



ALTERNATIVE LONG-TERM STRATEGIES FOR SUSTAINABLE DEVELOPMENT:
RAPIDLY INCREASING ELECTRICITY CONSUMPTION IN ASIAN COUNTRIES
AND FUTURE ROLE OF NUCLEAR ENERGY

Naoto Sagawa, The Institute of Energy Economics, Japan (IEEJ)

Abstract

Many people in the world express the concern that global warming will become an increasingly serious problem. A rapid increase in population and demand for energy in the Asian region must be discussed in this context. For example, it is forecast that the population in the Asian region will account for more than 50 percent and a demand for primary energy will reach about 35 percent in the world totals.

Despite the forecast of an increase in demand for energy, the Asian region is short of oil and natural gas resources. In addition, only less energy can be supplied by renewable energy sources in the Asian region than in the other regions because of high population density. The problems with global warming must be met by all countries in the world and, therefore, it is important that the Asian countries also suppress the discharge of greenhouse gases wherever possible.

Nuclear energy is an important energy resource for fulfilling the future increasing energy demand in the Asian region and for contributing to the suppression of carbon dioxide emissions. In the Asian region alone, however, we cannot rely limitlessly on LWR which does not use plutonium. According to a scenario analysis, the total capacity of nuclear power plants in the Asian region would reach large scale and the cumulative amount of demand for natural uranium will increase to about 5 million tons in the Asian region alone.

While reserves of uranium are not well known, just the nuclear power plants of this scale in Asia alone will rapidly consume the world's cheap natural uranium resources if we rely only on natural uranium. In addition, the volume of wastes to be disposed of could be reduced significantly.

Actually enabling the above nuclear power development requires the continuing reliance on nuclear power generation and high economic efficiency. In the Asian region, few countries have embarked on nuclear power generation and the capacity of equipment is still small. Currently, however, many plans for nuclear power generation are being designed. Many Asian countries obviously consider nuclear power generation as a valid option.

Many potential policies must be examined in the light of future uncertainty. In the future, both renewable energy and nuclear energy must be resorted to. When nuclear energy is utilized, the use of plutonium and FBR in the Asian region must be taken into account in order to attain continual growth and development.