



# Maintaining Our Safety-First Principle

Kyushu Electric Power accords top priority to safety for society and employees, and constantly endeavors to improve its facilities and technologies.

## Worker Safety and Health Initiatives

We aim to eliminate all industrial accidents and provide work environments that foster the physical and mental wellbeing of our employees. Management and employees collaborate to produce and follow companywide goals with support from our Safety and Health Committee.

### Eliminating occupational accidents

The number of accidents has fluctuated in recent years despite ongoing efforts to optimize the safety awareness of employees and remove potential dangers. We thus explored the creation of Occupational Safety and Health Management System, as part of which we will push ahead in FY2007 with risk assessments that will be central to that system.

Employees meet to discuss and prepare for risks before and after starting jobs. For example, they check road maps pinpointing locations where traffic accidents are frequent.

### Ensuring mental and physical wellbeing and comfort

We help employees cope with changes in the social and working environment by showing them how to prevent illness and improve their health. We deploy a wide range of programs to safeguard workers from the mental and physical damage of overwork and to create workplaces that minimize fatigue and stress. We will continue to improve these programs.

▼Number of occupational accidents and main causes (Number)

Fiscal year	2002	2003	2004	2005	2006
Material cause	1	3	4	6	4
Human error	10	22	19	18	12
Third party factors	7	1	4	8	8
Total	18	26	27	32	24

### Health management policies

- Mental health education improvements
  - Using more external lecturers and otherwise expanding training opportunities
  - Enhancing training such as by instructing on stress-reduction techniques
- Preventing health damage from overwork
  - Occupational physicians and medical staffers providing workplace guidance
  - Offering consultation to at-risk individuals
- Initiatives for visual display terminal usage
  - Consultations and examinations from medical staffers
- Workplace smoking measures
  - Smoking is prohibited in work areas
  - Smoking rooms and other facilities used to prevent passive smoking
- Illness prevention
  - Classes and lectures on various issues

### A message from our occupational physicians

As part of our work, we occupational physicians provide considerable guidance in recent years on ways to combat the effects of overwork and maintain mental health.

In recent years, we've offered administrative and general mental health education at employee training facilities. We also use in-house television programs to speak about mental health and otherwise enlighten employees. We will continue to perform our duties in the years ahead, contributing to more comfortable workplaces and improving employee health.



Dr. Kazuya Fujishiro (front left), chief occupational physician, and Dr. Rie Yoshikawa (front right), head office occupational physician

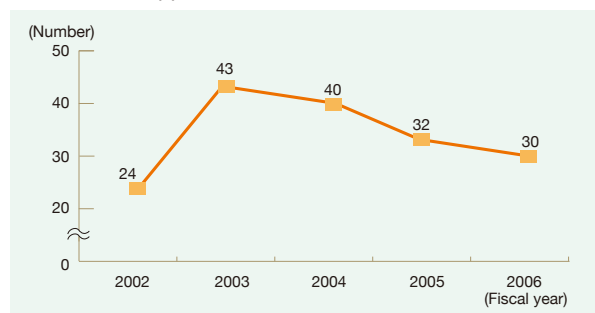
### Mandating supplier safety

We have long fulfilled our responsibilities to suppliers by supporting and instructing on their safety activities. But there have been some tragic incidents of electric shocks and falls. We thus reinforced efforts to ensure supplier and prevent accidents.

For example, we hold safety months in summer and winter, during which we patrol supplier work sites. We also meet suppliers

to discuss accident prevention and other safety issues.

▼Number of supplier accidents



## Ensuring Public Safety

### Preventing electric shocks

We hold three publicity campaigns annually to help reduce the incidence of electric shocks. During Power Safety Month, we highlight this issue to engineering and construction firms, crane companies, educational institutions, municipalities, and other major organizations. In light of an accident in Tokyo in 2006 in which a ship-mounted crane touched power lines and triggered a massive outage, we expanded our publicity program to encompass construction and other companies operating such vessels.

