

involving an application by TransCanada PipeLines Limited to increase rates, was divided into two phases. The decision on the first phase, establishing the applicant's total cost of service, was issued in December 1971. The second phase, considering just and reasonable tolls and tariffs to recover such total cost of service, continued in 1972 and a decision is expected in the spring of 1973.

The Board conducts regular examinations of the accounts and records of gas and oil pipeline companies under its jurisdiction. Such examinations ensure conformity with the Board's Uniform Accounting Regulations and provide detailed financial information which is essential to administering the regulatory functions of the Board. The Board also conducts special studies of a financial nature and maintains close liaison with various sectors of the national and international financial communities.

The Board conducts continuing studies of energy matters in order to maintain a bank of current knowledge which is necessary for the Board to perform its regulatory and advisory functions. Energy supply and demand forecasts are a continuing part of the Board's work. Studies include both the Canadian and foreign markets since fuels and, to a more limited extent, electric power are traded internationally.

13.2 Fuels

The word "fuel", derived from the archaic French *fouaille*, implies a heat source. Up to the present time, mankind has depended for its survival and development on organic fuels but, with the emergence of nuclear energy for civilian use, inorganic fuel is now assuming economic significance.

Fossil fuels with their main component — carbon — will continue to provide the largest range of products from the pure form to compounds that are useful to man. They may even provide nutrition to man if natural foods become scarce. Although the world is benefiting at present by the upsurge in the availability of hydrocarbons, coal as a carbon source should not be discarded. In fact, all fossil fuels in the future may have to contribute collectively to the energy and chemical needs of the world.

The challenge to the bulk use of fossil fuels seems to be nuclear energy which may constitute about 20% of the world's energy by the year 2000, by which time the consumption of energy may be quadrupled from the present level of about 53 million barrels per day of oil equivalent. The world's present economic uranium resources are considered to be larger than the total usable fossil fuel resources but they are subject to the principal uncertainty — the efficiency of fuel utilization which at present amounts to only about 1% of the theoretical potential energy. Nevertheless, nuclear energy may make rapid strides in the fields of generation of electric power, district or large-complex heating, and some types of transportation. Higher extractions of uranium and thorium from lower-grade ores and the development of breeder reactors may ensure that the supply of source materials is adequate.

In Canada, the fortuitous occurrence of ores in strategic and geographically favourable locations together with the creation of nuclear technology gives great impetus to the development of nuclear energy. Canada is spending about 70% of its federal energy research budget on nuclear research and has trained many nuclear scientists and engineers and hence may be expected to play a role in the world with its nuclear industry integrated from raw material to final product and with its ability to provide engineering skill to countries that need it.

Fuels may be described as having four distinct though overlapping functions — provision of direct-heat energy; provision of electric power, so far, by indirect conversion; provision of motive power; and provision of source materials for partial or total chemical conversion. An approximate energy-use balance in Canada has been drawn up, demonstrating the relative impact made by the principal fuels, as shown in Table 13.1.

13.2.1 Petroleum and natural gas

The need to provide new energy sources in Canada has given considerable impetus to the search for oil and gas, particularly in the frontier areas of the North. This aspect of the oil and gas industry, as well as other developments in the production of these products, is covered in Section 12.1.4 of the preceding Chapter.

The composition of the Canadian net supply and consumption of various petroleum products and natural gas is as indicated in Table 13.2.