

## B. Base Research Subjects

The objectives throughout the research period and the principal results in FY 2006 are described below for the base research subjects.

### 1. Socio-Economic Research Center

#### ◆ Analysis of and support for electricity business management

[Objectives]

To provide comprehensive information, know-how and models, etc. which are necessary for the planning and execution of a business strategy which allows electricity companies to precisely and quickly respond to a competitive environment.

[Principal Results]

- Quantitative analysis of a strategy to concentrate on energy-related businesses, which has attracted much attention in recent years, was conducted using data of energy companies in Japan, the US and Europe. The analysis results indicate a tendency for those companies which a higher level of concentration in energy-related businesses to enjoy better technical and cost efficiency.
- A statistical model to estimate the proportion of joint patent applications was developed to quantitatively show the relationship between the R & D expenditure and company size. It was also found that the proportion of sole applications had increased after liberalization.

#### ◆ Analysis of economic and social trends under decentralization

[Objectives]

To clarify the impacts of the changing administrative and financial systems of the central and local governments through decentralisation and the reform of the consumption tax, etc. and of the changes of energy and environmental policies on the national and regional economies of Japan which provide the business bases for electricity companies.

[Principal Results]

- Changes of the regional administrative expenditure per capita were analysed using prefectural data for the period from 1980 to 2000 while presupposing that the current level of prefectural administrative services remain the same. It was found that the population size to minimise such expenditure after merger is approximately 6.1 million in terms of expenditure and 8.2 million in terms of the amount of the standard financial demand.
- A survey on the local forest biomass endowment by municipality found that manmade forests nationwide can produce 5.93 million tons a year with secondary forests where firewood, etc. is collected can produce 4.93 million tons a year and grassland (secondary grassland) used for the harvesting of animal feed, etc. can produce 0.2 million tons a year. It was also found that even if the amount of endowment is small, the usability of these areas will increase with the presence of users and supporting personnel.

#### ◆ Enhancement of social trustability and communication measures

[Objectives]

To analyse the impacts of communication activities on the social trustability of an organization and to develop analysis and evaluation methods for risk communication techniques and their effects on building the trustability of the electricity business and a better relationship with society.

[Principal Results]

- Analysis of the results of interviews with 30 individual citizens found that information clearly showing the necessity for and effects of Pu thermal utilization will enhance the positive evaluation of the ease of understanding and sufficiency of information, sense of trust and sense of a satisfactory explanation and that information partially featuring the risks was found to be trustworthy for those who are unsure about nuclear power generation while enhancing the sense of anxiety in general.
- Draft risk communication guidelines for employees of electricity businesses were compiled based on the findings of a study on the implementation situation of Pu thermal explanation meetings and a study on the awareness of Pu thermal utilization among the said employees.

#### ◆ Long-term energy supply and demand scenario and technical evaluation

[Objectives]

To develop an energy supply and demand scenario based on the evaluation study results of individual technologies and socioeconomic factors and to analyse and recommend sustainable energy policies meeting the 3Es.

[Principal Results]

- An energy supply and demand scenario up to 2100 was prepared based on the rapid technological progress in the energy demand sector and the advancement of the aging society with fewer children. Based on this scenario, it was shown that the future CO<sub>2</sub> emission volume will substantially differ depending on what method of energy supply is used to meet the growing power demand.
- The technical and economic conditions for a heat pump water heating and small gas engine cogeneration system were analysed using actual load data for the Tokyo Metropolitan Area and a cold district. The conditions with which the hot water supply cost of heat pump water will be lower than that of a cogeneration system were identified.