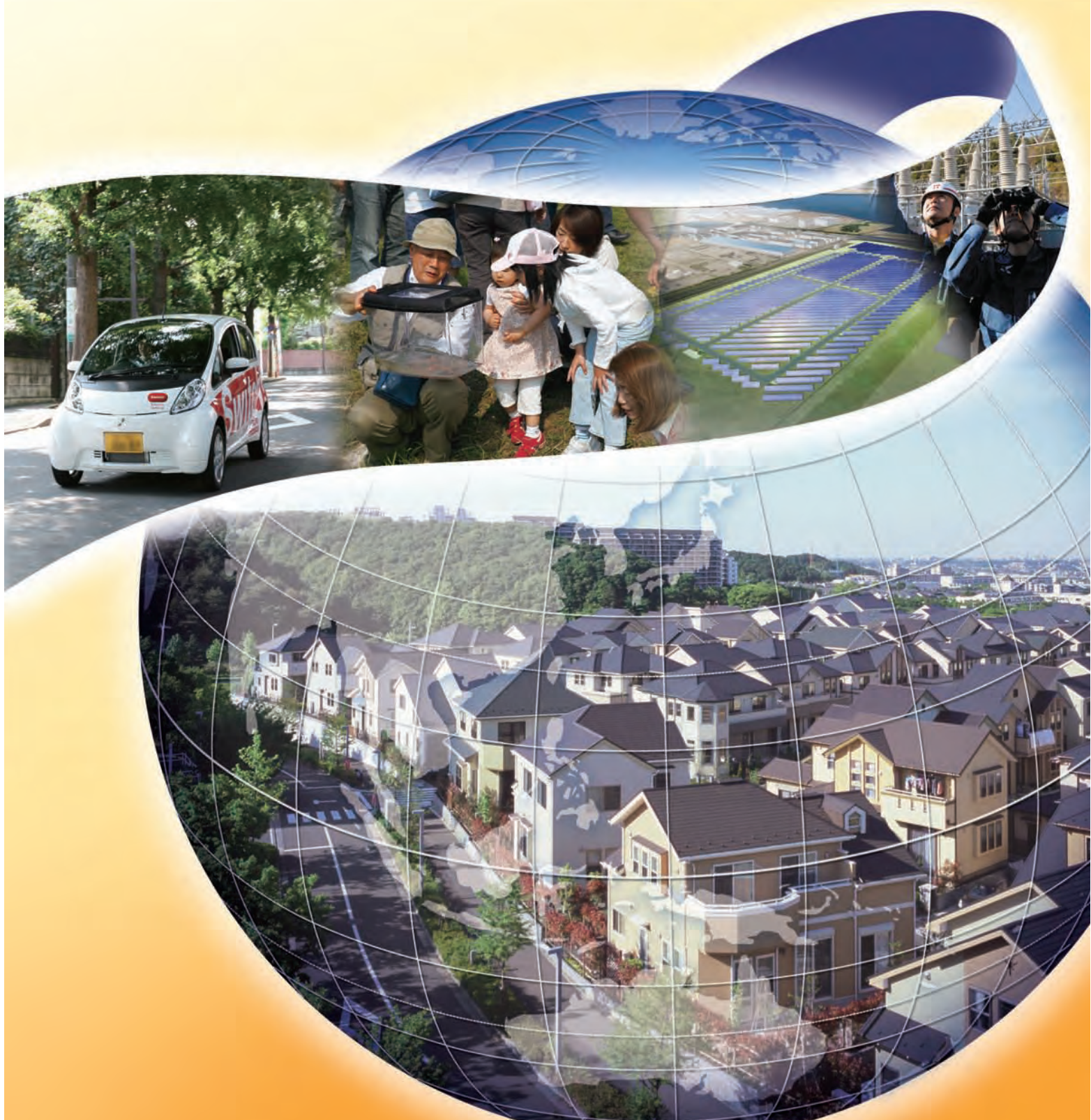


# Sustainability Report 2010

Year ended March 31, 2010



## Introduction

The title of this report, "Sustainability Report 2010" expresses the TEPCO Group's commitment to working for a sustainable society by offering superior energy services.

The 2010 report gives an account of the TEPCO Group's CSR\*1 initiatives and achievements toward a sustainable society. We hope it would serve as a tool for enhancing communication between the TEPCO Group and all stakeholders who hold an interest in our operations.

To better respond to our stakeholders' concerns and expectations of the TEPCO Group, the 2010 report has been produced in line with the AA1000 Assurance Principles\*2, which are widely accepted throughout the world as professional principles for creating sustainability reports. Topics to be contained in the report have been selected based on an evaluation of their relevance, from the five perspectives shown below. We have adopted external assessments for some of those perspectives, for greater objectivity.

\*1 CSR

Abbreviation for Corporate Social Responsibility

\*2 AA1000 Assurance Principles

The AA1000 series of principles are a set of standards developed by AccountAbility.  
(www.accountability21.net)

### The five evaluation perspectives




	Evaluation perspective	Materials used for reference	Evaluation criteria
1	Issues which have a direct and short-term financial impact	In-house materials	Major issues related to corporate management of the TEPCO Group
2	Issues for which the company has set strategic policies	Management plans and other such published materials	
3	Issues deemed important by peer organizations (business peer-based norms)	CSR reports of domestic and foreign energy companies	Social interests and expectations
4	Issues deemed important enough by stakeholders to take action (whether now or in the future)	TEPCO Advisory Committee on Environmental Affairs Internal and external opinions obtained from questionnaires to readers of this report and by other means	
5	Issues deemed to originate from societal norms (These are indicated by regulations in force, future regulations, or standards and regulations that have become customary, etc.)	GRI guidelines Environmental reporting guidelines, etc.	

※ Detailed financial information is available in our Annual Report.

## Sustainability Report 2010

Period covered	FY2009 (April 2009 - March 2010) (This report also contains important information that has occurred outside this time period.)
Scope of coverage	TEPCO and the 258 companies of the TEPCO Group ※ Some references may be made to a limited scope only, as will be indicated in relevant sections.
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## How to read this report

- The following mark indicates that more information is available on our website.  
 = [www.tepco.co.jp/en/index-e.html](http://www.tepco.co.jp/en/index-e.html)
- Terms followed by an asterisk ( \* ) are explained on the same page.
- The  mark introduces websites that provide relevant information.
- The  and  marks in the upper right-hand side of the page indicate opinions and questions from our stakeholders and TEPCO's replies to them.

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**The TEPCO Group's basic mission is to deliver electricity to society in a safe and stable manner. Based on this commitment, we will pursue new social and environmental roles in "leading the low-carbon era" as we contribute to creating affluent and comfortable lifestyles.**

**We will take the opportunity of today's changes in energy and environmental situations to make a new start.**

The TEPCO Group has struggled through a difficult business environment as a result of changes brought about by the liberalization of the electricity market and damages suffered by Kashiwazaki-Kariwa Nuclear Power Station in the Niigata-Chuetsu-Oki Earthquake. However, we worked steadily to overcome each challenge while also making Group-wide efforts to improve our services, increase efficiency, and reduce costs, and continued to deliver safe and stable supplies of electricity, an indispensable element of modern society.

If we turn our eyes to society, we see many changes taking place. In addition to changes in the social structure caused by the rapid aging of society due to a declining birthrate, decreasing population, and changes in the industrial structure, major changes are also occurring in relation to the energy and environment situation, as can be seen in the development of energy-saving technologies, the global warming issue, and the increase in energy consumption primarily in Asia.

Such changes can be expected to have diverse impacts on our Group. However, rather than simply responding to them, we will take the opportunity of these changes to delve deeper into, or more widely expand, the business activities we have cultivated so far, and pursue forward-looking management.

Based on this awareness, we have established a new management vision called "2020 Vision: Medium to Long-term Growth Declaration" in September 2010, to make a new start toward the next ten years.



**We will maintain sound management practices to ensure stable electricity supply and to earn the trust of society.**

The TEPCO Group will continue to ensure energy security, deliver stable supplies of low-cost, eco-friendly electricity, and provide energy services that meet customer satisfaction, based on trust from society and local communities where we operate.

We conduct our business by operating nuclear plants, transmission and distribution lines, and a host of other facilities, but we can only do so with the understanding and cooperation of local communities. We realize that trust from all members of society is essential to our business activities, and believe in making untiring, continuous efforts to earn stronger trust.

In any age, we will strive to win even greater confidence by fulfilling our foremost social responsibility of providing stable supplies of electricity, while maintaining open channels of communication with our stakeholders.

**We will make active and integrated efforts to reduce carbon levels from society as a leader of the low-carbon era.**

The TEPCO Group will keep advancing, to pursue new social and environmental initiatives. We will make active and integrated efforts to reduce carbon from all aspects of the energy chain, from the power generation to utilization stages, or from the electricity supply side to demand side. We will also expand the use of high-efficiency, low-carbon energy abroad, based on the human resources and technologies we have cultivated so far through our domestic electricity business.

By "leading the low-carbon era" through these efforts and by striking a balance with corporate profit, we wish to realize sustainable growth and share the fruits of our achievements with society.



As stated in the TEPCO Group Management Principle, "We will contribute to creating affluent and comfortable environments by providing optimum energy services." Our idea of "affluent and comfortable environments" is a sustainable society that is not only convenient and comfortable to live in, but that is filled with spiritual affluence and harmonizes with nature.

By pursuing a new vision, the TEPCO Group will pave the way toward an affluent and comfortable future befitting the coming times.

Masataka Shimizu  
President  
Tokyo Electric Power Company



# TEPCO Group

## Medium to Long-term Growth Declaration

The TEPCO Group has established a new medium to long-term management policy called "2020 Vision: Medium to Long-term Growth Declaration" in September 2010.

### Overview of 2020 Vision

#### Overview of 2020 Vision



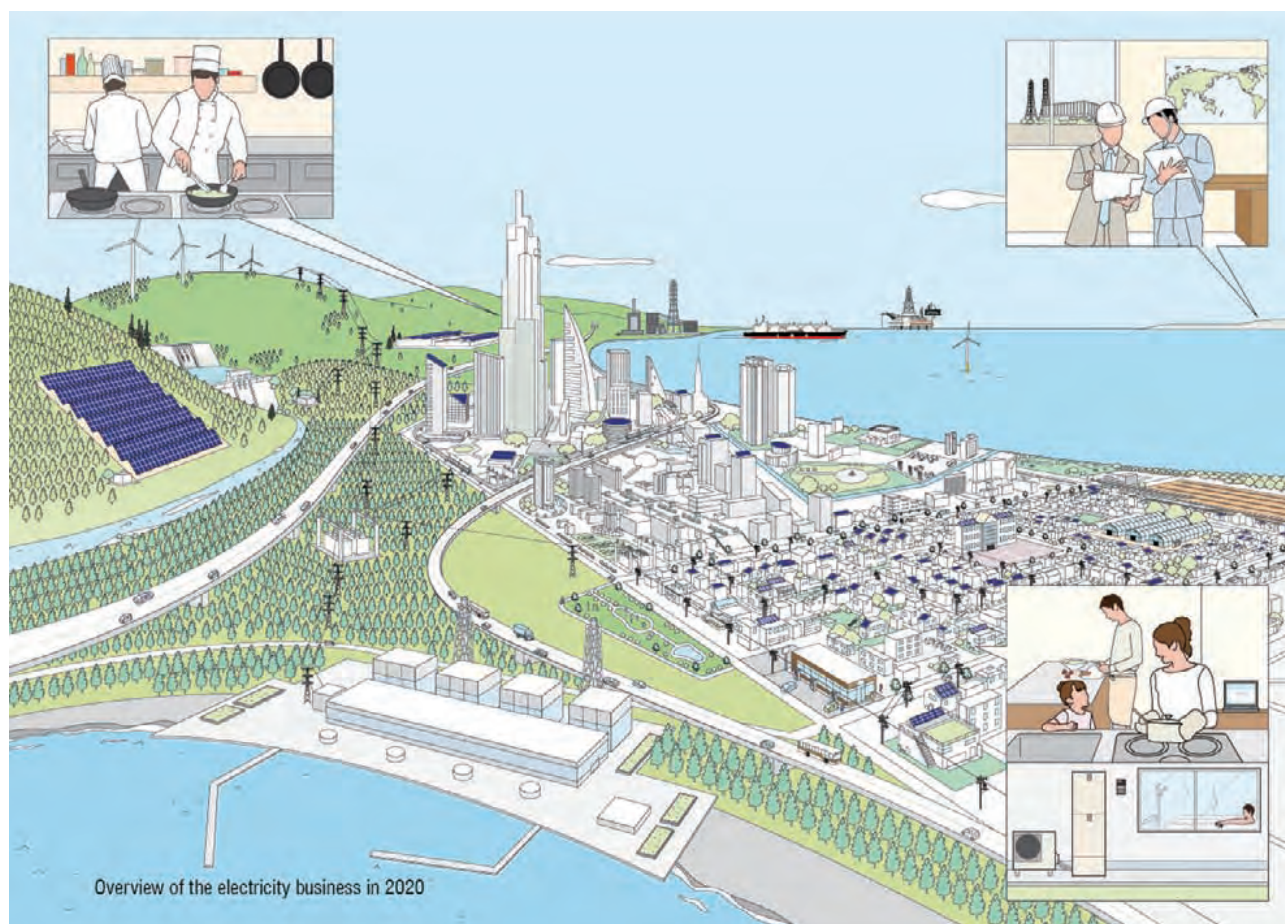
### Management Principle

**We will contribute to creating affluent and comfortable environments by providing optimum energy services**

The TEPCO Group Management Principle is the *raison d'être* of why we, the TEPCO Group, exist and engage in corporate activities.

Our idea of "affluent and comfortable environments" is a sustainable society that is not only convenient and comfortable to live in, but that promotes well-being and harmonizes with nature.

We will contribute to realizing this environment by offering services related primarily to electricity, ahead of customer and social needs.



## Management Policies

The TEPCO Group will abide by three policies, to continue offering energy services based on low-cost, stable supply of electricity, as well as to **achieve sustainable growth by pursuing new social and environmental roles in "leading the low-carbon era" and by striking a balance between those roles and corporate profit.**

The Management Policies define the direction of our business under 2020 Vision, toward ultimate realization of the TEPCO Group Management Principle.

### Management Policy No. 1

Our corporate activities are founded on earning trust from society.

Based on this awareness, we will uphold our first management policy to "value social trust" as an unchanging basic policy.

### Management Policy No. 2

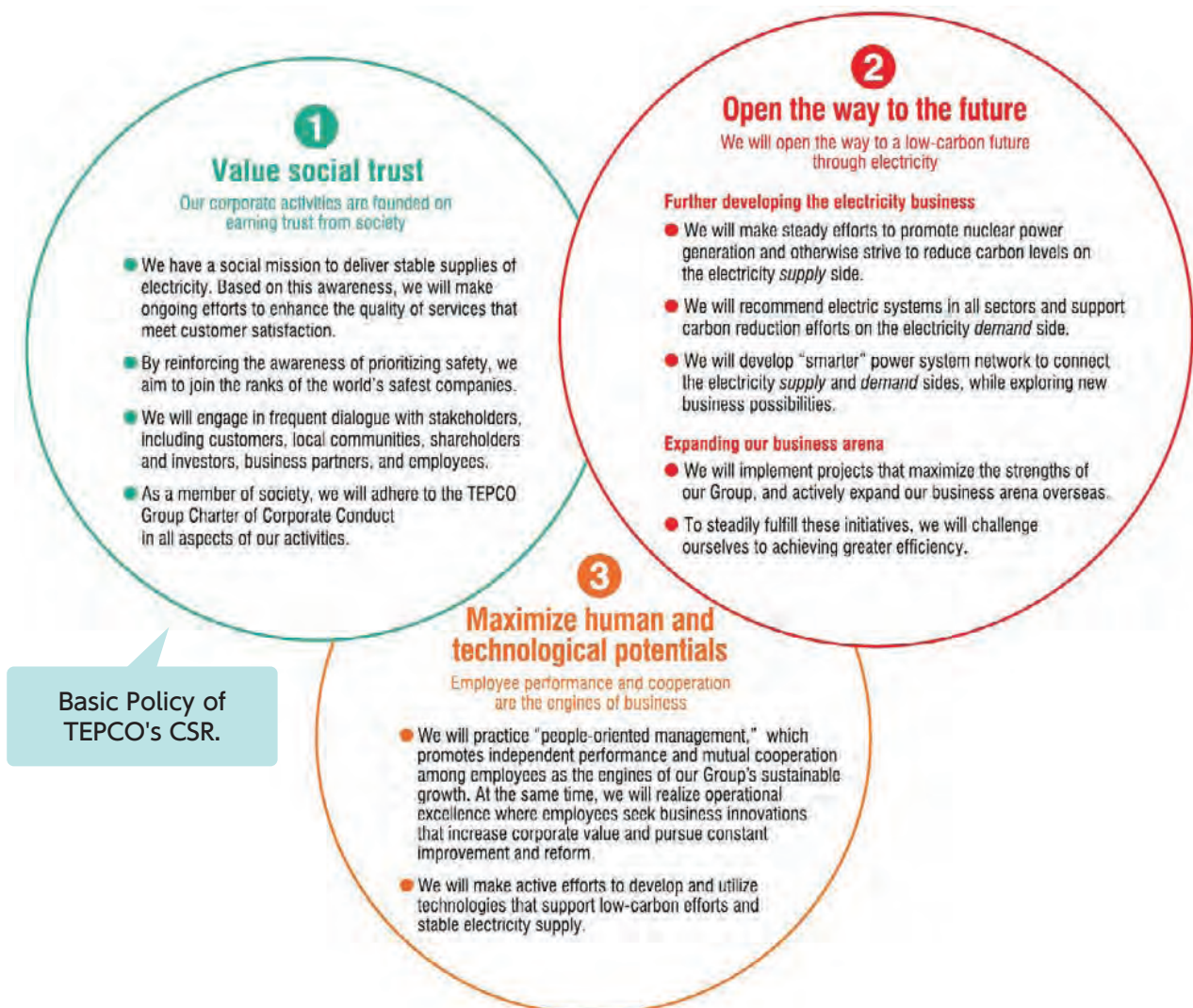
The energy situation today is on the verge of dramatic change, as can be perceived in such phenomena as global warming and the drastic increase in energy consumption particularly in Asia.

In light of this situation, we will pursue new social and environmental roles in reducing carbon levels from all aspects of the energy chain, from the electricity supply side to demand side, and in promoting the efficient use of low-CO<sub>2</sub> energy abroad, in accordance with the second management policy to "open the way to the future" as our guiding policy for achieving sustainable growth as a company.

### Management Policy No. 3

Thirdly, we will uphold the policy to "maximize human and technological potentials" as an underlying policy for trust and growth.

Through management practices that "value social trust," "open the way to the future," and "maximize human and technological potentials," we will provide greater satisfaction to our stakeholders.





## The seven Value-up Plans

The seven Value-up Plans outline key initiatives which the TEPCO Group will be pursuing hereafter with particular focus toward realizing sustainable growth.

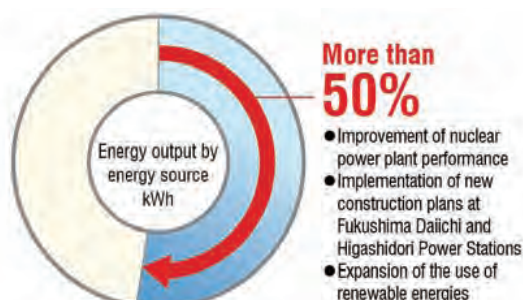
### plan 1 Actively introduce zero-emission power sources – Initiatives on the electricity supply side –

The TEPCO Group will promote the best mix of power sources to simultaneously ensure the stability, environmental performance, and economic efficiency of power supply, while making further efforts to achieve high-efficiency, low-carbon power sources.

We will aim to increase the proportion of non-fossil energy in total energy output to **more than 50%** by FY2020.

Nuclear power generation is central to producing zero-emission power supply. We will expand the utilization of existing plants and launch new construction plans with the approval of local communities and residents.

#### Expansion of zero-emission power supply



CO<sub>2</sub> emission intensity is expected to drop to **around 0.28 kg-CO<sub>2</sub>/kWh** in FY2020 (reduction of **more than 25%** compared to FY1990).

We will make steady efforts to develop and utilize renewable energy sources, while also promoting high-efficiency, low-carbon thermal power generation.

#### Expanding nuclear power generation

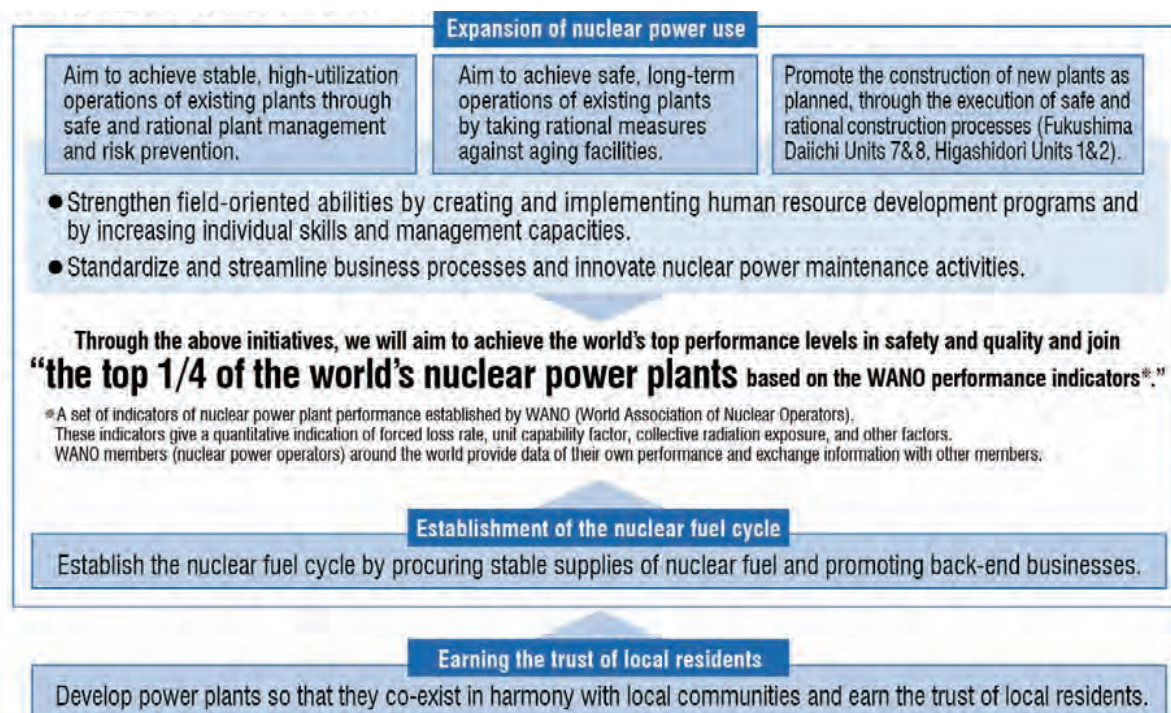
We will aim to produce "**reliable nuclear power**" as a power supply that delivers the world's highest standard of safety and quality, and contributes to ensuring energy security, creating a low-carbon society, and increasing economic efficiency to the greatest extent possible.

We will make ongoing efforts to secure the trust of local communities as the foundation of promoting nuclear power generation.

In our effort to expand nuclear power generation, we will also strive to improve nuclear power plant performance and develop new plants by establishing safe, high-quality operational procedures and creating operational excellence that possess high technological and organizational capabilities.

We will simultaneously promote back-end businesses and aim to establish the nuclear fuel cycle.

#### Concept of nuclear power promotion





## Expanding the use of renewable energies

We will expand the utilization of renewable energy sources such as solar, wind, and hydro energies, and biomass.

### ■ Expansion of renewable energy use in Japan

The TEPCO Group as a whole will aim to develop **approximately 400 MW** of new renewable energies by FY2020. We will boost renewable energy use in the Hokkaido and Tohoku regions, such as by conducting demonstration tests on wind power systems that combine the use of existing connection lines and wind power control technologies to expand wind power generation.

### ■ Expansion of renewable energy use abroad

Through Eurus Energy Holdings Corporation, a member of the TEPCO Group, we will actively implement wind and photovoltaic power projects and develop **approximately 1,750 MW\*** of new energy by FY2020.

\* In terms of total facility capacity of projects.

### ■ Development of renewable energy technologies

We will push forward the research and development of offshore wind power generation, with the aim of further expanding renewable energy use.

➡ See pp. 34-35 for details on renewable energy use.

## Promoting high-efficiency, low-carbon thermal power generation

Thermal power generation, with its capability to respond to fluctuations in electricity demand, is an important source of power that could provide stable supplies of electricity even in a low-carbon era. We will seek higher-efficiency, lower-carbon (minimum emission) thermal power generation such as by introducing power plants with the world's highest

levels of efficiency, and develop and operate power plants from a comprehensive perspective including stability, environmental performance, economic efficiency, and operational characteristics.

