

In FY2019, we will steadily advance research on the following topics in nine fields ranging from nuclear power to technologies common to multiple fields.

(■ indicates research categories in each field)



Nuclear power generation

Together with continuing to carry out research and development and provide operators with technical support for screening for conformity to the new standards on restarting operation of light-water reactors, and both improving safety and ensuring stable operation after restarting operation, we also will advance research toward establishment of technologies related to the nuclear fuel cycle, long-term safety assessment for treatment of radioactive waste, decommissioning of nuclear power facilities, and other activities.

- Utilization and stable operation of existing light-water reactors
- Establishing nuclear fuel cycle technologies
- Supporting radioactive waste disposal operations
- Supporting decommissioning of nuclear power facilities
- Developing future technologies for light-water reactors and future nuclear reactor cycle technologies



Thermal power generation

We will advance research related to efficient operation and maintenance of existing thermal power plants as well as improving facility performance in response to enhancement of environmental regulations. In addition, in response to increasing introduction of renewable energy, we will promote development of technologies for coordinated operation of thermal power plants and tools for analyzing the dynamic characteristics of thermal power systems.

- Rationalization of use of existing thermal power facilities
- Responding to increasing introduction of renewable energy
- Reducing CO₂ emissions
- Addressing disaster risks to thermal power facilities



Hydropower generation

We will develop monitoring and diagnostic technologies to maintain and manage aged facilities in order to enable more efficient operation of hydropower facilities. In addition, together with developing appropriate evaluation methods for the risks of large-scale natural disasters, we also will advance research related to automated inspection technologies and damage-mitigation measures, for use in supporting disaster recovery.

- Operation, maintenance, and disaster prevention at hydropower facilities



Renewable energy

Together with advancing research and development on low carbon and decarbonizing power sources, such as geothermal power generation and power generation using imported biomass fuels, we also will advance development of power-system stabilization technologies to enable increased introduction of renewable energy.

- Supporting for increasing the introduction of low-carbon power sources
- Power-system stabilization under expanded introduction of renewable energy



Electric power transmission and distribution

To ensure stable supplies of electricity, we are advancing research intended to ensure efficient operation and maintenance of electric power transmission and distribution facilities as well as development of grid management and stabilization technologies suitable for electricity system reforms. In addition, we also are promoting development of technologies related to countermeasures against large-scale natural disasters and cyber security measures.

- Rationalization of formation, operation, and maintenance of facilities
- Support for power system operation
- Utilization of demand-side resources
- Addressing disaster risks and human risks at power transmission and distribution facilities



Customer services

We are advancing research and development on improving the performance and expanding the use of electric technologies in areas such as heat pumps and electric vehicles, to conserve energy and promote electrification in the consumer, industrial, and transport fields.

- Promoting electrification and increasing customer satisfaction



Environment

Together with advancing research on policy responses to global warming and improving efficiency of environmental assessment, we are implementing evaluation of environmental risks from sources such as electromagnetic fields and fine particulate matter (PM_{2.5}), and reflecting our findings in guidelines and other outputs.

- Addressing global warming
- Addressing environmental assessment
- Addressing environmental and health risks



Utility management

We will propose methods by which power companies can adapt appropriately to changes in the business environment arising from the electricity system reform, such as legal separation of the electric power transmission and distribution segments.

- Ensuring consistency of the electricity system reform and energy policy



Emerging Technologies

We are advancing research common to multiple fields, such as overall optimization of supply/demand coordination and technological development across the electric power industry, as well as development of elemental technologies applicable to various fields.

- Overall optimization through supply/demand coordination
- Technological development across the electric power industry
- Development of technologies for application to diverse fields