Other safety awareness tools include “Denki Shittoku Bon” (Know Your Electricity pamphlet), which we distribute to new customers, and a questions and answers website on power usage. In addition, we recommend that customers check their facilities for potential problems and deploy their own safety procedures.

▼Number of public electric shock accidents

Fiscal year	2002	2003	2004	2005	2006
Number	4	1	3	2	0

Questions and answers website on power usage (in Japanese only)  
[http://www.kyuden.co.jp/life\\_living\\_safe\\_index](http://www.kyuden.co.jp/life_living_safe_index)

We will continue to take every opportunity to pursue electric shock prevention by publicize the risks.

Spring and summer publicity campaigns to prevent electric shocks

We hold two publicity campaigns each of three months, from December through May. The main priorities are to prevent shocks from carp streamers touching power lines and from mishaps at construction sites.

Power Safety Month

We join hands with several electric power bodies to hold this campaign every August under the auspices of the Ministry of Economy, Trade and Industry to deepen public awareness of the need to use electricity safely and prevent accidents.

Publicity during typhoons and other disasters

We run television commercials, place newspaper advertisements, and harness other publicity vehicles during disaster periods to heighten power safety awareness and inform of outages from debris.



Publicity poster highlighting risk of electric shock

# Ensuring Nuclear Power Safety

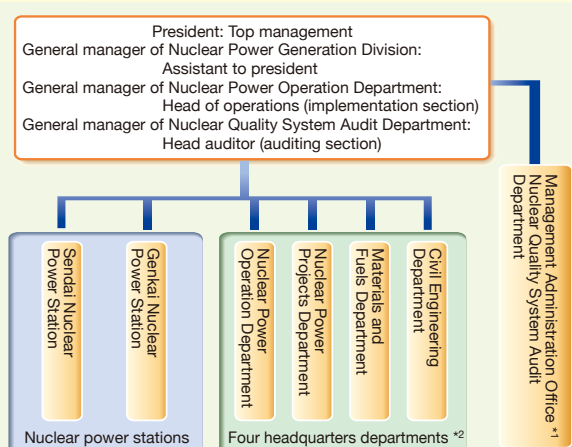
We harness extensive safety and quality assurance activities to manage our nuclear power operations and disclose information on our activities to build community trust.

## Safety Management System

### Quality assurance Activities

The president establishes the quality management system that ensures the safety and quality of our nuclear power operations. Our system complies with laws and ordinances and the requirements of the Japan Electric Association code of Quality Assurance for Safety of Nuclear Power Plants, known as JEAC 4111.

#### Quality assurance structure



\*1: Internally audits nuclear power operations under instructions from president.  
 \*2: The headquarters nuclear quality assurance organization comprises the Civil Engineering Department (Nuclear Power Group) and Materials and Fuels Department (related groups).

### Keeping our technological edge

The technological capabilities of our employees are essential to keep our nuclear power stations operating safely.

On-the-job training is the main tool for imparting operational and maintenance technologies. We use operation simulators and maintenance training facilities at the training centers of our Genkai and Sendai nuclear power stations to maintain our practical technological capabilities.



### Developing safety culture in nuclear activities

Our management system emphasizes building positive worksite environments and communicating with business partners because we believe that safety starts with individual awareness and the organizational culture.

We therefore not only maintain extensive internal communications through meeting with executive managers and worksite meetings but also regularly reassign employees between headquarters and our nuclear power stations.

We maintain close ties with business partners by participating in their pre-work meetings and site inspections while participating with them in site patrols, informal discussions, and other activities.

### Ensuring groupwide nuclear power safety

Focus on Nishinippon Plant Engineering and Construction Co., Ltd.

This Group company inspects and maintains our nuclear power facilities. Its rigorous safety management and quality management programs have contributed significantly to the safety of Group operations and technological capabilities.

That company performs exceptionally reliable work because it extensively trains its employees to enhance their technical skills and is totally committed to safety.