### ■ Diversity of low-carbon thermal power sources

To achieve higher thermal efficiency, we will introduce a 1,600°C-class combined cycle generation system (MACC II\*\*<sup>1</sup>) that would provide a thermal efficiency level of approximately 61%\*<sup>2</sup>, to two power plants (total capacity 3,550 MW) in the future.

With the aim of commercializing IGCC\*\*<sup>3</sup>, for higher thermal efficiency of coal-fired thermal power plants, we are participating in a demonstration test in cooperation with other electric power companies through the Clean Coal Power R&D Co., Ltd.\*<sup>4</sup>.

We will make active efforts to introduce biomass fuels to coal-fired power plants\*<sup>5</sup> and develop technologies such as the CCS\*<sup>6</sup>.

➡ See p.33 for improving thermal power generation efficiency.

\*1 More Advanced Combined Cycle.

\*2 Lower heating values (LHV) were estimated from higher heating values (HHV), using the conversion coefficient from General Energy Statistics (FY2004).

\*3 Integrated coal Gasification Combined Cycle.

\*4 An R&D company founded for the purpose of performing a demonstration test of an IGCC plant.

\*5 We are implementing a project on the co-combustion of coal mixed with approximately 3% wood biomass fuel, at the Hitachinaka Thermal Power Station.

\*6 Carbon dioxide Capture and Storage.

## plan 2 Recommend electric systems to all sectors - Approaches to the electricity demand side -

The TEPCO Group is committed to increasing customer satisfaction and to creating a low-carbon society while also expanding profit. We will fulfill this commitment by providing services befitting the coming age, such as by more actively promoting electric systems in all sectors of society and increasing the efficiency of customers' energy usage.

The potential market size of electrification in the Kanto region is equivalent to **100 TWh** (see diagram below).

We will cultivate demand in all sectors by recommending high-efficiency products that incorporate heat pumps, and electrify **10 TWh** of energy during the five years from FY2011 to 2015.

Furthermore, by developing products that satisfy customer needs and disseminating the use of electric vehicles, we will electrify **30 TWh** of energy during the ten years from FY2011 to 2020.

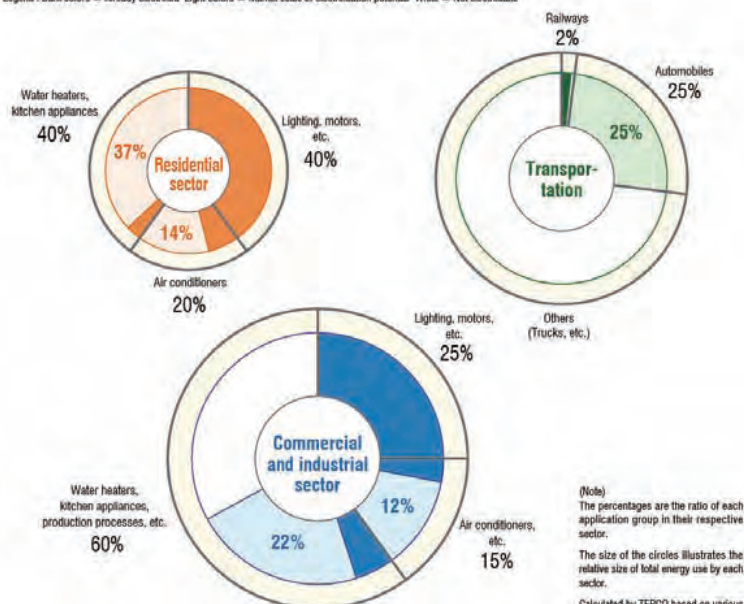
Through these initiatives, we expect to contribute to reducing CO<sub>2</sub> emissions\* by **around 10 million tons** by FY2020.

We will also enhance the quality of our services, to better promote the advantages of electric systems.

\*Total amount of CO<sub>2</sub> emission reduced by replacing non-electricity heat sources with electricity and employing high-efficiency products that incorporate heat pumps.

### Energy use and market scale in the Kanto region

Legend : Dark colors = Already electrified Light colors = Market scale of electrification potential White = Not electrifiable



➡ See pp.38-45 for information on specific initiatives.

### plan 3 Develop "smarter" power system network - Initiatives to connect the supply and demand sides

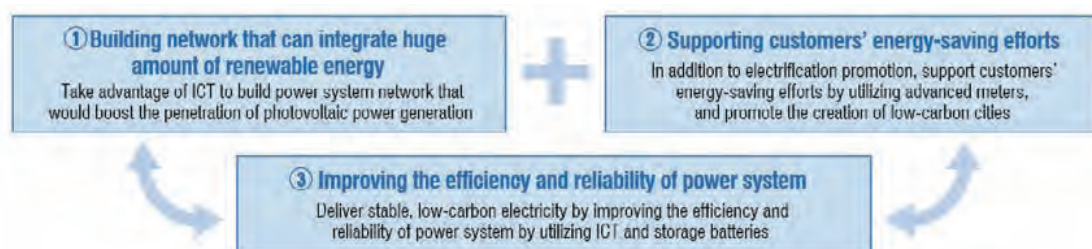
We will take advantage of information communications technology (ICT) to develop "smarter" power system network by integrally (1) building network that can integrate huge amount of renewable energy, (2) supporting customers' energy-saving efforts, and (3) improving efficiency and reliability of power system.

We will actively participate in external demonstration tests\* to develop smart network technology.

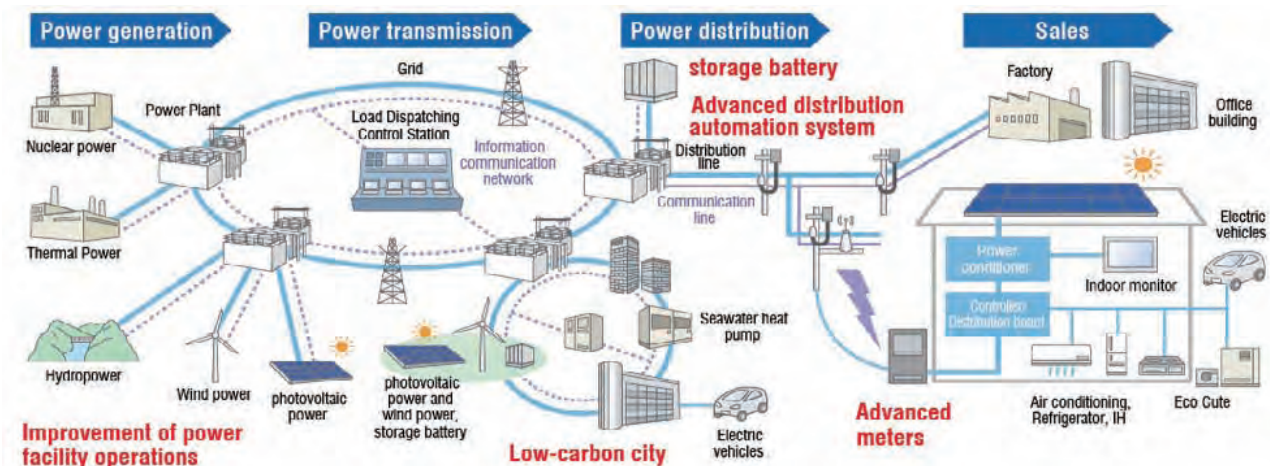
We will examine the potentials of new businesses based on advanced meters, a tool which will be central to supporting customers' energy-saving efforts.

\*TEPCO is planning to participate or is participating in the following external demonstration tests (as of July 2010): "Project for power system stabilization toward integration of a huge amount of distributed new energies integration," "Project for demonstration of optimum control technology for next-generation transmission and distribution system," "Project for demonstration of the effects of introducing load leveling devices," "Project for demonstration of next-generation energy and social systems (Yokohama City)"

#### Initiatives of TEPCO Group



#### Overview of smart power system network



#### ■ Improvement of power generation operation efficiency, advanced distribution automation system

We will improve the operation efficiency of thermal and hydro power generation to respond flexibly to power demand fluctuation and help boost the penetration of photovoltaic power generation.

We will develop advanced distribution automation system, so that we may maintain power quality when a huge amount of photovoltaic power generation is integrated, increase the operating rates of distribution lines, and shorten restoration time.

#### ■ Installation and utilization of advanced meters

In the latter half of FY2010, we will launch a demonstration test of multi-functional advanced meters with multi functions that would enable automated metering, provide services that visualize electricity usage using the Internet, and shorten restoration time after power outage, etc.

We will examine the potentials of new ICT services in anticipation of the utilization of advanced meters.

#### ■ Experimental study toward a low-carbon city

We will examine low-carbon city development at Toyosu district in Koto Ward, Tokyo\*, making maximum use of renewable resources inside the region in addition to power supply from power system network and actively employing high-efficiency electricity devices such as heat pumps.

\*Besides making maximum use of renewable energy resources and untapped energy in addition to power supply from power system network, measures for visualization of energy use and introduction of energy management system, etc will be examined as well.

#### ■ Support for penetration of storage batteries

To enhance the reliability and convenience of storage batteries, we will assess the performance of various types of batteries and develop technology for their effective utilization.



## plan 4 Expand our business arena

In addition to the electricity business in Japan, the TEPCO Group will actively diversify into growth businesses\* by exploiting the human resources, technologies, and expertise we have cultivated to date, not only to expand profit, but also to reinforce our business foundation and to contribute to society and the environment in wideranging fields.

\*We will focus on expanding our business in three domains: the domestic electricity business, overseas businesses, and energy-related and other businesses. We refer to the latter two domains as "growth businesses," because we will be seeking growth especially in these domains, in addition to the domestic electricity business.

### Overseas businesses

We will focus on overseas businesses as a pillar of the TEPCO Group's business, and harness the Group's strengths to actively expand into relevant sectors abroad, such as the power generation and fuel sectors.

#### ■ Power generation projects

Overseas power generation projects that are based on our achievement of the world's highest level of operational performance in power generation in Japan, are the drivers of TEPCO Group's consolidated growth. By engaging in thermal, nuclear, and renewable energy power generation projects overseas, we will increase our overseas output quota to **10,000MW** (approx. 3 times the FY2009 performance level) over the next ten years.

**Thermal power projects:** For the immediate future, we will seize project opportunities around the world, without narrowing our sights on any specific region. In the medium to long term, we will prepare to advance into the Asian market, and particularly into China and India where economic growth is conspicuous.

**Nuclear power projects:** We will engage in nuclear power projects by drawing upon our previous experience in ABWR \* development, construction, and operation projects.

**Renewable energy projects:** We will utilize existing systems in Europe, the United States, and other developed countries to launch renewable energy projects under the leadership of Eurus Energy Holdings Corporation.

\*Advanced Boiling Water Reactor

#### ■ Fuel projects

We will expand our participation in fuel projects to increase fuel procurement stability, flexibility, and economic efficiency. We will establish a rough guideline of procurement rates per fuel type from projects we participate in.

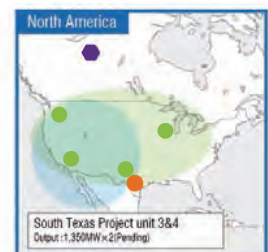
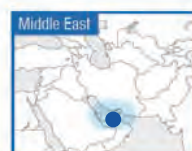
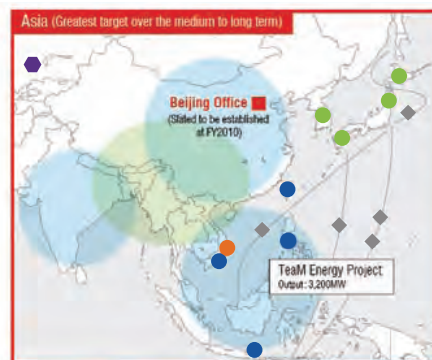
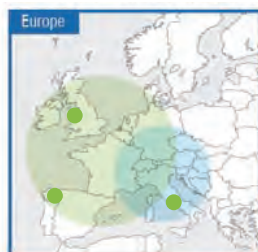
### Overview of overseas projects

#### Locations of overseas projects (including projects under preparation)

- Thermal power projects
- Nuclear power projects
- Renewable energy projects
- Upstream LNG projects
- Uranium projects
- ◆ LNG transportation business

#### Future priority areas

- Thermal power
- Renewable energy



We have implemented energy conservation consultation services and others around the world (407 projects in 63 countries (as of July 31, 2010)).

**Uranium projects :** To increase procurement stability and economic efficiency, we will aim to procure **1/3 to 1/2** of total procurement volume from projects we participate in by FY2020.

**Upstream LNG projects :** To increase procurement stability and flexibility, we will aim to procure **1/3** of total procurement volume from projects we participate in by FY2020.

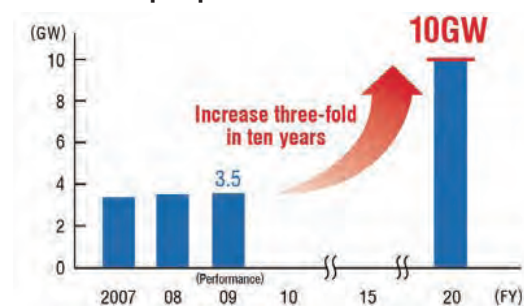
We will also consider advancing into upstream coal projects.

\*liquefied natural gas (液化天然ガス)。

#### ■ Other Projects

We will consider participating in network projects, with a view to ensuring business continuity and profit stability.

### Overseas output quota



### Domestic businesses

We will enhance our energy services and aim to achieve overall business growth of the TEPCO Group by expanding projects that increase the value of our electricity business in external domains where the Group's strengths can be exploited, while also steadily promoting existing businesses.

## plan 5 Continue improving business efficiency

To strengthen the TEPCO Group's foundation of sustainable growth, we will challenge ourselves to making constant cost reduction efforts while upkeeping existing facilities in good condition.

We expect an increase in capital investment and costs for maintaining the soundness of facilities over the medium to long term, but we will contain future costs to **around the same level** as the average level during the period covered by Management Vision 2010 (FY2004 – FY2010).

## plan 6 Create operational excellence driven by employee performance and cooperation

The TEPCO Group will simultaneously promote people-oriented management, business innovations, and field-oriented abilities, and pursue highest service quality through employee efforts and teamwork.



## plan 7 Accumulate next-generation technologies

We will boost the trend toward a low-carbon society by actively introducing zero-emission power sources, promoting electric systems in all sectors, and developing and accumulating technologies that would contribute to a smarter power system network.

At the same time, we will develop and introduce technologies that would ensure stable supply and safety.

We will make active efforts to utilize and standardize technical knowledge newly gained from these technical developments as our intellectual property.

### Technical development roadmap

Initiatives up to 2020	Long-term initiatives (after 2020)
<b>Actively introduce zero-emission power sources</b>	
Improving nuclear power generation performance	Advanced nuclear power generation technology
Expanding of the use of renewable energies	
Promoting high-efficiency, low-carbon thermal power generation	
<b>Smarter power system network</b>	
Network that can integrate huge amount of renewable energy, improving the efficiency and reliability of power system	Further efficiency and reliability improvement of power system network, development of next-generation operation control technology
Supporting customers' energy-saving efforts	
<b>Electrification</b>	
Electrification in the residential, commercial, and industrial sectors	
Electrification in the transportation	
<b>Stable supply and safety assurance</b>	
Advancement of maintenance technologies	
Reinforcement of risk management	

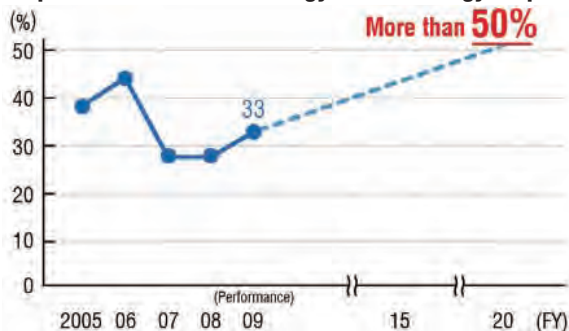


## 2020 Targets

### Numerical targets of business strategies

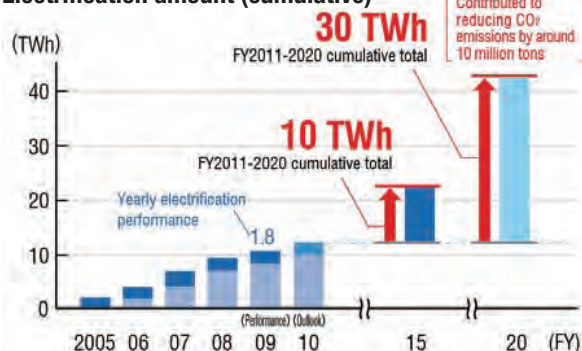
(Note) All figures represent consolidated figures.

#### Proportion of non-fossil energy in total energy output



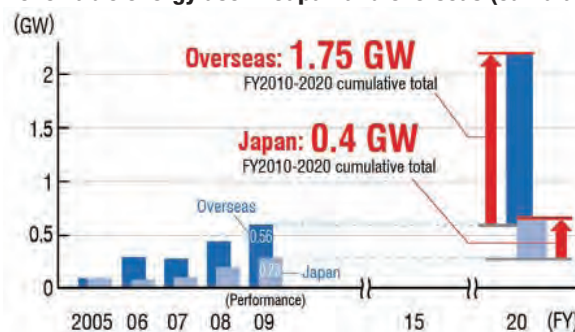
(Note) Does not take into account power interchange among electric power suppliers.

#### Electrification amount (cumulative)



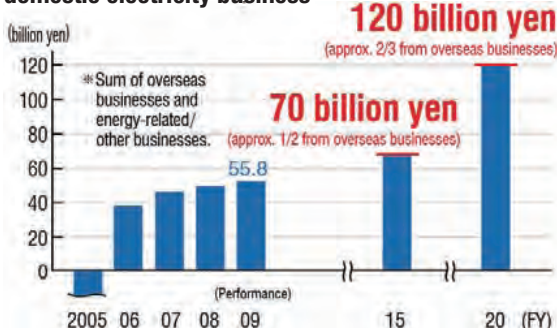
(Note) Bar graph heights represent cumulative totals after FY2005.

#### Renewable energy use in Japan and overseas (cumulative)



(Note) Figures represent cumulative totals after FY2005.

#### Ordinary income from growth businesses \*other than the domestic electricity business



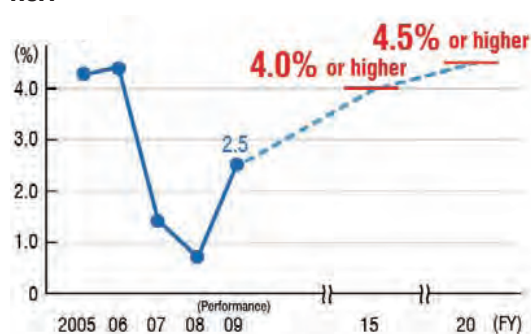
(Note) Performance figures are reference values based on calculation of current segment information.

### Numerical targets of financial strategies

The numerical targets established for financial strategies are the results of achieving the goals of business strategies outlined in the Value-up Plans, and are also the foundation for steady execution of those plans.

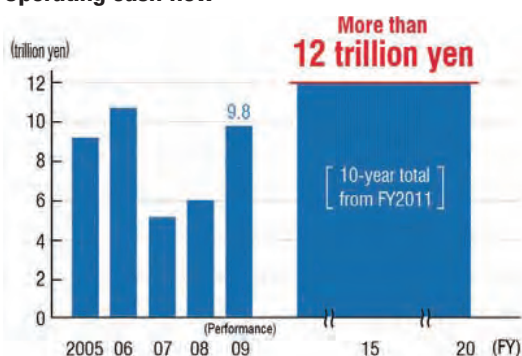
We will make steady efforts to achieve the financial strategy targets by establishing and pursuing business strategy targets based on yearly management plans.

#### ROA ※



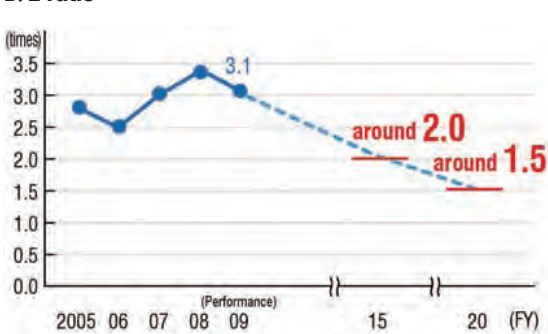
※ (Ordinary income or loss + Interest expense) / Average total assets

#### Operating cash flow



(Note) All figures represent consolidated figures.

#### D/E ratio ※



※ Interest-bearing debt outstanding / Equity capital

#### Regarding Forward-Looking Statements (Performance Projections)

This presentation contains forward-looking statements regarding The Tokyo Electric Company, Inc.'s plans, outlook, strategies and results for the future. All forward-looking statements are based on judgments derived from the information available to the Company at the time of publication. Certain risks and uncertainties could cause the Company's actual results to differ materially from any projections presented in this presentation. These risks and uncertainties include, but are not limited to, the economic circumstances surrounding the Company's businesses; competitive pressures; related laws and regulations; product development programs; and changes in exchange rates.

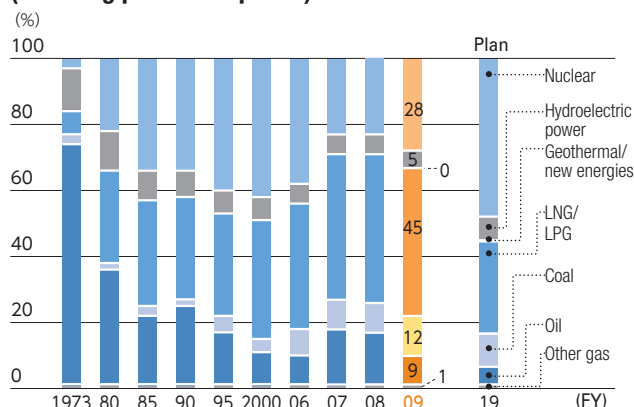
# Executive Summary 2010

## Reaching for Sustainability

See pages 16-19 for details.

To respond appropriately to the global energy situation and deliver a stable supply of electricity, TEPCO promotes initiatives that aim to achieve a good balance between "stability," "environmental performance," and "economic efficiency," from a long-term perspective.

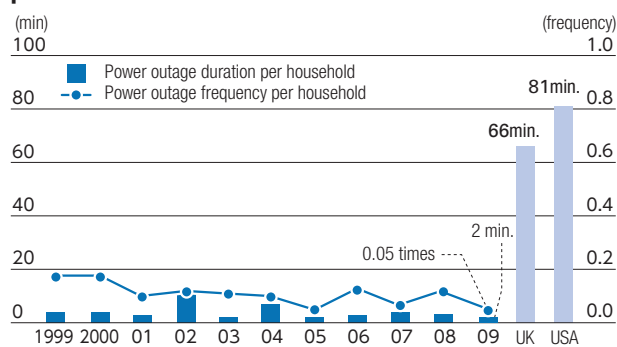
### TEPCO energy output by energy source (including purchased power)



### Initiatives for delivering reliable electricity

TEPCO systematically constructs distribution facilities such as power transmission lines, substations, and power distribution lines, and operates these facilities efficiently to ensure the stable supply of electricity.

### TEPCO power outage frequency and duration per household



## TEPCO's Corporate Governance and CSR

See pages 20-27 for details.

At TEPCO, we consistently improve our corporate governance, to ensure healthy and transparent management and increase corporate value over the long term.

### Ensuring transparent business operations

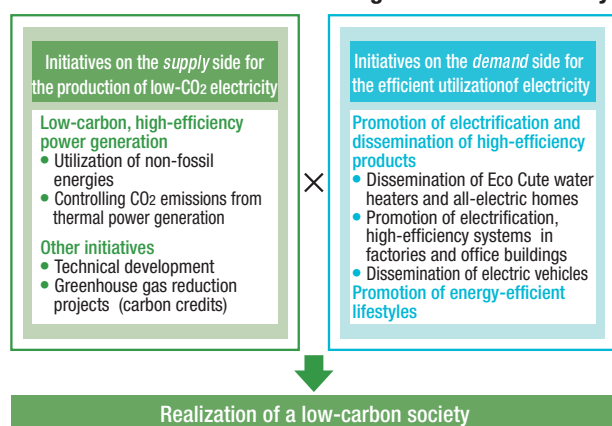
TEPCO strives to promote transparent business operations by actively disclosing information on business activities and facility operations to all stakeholders.

## The TEPCO Group's Environmental Initiatives

See pages 28-51 for details.

TEPCO strives to create a low-carbon society by approaching the issue from both the power *supply* and *demand* sides, through initiatives for the production of low-CO<sub>2</sub> electricity and initiatives for energy-efficient utilization of electricity.

