It is about 5 per cent of the total and may be contrasted with 50 per cent or more paid for coal in some large conventional generating stations. The largest component in the economy of nuclear-power systems is reactor-plant construction and a minor component, 10 per cent to 15 per cent, is fuel fabrication.

In the past, the major atomic energy activity in Canada was uranium mining and refining for export in support of military uses. Circumstances have changed so greatly that the Government has announced a policy of no further exports for nuclear weapons but encourages export for peaceful purposes such as nuclear power.

It is also significant that, since lower unit power costs result from larger stations, there is a new incentive for large utilities to export power from their systems and to interconnect centres of load by high-voltage transmission, even over long distances. All users of electricity also benefit from the new trend to lower rates the greater the 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.

Organizational Arrangements

Three federal organizations have the basic responsibilities for atomic energy in Canada: (1) the Atomic Energy Control Board, responsible for all regulatory matters concerning work in the nuclear field; (2) Eldorado Mining and Refining Limited, 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, 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.

The Atomic Energy Control Board does not itself conduct research but it gives substantial grants to universities to further independent studies and to provide the equipment without which they would find it difficult to train the nuclear research workers of tomorrow. The National Research Council also has made grants in the atomic energy field. In 1964-65 the total of these grants was $2,450,000.

Eldorado 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, Ontario. Eldorado co-operates with the Department of Mines and Technical Surveys, which carries out background research on the production and use of uranium.