

International relations. The study of nuclear energy has prompted more free exchange of information and co-operation between countries of differing political systems than any other field of endeavour. Canada is no exception to this rule. Many irradiations in the NRX, NRU and WR-1 reactors have been made for several countries, at their expense or on a shared-cost basis.

In exchange for information on the Canadian power reactor program, the US has carried out an agreed research program in support of AECL's work. Technical meetings and the exchange of reports have maintained contact between the UK steam generating heavy-water power reactor project and the Canadian program. Italian relations have been strengthened and put on a more formal basis with the maintenance at CRNL of a full-time Italian Liaison Office.

Close relationships also exist between AECL and the Department of Atomic Energy in India, the first Canadian-designed research reactor to be built outside Canada being built near Bombay in a co-operative program, partly supported by the Colombo Plan. AECL also designed India's first heavy-water nuclear power station, the Rajasthan Atomic Power Project, now nearing completion under a co-operative program.

Additionally, formal arrangements for information exchange have been established with Australia, France, the Federal Republic of Germany, Japan, Romania, Spain, Sweden, Switzerland and the Soviet Union.

AECL is represented on numerous international organizations and committees. Its Senior Vice-President (Science) represents Canada on the United Nations Scientific Advisory Committee to the Secretary General, and is also a member of the International Atomic Energy Agency (IAEA) Scientific Advisory Committee. Canada is a member of the Board of Governors of the IAEA and participates in advisory panels, conferences and symposia arranged by this organization, and also plays an important part in the development of the International Nuclear Information System (INIS), which is providing a worldwide nuclear information service. Canada is a major participant in the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) as well as other ad hoc United Nations committees. AECL also contributes to the activities of the International Nuclear Data Committee, the OECD Nuclear Energy Agency and the International Council of Scientific Unions.

To sum up, since Rutherford's exploratory work forty years ago, nuclear science, and the exploitation of nuclear energy, have both advanced at a very rapid rate. A vivid illustration of the rate of progress is provided by the recent history of the CANDU-PHW power reactor. From a 25-MW(e) demonstration plant, becoming critical in 1962 (NPD), there was an eightfold increase to the 200-MW(e) Douglas Point reactor, critical in 1965. A 250% increase in capacity was represented by each of Pickering's 500-MW(e) units (first unit critical 1971). A further 50% increase will be seen when the first of the Bruce station's 750-MW(e) reactors starts up in 1976.

9.2.3 Department of Energy, Mines and Resources

The objective of the Department of Energy, Mines and Resources is to ensure the full and effective use of Canada's energy and mineral resources for the benefit of all Canadians. Its mandate encompasses the development, co-ordination and implementation of federal policy governing energy and mineral resources and the carrying out of research to obtain the scientific, technical and economic information basic to the making of such policy. The Department comprises three sectors – energy development, mineral development, and science and technology.

9.2.3.1 Energy development

The tremendous growth in energy consumption in the world's industrialized nations and the increasing awareness that Canada's energy resources constitute a precious and not inexhaustible patrimony whose use must be carefully planned and regulated have given new weight and responsibility to the Department's Energy Development Sector. Its functions are reviewed in greater detail in Chapters 12 and 13.

9.2.3.2 Mineral development

The Mineral Resources Branch identifies and evaluates trends affecting Canada's mineral industry by studying the entire mineral industry from geologist to user – exploration and development, processing, transportation, marketing and consumption. The information