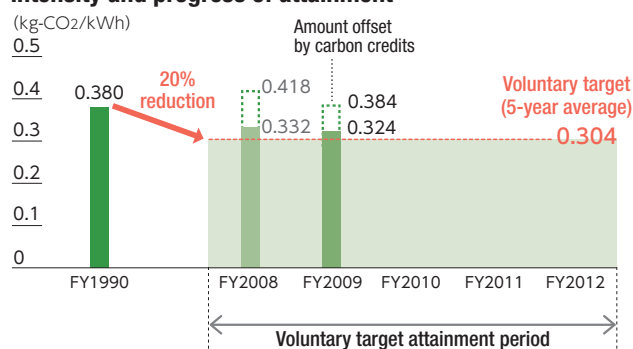
### TEPCO's initiatives toward realizing a low-carbon society



### Voluntary reduction target for CO<sub>2</sub> emission intensity and progress of attainment

CO<sub>2</sub> emission intensity was 0.324 kg-CO<sub>2</sub>/kWh in FY2009 after adjustment to include carbon credit offsets, as a result of the recommissioning of Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station, increased thermal power generation efficiency, and the utilization of carbon credits.

### TEPCO's voluntary reduction target for CO<sub>2</sub> emission intensity and progress of attainment





## The TEPCO Group and the Community

See pages 52-67 for details.

TEPCO maintains ongoing communications with stakeholders who take an active interest in its business activities. We value the opinions and requests we receive from them, and use the feedback to improve our CSR activities and become a company worthy of social trust.

### Education on the environment and energy

TEPCO sponsors programs that teach about the environment and energy, to promote an awareness of environmental issues among children and people of all age groups.

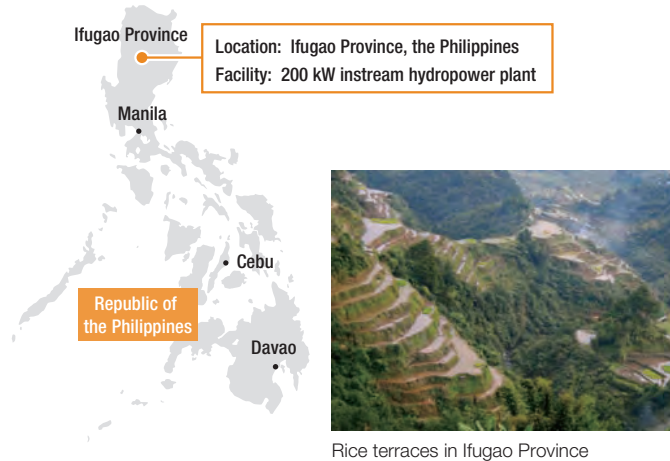
### TEPCO Nature School, a forum for communication with nature

TEPCO Nature School was established in April 2008 under the slogan, "Let us pass on abundant nature and nurturing spirits to the next generation." It brings together the various environmental communication activities which TEPCO has been implementing through the years, including nature observation events in the green areas of power plants and voluntary beech tree-planting activities in the Oze-Tokura Forest.

### Interaction with international communities

With the aim to be a leader in the global energy industry, TEPCO provides electric power technologies and helps develop human resources, to enhance people's lives and support sustainable energy development in developing countries.

### Mini hydropower project in the Philippines -Contributing to the preservation of a UNESCO World Heritage Site-



Rice terraces in Ifugao Province

## TEPCO and Nuclear Power Generation

See pages 68-73 for details.

TEPCO aims to be a nuclear power supplier worthy of stakeholders' trust and confidence, and is committed to contributing to a low-carbon society by promoting eco-friendly nuclear power plant operations.



Kashiwazaki-Kariwa Nuclear Power Station

### Building disaster-resistant power plants

TEPCO is making steady step-by-step progress in building nuclear power plants that can withstand disasters.



Fire station deployed at a power station (Kashiwazaki-Kariwa Nuclear Power Station)

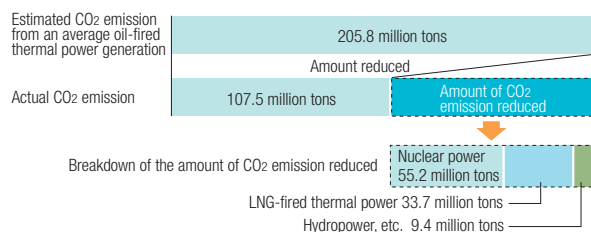


Seismic-isolated building at the Kashiwazaki-Kariwa Nuclear Power Station

### Environmental Characteristics of Nuclear Power Generation

Nuclear power generation provides outstanding environmental performance. It generates power by utilizing the heat that is released during the nuclear fission of uranium fuel inside a reactor, and like photovoltaic and wind power generation, it releases no CO<sub>2</sub>, the primary cause of global warming, nor NO<sub>x</sub> and SO<sub>x</sub>, the major sources of air pollution, in the process of generating power.

### CO<sub>2</sub> emission reduction through the combination of power sources



### Nuclear fuel cycle

TEPCO aims to establish a nuclear fuel cycle for the effective utilization of energy resources.

# Reaching for Sustainability

The TEPCO Group bears an important mission to help realize a sustainable society through the stable supply of electricity.

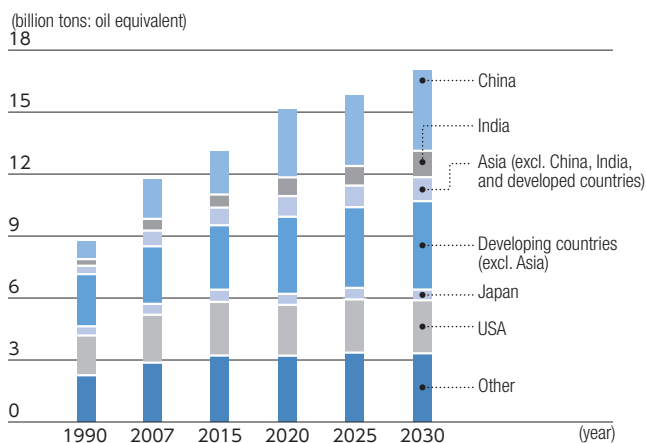
## The environment surrounding our use of energy

TEPCO aims to achieve a good balance between "stability," "environmental performance," and "economic efficiency" over the long term, to respond to rapidly-changing economic and energy situations in Japan and around the world and secure stable electric power. We will systematically develop our power facilities so that we may respond flexibly to ever-changing energy demands and continue to deliver high-quality electricity in the future.

## Increasing trend in energy consumption in Asia and around the world

Global energy consumption is increasing yearly, particularly in developing countries, and is projected to increase about 40% between 2007 and 2030. There is growing concern that this drastic trend will eventually deplete the world's fossil energy resources, as well as increase CO<sub>2</sub> emissions and cause fossil energy prices to soar on a global scale.

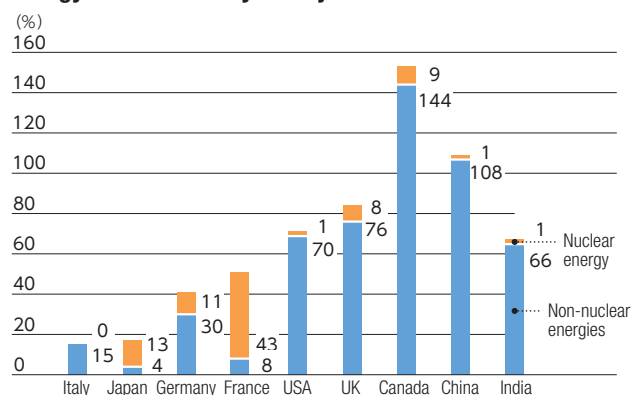
## Worldwide primary energy consumption trends and outlook



## Japan's import-dependent energy situation

Japan's self sufficiency for energy is a mere 4%, and is substantially lower than other major developed countries. Even when nuclear power generation is considered a semi-domestically produced energy, the rate only increases to 17%, and still makes Japan roughly 80% dependent on imports. The stable procurement of energy resources is thus an extremely important issue to Japan.

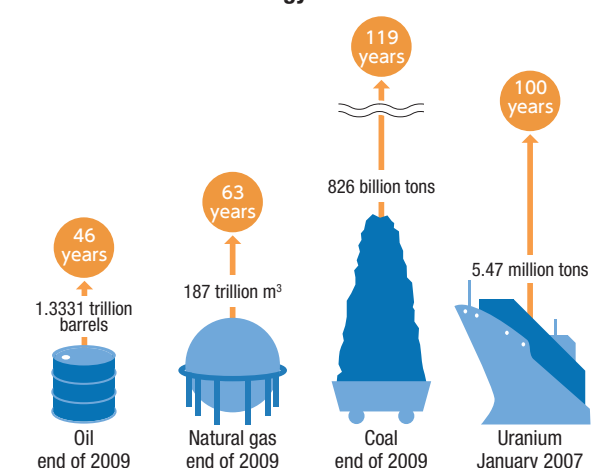
## Energy self-sufficiency of major countries



## Depletion of energy resources

If the world continues to produce energy at the current rate, petroleum resources are expected to run dry in 46 years, natural gas in 63 years, coal in 119 years, and uranium in 100 years.

## Reserves of different energy resources



# The Energy Situation and Stable Energy Supply

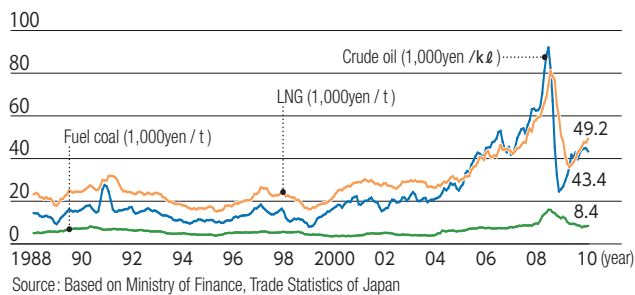
## Low and stable electricity rates

TEPCO is doing its best to maintain low electricity rates even in the face of large fluctuations in the prices of crude oil and fossil energies.

### Large fluctuations in prices of fossil energy resources

The prices of fossil energy resources are showing volatile trend in recent years, soaring in conjunction with worldwide increases in energy consumption and falling sharply in the wake of global economic downturn.

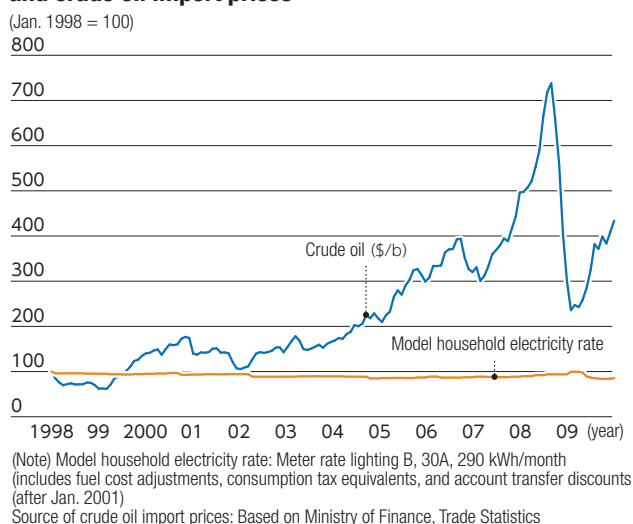
#### Import prices of crude oil, LNG, and coal



### Maintaining electricity rate levels

We are striving to maintain low and stable electricity rate levels by promoting the best mix of power sources and improving operational efficiency.

#### Model household electricity rate and crude oil import prices



## Initiatives for nonstop delivery of quality electricity

TEPCO averts power outages and ensures quick recovery in the unlikely event of one by multiplexing power supply facilities and interconnecting power transmission and distribution lines. Additionally, power plants, load dispatching stations, and other major power controlling facilities are closely monitored around the clock, to always be ready to respond to accidents and malfunctions of power facilities.

### Meeting the highest global standards in supply reliability

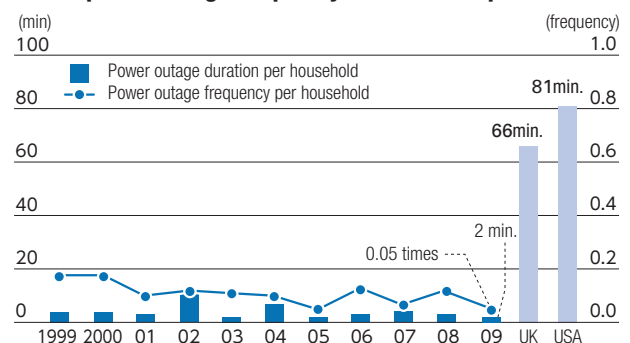
As a provision in the case of an accident such as a lightning strike on a power transmission line, TEPCO has installed a system that promptly and securely determines and isolates the affected segment and prevents the fault or impact from the accident from affecting other systems.

TEPCO's power grid is also equipped with a system that prevents electricity from flowing to transformers or power transmission lines if it exceeds the capacity of the facilities, and a system that can cope with large-scale system accidents that involve two important power transmission line circuits.

Should a distribution line accident cause a power outage, an automated distribution system promptly transmits electricity to areas surrounding the affected segment, without requiring personnel to personally go to the site. This system allows field workers to commence restoration work immediately in response to an accident, as well as significantly shortens the length of time a power outage might last. Moreover, since remote monitoring and control is possible, the system also promotes efficiency in daily load switching operations.

Through these measures, TEPCO minimizes power outage frequency to 0.05 times per year and power outage duration to 2 minutes, and maintains an extremely high level of power supply reliability compared to other countries.

#### TEPCO power outage frequency and duration per household





# Best Mix of Power Sources

## Promoting the best mix of power sources

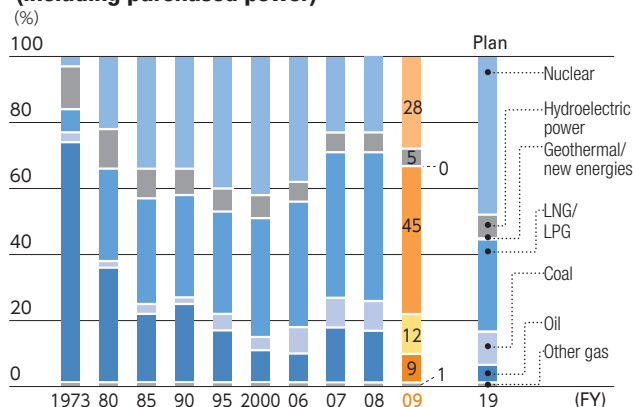
Each energy resource and power generation method has its own balance of "stability," "environmental performance," and "economic efficiency." TEPCO maximizes and combines the strengths of each to suit medium- to long-term energy situations. Through the use of this "best mix" of power sources, we hope to continue delivering a stable supply of high-quality electricity at low cost.

## Best mix of power sources

Japan has few energy resources of its own, but having learned an important lesson from the two oil crises in the 1970s, it is now promoting the development and introduction of alternative power sources such as nuclear power, LNG, and coal, with the aim of diversifying power generation sources.

TEPCO is creating a well-balanced power generation environment that maximizes the respective advantages of different types of power generation methods, including nuclear power, thermal power, and hydropower generation, from the comprehensive perspective of stable supply, environmental performance, and economic efficiency. This combination of different types of power sources is commonly referred to as "the best mix of power sources." We will make ongoing efforts to develop nuclear power, introduce thermal power generation systems that boast the world's highest efficiency level, and expand the use of renewable energy, so that we may continue to deliver stable, low-cost electricity supplies to our customers and contribute to creating a low-carbon society.

## TEPCO energy output by energy source (including purchased power)



## Nuclear power generation

### — The foundation of stable supply —

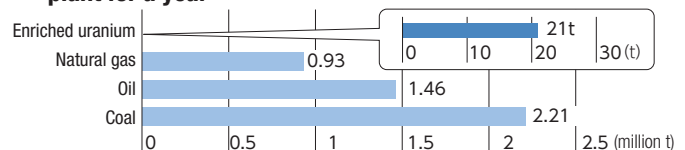
Nuclear power generation is an outstanding power generation method in terms of stability, environmental performance, and economic efficiency, and supplies roughly 30% of all power generated by TEPCO.

### ■ Fuel supply stability

Long-term energy security is a critical issue to Japan, as it has few energy resources of its own compared to other major countries in the world.

Nuclear power plays an important role in Japan's energy strategies as a key power source, for several reasons: uranium, the fuel for nuclear power generation, is imported from politically stable countries such as Australia and Canada; once uranium is loaded in the nuclear reactor, it can generate power for a whole year, at the least, without replacement; and it is recyclable.

### Amount of fuel required to operate a 1,000 MW power plant for a year



Source: Agency for Natural Resources and Energy, "Nuclear Power 2009"

### ■ Environmental advantages of nuclear power generation

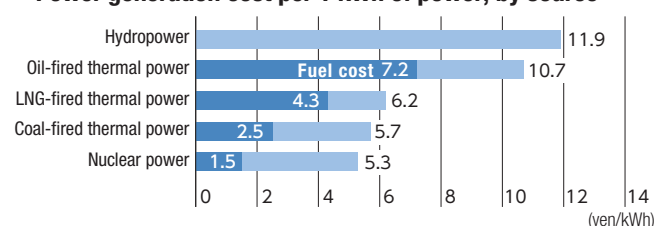
Nuclear power generation is also environment-friendly. Because it uses the heat that is given off by uranium during nuclear fission, it releases no CO<sub>2</sub>, the primary cause of global warming, nor NO<sub>x</sub> and SO<sub>x</sub>, the major sources of air pollution, in the process of generating power.

See pp. 32 and 69 for details on the environmental advantages of nuclear power generation.

### ■ Outstanding economic efficiency unaffected by fuel price changes

Nuclear power generation contributes to maintaining stable electricity rates, despite the recent volatility in the prices of crude oil and other fossil fuels. This is because the cost of fuel is such a small part of the total cost of nuclear power generation that changes in fuel prices have little impact on power generation cost.

### Power generation cost per 1 kWh of power, by source



(Note) Figures for nuclear power, thermal power, and hydropower are based on a service life of 40 years and a utilization rate of 80% (45% in the case of hydropower).

Sources: Nuclear power, thermal power, hydropower -Working Group on Costs, etc., Electric Power Subcommittee, Advisory Committee for Natural Resources and Energy (Jan. 2004)

## Thermal power generation

### — A solution to ever-changing demand —

Thermal power is capable of responding flexibly to rapid changes in demand for power, and accounts for roughly 60% of all power generated by TEPCO.

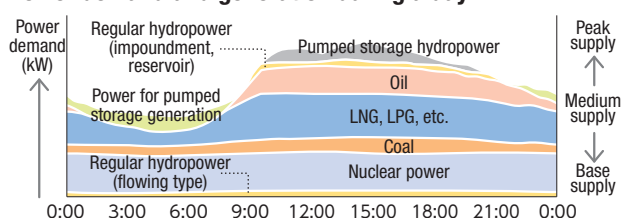
From the perspective of energy security, TEPCO promotes diverse uses of fossil energies, as well as implements ongoing measures to increase energy efficiency, in the effort to ensure effective utilization of energy resources and reduce CO<sub>2</sub> emissions.

#### ■ Central role in delivering stable supply of electricity

Electricity use varies according to season, temperature, and time of day. Temperature has a particularly large influence on power demand during the summer, when a 1°C rise in temperature significantly increases demand for air conditioning. TEPCO's maximum power supply increases by almost 1,700 MW during this period.

Electricity cannot be stored, and must be used as it is produced. Therefore, thermal power generation, by virtue of its ability to respond flexibly to ever-changing power demand, plays a central role in delivering stable supply of electricity.

#### Power demand and generation during a day



#### ■ Utilization of diverse fuels to ensure stability, environmental performance and economic efficiency

TEPCO's power plants utilize a wide range of fuels from the perspective of fuel stability, environmental performance, and economic efficiency. They include LNG (liquefied natural gas) and LPG (liquefied petroleum gas), which are clean, sulphur-free energy sources; coal, which are available in abundance around the world; and oil, which serves as an excellent buffer to fuel supplies.

#### ■ Efficiency improvement for better environmental performance

TEPCO's thermal power plants boast the world's highest thermal efficiency levels.

1% increase in the thermal efficiency of these power plants would reduce CO<sub>2</sub> emissions by about 1.9 million tons/year and save 800,000 kl/year of fuel (heavy oil equivalent). Based on an awareness of these benefits, we will continue to introduce high-efficiency power generation facilities and otherwise aim to further increase thermal power generation efficiency.

See p. 33 for details on the thermal power generation efficiency.

## Hydropower generation

### — Japan's own eco-friendly energy source —

Hydropower generation is an important source of energy to Japan, because although Japan has few energy resources of its own, this generation system only requires resources that are available in Japan. It is also noted for its excellent environmental performance, because it releases no CO<sub>2</sub> in the power generation process.

Moreover, the unique characteristic of being able to achieve maximum output in just a short time after start of operations makes hydropower generation indispensable to ensuring stable power supply.

#### ■ Response to sudden demand changes in a matter of seconds

Hydropower generation achieves maximum output in just a few minutes of the start of operations of the generator, and can change output volumes in a matter of a few seconds by regulating the flow of water. This outstanding readiness is extremely helpful in responding to demands during peak times, when power demand fluctuates most drastically during a single day.



Web Kannagawa Power Station : [www.tepco.co.jp/gunma/kanna-gawa/10\\_0-j.html](http://www.tepco.co.jp/gunma/kanna-gawa/10_0-j.html)



#### ■ Domestically produced CO<sub>2</sub>-free energy

Hydropower generation contributes to maintaining Japan's energy self-sufficiency even though Japan is a country poor in resources, because it uses only domestically procurable renewable energy sources. It also provides excellent power supply stability and environmental performance, as it does not release CO<sub>2</sub> or other greenhouse gases in the power generation process.

Understanding the benefits of hydropower generation, TEPCO is making ongoing efforts to improve hydropower generation efficiency by rehabilitating aging facilities in existing power plants and developing new water turbine technologies.

## Renewable energy

### — Japan's own eco-friendly energy source —

Power generation using renewable energy sources such as wind and sunlight is important to Japan, because it uses only domestically procurable energy sources. It is also garnering attention as a promising countermeasure to global warming, because it releases no CO<sub>2</sub> or other greenhouse gases in the power generation process. Although output is easily affected by changes in natural environmental conditions, we are focusing on the advantages of renewable energy and are actively promoting its development and introduction while also considering its economic performance.

See pp. 34-35 for details on renewable energy use.

# TEPCO's Corporate Governance and CSR

The TEPCO Group makes active efforts to promote CSR initiatives, such as by ensuring sound corporate governance to increase management transparency, strengthening risk management systems, and disclosing pertinent information to stakeholders.

## Management Policy No.1

### Value social trust

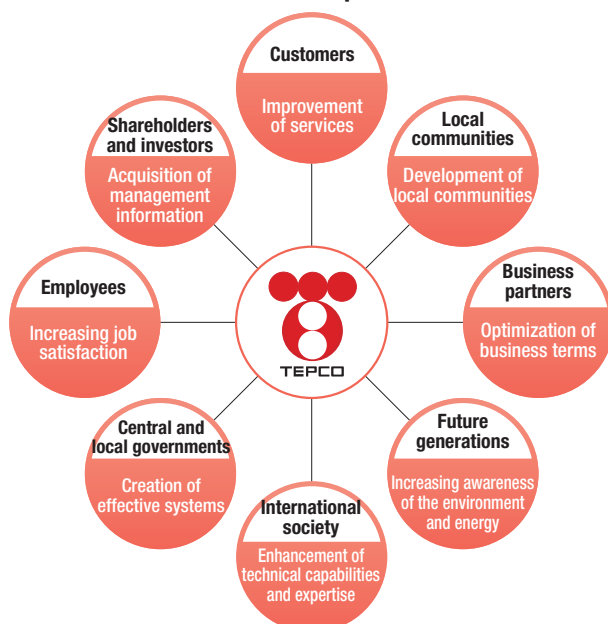
**Our corporate activities are founded on earning trust from society**

- We have a social mission to deliver stable supplies of electricity. Based on this awareness, we will make ongoing efforts to enhance the quality of services that meet customer satisfaction.
- By reinforcing the awareness of prioritizing safety, we aim to join the ranks of the world's safest companies.
- We will engage in frequent dialogue with stakeholders, including customers, local communities, shareholders and investors, business partners, and employees.
- As a members of society, we will adhere to the TEPCO Group Charter of Corporate Conduct in all aspects of our activities.

## Responding sincerely to stakeholder expectations

The TEPCO Group operates numerous power facilities, including power plants and transmission lines, in various regions in Japan, to deliver electricity, which is a vital lifeline in modern society. As appropriate to the nature of our business, we try to create occasions for interaction with our stakeholders as much as possible. The first policy in our Group Management Principle also emphasizes the significance of holding dialogues with all who support our business and of responding to their expectations with sincerity.

### Stakeholders of the TEPCO Group

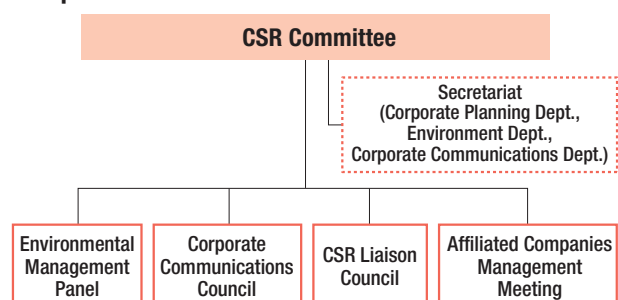


## CSR promotion framework

The CSR Committee (established in July 2004), headed by the CSR Officer, discusses important matters that pertain to the corporate social responsibility of the entire TEPCO Group. The CSR Liaison Council has been set up under the committee, as a working level council charged with the task of increasing the effectiveness of CSR initiatives.

