

The Energy Situation in Taiwan

Economic Development

The rapid economic development of the Republic of China on Taiwan over the past 20 years has created substantial changes in the production ratios of the nation's economic sectors from 1979 to 1999:

- The agricultural production value dropped from 9% to 3% of GDP,
- The industrial production value dropped from 45% to 33%,
- The production value of services rose from 46% to 64%,
- Real GDP rose from US\$62 billion to US\$282 billion,
- Per capita GNP increased from US\$1,920 to US\$13,203, and
- Foreign trade jumped from US\$30.9 billion to US\$232.3 billion.

Energy Supply

The total amount of Taiwan's energy supply increased from 29.84 million kiloliters of oil equivalent in 1979 to 98.88 million kiloliters in 1999 for an annual average growth rate of 6.2%. Since Taiwan is not endowed with rich land-based energy resources, the ratio of indigenous energy to total energy supply decreased from 17% in 1979 to 3% in 1999 while that of imported energy increased from 83% in 1979 to 97% in 1999.

The structure of energy supply in Taiwan has changed as follows:

- Coal's share increased from 13% in 1970 to 30% in 1999,
- Oil decreased from 72% to 51%,
- Natural gas increased from 6% to 7%,
- Hydropower dropped from 4% to 2%,
- Nuclear power increased from 5% to 10%,
- Coal was the main energy source before 1966 in Taiwan, but oil replaced it as the major energy source from 1967,
- Since the second oil crisis, the government of the ROC on Taiwan has advocated the substitution of coal and nuclear energy for oil,
- Expenditures for imported energy amounted to US\$7.33 billion in 1999, of which imported oil accounted for US\$4.34 billion, or 59.2%, and
- Imported energy accounted for 6.6% of total import value in 1999 and 2.5% of GDP, with an average per capital spending of NT\$10,788 for energy imports.

Energy Consumption

Energy consumption in Taiwan increased from 26.82 million kiloliters of oil equivalent in 1979 to 84.81 million kiloliters in 1999. The annual average growth rate during this period was 5.9% while that for the GDP was 7.3%; energy demand elasticity was 0.82.

Per capita energy consumption increased from 1,549 liters of oil equivalent in 1979 to 3,864 liters of oil equivalent in 1999 for an annual average growth rate of 4.7%. The energy consumption structure in Taiwan from 1979 to 1999 breaks down as follows:

1. By consuming sector:
 - Industry dropped from 65% of the total in 1979 to 55% in 1999,
 - Transportation increased from 11% to 17%,
 - Agriculture decreased from 4% to 1%,

- Residential increased from 10% to 12%,
 - Commerce increased from 2% to 6%,
 - Others remained around 6%, and
 - Non-energy use increased from around 2% to 3%.
2. By energy source:
 - Coal increased from 8% in 1979 to 11% in 1999,
 - Petroleum products decreased from 51% to 40%,
 - Natural gas dropped from 7% to 3%, and
 - Electricity increased from 34% to 46%.

Energy Policy

The first version of The Energy Policy of the Taiwan Area was approved by the Executive Yuan and promulgated in April, 1973. Afterwards, in response to the impact of energy crises and changes in the energy situation, energy policy was revised three times: in 1979, 1984, and 1990. However, the prevailing energy policy needed further review and revision in response to recent dramatic changes in the local and international energy situations and operating environment. Energy policy was thus revised the fourth time on July 25, 1996.

The aim of this policy is to establish a free, orderly, efficient, and clean energy demand and supply system based on the current environment, local characteristics, future prospects, public acceptability, and practicability.

To achieve this aim, the nation's energy policy includes six specific guidelines, 17 policy provisions, and 54 implementation measures carried out by eighteen government organizations.

A National Energy Conference was convened in Taipei on May 26th and 27th, 1998, for the purposes of formulating strategies and measures in response to the impact of the United Nations Framework Convention on Climate Change and seeking a balance among economic development, energy supply, and environmental protection in Taiwan.

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