Nishinippon Plant Engineering and Construction managed a project to replace the steam turbine at the Sendai Nuclear Power Station Unit 1, working from the design stage with the overseas supplier of this equipment to assess technical issues.



▲ Replacing a turbine at The Sendai Nuclear Station Unit 1

□ Nishinippon Plant Engineering and Construction website (in Japanese only)  
<http://www.npc21.jp/>

## Maintaining Nuclear Power Facilities

### ● Adhering to guidelines

It is naturally important to properly maintain nuclear power station facilities and equipment.

We thus determine the scope and frequency of inspections and repairs and assess the results of our work to decide if we need to review our approach. These and other efforts are in keeping with laws and ordinances and the Code of Maintenance and Inspection for Nuclear Power Plants, or known as JEAC 4209.

### ● Implementing preventive maintenance

We refer to nuclear power station accidents in Japan and abroad to take recurrence preventive steps and monitor the aging of our facilities. We draw on our knowledge to maintain and improve facilities and equipment.

### ● Enhancing seismic resistance

In August 2006, we began geological surveys to evaluate seismic safety ahead of the September 2006 revision of seismic design guidelines. We are continuing to measure seismic safety and to accordingly upgrade our facilities.

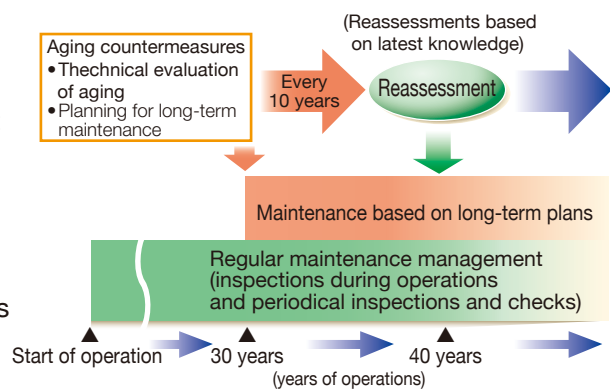
## Aging countermeasures

We responded to the government's basic guidelines on aging facilities by evaluating the Genkai Nuclear Station Unit 1, which had been operating 30 years. In December 2003, we submitted a report to the government stating that the passage of time had not undermined the facility's safety.

In March 2004, the government approved this report, stating that, "The company appropriately evaluated aging, and may continue to operate this facility as long as it properly implements its long-term maintenance plan."

We are systematically addressing aging at that facility under a program of periodical inspections.

### ▼ Overview of aging countermeasures

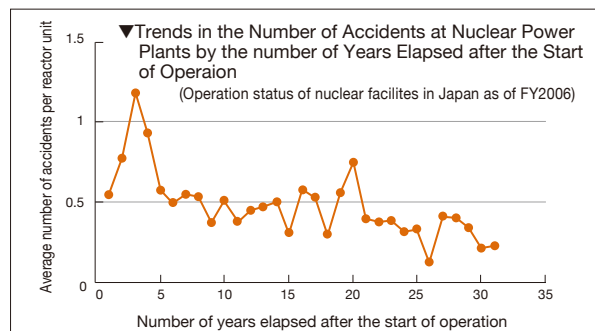


**Q1** Aren't the aging countermeasures for your nuclear power stations simply a pretext for extending the operating lives of old facilities?

**A** No laws govern how long these facilities can operate. The goal of aging countermeasure assessments is simply to bolster maintenance programs for before and after facilities run for 30 years, not to extend operating lives.

**Q2** Haven't more problems occurred as nuclear power stations age?

**A** The statistics show no such trend.



# Ensuring Nuclear Power Safety

## Controlling Radiation

### Controlling occupational radiation exposure

We minimize such exposure at our nuclear power stations by strictly managing water quality, shielding workers, and having them perform tasks through remote control or automated systems.

