companies; and (3) Atomic Energy of Canada Limited (AECL), concerned with nuclear research and development, the design and construction of reactors for nuclear power, and the production of radioactive isotopes and associated equipment, such as Cobalt-60 beam therapy units for the treatment of cancer, and large installations for the sterilization of medical supplies and other uses.

In addition to the above agencies, the Radiation Protection Division of the Department of National Health and Welfare (see pp. 301-302) plays an increasing role in ensuring the safe use of radioisotopes and X-rays as well as monitoring radioactivity in public water supplies and the environment from all sources.

AECB does not itself conduct research but it gives substantial grants to universities to further independent studies and to provide the equipment without which the universities would find it difficult to train the nuclear research workers of tomorrow; in 1966-67 they totalled \$2,000,000. The National Research Council also has made grants in the atomic energy field.

EMRL operates research and development laboratories in Ottawa and uses them to support its uranium mining and processing at Beaverlodge in northern Saskatchewan and its refining plant at Port Hope, Ont. EMRL co-operates with the Department of Energy, Mines and Resources, which carries out background research on the production and use of uranium.

AECL has an 11-man Board of Directors, including individuals from power companies, private industry and the universities. The company's major plant, the Chalk River Nuclear Laboratories, is near Chalk River in Ontario, and a second plant, the Whiteshell Nuclear Research Establishment, is near Pinawa in Manitoba. The company's Head Office and AECL Commercial Products are in Ottawa. AECL Power Projects, located at Sheridan Park near Toronto, direct the engineering of power reactors and nuclear generating stations and operate as consulting nuclear engineers. The design and construction of NPD, the demonstration plant, was carried out by collaboration between AECL, the Canadian General Electric Company Limited and Ontario Hydro. AECL Power Projects, with the assistance of Ontario Hydro, designed and constructed the Douglas Point station, which plant, by agreement, will be purchased by Ontario Hydro when it is in satisfactory operation. A similar arrangement between AECL and Hydro-Quebec is being used for the construction of the CANDU-BLW-250 station. The large units of the Pickering station are being built by Ontario Hydro using AECL Power Projects as consulting nuclear engineers.

Because of the great pace of technological development in nuclear power throughout the world, AECL devotes a major effort to collaboration with many organizations. These include industrial firms and the scientific and engineering departments of universities in Canada and, through foreign government agencies and several international organizations,