ENERGY PROSPECTS IN KOREA

ISSUE

The Korea Electric Power Corporation (KEPCO) has forecast a growth in primary energy demand which will result in an effective doubling of demand by the year 2001 and a 270 percent increase, by 2010, over 1985 figures.

BACKGROUND

KEPCO anticipates that the oil share of total imported energy will remain at 47 percent until 2001 then decrease to 43 percent in 2010 with increasing substitution of liquid natural gas (LNG) and nuclear energy. Coal will also substitute for oil in industrial and generating purposes while LNG will be favoured in residential, commercial and clean industrial sectors.

Nuclear energy is seen as a major power source in Korea in the future as part of an attempt to increase energy self-reliance and to reduce import expenditures. As imported nuclear fuel costs correspond to only 15 percent of total generation costs, increased use of nuclear power will reduce the total import bill. In a best case scenario, KEPCO anticipates that it would be possible to cut the energy import bill by 15 percent while reducing the dependency on imported energy sources from 94 percent to 78 percent.

Korea has eleven nuclear units: nine units in operation producing 5,700 MWe and another two units, to produce 3,900 MWe, are under construction. Existing nuclear power plants represent 30 percent of Korea's total electrical generating capacity and produced 53 percent of total electrical generation in 1987. KEPCO anticipates a requirement for 21,000 MWe of nuclear power by 2010, representing 40 percent of total current generating facilities. Construction of an additional 11,000 MWe of nuclear generating facilities will therefore be required.

In order for this scenario to be brought to fruition, KEPCO considers that the cost of nuclear generation must be brought down through (a) standardization of nuclear plant design; (b) shortening of the construction period; (c) enhancing project management capability (i.e. localization); and (d) improving plant availability.

Of interest to the Canadian nuclear industry is the provision in KEPCO's energy plan for up to four new CANDU reactors at Wolsung, joining the existing Wolsung 1. In December 1990, AECL was awarded the contract for a second CANDU at Wolsung and hopes to furnish Wolsung 3-6 should Korean plans come to fruition.