To enhance environmental management at all TEPCO Group companies, the Environmental Management Panel carries out environmental strategies, establishes targets, and checks and reviews environmental activities. The Corporate Communications Council deliberates publicity-related issues that should be shared and discussed across the Group, from the perspective of CSR, and the Group Company Management Information Board promotes Group-wide dissemination of the CSR policy.

### CSR promotion framework





# Corporate Governance and Internal Controls

## Ensuring sound corporate governance

TEPCO strives to increase corporate value over the long term by strictly enforcing corporate governance.

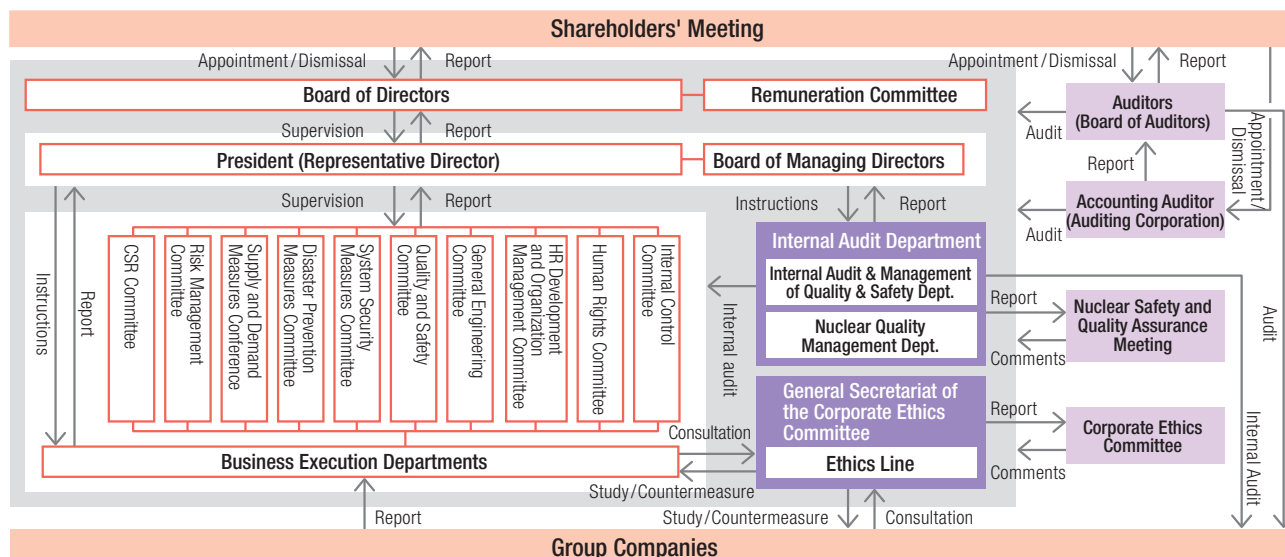
### Soundness and transparency of management

The TEPCO Board of Directors is composed of 20 members, including two outside directors (as of March 31, 2010). It is responsible for examining and making key executive decisions, and for supervising the performance of the directors.

The functions of the Board of Directors are complemented by the Board of Managing Directors and cross-organizational in-house committees. Together they drive proper and prompt decision-making processes and ensure efficient corporate management. These supervisory branches of management are separated from executive operations by an executive officer system. Additionally, the remuneration of directors and executive officers is based on a performance-based remuneration system and decided by a remuneration committee composed of learned individuals from outside the company.

Management audits are conducted by an audit team that is more than half composed of outside auditors to strengthen audit functions (4 outside auditors among 7 members, as of March 31, 2010). Internal audits are governed by an independent framework (Internal Audit and Management of Quality & Safety Department, Nuclear Quality Management Department). Furthermore, corporate ethics and nuclear safety and quality assurance departments maintain their transparency by incorporating the views of dedicated committees composed of outside experts.

### Management framework (as of March 31, 2010)



## Enhancement and strengthening of internal controls

TEPCO employs internal controls to ensure proper business operations and credible financial reporting.

### Ensuring propriety and credibility according to basic policy

The Internal Control Committee develops, operates, evaluates as necessary, and improves TEPCO's internal control system in line with the basic policy of internal controls (policy for development of a system that ensures proper business operations) established by the Board of Directors, and ensures proper business operations by enforcing legal compliance and promoting operational effectiveness and efficiency.

The Committee is also responsible for ensuring the credibility of financial reporting through proper operation and evaluation of the "internal control reporting system for financial reports" that is based on the Financial Instruments and Exchange Act.

With respect to important executive matters of Group companies, Group companies are required to hold preliminary discussions, briefings, and exchange of views with TEPCO, so that TEPCO can keep track of their business performance and share management issues and solutions with them. To strengthen the internal control system of the entire Group, TEPCO also supports and encourages Group companies to establish and operate an independent system to govern proper business operations.

# Risk Management and Disaster Prevention Measures

## Risk management initiatives

TEPCO practices risk management to prevent accidents or disasters.

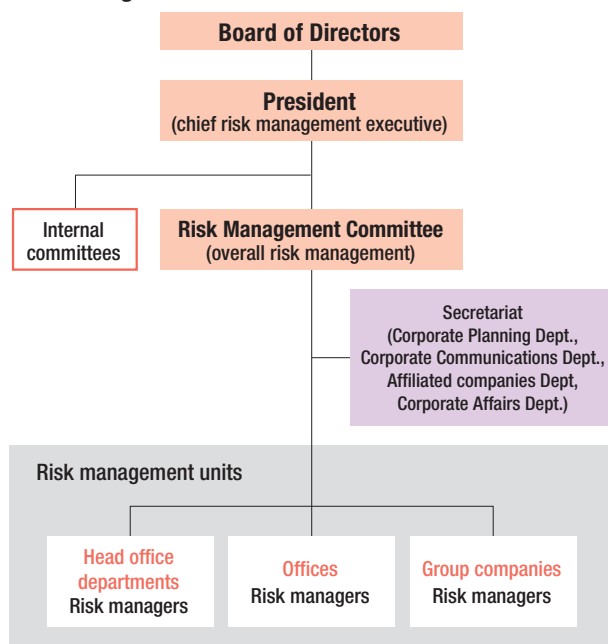
### Risk management framework

The Risk Management Committee, chaired by the president of TEPCO as the chief risk management executive, plays a central role in assessing and evaluating risks that could have a particularly serious impact on business. Its deliberations are reflected in annual management plans.

Risks specific to each risk management unit (head office departments, offices, and Group companies) are managed and addressed by each risk manager. Risks common to all risk management units are addressed by internal committees.

TEPCO has also established an emergency framework, though consistent efforts are made to collect the necessary information for preventing the occurrence of risks, providing a stable supply of electricity, and delivering high quality services.

### Risk management framework



## Strengthening emergency response capacity

TEPCO is constantly strengthening its response to emergencies and disasters by creating disaster response plans and internal manuals, and establishing a company-wide risk management system.

### Basic disaster prevention policy

TEPCO has established a basic disaster prevention plan in place, which includes disaster response plans and internal manuals, to prevent power facility damage in the event of an emergency or disaster, and to mitigate the scale of damage or achieve quick recovery should a disaster occur.

### Basic policy on accident prevention measures

First we try to prevent accidents. If an accident does happen, we mitigate the scale of damage and restore the system to a sound condition as quickly as possible.

① Build facilities resistant to accidents and disasters

- Adopt preventive designs and reinforce facilities
- Ensure proper maintenance, etc

② Mitigate the impact damage when an accident or disaster does occur

- Multiplex facilities
- Prepare back-up functions, etc

③ Achieve quick recovery of affected facilities

- Prepare materials and equipment for recovery
- Facilitate the smooth flow of recovery activities, etc

Place maximum priority on personal safety and human life, and strive to provide a continuous supply of electricity, to the greatest extent possible.

### Responses in the face of an accident/disaster or the threat of one

When faced with an accident/disaster or even the threat of one, TEPCO immediately issues an emergency alert. We set up emergency response centers at the Head Office and branch offices, and promptly enter system recovery mode.

We have materials and equipment necessary for recovery work stored in local depots throughout our service area and a cooperative framework with electric power companies in other regions to ensure timely recovery.

### Emergency alerts

Emergency alert category	Status of accident or disaster
Class 1 emergency ■ Director of Corporate Affairs Dept. ● About 8,000	• An accident or disaster is predicted. • An accident or disaster has occurred.
Class 2 emergency ■ Vice President (Emergency Response Chairman) ● About 16,000	• A large-scale accident or disaster is predicted. • A large-scale accident or disaster has occurred • A wide-area power outage has suddenly occurred due to an electrical accident • An earthquake alert has been issued in the Tokai region
Class 3 emergency ■ President ● About 28,000	• A large-scale accident or disaster has occurred, and recovery is expected to take a long time • An earthquake greater than intensity 6-lower has occurred in TEPCO's service area or a prefecture where a TEPCO office is located • An earthquake warning has been issued in the Tokai region

■ : Chief of the Emergency Response Center (at the Head Office)  
 ● : Number of emergency response personnel (company-wide)

**Comment from a stakeholder :**

Please give a clear account of TEPCO's disaster countermeasures (in case of a possible Tokai Earthquake or Great Tokyo Earthquake). (Questionnaire)

**TEPCO's reply :**

We plan and routinely implement information liaison training, accident recovery training, and other such types of training through simulations of various scenarios, to continue supplying stable supplies of electricity even in the face of an emergency disaster.

## Verification of disaster responses and initiatives for capacity improvement — Emergency training

In Japan, there is great concern about the impending possibility of a strong earthquake in Tokyo or the Tokai region. Even in the face of disaster, however, electric power companies have a social responsibility to deliver a stable supply of electricity, and are therefore expected to be able to take a comprehensive approach against unexpected accidents or disasters. For its part, TEPCO routinely implements information liaison training, accident recovery training, and initial response training, as well as participates in national and local emergency drills.

In addition to the Great Hanshin-Awaji Earthquake, a number of accidents and disasters have impacted power supply in Japan in the past. For example, a crane ship's collision with a power transmission line in 2006 caused a large-scale power outage, and the Niigata-Chuetsu-Oki Earthquake of 2007 brought damage to a power station. We have compiled an in-house manual on countermeasures derived from these incidents, and take the occasion of emergency drills to verify the effectiveness of those countermeasures and further improve our responses. We also regard emergency drills as an opportunity to identify potential issues, and implement various training programs in order to dig out as many issues as possible.

**(\*) Company-wide information liaison training**

An information liaison training involving all TEPCO offices and related companies is implemented every year, to coincide with the "disaster prevention and volunteer activity week" in January. It is held without prior notice, to simulate as real a situation as possible, and aims to enhance disaster response capacities through hands-on experience in gathering information and executing disaster response activities.



Accident recovery training atop a transmission line tower



Company-wide information liaison training(\*)

## Risk management initiatives — H1N1 influenza response

TEPCO has formulated an action plan outlining the basic concepts for H1N1 influenza response, and are working to concretize and elaborate control measures under the basic policy, "aim to provide stable power supply even during an influenza outbreak and fulfill our social responsibility to maintain the lifeline function while placing top priority on employee safety and health."

Countermeasure	Pre-outbreak	Outbreak overseas	Outbreak in Japan	Pandemic
<b>Risk management</b>		<b>H1N1 influenza response center</b> Overseas emergency response center → Level 1 response → Level 2 response → Level 3 response		
<b>Measures for continuation of business</b>	Selection of priority duties Examination of measures for securing personnel and substitute workers Establishment of a cooperation framework	Selection of priority duties in accordance with the status of the outbreak Selection of personnel and substitute workers Request for cooperation from partner companies and establishment of a cooperation framework	Implementation of priority duties in accordance with the status of the outbreak Execution of duties by securing personnel and substitute workers Management of the cooperation framework	
<b>Prevention of infection and spreading</b>	Stocking infection prevention items Examination of prevention promotion methods Examination of a daily temperature-taking plan	Distribution of infection prevention items Promotion of handwashing, gargling, and other preventive measures among employees Dissemination of the daily temperature-taking plan	Utilization of infection prevention items (wearing a mask, etc.) Promotion of handwashing, gargling, and other preventive measures among employees Temperature-taking before reporting to work	Temperature-taking at work Temperature-taking upon entering company premises



# Compliance with Corporate Ethics

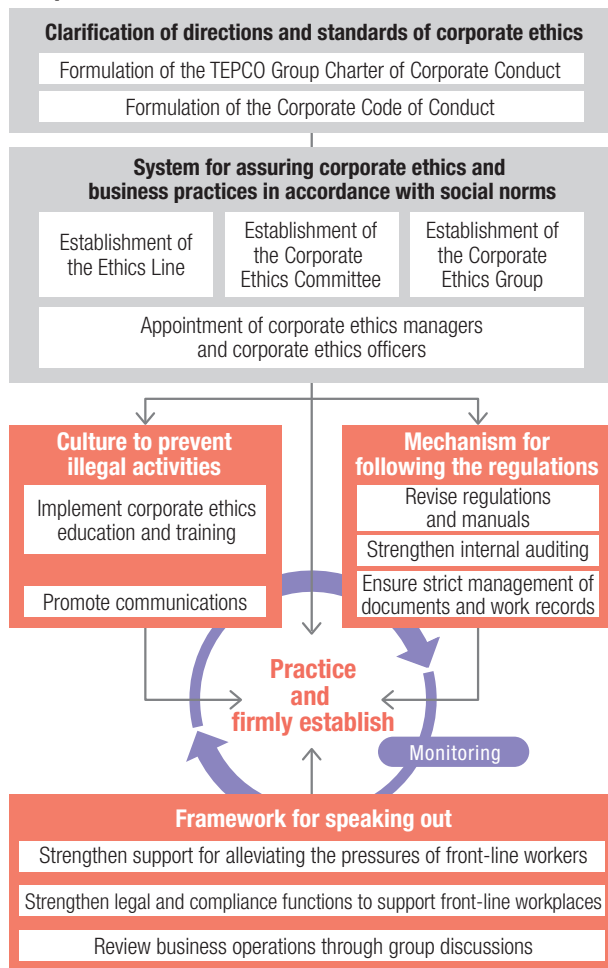
## Execution and enforcement of business practices in compliance with corporate ethics

TEPCO executes and enforces business practices that comply with corporate ethics by making sure each and every employee abide by the code of conduct, and by creating a corporate culture that discourages incompliance, a mechanism that prevents incompliance, and a framework that encourages speaking out.

## Compliance with the Corporate Code of Conduct

Following the spirit of the TEPCO Group Charter of Corporate Conduct, TEPCO has formulated a Corporate Code of Conduct, as guiding principles of corporate behavior. It defines priority values and standards to be observed by all employees, including complying with rules, behaving honestly and communicating openly. All employees share and abide by the Code of Conduct as they daily engage in their work.

## Summary of initiatives for ensuring corporate ethics compliance



## Corporate ethics promotion framework composed of top management

TEPCO has set up a Corporate Ethics Committee composed of members from top management, and an Ethics Line, to widely collect information on corporate ethics compliance from the entire Group and take specific action against matters that need to be addressed. Each office has a corporate ethics officer, who works closely with the Ethics Line, while making independent efforts to promote corporate ethics compliance. Around 50 TEPCO Group companies have so far established a similar framework.

## Corporate Ethics Committee

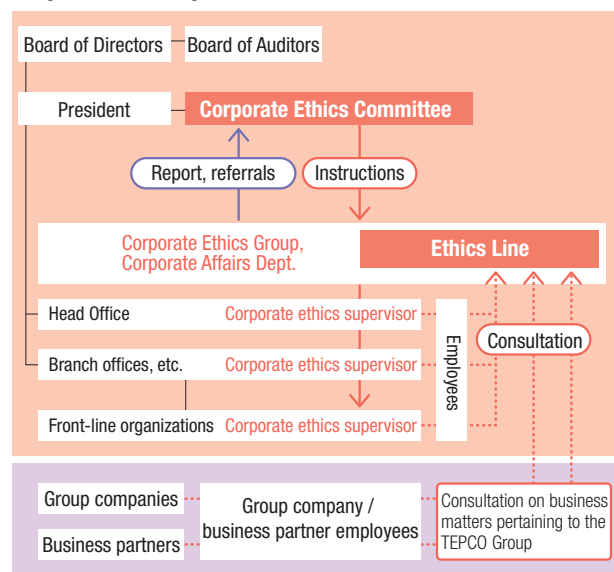
The Corporate Ethics Committee meets every other month to formulate and promote action plans for corporate ethics compliance, and to investigate and discuss actions to be taken against any violation of corporate ethics.

Members : Committee chair: Chairman  
 Committee vice chair: President  
 Committee members: Outside experts (1 attorney, 2 professors, and 1 labor union chairman)

## Ethics Line

The Ethics Line receives reports and consultations on legal and ethical violations from TEPCO employees and other stakeholders, including members of TEPCO Group companies and business partners. All calls are referred to the Corporate Ethics Committee, which, when necessary, discloses individual incidents and proposes measures to prevent recurrence. The Ethics Line has received 144 calls in FY2009.

## Corporate ethics promotion framework



## Activities to enforce corporate compliance

We are making active efforts to enforce strict observance of corporate ethics. For instance, we are working to create a corporate culture that discourages incompliance and motivates all employees to cooperate in creating an open workplace based on strong awareness of the significance of corporate ethics. We have also developed a mechanism that prevents incompliance by improving and reinforcing proper work rules. Since FY2007, we are also promoting a framework that encourages employees to speak out about potential issues and problems and urges management to respond with sincerity.

### ■ Employee training

To promote awareness about corporate ethics, we invite outside lecturers to give seminars to TEPCO and Group company management personnel, and provide corporate ethic officers in each business unit regular opportunities for exchanges of views with the top management, as well as regular training programs. We also actively visit and provide training at various business units and Group companies (117 occasions in FY2009).

TEPCO's business units also make independent efforts to ensure compliance with corporate ethics. They actively utilize "codes of conduct FAQs" that describe proper conduct in specific situations and case study materials that promote moral thinking skills as tools for facilitating and ensuring understanding of TEPCO's code of conduct by each and every employee, as well as implement original initiatives appropriate to their respective business environment.

### ■ Raising employee awareness

In FY2009, we held an employee slogan contest on the theme, "Applying corporate ethics rules to daily operations." The winning slogan was made into a poster to raise employee awareness about corporate ethics.

Additionally, to more widely emphasize TEPCO's most valued ethical principle of placing the highest priority on safety, we distributed towels bearing safety messages to TEPCO employees and business partners.



Corporate ethics poster

### ■ Monitoring

Every year, we conduct an employee awareness survey and a questionnaire survey on people outside of TEPCO who interact with TEPCO employees, to assess the degree of corporate compliance, and use that result to formulate activity plans for the following fiscal year.

Similar initiatives are also implemented by TEPCO Group companies.

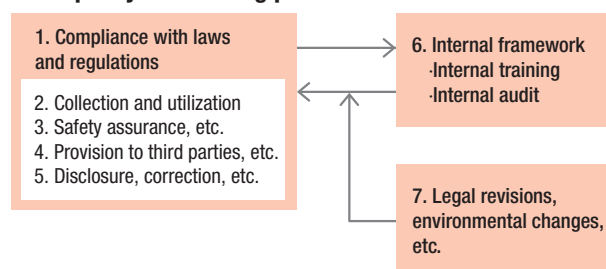
## Proper handling of information

**TEPCO takes utmost care in handling customers' personal information and business information, and makes ongoing efforts to maintain and enhance information security.**

### Proper handling of personal information

As a company that retains some 32.5 million items of personal data from our customers and others, TEPCO is responsible for proper control and handling of this information. Based on Japan's Law Concerning the Protection of Personal Information, which came into full force in April 2005, we have established the basic policy on handling personal information, and publicly announce our purposes for using personal information and the procedures for its disclosures upon legitimate requests.

#### Basic policy on handling personal information



### Information security measures

We employ the following measures to maintain and enhance information security.

#### Technical and physical measures

- Introduction of a system for detecting intrusions into our internal network from outside, installation of a firewall, and implementation of regular internal server intrusion tests
- Introduction of a system that denies access to our internal network from an unauthorized PC
- Introduction of security-enhanced PCs for external use
- Introduction of encryption software within the entire TEPCO Group
- Enforcement of thorough building management and management of entries/exits of people

#### Institutional and educational measures

- Implementation of e-learning programs on information security intended for all TEPCO Group employees
- Enforcement of a complete ban on the use of unauthorized PCs for business purposes
- Routine confirmation and follow-up of the status of security measures by an administrator
- Implementation and follow-up of security investigations in TEPCO Group companies on a continuous basis

# Information Disclosure

## Increasing transparency of business operations

TEPCO actively discloses information on business activities and plant operations to all stakeholders via TV commercials, websites, pamphlets, and other such means, to increase the transparency of business operations.

## Timely and proper disclosure of corporate activity information

We provide information on daily business activities of the TEPCO Group to the media via press releases and press conferences. The information is also posted on our website to ensure prompt and accurate information disclosure.

## Types of information to be disclosed

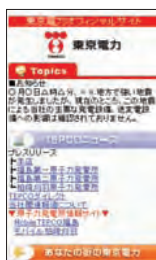
### Ensuring transparency through information disclosure

Timely and appropriate disclosure of business activities

Prompt disclosure of information on facility operations



Website



Cell-phone site

## Publicity and public relations activities using mass media

We make active use of TV/radio commercials, newspaper advertisements, and other mass media to provide a wide range of information to society, including useful consumer information, such as tips on efficient uses of electric products, and our initiatives toward realizing a low-carbon society.



TV commercial: Denko-chan "singing" series



TV commercial: "Switch!" information series



Newspaper advertisement: "Monthly TEPCO"

## TEPCO Electric Power Museum: A PR center full of information

The TEPCO Electric Power Museum, located in Shibuya, Tokyo, is a showcase of information on electricity, such as the mechanism of power generation and the benefits of fully-electrified homes to comfortable living.

As a comprehensive public relations center, the museum allows visitors to gain first-hand knowledge and "experience" electricity by observing and interacting with the displays in an enjoyable manner. It also holds various events every month.

In March 2011, it will open anew as a community space designed toward realizing a low-carbon society.



TEPCO Electric Power Museum

## Commencement of a power outage information service via website

Up to now, we have been providing information on power outages in response to individual inquiries from customers and the press. In the case of wide-area outages caused by typhoons or other disasters, we provide information via press releases and our website in consideration of the large social impact of such outages. However, to more widely disclose real-time information, we have launched a power outage information service on our website in May 2010. Immediately after the occurrence of a power outage, the system provides information on the date and time of the outage, affected regions, affected number of homes, recovery status, and the outlook for recovery.



Image of the power outage information service page on our website



**Comment from a stakeholder :**

Please continue to enforce thorough information disclosure about nuclear power generation. (Questionnaire)

**TEPCO's reply :**

We actively disclose information about serious nonconformities that are legally required to be reported, as well as information about minor nonconformities and daily maintenance information that are not subject to reporting under the law, via press releases and website.

## Disclosure of nuclear power station information

**TEPCO strives to earn the trust and confidence of local residents in communities that are home to its nuclear power station, as well as of the wider society, by disclosing information on various aspects of its station in a prompt and easy-to-understand manner.**

### Active disclosure of information

As part of our active effort to disclose information about our nuclear power station, we convey real-time information on the operational status of our power station via website, and provide information on daily safety and quality assurance activities implemented at the station, through newspaper advertisements and periodic PR magazines intended for local residents.

We also provide free access to information about nuclear power generation at our nuclear power information centers located in the communities of each of our nuclear power station.



Service hall in a nuclear power station

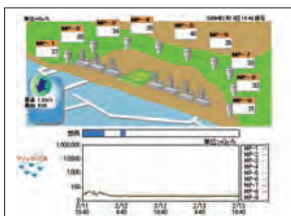


Public relations magazines

### Monitoring of radiation and radioactive substances

Radiation levels and the concentration of radioactive substances released to the environment are closely monitored in each nuclear power plant. Monitoring posts that monitor atmospheric radiation around the clock are installed in the perimeter of power station, and data acquired from them are posted on our website in real time.

Furthermore, seawater, soil, and agricultural products from around our nuclear power station are regularly sampled to measure the amount of radioactive substances they contain and examine any impacts that nuclear operations may have on the surrounding environment. The findings are reported to the local government and also widely disclosed to the public.



Real-time radiation data posted on the TEPCO website



Measuring radioactive substances in agricultural products

## Disclosure of nonconformity events

Information on nonconformities that occur at nuclear power station, including troubles and failures, is disclosed to the public via press releases and our website, based on TEPCO Information Disclosure Criteria (disclosure standards). The standards require nuclear power station to disclose and provide updates of serious nonconformities that are legally required to be reported, minor nonconformities not subject to reporting under the law, and daily maintenance information.