In FY2006 result, the average occupational exposed dose at our facilities was 0.9 milliSievert (mSv), far lower than the legally permitted 50 mSv.

### Managing environmental radiation

We constantly monitor radiation levels around our nuclear power stations. We disclose real-time data on our website. We regularly measure the radioactivity of samples of seawater, agricultural and marine products, and have found no instances of environmental radiation from our facilities.

The annual dosage of people living around our nuclear power stations is less than 0.001 mSv. This is well below the legal dose limit of 1 mSv per year and the Nuclear Safety Commission's target of 0.05 mSv annually.

#### Ambient radiation from our nuclear power stations

FY2006 result: Less than 0.001 mSv  
 FY2007 target: Less than 0.001 mSv

### Preventing nuclear disasters

Our nuclear power stations maintain rigorous safety measures to minimize disaster risks. As part of ongoing efforts to ensure preparedness, we maintain contingency response plans with national and local government bodies in line with the Special Law of Emergency Preparedness for Nuclear Disasters and the Disaster Countermeasures Basic Act.

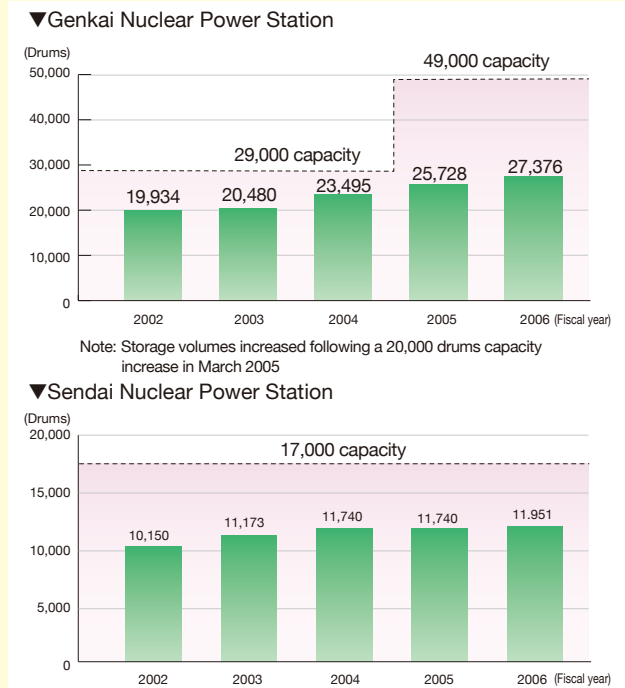
We participate in annual nuclear disaster drills in Saga and Kagoshima prefectures. Headquarters and our nuclear power stations have emergency response headquarters that regularly train for such tasks as issuing bulletins and monitoring the environment.

### Managing radioactive wastes

On-site facilities treat the small amounts of radioactive gaseous and liquid wastes that our nuclear power stations create and safely dispose of them. These wastes have a miniscule impact on radioactivity around our plants.

They store and strictly supervise solid wastes on-site and then ship them to Japan Nuclear Fuel Limited's Low-Level Radioactive Waste Disposal Center. That center stores the wastes underground for management until the potential dangers to humans disappear.

#### Solid waste storage



**Note** MOX fuel is the acronym for mixed uranium and plutonium oxides from spent and reprocessed materials. Pluthermal is a Japanese English term derived from the words plutonium and thermal unit. The pluthermal generation process harnesses MOX fuel.

## Pluthermal Safety

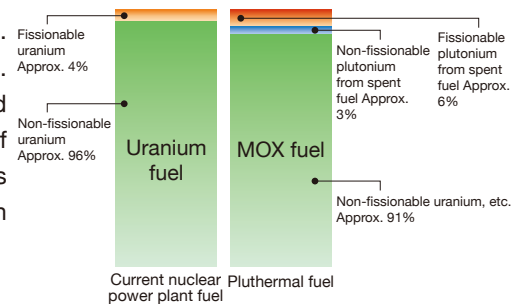
We plan to start pluthermal generation at the Genkai Nuclear Power Station Unit 3 (see note at the bottom of page 51) by FY2010.