### Nonconformity disclosure criteria

Disclosure category	Types of incidents and specific examples	Disclosure method (press release, website, etc.)	Number of incidents reported in FY2009
1	Serious cases, including those subject to reporting under the law e.g.: - Unplanned shutdown of a nuclear reactor - Occurrence of a fire, etc.	Disclose by means of a press release or via website, regardless of the time of day or whether the day is a holiday or weekend	6
2	Minor problems not subject to reporting under the law e.g.: - Minor malfunction of an important safety device, etc. - Discovery of foreign matter in the reactor or spent fuel pool	Disclose by means of a press release or via website, regardless of whether the day is a holiday or weekend. If the incident occurs at night, the incident will be disclosed the next morning after making necessary preparations.	10
3	Incidents to be disclosed from the perspective of securing trust e.g.: - Equipment failure that has no direct impact on the safety or operations of the nuclear reactor - Injury that has occurred onsite at a power station	Keep daily (weekday) track of such incidents and disclose them via the website of the nuclear power station or by other means, and inform the press that new information has been posted on the website.	68
Other	Nonconformities other than the above e.g.: - Minor daily repairs, etc.	Regularly disclose via website. Provide details to the press at a regular press conference.	About 8,800

## Reports on the state of the Kashiwazaki Nuclear Power Station

Restoration work is still ongoing at the Kashiwazaki-Kariwa Nuclear Power Station, which suffered damage in the Niigata-Chuetsu-Oki Earthquake of July 16, 2007.

Updates on the progress of restoration are widely released to the public by means of TV commercials, press releases and periodic PR magazines intended for local residents.



TV commercial: "News Atom"



Press releases posted on the TEPCO website

# The TEPCO Group's Environmental Initiatives

The TEPCO Group contributes to creating a sustainable society by setting forth principles of environmental conservation activities in the TEPCO Group Basic Environmental Philosophy and promoting environmental activities appropriate to the respective business operations of each Group company, under the awareness that the Group has the social responsibility to give serious thought to issues of environmental importance such as global warming and biodiversity conservation.

## TEPCO Group Basic Environmental Philosophy

The TEPCO Group will:

- Fulfill social responsibilities as a business enterprise to pave the way for sustainable development in the 21st century, by taking positive measures for the solution of environmental problems, including global warming;
- Endeavor to achieve the reduction of environmental risks, including air pollution control, by continually improving the environmental management system, while carrying out eco-efficient business activities with consideration given to the reduction of CO<sub>2</sub> emissions, waste recycling, and energy and resource conservation; and
- Aim to create a society suitable for the 21st century by increasing the transparency of corporate activities through extensive information disclosure while repeatedly holding interactive dialogues with customers, investors and other people interested in our business operations.

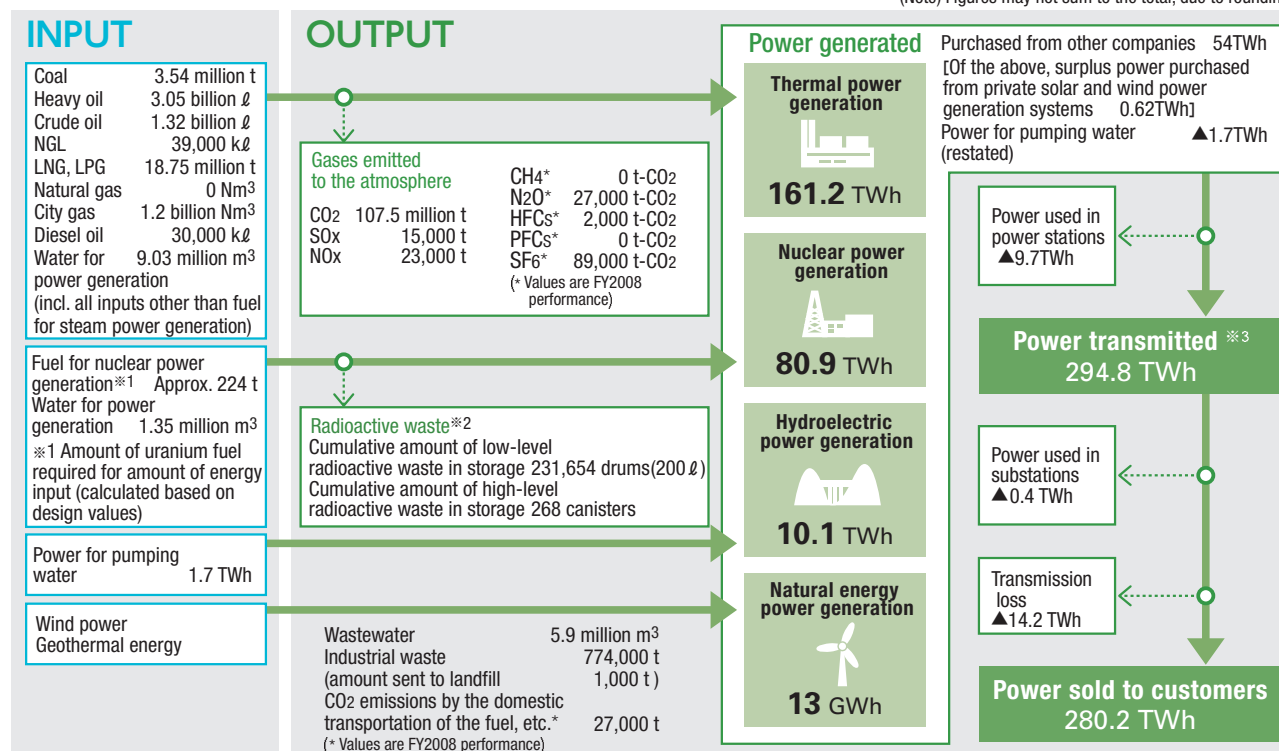
Each Group company implements environmental policies

## Relationship between business activities and the environment

The electricity business forms the core of the TEPCO Group, and involves the input of diverse resources to generate power and produce electricity, and the output of environmental loads and waste. To minimize the consumption of resources and environmental burden, we are striving to increase power generation efficiency, promote waste recycling, and reduce air pollutants. We are also making active efforts to protect, conserve and create nature environments around our power plants and in Oze, so that we may pass down a rich and diverse natural legacy to the next generation.

## Inputs and outputs in the electricity business (TEPCO FY2009 performance)

(Note) Figures may not sum to the total, due to rounding.



\*<sup>2</sup> Radioactive waste is reported as cumulative amounts of low-level and high-level radioactive waste in storage, because yearly results fluctuate for reasons other than power generation status, such as compaction by compression and incineration (low-level waste) and shipping to and from overseas points for reprocessing (high-level waste).

Cumulative amount of low-level radioactive waste in storage: Cumulative amount in storage at the Fukushima Daiichi, Fukushima Daini, and Kashiwazaki-Kariwa Nuclear Power Stations, as of March 31, 2010

Cumulative amount of high-level radioactive waste in storage: Number of canisters (stainless steel containers about 0.4 m in diameter and about 1.3 m high) returned from France and stored by Japan Nuclear Fuel Limited at its Vitrified Waste Storage Center (Rokkasho-mura, Aomori Prefecture), as of March 31, 2010

\*<sup>3</sup> Power transmitted = power generated + power purchased from other companies - power for pumping water - power used in power stations

# Environmental Indicators

## (Performance and Targets)



### TEPCO's environmental goal

TEPCO has established environmental indicators to assess major environmental impacts and environmental conservation measures. Numerical targets have been set as much as possible, and a system of regular checks and reviews have been adopted toward their achievement. Owing to past efforts, steady improvement has been achieved in regard to many indicators, including power generation efficiency, air quality, and waste recycling.

### Global warming indicators

See pp. 30-45 for information on specific initiatives.

CO <sub>2</sub> (carbon dioxide)		Unit	Performance *			Target	
			FY1990	FY2008	FY2009	FY2010	Future
CO <sub>2</sub> emission intensity		kg-CO <sub>2</sub> /kWh	0.380	0.332 (0.418)	0.324 (0.384)	20% reduction on average over the five-year period between FY2008 and FY2012, compared to FY1990 (0.304)	
Related indicators	Nuclear facility utilization rate	%	71.3	43.8	53.3	—	—
	Thermal power generation efficiency (lower heating value)	%	42.2	46.1	46.9	Maintain the front-runner position	
	Amount of power from natural energies purchased	GWh	—	530	620	Expand as much as possible	

\* Performance figures for FY2008 and beyond are CO<sub>2</sub> emission intensity after reflecting carbon credits. Figures in parentheses are CO<sub>2</sub> emission intensity without carbon credits. (From FY2008, the Law Concerning the Promotion of Measures to Cope with Global Warming allows to reflect carbon credits of Kyoto Mechanisms.)

CO<sub>2</sub> emission intensity was 0.384 kg-CO<sub>2</sub>/kWh in FY2009, and 8% lower compared to the previous year as a result of the recommissioning of Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station, increased thermal power generation efficiency, and a drop in fossil fuel consumption accompanying a decline in power sales. And CO<sub>2</sub> emission intensity after reflecting carbon credits was 0.324 kg-CO<sub>2</sub>/kWh.

### Local environment indicators

See p. 48 for information on specific initiatives.

Air pollutants		Unit	Performance			Target	
			FY1990	FY2008	FY2009	FY2010	Future
SO <sub>x</sub> emission intensity (average of all power sources)		g/kWh	0.17	0.10	0.06	Maintain the world's cleanest levels	≤ 0.1 in FY2019
NO <sub>x</sub> emission intensity (average of all power sources)		g/kWh	0.22	0.13	0.09	Maintain the world's cleanest levels	≤ 0.1 in FY2019

SO<sub>x</sub> and NO<sub>x</sub> emission intensity levels declined in FY2009 compared to the previous year, as a result of the reduced composition ratio of thermal power generation owing to the recommissioning of Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station.

Radioactive substances		Unit	Performance			Target	
			FY1990	FY2008	FY2009	FY2010	Future
Evaluated value of public radiation dose in the vicinity of nuclear power stations		mSv/year	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001 in FY2019

Public radiation exposure is lower than both the regulatory value (1 mSv/year) and the target dose value set forth in the guidelines of the Nuclear Safety Commission (0.05 mSv/year).

PCBs (polychlorinated biphenyls)		Unit	Performance			Target	
			FY1990	FY2008	FY2009	FY2010	Future
Pole transformers (treatment of insulating oil inadvertently containing PCB)		kℓ/year	—	3,338	3,411	3,000, from FY2010	
Pole transformers (washing treatment of main housing unit)		unit/year	—	105,396	107,987	About 100,000, from FY2010	

We have achieved our FY2009 target values (insulating oil: 3,000 kℓ, main housing: 100,000 units) owing to accelerated treatment speed and decreased facility shutdown frequency.

### Resource recycling indicator

See p. 49 for information on specific initiatives.

Industrial waste		Unit	Performance			Target	
			FY1990	FY2008	FY2009	FY2010	Future
Industrial waste recycling rate		%	86	99.8	99.9	Maintain current level	

Industrial waste recycling rate again stood at roughly 100% in FY2009, owing to ongoing recycling efforts.

(Note) Figures are rounded to the nearest tenth.



# Initiatives for a Low-carbon Society

## TEPCO's global warming countermeasures

As an electric power company that is responsible for approximately 10% of total CO<sub>2</sub> emissions in Japan, TEPCO places high priority on addressing global warming. By focusing on initiatives on the electricity *supply* and *demand* sides, TEPCO contributes to the realization of a low-carbon society.

## TEPCO is addressing global warming on the electricity supply and demand sides

We promote the low-carbon, high-efficiency power generation, technical development for the reduction of CO<sub>2</sub> emissions, and other means of producing low-CO<sub>2</sub> electricity. At the same time, we also make active efforts to achieve energy-efficient utilization of electricity, such as by promoting electrification, disseminating high-efficiency products and promoting energy-saving lifestyles.

### Initiatives on the *supply* side for the production of low-CO<sub>2</sub> electricity

#### Low-carbon, high-efficiency power generation

- Utilization of non-fossil energies
  - Safe and stable operations of nuclear power plants ..... ①
  - Expanded utilization of renewable energies ..... ②
- Controlling CO<sub>2</sub> emissions from thermal power generation ..... ③
  - Increase in power generation efficiency
  - Promotion of LNG-fired thermal power generation

#### Other initiatives

- Technical development (IGCC • CCS) ..... ④
- Greenhouse gas reduction projects (carbon credits)

See pp. 32-37.

### Initiatives on the *demand* side for the efficient utilization of electricity

#### Promotion of electrification and dissemination of high-efficiency products

- Residential sector
  - Dissemination of Eco Cute water heaters and all-electric homes ..... ⑤
- Industrial and commercial sectors
  - Promotion of electrification, high-efficiency systems in factories and office buildings ..... ⑥ ⑦
- Transportation sector
  - Dissemination of electric vehicles ..... ⑧

#### Promotion of energy-efficient lifestyles

- Provision of energy-saving information
- Introduction of Denko's Environmental Household Account

See pp. 38-45.



TEPCO's initiatives for a low-carbon society

## TEPCO's voluntary reduction target for CO<sub>2</sub> emission intensity\*

TEPCO is making active efforts to achieve the voluntary target of "reducing CO<sub>2</sub> emission intensity by 20% on average during the five years from FY2008 to FY2012 compared to the FY1990 level."

### \*CO<sub>2</sub> emission intensity

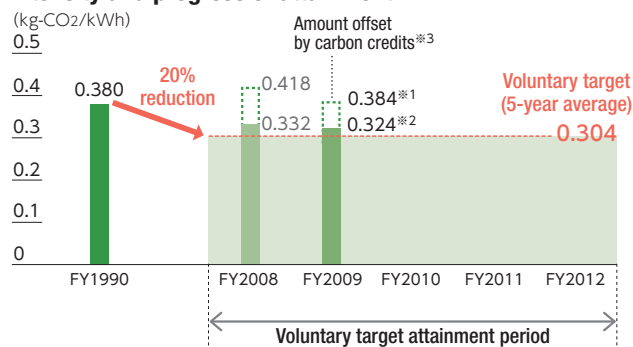
CO<sub>2</sub> emission intensity is the amount of CO<sub>2</sub> emitted when 1 kWh of electricity is used (kg-CO<sub>2</sub>/kWh). Because electricity usage varies depending on customer requirements such as economic activities and on weather conditions, electric power companies establish CO<sub>2</sub> reduction targets in terms of CO<sub>2</sub> emission intensity.

## Efforts and progress of attainment

CO<sub>2</sub> emissions in FY2009 decreased 11% from FY2008 to 107.5 million tons, as a result of the recommissioning of Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station, increased thermal power generation efficiency, and a drop in fossil fuel consumption accompanying a decline in power sales. With the use of carbon credits, CO<sub>2</sub> emission intensity came to 0.324 kg-CO<sub>2</sub>/kWh\*. We will continue our efforts toward attainment of our voluntary target.

\* CO<sub>2</sub> emission intensity after reflecting carbon credits based on the Law Concerning the Promotion of Measures to Cope with Global Warming (company-specific emission factors)

## TEPCO's voluntary reduction target for CO<sub>2</sub> emission intensity and progress of attainment



\*1 CO<sub>2</sub> emission intensity without carbon credits (kg-CO<sub>2</sub>/kWh) 0.384 =  $\frac{\text{CO}_2 \text{ emissions (107.5 million tons)}}{\text{Electricity sales (280.2 TWh)}}$

\*2 CO<sub>2</sub> emission intensity after reflecting carbon credits (kg-CO<sub>2</sub>/kWh) 0.324 =  $\frac{\text{CO}_2 \text{ emissions (107.5 million tons)} - \text{Carbon credits (16.8 million tons)}}{\text{Electricity sales (280.2 TWh)}}$   
(Figures may not sum to the total, due to rounding.)

\*3 Credits transferred to the governmental account by June 30, 2010.

(Notes) FY2009 performance is the figure reported to the government.

## System of establishing CO<sub>2</sub> emission intensity

FY2009 CO<sub>2</sub> emission intensity values are reported to the government by each electric power company, confirmed by the government, and announced as company-specific emission factors.

Web Ministry of the Environment : [www.env.go.jp/en](http://www.env.go.jp/en)

## [Reference] Present state of the global warming issue

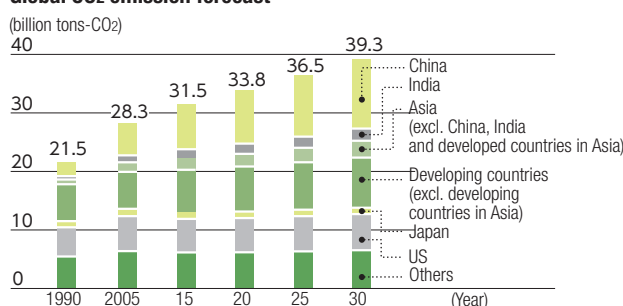
### ● The current of international affairs

Global CO<sub>2</sub> emissions have continued to increase mainly in emerging countries such as China and India, but the current Kyoto Protocol specifies emission reduction targets up to 2012 for developed countries only. For this reason, the "post-Kyoto" framework should include all major emitters in order to become more effective. The 15th Conference of Parties to the Framework Convention on Climate Change (COP15) was held at the end of 2009, and although no agreement on the post-Kyoto framework was reached, approximately 30 developed and developing countries adopted the Copenhagen Accord\*. Widespread attention will continue to focus on further debates concerning the next framework.

### \*Copenhagen Accord

An agreement on the major principles and direction of the post-Kyoto framework, including emission reduction targets of developed countries and emission reduction actions by developing countries. 137 countries have expressed their intention to associate themselves with the accord as of August 6, 2010.

## Global CO<sub>2</sub> emission forecast



Source: 1990 data from EIA, "International Energy Outlook 2009"  
Data for other years from EIA, "International Energy Outlook 2010"

### ● Trend in Japan

Japan's greenhouse gas emissions totaled 1,282 million tons in FY2008, and exceeded base-year emission levels\*1 under the Kyoto Protocol by 1.6%. In September 2009, then-Prime Minister Yukio Hatoyama announced Japan's medium-term reduction target\*2 for 2020 at the United Nations Summit on Climate Change.

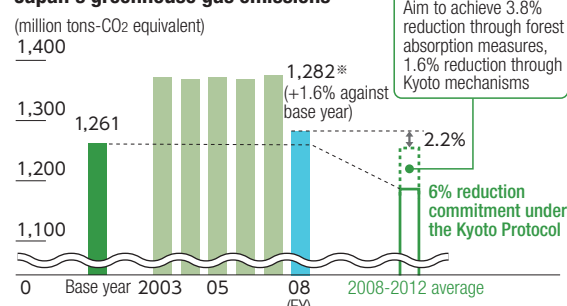
### \*Base years under the Kyoto Protocol

CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O: 1990  
HFCs, PFCs, SF<sub>6</sub>: 1995

### \*Medium-term target

Target to reduce Japan's greenhouse gas emissions by 25% by 2020 compared to the 1990 level, premised on the establishment of a fair and effective international framework in which all major economies participate and on their agreement to ambitious targets. It does not specify the breakdown of the 25% reduction (domestic countermeasures, purchase of carbon credits from foreign countries, etc.).

## Japan's greenhouse gas emissions



\*Does not factor in forest absorption measures and the Kyoto mechanism of carbon credits.  
Source: Based on press releases issued by the Ministry of the Environment

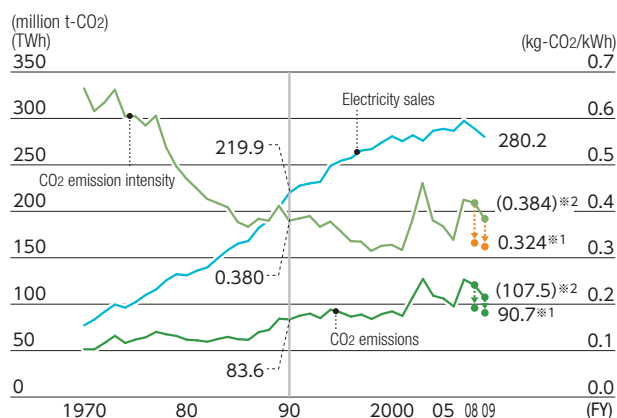
# Producing Low-CO<sub>2</sub> Electricity

## Initiatives on the electricity supply side for the production of low-CO<sub>2</sub> electricity

To contribute to creating a low-carbon society through the stable supply of high-quality, low-cost electricity, TEPCO promotes the best mix of power sources composed of nuclear power, a primary source of electricity provides excellent "environmental performance", "stability" and "economic efficiency", and a good balance of thermal power and renewable energies. Ongoing efforts are also made to increase the efficiency of power facilities such as increase thermal power generation efficiency.

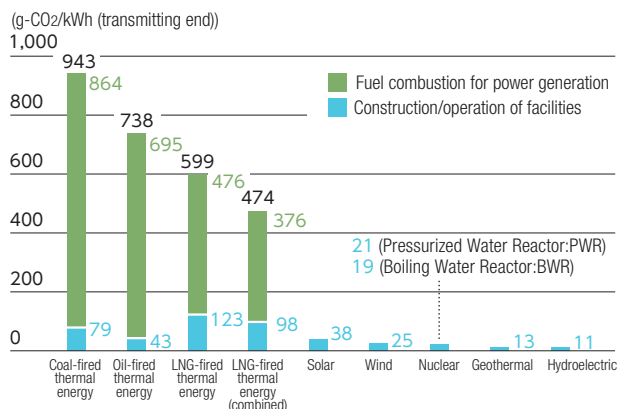
See pp. 18-19 for details on the best mix of power sources and the characteristics of each power generation system.

## CO<sub>2</sub> emissions, emission intensity, and electricity sales



\*1 Values reflecting carbon credits. \*2 Values without carbon credits.  
(Note) TEPCO's CO<sub>2</sub> emission intensity is calculated based on the "greenhouse gas emissions calculation, reporting, and disclosure system" stipulated by the Law Concerning the Promotion of Measures to Cope with Global Warming. Note that the system does not take into account CO<sub>2</sub> reduction values achieved through the Green Power Certification System or other such mechanisms.

## Lifecycle CO<sub>2</sub> emissions for different types of power



(Note 1) Figures may not sum to the total, due to rounding.  
(Note 2) The above figures include CO<sub>2</sub> emitted in the process of burning fuel to generate power, as well as CO<sub>2</sub> emissions from all energy uses, such as for the extraction of raw materials, construction of power generating facilities, fuel transportation and refining, and plant operation and maintenance. CO<sub>2</sub> emissions from nuclear power include emissions from domestic reprocessing of spent fuels that is currently being planned, the utilization of plutonium-thermal energy (on the assumption that it is recycled once), and from the disposal of high-level radioactive waste.

Source: Central Research Institute of Electric Power Industry, "Evaluation of Life Cycle CO<sub>2</sub> Emissions of Power Generation Technologies"

## Safe and stable nuclear power plant operations

Nuclear power generation is a highly effective countermeasure to global warming, as it does not emit CO<sub>2</sub> in the power generation process. Based on the premise of ensuring safety and security, we are aiming to expand nuclear power use by increasing the facility utilization rates of nuclear power station and developing new power sources.

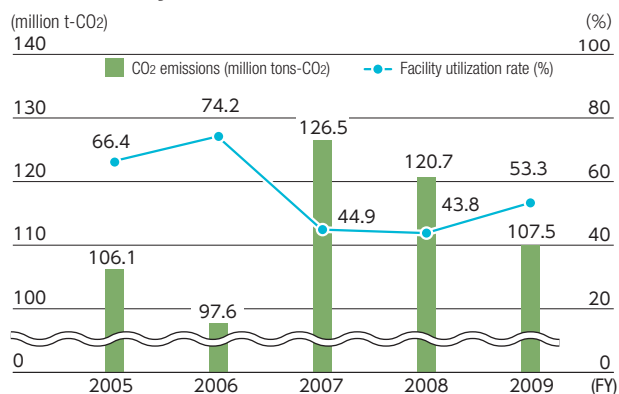
See pp. 68-71 for information on environmental characteristics of nuclear power generation, TEPCO's future nuclear power generation plans and safety improvement initiatives.

## Nuclear facility utilization rate and CO<sub>2</sub> emissions

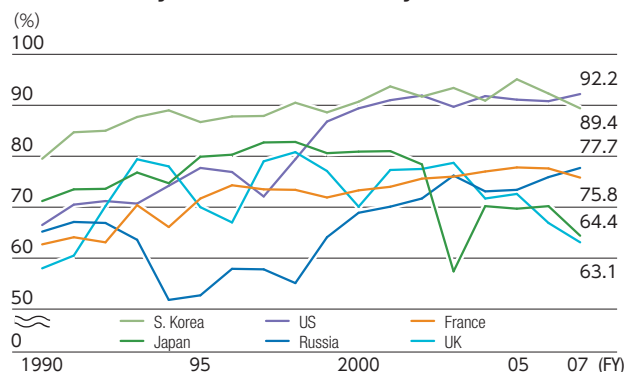
TEPCO's CO<sub>2</sub> emissions increased drastically in FY2007 and FY2008 as a result of the prolonged shutdown of the Kashiwazaki-Kariwa Nuclear Power Station after sustaining damage from the Niigata-Chuetsu-Oki Earthquake in July 2007. In FY2009, however, nuclear facility utilization rate increased approximately 10 points from FY2008 to 53.3% as a result of the recommissioning of Units 6 and 7 at the Kashiwazaki-Kariwa Nuclear Power Station, and CO<sub>2</sub> emissions dropped by approximately 11% to 107.5 million tons.

The operational status of nuclear power stations clearly has a large effect on CO<sub>2</sub> emissions. Hypothetically speaking, each 1% increase in facility utilization rate at TEPCO's nuclear power stations would reduce yearly CO<sub>2</sub> emissions by approximately a million tons.

## Nuclear facility utilization rate and CO<sub>2</sub> emissions



## Nuclear facility utilization rates in major countries



Source: Japan Nuclear Energy Safety Organization, "Operational Status of Nuclear Facilities in Japan" (2004 - 2009 editions)



## Controlling CO<sub>2</sub> emissions from thermal power generation

Thermal power generation is important to ensuring the stable supply of electricity, as it can respond flexibly to changes in power demand.

We strive to minimize CO<sub>2</sub> emission from thermal power generation by promoting LNG-fired thermal power generation, which emits smaller amounts of CO<sub>2</sub> compared to other types of thermal power generation, and also by making ongoing efforts to increase thermal power generation efficiency.

### ■ Improving thermal power generation efficiency

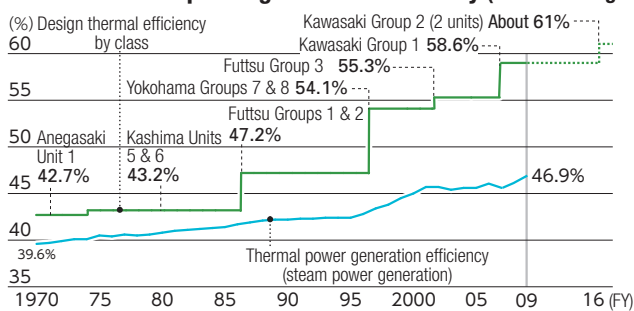
TEPCO has introduced a 1,500°C combined-cycle power generation system (More Advanced Combined Cycle (MACC) system) which provides one of the world's highest thermal efficiency level of about 59%, to the Kawasaki Thermal Power Station in 2007 and to the Futtsu Thermal Power Station in 2008. Furthermore, we are currently conducting an environmental assessment\* toward introduction of a 1,600°C combined-cycle power generation system (MACC II system) that would realize a thermal efficiency of about 61%. Operation of the system is slated to commence in FY2016 at the Kawasaki Thermal Power Station and in FY2020 or beyond at the Goi Thermal Power Station. We are reducing about 1.9 million tons of CO<sub>2</sub> emissions per year for every 1% increase in average thermal power generation efficiency.

\*The MACC system at our Kawasaki Thermal Power Station was recognized for its significant effect in reducing CO<sub>2</sub> from the entire lifecycle of products and technologies, and was selected as "Low-CO<sub>2</sub> Kawasaki Pilot Brand 2009" by Kawasaki City in 2010.

#### \*Environmental assessment

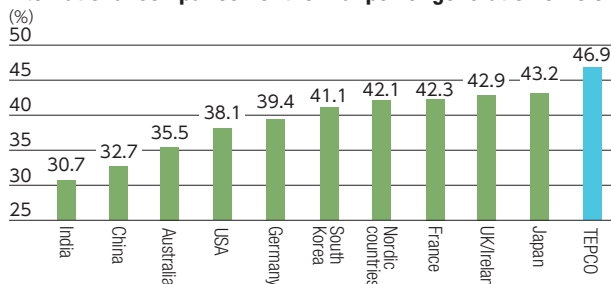
The process of surveying, estimating, and assessing the possible impact of business activities on the environment. Assessment results are disclosed to the public to widely obtain the views of local residents and stakeholders.

### TEPCO's thermal power generation efficiency (lower heating value)



(Note) Lower heating values (LHV) were estimated from higher heating values (HHV), using the conversion coefficient from General Energy Statistics (FY2004).

### International comparison of thermal power generation efficiency



(Notes) Thermal efficiency values represent weighted average thermal efficiencies of coal, oil, and gas on the power generating end (LHV standard). The thermal efficiency of independent power generation equipments is not included. The figure for TEPCO is FY2009 result. Other figures are 2006 values. TEPCO's result in FY2006 is 46.1%.

Source: ECOFYS, "INTERNATIONAL COMPARISON OF FOSSIL POWER EFFICIENCY AND CO<sub>2</sub> INTENSITY"

## Development of technologies to prevent global warming

Technological innovation is essential to achieving significant CO<sub>2</sub> reductions in the future. We are therefore focusing our efforts on developing new technologies that would help reduce CO<sub>2</sub> emissions.

### ■ IGCC\* (integrated coal gasification combined cycle)

Coal is available in abundance from diverse sources, and is an important resource to Japan, as a country that is largely dependent on imports for energy resources. In order to take advantage of the benefit of coal, which enables stable and economical supply of electricity, and to reduce CO<sub>2</sub> emissions significantly, TEPCO is addressing to develop an integrated coal gasification combined cycle (IGCC) system. When commercialized, the system is expected to provide a high thermal efficiency of 48-50% (LHV standard; transmitting end), while emitting only the same amount of CO<sub>2</sub> as oil-fired thermal power generation. We are presently conducting a demonstration test toward commercialization of the technology. In verification tests performed in 2009, we attained our target power generation efficiency of more than 42%, and verified the feasibility of using few types of coal. We will be carrying out further investigations to make sure the commercial system would provide the required performance, endurance, and economic efficiency.

#### \*IGCC

The system could provide high-efficiency power generation by means of a combined cycle that gasifies and burns coal.

### ■ CCS\* (carbon dioxide capture and storage)

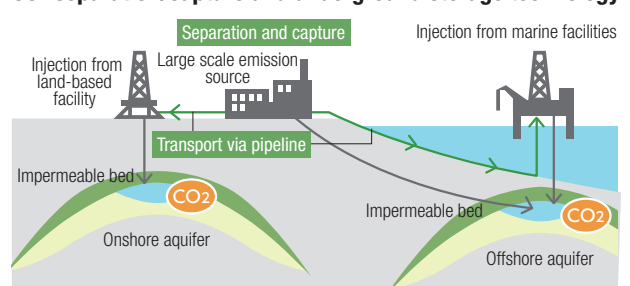
CCS is globally regarded as an effective technology against global warming, and is being researched and developed all over the world.

For its part, TEPCO is conducting research and studies on CO<sub>2</sub> recovery technologies using a small-scale test plant. We are also working to identify issues in CCS implementation, and have launched studies aimed at assessing the feasibility of a system that incorporates the CCS technology in power stations as a means of solving those issues.

#### \*CCS

A process for capturing CO<sub>2</sub> released from power stations and plants and storing it underground or in the sea for long-term isolation from the atmosphere.

### CO<sub>2</sub> separation/capture and underground storage technology



Source: Based on Ministry of Economy, Trade and Industry, "CCS2020"

# Renewable Energies

## Expanding the use of renewable energies

Solar, wind, hydro, and biomass are clean, renewable energy sources that produce only small amounts of CO<sub>2</sub> in the process of power generation and have a low impact on the environment. TEPCO actively promotes the use of these renewables and steadily complies with the target prescribed in the RPS Law\*, but aims to expand the use of renewable energy even more, by developing and introducing renewable energy sources and through the diverse activities implemented by all Group companies.

➤ Challenges of TEPCO ➤ New Energies

### \*RPS Law

Act on Special Measures Concerning New Energy Use by operators of electric utilities. The law requires electric power companies to use renewable energies to generate a certain percentage of the electric power they sell. Any shortfall in satisfying the RPS requirement may be supplemented by purchasing renewables from other power producers.

## Initiatives for expanding renewable energy use

### — Plans

	Details	Scheduled commencement of operations
Hydropower generation (Sakae Town, Shimominochi County, Nagano Prefecture)	1,000 kW	FY2010
(Nikko City, Tochigi Prefecture)	240 kW	FY2010
Mega solar generation (Kawasaki City, Kanagawa Prefecture; Kofu City, Yamanashi Prefecture)	30,000 kW	FY2011
Wind power generation (Higashi-Izu Town & Kawazu Town, Kamo County, Shizuoka Prefecture)	18,370 kW	FY2011
Co-combustion of woody biomass fuels (Tokai Town, Naka County, Ibaraki Prefecture)	Co-combustion with coal at an existing thermal power plant	FY2012

### — Performance

Figures with an asterisk (\*) indicate values as of March 31, 2010

Performances of introducing	
Power generation facilities (TEPCO)	Hydropower generation 8,990 MW* Geothermal power generation 3,300 kW* Wind power generation 500 kW*
Power generation facilities for in-house consumption (TEPCO)	Solar power 524 kW* Wind power 5 kW*
Wind power generation Eurus Energy Holdings Corporation	6 countries, 1,902 MW*
Micro hydropower generation The Tokyo Electric Generation Co., Inc.	25 locations, 2,897 kW*
Project for converting biomass resources to fuel Bio Fuel Co., Inc.	Reduction of approx. 7,239 tons of CO <sub>2</sub> (per year) by using biomass in place of fossil fuels
Performances of promoting dissemination	
Power purchases (TEPCO)	Cumulative amount purchased (FY1992-2009) Solar power: 1,210 GWh Wind power: 1,400 GWh
Green Power Certification Japan Natural Energy Company Limited (JNEC)	Annual contract volume 218 GWh* (196 organizations)

[Web The Tokyo Electric Generation Co., Inc.: www.tgn.or.jp/teg](http://www.tgn.or.jp/teg) (Japanese only)

[Web Bio Fuel Co., Inc.: www.biofuel.co.jp](http://www.biofuel.co.jp) (Japanese only)

[Web Japan Natural Energy Company Limited \(JNEC\): www.natural-e.co.jp/english](http://www.natural-e.co.jp/english)

## ■ Utilization of hydropower generation

Hydropower generation is a domestically produced renewable energy that provides outstanding environmental performance and stability. We are aiming to make full use of our hydropower facilities, which have a combined capacity of 8,990 MW, by renovating aging facilities, developing water turbine technologies, and otherwise increasing hydropower generation efficiency.

We are also pushing forward plans for the construction of new hydropower power plants. The Tochikawa Hydropower Station (Sakae Town, Shimominochi County, Nagano Prefecture) and the Togawa Hydropower Station (Nikko City, Tochigi Prefecture) are slated to commence operations in FY2010. The Tochikawa Hydropower Station is a conduit type power plant that effectively utilizes the water resource of the Tochi River of the Shinanogawa



Imaichi Dam (construction site of the Togawa Hydropower Station)

River system (class 1 river) to produce a maximum output of 1,000 kW. It is expected to have a annual CO<sub>2</sub> reduction effect of approximately 2,100 tons.

## ■ Construction of mega solar\* power plants

We are planning to construct mega solar power plants jointly with Kanagawa Prefecture's Kawasaki City and Yamanashi Prefecture, respectively, and are currently proceeding with installation work in Kawasaki. When completed, the plants will produce a total output of 30,000 kW, enough to supply the necessary electricity to 7,900 households for a year, and are expected to reduce annual CO<sub>2</sub> emissions by approximately 10,000 tons.

### \*Mega solar

Solar power generation providing an output of more than 1,000 kW.

## Overview of TEPCO's mega solar projects

	Output	Scheduled commencement of operations
Ogishima Solar Power Plant (Kawasaki City, Kanagawa Prefecture)	13,000 kW	FY2011
Ukishima Solar Power Plant (Kawasaki City, Kanagawa Prefecture)	7,000 kW	FY2011
Komekurayama Solar Power Plant (Kofu City, Yamanashi Prefecture)	10,000 kW	FY2011



Rendering of the Ukishima Solar Power Plant

**Comment from a stakeholder :**

What is TEPCO's future vision concerning the expansion of renewable energies ? (Questionnaire)

**TEPCO's reply :**

Our achievements in introducing renewable energies, future plans for their development, and projects implemented by our Group companies are presented in this report. We will continue to make active efforts to expand the utilization of renewable energies in the future.



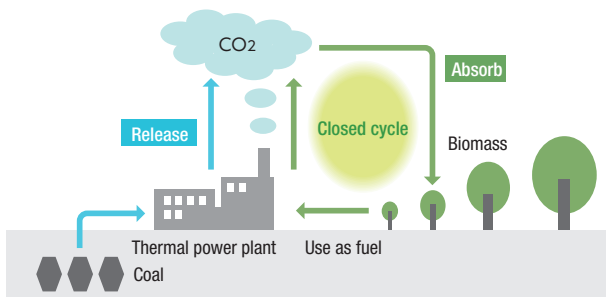
### ■ Woody biomass \* fuel co-combustion plan

We are planning to install a power generation system based on the co-combustion of woody biomass fuels in Unit 1 at the Hitachinaka Thermal Power Station. Slated to commence operations in FY2012, the system will use fuel made by compressing wood fragments into woody biomass fuel and mixing it with coal at a percentage of about 3%. It is expected to reduce CO<sub>2</sub> emissions by approximately 110,000 tons per year, which corresponds to the amount of CO<sub>2</sub> emitted by about 20,000 households in a year.

#### \* Biomass

A natural resource derived from biological matter. The combustion of biomass derived from plant produces CO<sub>2</sub>, but because plants absorb CO<sub>2</sub> as they grow, the system creates a closed carbon cycle in which the total amount of CO<sub>2</sub> in the atmosphere does not increase.

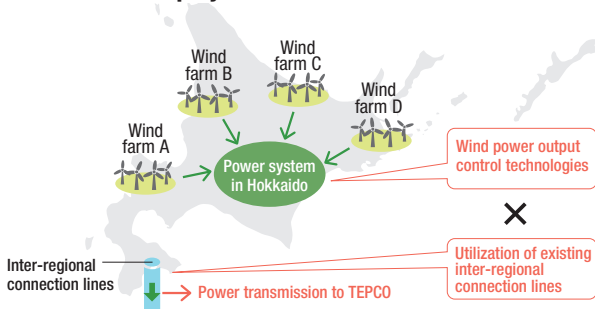
#### Overview of biomass power generation



### ■ Demonstration test on expanding the introduction of wind power generation in Hokkaido

We are planning a demonstration test in Hokkaido in collaboration with Hokkaido Electric Power Company, with an eye to expanding the introduction of wind power generation in the prefecture as part of initiatives for smart power system network. Under this project, TEPCO will receive a certain amount of electric power from Hokkaido Electric Power Co., Inc. on a continuous basis, to give new regulating capacity to power systems within Hokkaido, and wind power output control technologies will be introduced to enhance system stability. We will increase wind power generation capacity by 100 to 200 MW by FY2014. The same demonstration test with Tohoku Electric Power Co., Inc. is under consideration. Data on the effects of expanding the introduction of wind power generation will be analyzed and used to further promote renewable energy use.

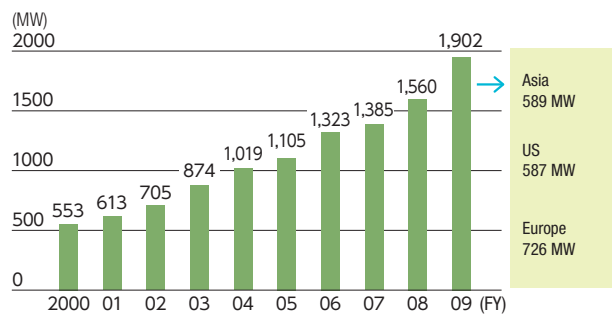
#### Overview of the project



### ■ Global-scale wind power generation project

Eurus Energy Holdings Corporation, a member of the TEPCO Group, operates wind power projects in Europe, United States, and Asia, as Japan's largest and one of the world's leading wind power generation companies. It further expanded its business in FY2009 by newly launching 3 wind power plants in Japan (combined capacity of 99 MW) and 2 in the United States (combined capacity of 243 MW). As a result, it now possesses wind power facilities with a total capacity of 1,900 MW, as of March 31, 2010. The company is also active in the solar power generation business, and has so far commenced operations of the South-West Sunchang Photovoltaic Power Plant (994 kW) in South Korea.

#### Wind power generation capacity of Eurus Energy Holdings



[www.eurus-energy.com/english](http://www.eurus-energy.com/english)

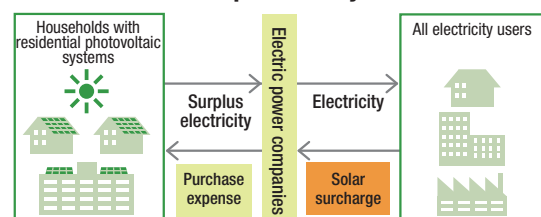
### Introduction of the New Purchase System for Solar Power-Generated Electricity

The New Purchase System for Solar Power-Generated Electricity was launched in November 2009, pursuant to national laws.

The system requires electric power companies to purchase, under conditions prescribed in relevant laws, surplus electricity generated by photovoltaic facilities (electricity left over after subtracting the amount for self consumption), with the purchase expense to be defrayed by all electricity users in the form of a "solar surcharge."

We will do our part in disseminating and ensuring the smooth operation of the new system, to contribute to expanding solar power generation.

#### Overview of the new purchase system





# Greenhouse Gas Reduction Projects (Carbon Credits)

## Promotion of Greenhouse Gas Reduction Projects

As a supplementary action to our own CO<sub>2</sub> reduction measures, TEPCO promotes greenhouse gas emission reduction projects in cooperation with foreign countries and domestic small and medium sized enterprises by providing technical and financial support, and consequently contributes to creating a low-carbon society.

## Utilization of the Kyoto mechanisms\*

We actively utilize the Kyoto mechanisms based on the awareness that they could more efficiently reduce greenhouse gases compared to reduction initiatives in Japan, and could also contribute to sustainable development in developing countries. The carbon credits we acquire through the Kyoto mechanisms are used toward attaining our voluntary reduction target for CO<sub>2</sub> emission intensity.

### \* Kyoto Mechanisms

These mechanisms allow developed countries to reduce greenhouse gases on a global scale in cooperation with other countries, by using the emission reduction amounts or initial allowances of developed countries to attain their respective emission reduction target under the Kyoto Protocol. The mechanisms include Joint Implementation (JI), Clean Development Mechanism (CDM), and International Emissions Trading, and the reduction amounts and initial quota that are transferred through these mechanisms are called carbon credits.

## Wind power generation CDM project in Guangdong Province, China

TEPCO is a participant in the wind power generation project with the approximate capacity of 100MW, operated by Guangdong Yudean Shibeishan Wind Power Development Co., Ltd. in a coastal region of Huilai County, Jieyang City in Guangdong Province. The project contributes to reduce CO<sub>2</sub> emissions by replacing electricity generated by fossil fuel fired power plants.

We have first acquired the carbon credits generated from the project in April 2009, worth approximately 42,000 tons.



Shibeishan Wind Farm in Guangdong Province

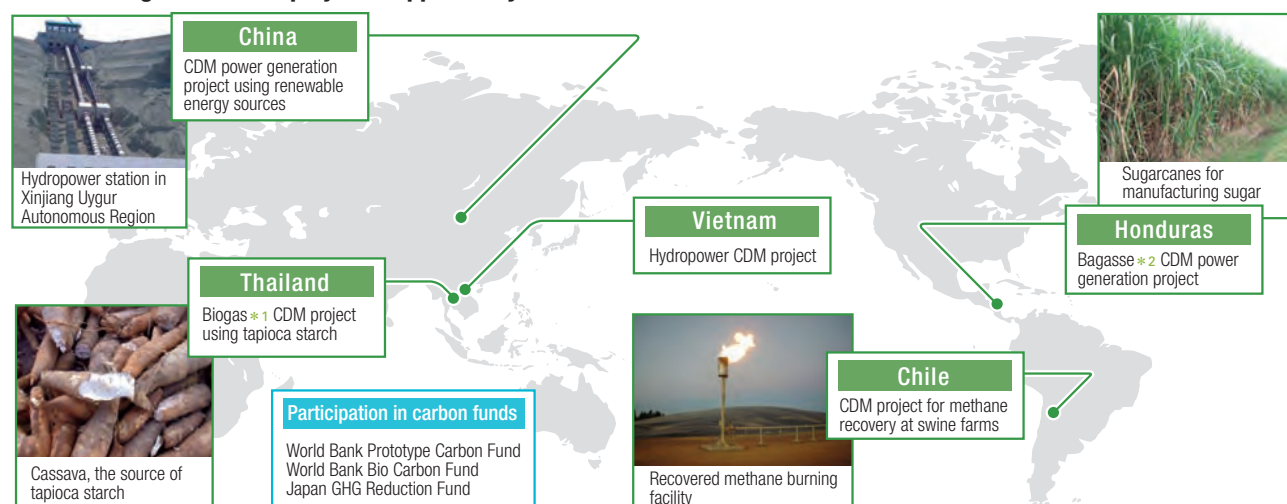
## Participation in the Japan GHG Reduction Fund\*

We acquire carbon credits by investing in the Japan GHG Reduction Fund (JGRF). In November 2009, we received our share of carbon credits from CDM project for introduction of power regenerative braking technology in Delhi Metro System, India. In the project activity, the motors installed in the rolling stock regenerate electricity during braking and regenerated electricity is used by other rolling stocks on the same service line. It is expected that electricity consumption is reduced by approximately 30% from conventional levels and the project activity contributes to CO<sub>2</sub> emission reduction.

### \* Japan GHG Reduction Fund

The first carbon fund in Asia established by 33 private companies and organizations in Japan in December 2004, as a framework for acquiring carbon credits.

## Greenhouse gas reduction projects supported by TEPCO



\*1 **Biogas**: A methane-rich, flammable gas that results from the decomposition of organic waste materials and livestock manure. It is considered a viable alternative to fossil fuels.

\*2 **Bagasse**: The fiber remaining after sugarcane stalks are processed to extract their juice.

**Comment from a stakeholder :**

Please provide a special feature in this report on TEPCO's initiatives in Japan and abroad toward creating a low-carbon society. (Questionnaire)

**TEPCO's reply :**

We are cooperating with foreign and Japanese companies in promoting greenhouse gas emission projects through technical and financial support. (Some of the projects are introduced in this report.) We also provide technical assistance and consultation services to developing countries.



## Utilization of the Domestic credit system\*

We also utilize the domestic credit system to help domestic small and medium enterprises reduce CO<sub>2</sub> emissions. We expect to reduce CO<sub>2</sub> emissions in the amount of 25,000 tons from 7 projects supported by us between FY2008 and FY2012.

### \*Domestic credit system

A system that allows large companies that have contributed to the reduction of CO<sub>2</sub> emissions by small and medium enterprises through financial and technical support to use that CO<sub>2</sub> reduction amount as their own reduction to fulfill their voluntary targets and action plans. The system was launched in 2008.

## Major emission CO<sub>2</sub> reduction projects supported by TEPCO

Host of CO <sub>2</sub> emission reduction project (implementing area)	Project overview [Average CO <sub>2</sub> emission reduction anticipated per year (domestic credit certification period)]
Mizu to midori to daichi no kosha (public corporation) (Kosuge Town, Kitatsuru county, Yamanashi Prefecture)	Renewal of heating equipment in the Kosuge-no-yu public spa facility by introducing heat pumps [208t-CO <sub>2</sub> per year (FY2008 – FY2012)]
Yokohama City University (Yokohama City, Kanagawa Prefecture)	Project for energy saving through renewal of boilers and air-conditioning facilities at the Yokohama City University Hospital [3,471t-CO <sub>2</sub> per year (FY2010 – FY2012)]
Aoikai Medical Corporation (Kashiwa City, Chiba Prefecture)	Project for energy saving through replacement of gas-fired boilers and gas heat pumps with high-efficiency electric heat pumps at Kashiwa Rehabilitation Hospital in Chiba [623t-CO <sub>2</sub> per year (FY2009 – FY2012)]
Maebashi Rose Association (Maebashi City, Gunma Prefecture)	Project for energy saving through replacement of heavy oil boilers with high-efficiency electric heat pumps at Maebashi Rose Association [729t-CO <sub>2</sub> per year (FY2009 – FY2012)]
Shimotsuke Agricultural Cooperative (Tochigi City & Shimotsuga County, Tochigi Prefecture)	Replacement of heavy oil-fired heaters with high-efficiency electric heat pumps for gardening purposes in tomato greenhouses at Sunfarm Oyama and Green Stage Ohira [296t-CO <sub>2</sub> per year (FY2008 – FY2012)]

## ■ CO<sub>2</sub> emission reduction project at a hospital

We are implementing a CO<sub>2</sub> emission reduction project at Kashiwa Rehabilitation Hospital in Kashiwa City, Chiba Prefecture in cooperation with Aoikai Medical Corporation. The project aims to increase energy efficiency and reduce CO<sub>2</sub> emissions by replacing gas heat pumps with high-efficiency electric heat pumps, and gas-fired hot water boilers with high-efficiency electric water heaters.

By implementing the project over a period of 4 years, from FY2009 to FY2012, we expect to acquire approximately 2,284 tons' worth of domestic carbon credits.