We passed a rigorous government safety review in September 2005. Saga Prefecture and Genkai town consented to our plan in March 2006. The next step is to prepare for MOX fuel (see note at the bottom of page 51) fabrication and shipments. We will ensure complete safety at each stage, complying strictly with the law and undertaking quality assurance activities.

### MOX fuels are safe for existing facilities

Conventional nuclear power stations run solely on uranium fuel. But pluthermal facilities can use both uranium and MOX fuels. Just like uranium fuels, MOX fuels are made like ceramics, sealed in fuel rods, and used in fuel assemblies. The shapes and sizes of uranium and MOX fuel assemblies and the generating principles are identical. The Genkai nuclear power station unit 3 will run on one-quarter MOX fuel, with uranium fuel accounting for the rest.

#### ▼ Differences between uranium and MOX fuels



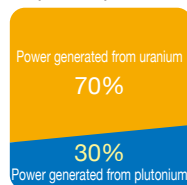
### Plutonium is useful for current nuclear power generation

In modern nuclear power stations, some uranium fuel transforms into plutonium in the fission (in which atoms split to release heat) process.

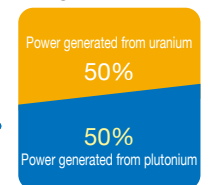
In this way, plutonium already produces 30% of the energy at these plants in what essentially becomes pluthermal power generation.

With a pluthermal setup, plutonium accounts for around 50% of energy output because MOX fuel contains that material.

#### Current nuclear power plants



#### Pluthermal generation



### A track record of more than 40 years

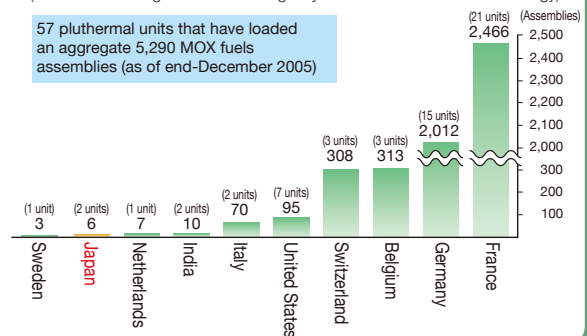
Pluthermal power generation began in the 1960s. There are 57 pluthermal units internationally, largely in France, Germany, and Belgium, and they have loaded an aggregate 5,290 MOX fuels assemblies. There have been no reports of safety problems.

Trial pluthermal operations at the Japan Atomic Power Company's Tsuruga Power Station Unit 1 and Kansai Electric Power Co., Inc.'s Mihama Nuclear Power Plant Unit 1 confirmed the safety.

#### ▼ Aggregate global pluthermal power generation

(Sources: Including materials from Agency for Natural Resources and Energy)

57 pluthermal units that have loaded an aggregate 5,290 MOX fuels assemblies (as of end-December 2005)



### The Japanese government confirmed the safety of our pluthermal plan for the Genkai nuclear power station unit 3

The Nuclear Safety Commission assessed MOX fuels and published its report in 1995. The report stated that if MOX fuels accounted for up to around one-third of the fuel used in a nuclear unit the MOX fuels would perform around the same as uranium fuel. The commission thus concluded that it would be acceptable to apply existing criteria and use safe design techniques and evaluation methods that factored in the characteristics of MOX fuels.

The government appraises the safety of each unit in which operators plan to start pluthermal generation.

The Genkai nuclear power station unit 3 passed a government safety review completed on September 7, 2005.

### We have audited the quality assurance systems for MOX fuel

In April 2007, we audited the quality assurance systems of fuel supplier Mitsubishi Heavy Industries and parts manufacturer Mitsubishi Nuclear Fuel Co., Ltd. We dispatched employees to MOX fuel fabricator MELOX SA in France to audit their quality assurance systems.