## ■ CO<sub>2</sub> emission reduction project at tomato farms

In Tochigi City and Shimotsuga County, Tochigi Prefecture, we are implementing a CO<sub>2</sub> emission reduction project in tomato greenhouses at Sunfarm Oyama and Green Stage Ohira, in cooperation with Shimotsuke Agricultural Cooperative. The project aims to reduce CO<sub>2</sub> emissions by replacing heavy oil-fired heaters with high-efficiency electric heat pumps for gardening purposes.

By implementing the project over a period of 5 years, from FY2008 to FY2012, we expect to acquire approximately 1,353 tons' worth of domestic carbon credits.



Heat pump for gardening purpose installed in a tomato greenhouse

## Trial implementation of an integrated domestic market for emissions trading

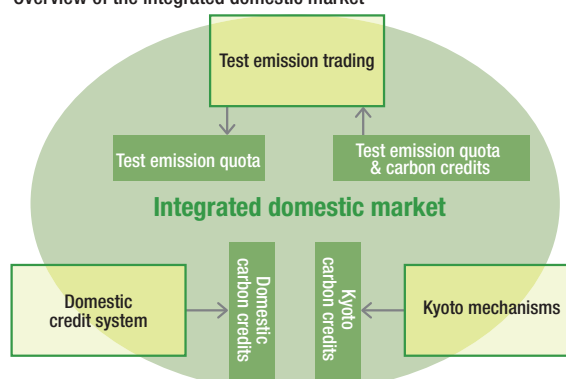
The Japanese government launched a trial implementation of an integrated domestic market for emissions trading in 2008. In the integrated domestic market, participating companies respectively establish CO<sub>2</sub> reduction target voluntarily and aim to attain that target by complementing their own efforts with the use of test emission quotas\* and carbon credits they acquire from the domestic credit system and from Kyoto mechanisms.

TEPCO participates in this trial implementation, with a target of reducing annual CO<sub>2</sub> emission intensity to 0.304 kg-CO<sub>2</sub>/kWh between FY2008 and FY2012 (corresponding to a 20% reduction compared to FY1990 level). This coincides with our voluntary target for reducing CO<sub>2</sub> emission intensity. Through participation in this project, we hope to identify and assess various issues concerning emissions trading.

### \*Test emission quota

The amount of CO<sub>2</sub> emission reduction achieved in excess of a voluntary reduction target set by companies participating in the test emissions trading system.

### Overview of the integrated domestic market



# Achieving Energy-efficient Utilization of Electricity

## Creating a low-carbon society through electrification

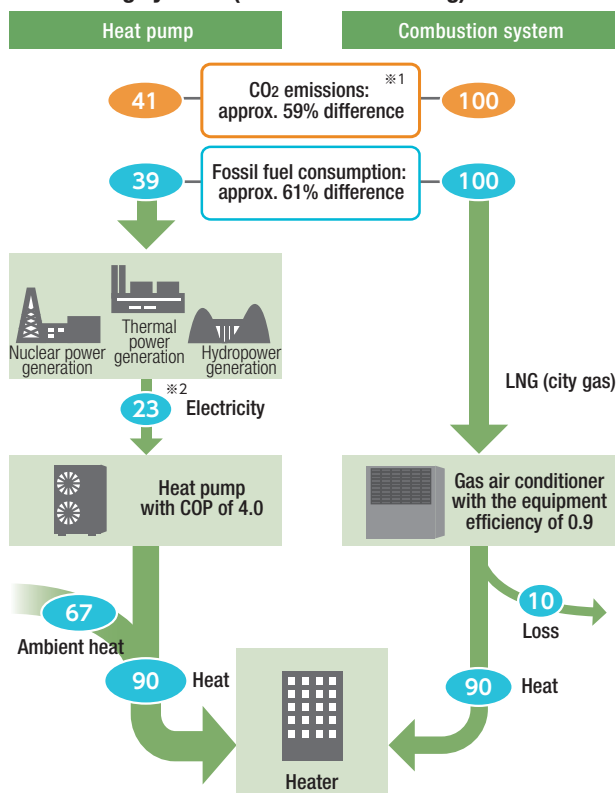
Realizing a low-carbon society requires the concerted efforts of both the energy *supply* and *demand* sides. TEPCO contributes to creating a low-carbon society by simultaneously producing low-CO<sub>2</sub> electricity and promoting electrification through the use of various high-efficiency electric products.

See pp. 32-27 for details on TEPCO's initiatives for producing low-CO<sub>2</sub> electricity.

## Lowering carbon levels throughout society by promoting electrification

All-electric systems use electricity produced from non-fossil energy sources and high-efficiency power generation facilities to operate high-efficiency electric products. Compared to systems that directly burn fossil fuels (combustion system), all-electric systems minimize fossil fuel consumption and contribute to reducing CO<sub>2</sub> emissions. TEPCO promotes electrification in many sectors including the residential, industrial, commercial, and transportation sectors and encourages the use of heat pumps and electric vehicles to lower carbon levels throughout society.

### Comparison of heat pumps and combustion air conditioning systems (in the case of heating)



\*1 CO<sub>2</sub> emission intensity: Electricity 0.324 kg-CO<sub>2</sub>/kWh (FY2009 TEPCO performance), city gas (Order for Enforcement of the Law Concerning the Promotion of Measures to Cope with Global Warming)

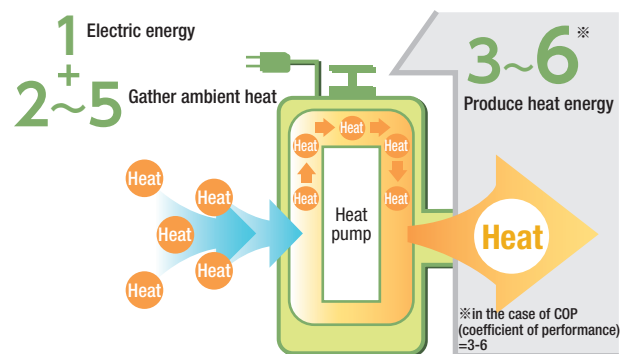
\*2 Fossil fuel consumption intensity: 6.23 MJ/kWh (FY2009 TEPCO performance), including transmission and distribution loss

## Electrification supported by heat pumps

Heat pumps require only a small amount of electricity to gather ambient heat, which is an inexhaustible natural energy source as are sunlight and wind power. But they produce about 3 to 6 times greater heat energy than the electric energy they use. Heat pumps' high environmental performance and efficiency are indispensable to realizing a low-carbon society.

If all air conditioners and water heaters in the consumer sector (residential and commercial) and industrial sector are replaced with those powered by heat pumps, an estimated approx. 140 million tons of yearly CO<sub>2</sub> emissions could be reduced in Japan (consumer sector: approx. 100 million tons, industrial sector: approx. 40 million tons). This amount is corresponding to roughly 10% of total CO<sub>2</sub> emissions in Japan.

### Mechanism of heat pumps

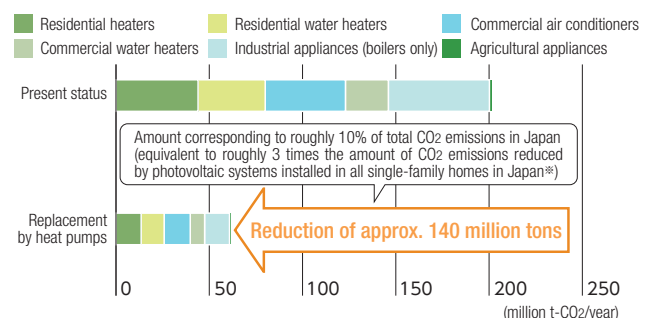


### Ambient heat is a renewable energy sources

In the EU, the Renewable Energy Directive (into force on June 2009) defines "aerothermal energy, geothermal energy and hydrothermal energy" that are used by heat pumps with a certain efficiency level or higher as renewable energies. In Japan, Order for Enforcement of the Act on the Promotion of the Use of Non-fossil Energy Sources and Effective Use of Fossil Energy Source Materials by Energy Suppliers. (into force on August 2009) acknowledges ambient heat as a renewable energy source.

### CO<sub>2</sub> reduction potential of heat pumps

(Supposing all air conditioners, water heaters, heating/drying appliances (including those that generate high temperatures over 100°C), and agricultural appliances are replaced with those powered by heat pumps)



\* TEPCO estimation based on photovoltaic system capacity: 4 kW; facility utilization rate: 12%; number of single-family homes in Japan: 27.45 million homes (Ministry of Internal Affairs and Communications Statistics Bureau, "2008 Housing and Land Survey")

Source: Estimates by Heat Pump and Thermal Storage Technology Center of Japan

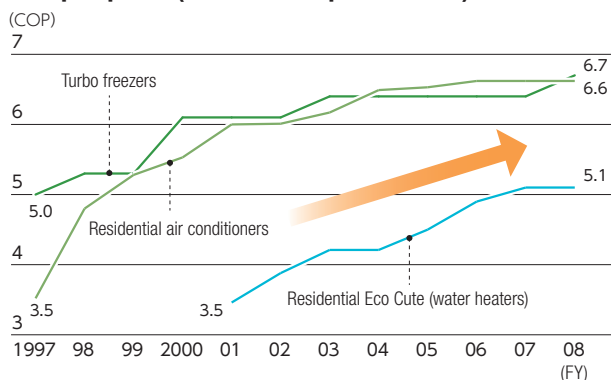


### ■ Increased efficiency of heat pumps

Recent advancements made in technical development have greatly improved heat pump performance. For instance, the COP (coefficient of performance) of residential air conditioners has improved roughly 2-fold in 10 years, and the COP of residential Eco Cute water heaters almost 1.5-fold compared to 2001, the year they were released.

There is growing expectation of heat pumps as the key to energy saving and CO<sub>2</sub> reduction, as is also evident in the government's "The New Growth Strategy Blueprint for Revitalizing Japan" (cabinet decision in June 2010), which aims to turn homes, offices, etc. into zero-emission structures through the spread of eco-housing, heat pumps, etc. as a strategy for becoming an environment and energy power through "green innovation".

### Heat pump COP (coefficient of performance)



Source: The Energy Conservation Center, Japan; The Japan Refrigeration and Air Conditioning Industry Association; manufacturers' catalogs

### ■ Expanding heat pump applications

Some representative examples of items in our immediate surrounding that use heat pumps are air conditioners, water heaters, and refrigerators. However, in addition to such items in the residential sector, heat pumps are also used widely in the industrial and commercial sectors, as well as in the agricultural sector.

To further spread the use of high-efficiency heat pumps, we are working in close cooperation with product manufacturers in developing diverse products that offer outstanding environmental performance and economic efficiency in response to customer needs and disseminating them.

### Heat pump applications in various sectors

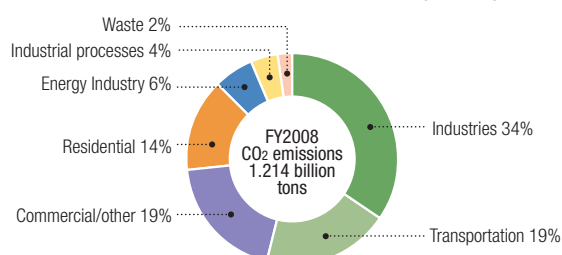


➡ See the respective pages for details on TEPCO's initiatives in each sector.

### [Reference] Status of CO<sub>2</sub> emissions in Japan by sector

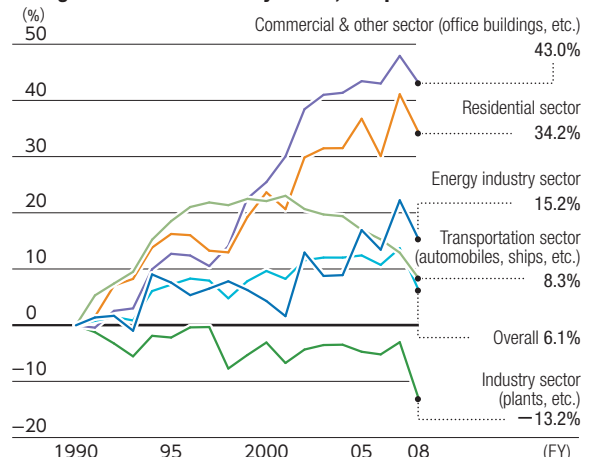
The industrial sector is responsible for a large 34% of total CO<sub>2</sub> emission in Japan, but emissions from households and offices have increased significantly compared to 1990, the base year of the Kyoto Protocol, so that effective countermeasures are also urgently sought in these two sectors, toward realizing a low-carbon society.

### CO<sub>2</sub> emissions in Japan Breakdown of sector (FY2008)



Source: Based on the Ministry of the Environment website

### Changes in CO<sub>2</sub> emissions by sector, compared to the FY1990 level



Source: Based on National Institute for Environmental Studies website

# Initiatives in the Residential Sector

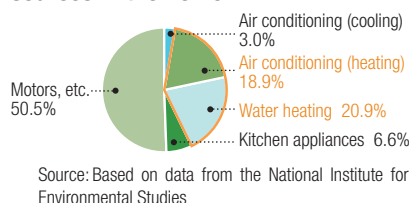
## Helping to reduce CO<sub>2</sub> in the residential sector.

To lower carbon levels in the residential sector, TEPCO promotes electrification by using high-efficiency heat pump appliances, and strives to increase awareness of energy-saving life styles.

### CO<sub>2</sub> reduction by promoting all-electric homes

Air conditioning (heating) and water heating account for more than 40% of CO<sub>2</sub> emissions from the home, and holds the key to CO<sub>2</sub> reduction in the residential sector. Our initiatives for reducing CO<sub>2</sub> in the residential sector focus on promoting all-electric homes that incorporate heat pump appliances, such as Eco Cute water heaters and air conditioners.

#### Breakdown of CO<sub>2</sub> emission sources in the home

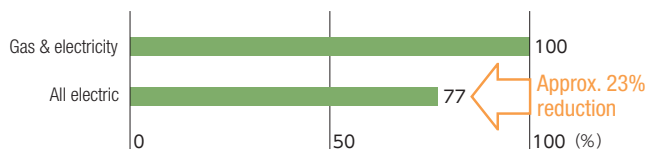


### Environmental performance of all-electric homes that incorporate heat pumps

Among home appliances that incorporate a heat pump, Eco Cute water heaters can more significantly reduce CO<sub>2</sub> emissions compared to conventional water heaters, and have a larger effect on reducing CO<sub>2</sub> emissions in the residential sector. As a result of actively promoting Eco Cute water heaters since its commercialization in FY2001, a cumulative total of some 600,000 Eco Cute systems have been installed in our service area by the end of FY2009.

All-electric homes are environmentally advantageous homes that incorporate Eco Cute water heaters and other heat pump appliances, and have a roughly 23% greater CO<sub>2</sub> emissions reduction potential compared to homes powered by gas and electricity.

### Comparison of CO<sub>2</sub> emissions (gas & electricity powered homes, all-electric homes)



#### Calculation conditions

1. Building condition: 2-story wooden single-family house, with a 4LDK layout occupying about 122 m<sup>2</sup> 2. Family composition: 4 members 3. Insulation performance: Equivalent to next-generation energy saving standard for region IV 4. Yearly load: Cooling: 8.0 GJ/year; heating: 6.3 GJ/year; floor heating: 2.4 GJ/year; cooking appliances: 2.0 GJ/year; water heating: 20.1 GJ/year; 24-hour ventilation, etc.: 1.6 GJ/year; lighting outlets: 10.8 GJ/year 5. CO<sub>2</sub> emission intensity: Electricity 0.324 kg-CO<sub>2</sub>/kWh (FY2009 TEPCO performance); city gas (Order for Enforcement of the Law Concerning the Promotion of Measures to Cope with Global Warming) 6. Equipment efficiency [Gas & electricity powered homes] cooling (air conditioner): 4.23, heating (air conditioner): 4.56, floor heating (latent heat-recovery water heater): 0.87, cooking (gas stove): 0.56, water heater (latent heat-recovery water heater): 0.95; [All-electric homes] cooling (air conditioner): 4.23, heating (air conditioner): 4.56, floor heating (heat pump water heater): 3.73, cooking (IH cooking heater): 0.90, water heating (Eco Cute): 3.2

### Increasing number of all-electric homes

All-electric homes keep indoor air clean at all times, because no combustion gas or steam is released. This means that all-electric systems can provide optimum comfort even to well-insulated homes that are designed for maximum energy efficiency.

Recognized not only for their environmental performance but also for the advantages of comfortable living it can bring to energy-efficient homes, all-electric homes have become more and more popular in recent years, so that there are now as many as 740,000 all-electric homes in TEPCO's service area, as of March 31, 2009.

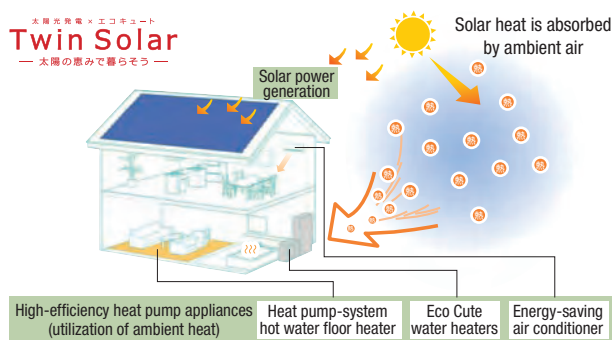
### Achieving maximum use of renewable energy with Twin Solar

All-electric homes can achieve greater CO<sub>2</sub> emissions reduction when combined with residential photovoltaic systems that have become increasingly popular in recent years.

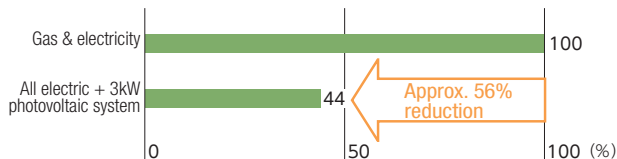
Twin Solar makes efficient use of electricity generated from sunlight during the day and uses ambient air that has been heated by the sun to boil water during the night efficiently. By maximizing the advantages of renewable energy, the system can reduce CO<sub>2</sub> emissions by as much as 56% compared to homes powered by both gas and electricity.

To contribute to realizing a low-carbon society, we are actively promoting the dissemination of the Twin Solar combination of residential photovoltaic systems and the Eco Cute water heaters as an advanced form of the all-electric home.

### Overview of the Twin Solar system



### Comparison of CO<sub>2</sub> emissions (gas & electricity powered homes, all-electric homes + 3kW photovoltaic system)



#### Calculation conditions

1. Building specification, 2. Family composition, 3. Insulation performance, 4. Yearly load, 5. CO<sub>2</sub> emission intensity, 6. Equipment efficiency: see the calculation conditions for "Comparison of CO<sub>2</sub> emissions (gas & electricity powered homes, all-electric homes)" at left, 7. Solar power generation: 3,000 kWh/year

**Comment from a stakeholder :**

I'd like to know more about how to save energy in the home. (Questionnaire)

**TEPCO's reply :**

We provide helpful information on saving energy in the home, such as tips, based on in-house surveys and tests, on how to select and use electric products, via TV commercials, pamphlets, website (<http://www.tepco.co.jp/life/custom/e-diet/index-j.html> (Japanese only)), and various events.



## ■ Providing information on all-electric homes

We try to communicate the advantages of all-electric homes to as many customers as possible through active provision of information.

As part of this effort, we provide information through our Switch! Station all-electric information showrooms, which have received visits by many customers to date. In FY2009, we also opened experienced-based Switch! Station showrooms in Yamanashi prefecture, Kawagoe, Takasaki, and Omiya Cities under a completely new concept. These showrooms let customers actually "see, touch, and experience" all-electric appliances, as well as allow us to "promote all-electric homes in collaboration with professional users in the housing industry." Today, we operate Switch! Stations in 20 locations (as of March 31, 2010), with future plans to establish more of these showrooms throughout our service area.



Switch! Station

**Web** [Switch! Station]: [www.switch-station.com/](http://www.switch-station.com/) (Japanese only)

## Promoting energy-saving lifestyles

In order to realize a low-carbon society, each and every individual needs to be aware of CO<sub>2</sub> emissions in daily life, understand the reduction effects of various measures in quantitative terms, and take action as appropriate to their lifestyles.

TEPCO utilizes TV commercials, pamphlets, websites, and various events to provide helpful information on achieving lifestyles that are comfortable and energy efficient at the same time, such as tips on how to select and use electric products based on in-house surveys and tests, and to provide tools that help "visualize" CO<sub>2</sub> emissions. By doing so, we not only provide our customers an opening to begin making voluntary energy-saving efforts, but also support the continuation of these efforts, to promote energy-saving lifestyles.



Denko-chan Energy Conservation Handbook



Guidebooks for comfortable living

## ■ Denko's Environmental Household Account

As a tool to help customers begin energy-saving and CO<sub>2</sub> reduction activities from the immediate surroundings of their home, we offer a tool called Denko's Environmental Household Account, composed of the "Energy Saving Life Navigation" and "CO<sub>2</sub> Household Account" programs, on our website.

Energy Saving Life Navigation calculates household CO<sub>2</sub> emissions from basic household information and monthly energy usage, and displays the emission rate of each energy application, such as air conditioning and water heating, and energy-saving advice based on the results. It also judges the "ecological level" of a household based on a comparison with the average similar household, as well as allows customers to simulate the effects that can be anticipated by renewing household electric appliances.

CO<sub>2</sub> Household Account lets customers keep track of household CO<sub>2</sub> emissions by entering their monthly usage amounts and payments of electricity, gas, and other utilities. This program has also spread among TEPCO employees, so that there are now 16,982 employee users, as of March 31, 2010.



Denko's Environmental Household Account website (Japanese only)

## ■ CO<sub>2</sub> Diet Declaration

CO<sub>2</sub> Diet Declaration is a program for preventing global warming by widely inviting people to pledge energy saving activities and donating tree seedlings in proportion to the number of participants it gains. From the program's commencement in August 2004 to March 2010, some 2.38 million participants, including local governments, NGOs and NPOs, private companies, and schools, have pledged to reduce approximately 176,000 tons of CO<sub>2</sub>.

Some of the seedlings have been donated to the Mount Fuji Afforestation Project sponsored by the Organization for Industrial, Spiritual, and Cultural Advancement (OISCA), in support of its forest regeneration initiative.



CO<sub>2</sub> Diet Declaration" website (Japanese only)



# Initiatives in the Industrial and Commercial Sectors

## Working to reduce CO<sub>2</sub> emissions in the industrial and commercial sectors.

As a result of recent advancements in technological development, high-efficiency products that incorporate heat pumps or IH technologies are increasingly contributing to saving energy and reducing CO<sub>2</sub> in plants, offices, and various other environments. In addition to proposing a wide range of solutions in relation to these electrification systems, the TEPCO Group also makes active efforts to develop new products and provide useful information.

## Total energy solutions

The TEPCO Group takes each customer's energy use into consideration as it proposes total energy solutions centered on electrification through the use of high-efficiency electrification systems. Such solutions help customers achieve maximum energy-saving and CO<sub>2</sub> reduction effects, and contributes to lowering carbon levels from the industrial and commercial sectors.

## Introduction of high-efficiency electric heat source system to district heating and cooling

Many regional communities are taking the opportunity of regional development projects to introduce district heating and cooling\* that could significantly reduce CO<sub>2</sub> emissions, and are increasingly opting to employ a high-efficiency electric heat source system.

In the area around the Tokyo Sky Tree, which is under construction toward completion in December 2011, TOBU ENERGY MANAGEMENT CO., LTD. is employing a district heating and cooling that utilizes geothermal energy for the first time in Japan. Plans have also been approved for the introduction of a high-efficiency heat source system composed of large-scale heat storage tanks and other electric systems. TEPCO is cooperating in this project by providing its technical expertise.

The introduction of such high-efficiency systems is expected to reduce yearly CO<sub>2</sub> emissions by approximately 48% (approx. 2,271t)\* compared to individual, decentralized heat source systems, and promises to attain the highest level of energy-saving performance and CO<sub>2</sub> reduction in Japan.

### \* District heating and cooling

A system in which cold and hot water are produced by one or more plants and supplied to buildings within a certain area for use in air-conditioning and hot water systems, via regional conduits.



※Design value at the time of project approval in February 2009

Image of the Tokyo Sky Tree® area

(provided by TOBU RAILWAY CO., LTD. and TOBU ENERGY MANAGEMENT CO., LTD.)

## Introduction of hot water heat pumps in production processes

Owing to the enhanced performance of heat pumps, waste heat recovery-type heat pumps in high-temperature processes are beginning to be used as the heat source of hot water and steam in production processes.

Sony Energy Devices Corporation's Tochigi Office has replaced its conventional heavy oil-fired boilers with these waste heat recovery-type hot water heat pumps, which not only provide heat that is required in the production processes of products, but also supplies cold energy for use in air-conditioning systems within the plant. Introduction of the heat pumps is expected to reduce CO<sub>2</sub> emission by approximately 56% and reduce energy costs by approximately 41% compared to levels before their introduction.



Heat pumps installed in Sony Energy Devices Corporation

## Steam supply business

KAWASAKI STEAM NET CO., LTD., a member of the TEPCO Group, supplies the steam that has been used for power generation (approx. 300,000 t/year) at the TEPCO Kawasaki Thermal Power Station to 10 companies in the Kawasaki Chidori-Yako Industrial Complex via pipes



Overview of the steam supply business

that cover a total distance of approximately 6.5 km. This project eliminates the need for each company to individually produce steam using their own boilers, and is expected to reduce approximately 11,000 kℓ/year of fuel (crude oil equivalent) and approximately 25,000 t/year of CO<sub>2</sub> emissions compared to the conventional system.

## Development of high-efficiency products

TEPCO works closely with product manufacturers to research and develop high-efficiency products that incorporate such innovative technologies as the heat pump and IH technologies. These technologies and products are applied to various sectors and applications, to contribute to creating a low-carbon society.

### ■ "HEM-HR90" high-efficiency hot water heat pump

HEM-HR90 is the first hot water heat pump in the industry that simultaneously provides 90°C hot water and 7°C cold water. As it supplies hot water at temperatures higher than conventional heat pump units, it can be used in a wide range of applications, including heat sterilization of beverages. Using the HEM-HR90 can reduce CO<sub>2</sub> emissions by approximately 70% compared to conventional systems.

Joint development with: Kobe Steel, Ltd.; Chubu Electric Power Co., Inc.; Kansai Electric Power Co., Inc.



HEM-HR90

### ■ "duoQ3" packaged hybrid hot water heater

duoQ<sup>3</sup> is the industry's first hybrid hot water heater which combines a heat pump water heater with a gas-fired combustion water heater in a single package. By packaging the two types of water heaters, the unit facilitates the designing and configuration of heating systems. It can also effectively control multiple applications according to their hot water use, and has the potential to reduce CO<sub>2</sub> emissions by approximately 28% compared to a same-capacity system that uses a combustion-type hot water heater.

Joint development with: NIPPON THERMOENER CO., LTD.



duoQ<sup>3</sup>

## Working to communicate information

TEPCO operates experience-based facilities and communicates information on various events to promote the dissemination of electrification systems.

### ■ TEPCO Electrified Factory I<sup>2</sup> (I-Square)

The electrified factory provides a solution to increasing productivity and environmental performance by utilizing the latest heat pump and IH technologies in plant production processes.



TEPCO supports the process innovation of plants by providing hands-on experience of its electric products at its exhibition facility called TEPCO Electrified Factory I<sup>2</sup> (I-Square)", and brings companies together in new business opportunities and inspires the development of new products.

### ■ Switch! Station Pro. Ariake

Electrified kitchen systems help realize sanitary and comfortable kitchen environments, because they produce little waste heat. They also contribute to saving energy and reducing CO<sub>2</sub>, because they provide high thermal efficiency and minimize energy loss.

TEPCO's "Switch! Station Pro. Ariake," a comprehensive hands-on facility for industrial electrified kitchen systems, proposes various designs for kitchen facilities in response to the needs of food service-related customers, from large-scale cooking facilities in schools and hospitals to restaurant businesses.

More than 10,000 visitors have experienced the industrial electrified kitchen at Switch! Station Pro. Ariake, as of February 2010.



Industrial electrified kitchen

## Energy-saving and CO<sub>2</sub> reduction initiatives by TEPCO offices

To promote CO<sub>2</sub> emissions reduction in Japan, related laws and ordinances are placing stronger regulations on the use of energies by businesses, and other such measures are also requiring companies to step up their energy-saving and CO<sub>2</sub> reduction efforts.

At TEPCO, we established high reduction targets for energy and resources (electricity, noncommercial water, gasoline, copy and printer paper) that are consumed in our offices, and have consistently worked toward attaining these targets since FY2001. As a result, we succeeded in reducing these consumptions by 15 to 39% in FY2005, compared to FY2000 levels. During the 5 years from FY2010 to FY2014, we will take our initiatives further and aim to reduce

TEPCO's total energy consumption intensity (MJ/m<sup>2</sup>) in our offices by 5% compared to FY2009, by improving operations, such as through proper management of air conditioner temperature settings and tuning, and making facility improvements, such as upgrading air conditioners, water heaters and lighting fixtures to higher efficiency products. Moreover, we hope to contribute to saving energy and reducing CO<sub>2</sub> throughout society by amassing energy-saving technologies and knowledge through our CO<sub>2</sub> reduction initiatives and using them to propose optimum energy solutions to our customers.

# Initiatives in the Transportation Sector

## Promotion of electrification in the transportation sector

CO<sub>2</sub> reduction measures are vital to the transportation sector, as it relies on fossil energies for most of its energy needs. TEPCO promotes electrification based on the use of low-CO<sub>2</sub> electricity and contributes to reducing carbon emissions in the transportation sector by disseminating electric vehicles (EV) and an idle reduction external power supply system that would reduce engine idling.

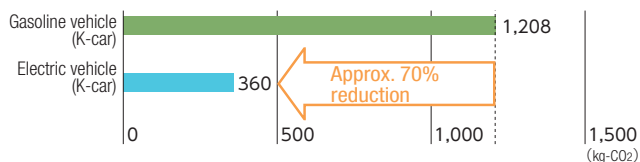
## Introduction of electric vehicles to TEPCO offices and TEPCO's initiatives for their dissemination

We are actively encouraging the introduction of electric vehicles provide excellent environmental performance, and are also helping to develop the necessary infrastructure for electric vehicles dissemination by pursuing the development of quick chargers and standardization of charging methods.

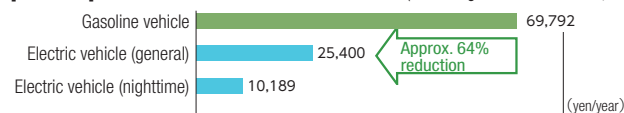
### Environmental performance of electric vehicles

Electric vehicles do not burn fuel to run, and therefore do not emit exhaust gas. They contribute to mitigating air pollution and can reduce CO<sub>2</sub> emissions by approximately 70% compared to gasoline vehicles of the same class. CO<sub>2</sub> emissions from passenger vehicles account for roughly 10% of total emission in Japan, and came to 119 million tons in FY2008, but electric vehicles would contribute to lowering this emission volume.

### CO<sub>2</sub> reduction effect of electric vehicles (when a light vehicle travels 10,000 km)



### [Reference] Economic assessment of electric vehicles (when a light vehicle travels 10,000 km)



#### Calculation conditions

K-car gasoline mileage 19.2 km/ℓ (Japan Mini Vehicles Association, "Shireba shiruhodo iine! Keijidosha (2008 edition)" (informational pamphlet on K-car))  
 EV mileage 10 km/kWh (calculated based on travel distance per charge in 10-15 mode announced by Fuji Heavy Industries Ltd. and Mitsubishi Motors Corporation and total electric power of the drive battery); Charging efficiency 0.90  
 CO<sub>2</sub> emission intensity  
 • Gasoline 2.32 kg-CO<sub>2</sub>/ℓ (Ministry of the Environment, "Greenhouse Gas Emissions Calculation and Reporting Manual")  
 • Electricity 0.324 kg-CO<sub>2</sub>/kWh (FY2009 TEPCO performance)  
 • Gasoline price: 134 yen (The Oil Information Center, The Institute of Energy Economics, Japan; July 10, 2010; Kanto region)  
 • Energy charge rate: general (22.86 yen/kWh; TEPCO 2nd block rate of meter-rate lighting B and C); nighttime (9.17 yen/kWh; TEPCO nighttime hours rate under season-and time-specific lighting ("Denka Jozu"))

### Introduction of electric vehicles to TEPCO offices

We are actively promoting the introduction of electric vehicles, and have introduced 310 electric vehicles to our offices in FY2009. This has brought the number of electric vehicles among our fleet of 8,090 commercial vehicles to 417, as of March 31, 2010. We plan to increase the number of electric vehicles we possess to around 3,000 in the future, to achieve a CO<sub>2</sub> emission reduction effect worth approximately 2,500 t/year.



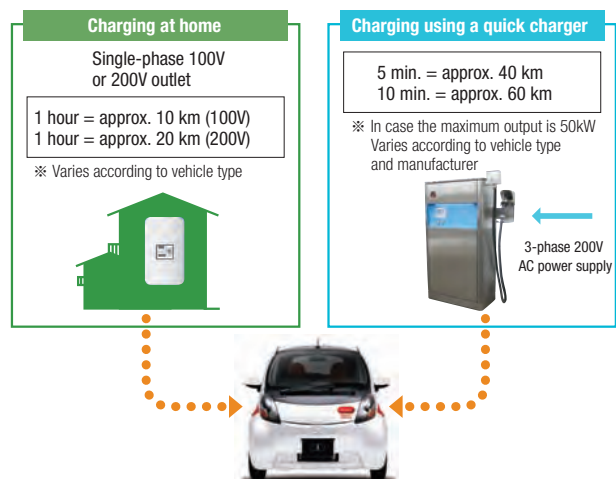
Commercial electric vehicle used by TEPCO

### Development of quick chargers

TEPCO is utilizing the charging technologies it has cultivated over many years, to develop quick chargers that are compatible with any electric vehicle regardless of manufacturer, and is conducting demonstration tests with manufacturers and other partners. A 10-minute charge by quick charger can provide sufficient power for an electric vehicle to travel about 60 km.

Household power supply outlets can be used to charge electric vehicles. With an hour of charging, an electric vehicle can travel about 10 km when using a 100V outlet and about 20 km when using a 200V outlet.

### electric vehicles charging methods





**Comment from a stakeholder :**

TEPCO should more fully explore energy conservation measures both in the residential sector and in the transportation sector. (Postcard)

**TEPCO's reply :**

We are planning to introduce around 3,000 electric vehicles to our offices for commercial use, and are providing technical support to promote the use of electric vehicles in society. We are also directing our efforts to disseminating the idle reduction external power supply system for trucks.



### ■ Support for dissemination of quick chargers

We actively support measures for enhancing the performance of quick chargers and disseminating their use. In March 2010, we founded the CHAdeMO Association in collaboration with Toyota Motor Corporation, Nissan Motor Co., Ltd., Mitsubishi Motors Corporation, and Fuji Heavy Industries Ltd. In addition to these executive members, the association is also represented by 270 Japanese and foreign companies and organizations, including charging equipment manufacturers, charging service companies, and supporting members consisting of private companies and public agencies (as of August 4, 2010).



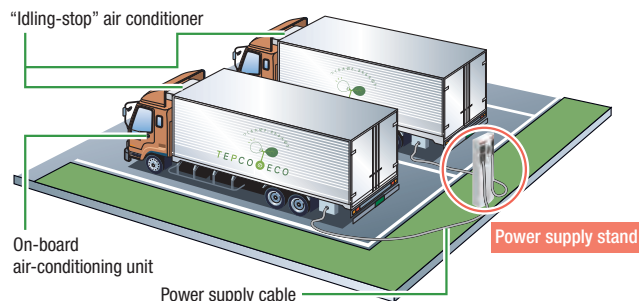
CHAdeMO Association logo

CHAdeMO Association promotes the dissemination of electric vehicles by supporting the improvement of charging technologies, standardization of charging methods, and provision of information on rapid chargers abroad.

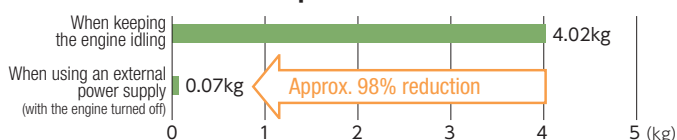
### CO<sub>2</sub> reduction measures aimed at stopping engine idling.

We have developed an idle reduction external power supply system, and have commercialized the system in 2007, to reduce CO<sub>2</sub> levels from transport businesses, in particular. By installing an externally powered air-conditioning unit in trucks and drawing electricity from an external power supply stand, truck drivers could use the air conditioner in the truck cab even with the engine turned off, during waiting and resting periods at parking facilities and rest stops. The system is expected to cut fuel costs by approximately 60% and reduce CO<sub>2</sub> emissions by as much as 98%, compared to keeping engines idling.

#### Overview of the external power supply system



#### CO<sub>2</sub> emission reduction potential



##### Calculation conditions

CO<sub>2</sub> emission intensity: diesel fuel 2.58 kg-CO<sub>2</sub>/L (Ministry of the Environment, "Greenhouse Gas Emissions Calculation and Reporting Manual"); electricity 0.324 kg-CO<sub>2</sub>/kWh (FY2009 TEPCO performance)  
 Fuel consumption by large trucks: 1.56 l/h (calculated using survey data from the Ministry of the Environment)  
 Electricity consumption by large trucks: 0.22 kWh/h (TEPCO survey value)

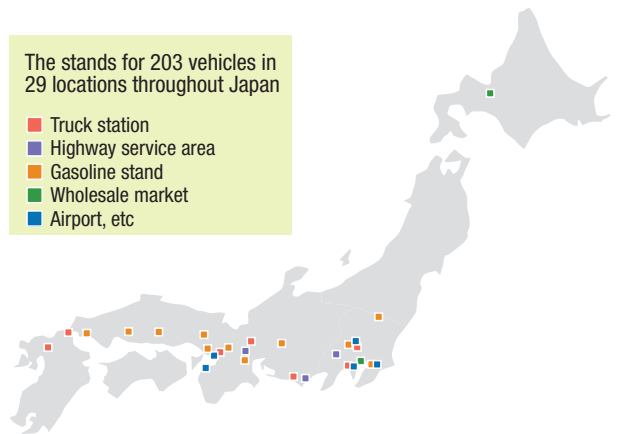
### ■ Dissemination of power supply stands

Power supply stands are widely used at truck stations and Highway service areas, truck waiting zones in wholesale markets and airports, and various other locations. In FY2009, we introduced the system to the Dangozaka service area and to Narita International Airport, located within our service area, as well as promoted the dissemination of the system in areas outside our service area. As a result, there are now power supply stands for 203 vehicles (111 units) in operation in 29 locations throughout Japan, as of March 31, 2010.

#### Installation of power supply stands (as of March 31, 2010)

The stands for 203 vehicles in 29 locations throughout Japan

- Truck station
- Highway service area
- Gasoline stand
- Wholesale market
- Airport, etc



### ■ Power supply system demonstration test in Tsukiji Market

At Tsukiji Market, Tokyo Metropolitan Central Wholesale Market, we implemented a demonstration test on the environmental load reduction potential of the external power supply system, from May 2009 to March 2010. The test was designated a model project of the Ministry of Economy, Trade and Industry, and was performed using frozen tuna trucks, which normally keep their engine running during the whole time they await their load in Tsukiji Market. The refrigeration unit in the body of the trucks and the air-conditioning unit in the driver's cabin were powered by electricity with the engine turned off, to examine the effects of using electricity in reducing CO<sub>2</sub>, NO<sub>x</sub> (nitrogen oxides), SPM (suspended particulate matter), noise, and vibration levels.

The test verified environmental load reductions in all test items, as well as confirmed the validity of new technologies, such as wall-mounted power supply stands that can be installed even in narrow or tight spaces.



Power supply system introduced to Tsukiji Market

# Biodiversity Conservation

## Initiatives for biodiversity conservation

TEPCO strives to create a relationship of harmonious co-existence between man and nature by minimizing any impact its business activities may have on the environment and by actively protecting, conserving, and creating natural environments, in recognition of its social responsibility to future generations.

## Efforts to conserve biodiversity

We have long been taking active measures to greenify our power stations and to protect the natural environment of Oze. We also carry out studies and research in pursuit of effective conservation measures, and combine the knowledge gained through these studies and research with our natural assets in the implementation of "TEPCO Nature School" activities. Through the environmental communication activities of the TEPCO Nature School and other initiatives, we are actively promoting an awareness of the significance of biodiversity conservation.

See p. 54 for details on the TEPCO Nature School.



Biotope at the Shinagawa Thermal Power Station

## [Reference] Social trends in biodiversity conservation

The Convention on Biological Diversity was opened for signature at the 1992 United Nations Conference on Environment and Development (UNCED), together with the Framework Convention on Climate Change. As of June, 2010, 193 countries and regions, including Japan, have joined the convention to discuss the international framework for biodiversity conservation.

With the Conference of Parties to the Convention (COP10) slated to be held in Japan in October 2010, various preliminary activities are gathering momentum within the country. Already, Nippon Keidanren (Japan Business Federation) issued a Declaration of Biodiversity in March 2009, and the Federation of Electric Power Companies of Japan formulated the Electricity Utility Industry's Action Guidelines for Biodiversity in April 2010. Even aside from these initiatives, we are seeing the formulation of many other policies and guidelines regarding corporate initiatives for biodiversity conservation today.

## Facilities designed with due consideration to biodiversity

When building facilities, TEPCO gives due consideration to protect, conserve, and create the natural environment, we also assess the ecosystem of plants and animals living in the area to protect their habitat and create a suitable environment for them.

### Environmental considerations in the construction of the Higashidori Nuclear Power Station

The planned site of the Higashidori Nuclear Power Station (Higashidori Village, Shimokita-gun, Aomori Prefecture) is a marshland that is home to rare plants and animals such as the scarce large blue butterfly and Japanese skimmer dragonfly. To prevent any impact on the marshland, we are restricting land development to the minimum necessary area. In the area marked for development, we transplanted blocks of marshland and developed a "biotope corridor" that connects the transplanted blocks with existing lakes and marshes to



Orthetrum japonicum

prevent the segregation of the natural wildlife habitat. Post-development surveys have confirmed the existence of the majority of living organisms that originally existed in the area.

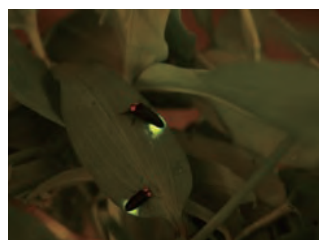
## Conducting studies and research

TEPCO utilizes its natural assets to carry out studies and research with a view to developing biodiversity conservation measures at its power facilities and establishing environmental assessment methods.

### Survey activities in the Atema Kogen highlands

To create a natural environment for fireflies, ATEMA KOGEN RESORT INC. (Tokamachi City, Niigata Prefecture), a member of the TEPCO Group, implemented a demonstration test on firefly habitat.

The company surveyed environmental elements that support each life stage of the firefly (egg, larva, pupa, adult), and created an environment suited to their habitation. As a result, the environment has become home to more



Luciola cruciata and Luciola lateralis

than 100 fireflies today, where there were only about 10 adult fireflies in 2003. The survey results will be utilized in performing environmental assessment surveys and in maintaining greenery.

ATEMA KOGEN RESORT INC.: [www.belnatio.com](http://www.belnatio.com) (Japanese only)

**Comment from a stakeholder :**

TEPCO should more actively call for public participation in environmental conservation activities. (Questionnaire)

**TEPCO's reply :**

We initiate volunteer beech tree-planting activities in the Oze-Tokura Forest and a variety of other environmental conservation activities. Information on various events and calls for participation are also posted on the TEPCO Nature School website.  
Invitation from Oze: <http://www.tepco.co.jp/oze/index-j.html> (Japanese only)  
TEPCO Nature School: <http://www.tepco.co.jp/eco/ns/index-j.html> (Japanese only)



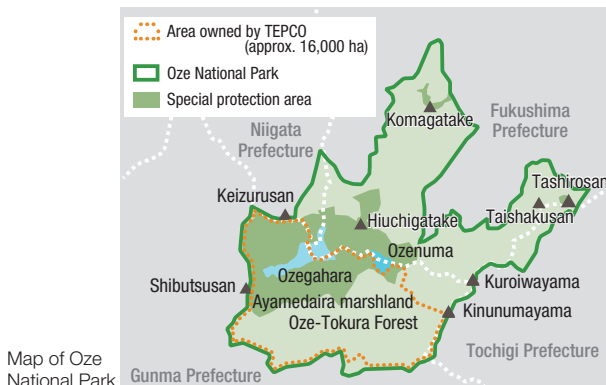
## Natural environment protection activities in Oze

TEPCO owns about 70% of the Oze National Park Special Protection Area, which corresponds to about 40% of the entire national park. We inherited the land in the early 1900s at the time of establishment from a precedent electric power company, which originally acquired the land with the aim of utilizing its abundant water resources for power generation. When the power generation plan was abandoned thereafter, we came to recognize the beautiful nature of Oze as a national asset, and as our social responsibility as owner of the land, we have spent more than a half-century protecting the beautiful environment in cooperation with OZE Corporation, a member of the TEPCO Group.

**Web** OZE Corporation: [www.tgn.or.jp/oze](http://www.tgn.or.jp/oze) (Japanese only)



The white arum in bloom at Ozegahara (May - June)



Map of Oze National Park

## Maintenance of public facilities for environmental protection

To allow visitors to experience the nature of Oze up close while minimizing any impact on the natural elements, wooden walkways weave through the park over a total distance of around 65 kilometers. TEPCO is restoring and renewing about 20 kilometers of those walkways in Gunma Prefecture. We also contribute to protecting the natural environment by developing environmentally-conscious public facilities. For example, we have upgraded public restrooms in the park by introducing septic tanks that are capable of purifying water to a quality that measures up to the water quality of natural rivers and installing photovoltaic generation facilities, and have also placed feet mats at the entrances to the park to prevent the intrusion of foreign plants.



Maintenance of the wooden walkway

## Restoration of the Ayamedaira Marshland

The Ayamedaira Marshland, located south of the Ozegahara Wetlands, was once known as Japan's celestial paradise. However, the booming popularity of Oze hiking in the 1960s brought vast numbers of visitors to the area and caused great damage to the marshland. We have been working to restore the natural environment of the marshland since 1969, and have so far succeeded in restoring as much as approximately 90% of the marshland's original green landscape.



Vegetation restoration work in Ayamedaira

## Acquisition of forest certifications in recognition of preservation activities in the Oze-Tokura Forest

The Oze-Tokura Forest, where TEPCO has continued to implement forest conservation activities over many years as owner of the forest, has earned two forest certifications.

In August 2009, we became the first to be awarded the "Forest CO<sub>2</sub> Absorption and Biodiversity Certification" (commonly known as "Foreststock Certification") in recognition of the forest's CO<sub>2</sub> absorption function, high biodiversity, and water/soil conservation. In February 2010, we acquired the FSC-FM Certification from the Forest Stewardship Council (FSC), an international forest certification institution, in recognition of our proper management of the forest with due consideration of the natural environment and local community.



Large beech tree in the Oze-Tokura Forest



## Protecting the watershed forest

**Yoshitaka Tatsui**  
Greening Management & OZE preservation Group,  
Environment Department



The Oze-Tokura Forest is a vast watershed forest situated in the most upstream area of the Tonegawa River. Since 1965, TEPCO has been nurturing and managing this forest as a watershed protection forest for a hydropower plant located downstream of the river. In 1997, TEPCO began planting beech trees and other broadleaf trees and clearing the underbrush to growth saplings every year with the cooperation of some 300 volunteers.

The Oze-Tokura Forest is essentially "TEPCO's Forest." Taking the occasion of the recent certifications, we hope to further enhance its rich natural environment by dividing the forest into areas based on their condition, such as areas where the ecosystem needs to be protected, areas where more attention needs to be given to forest management, and areas that may be used for research and environmental education purposes, and engaging in forest management practices appropriate to each area in reference to expert advice and views.



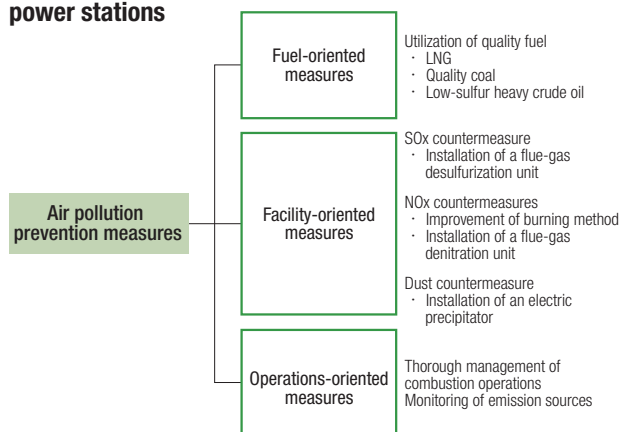
# Air Pollution & Hazardous Substance Countermeasures

## Tight control of SOx and NOx emissions from power generation

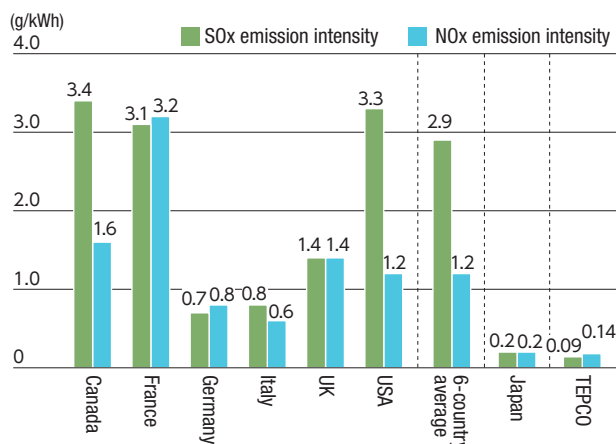
Thermal power plants emit air pollutants such as Sulfur oxides (SOx) and Nitrogen oxides (NOx) when they burn fuel.

To control the emission of these substances as effectively as possible, TEPCO is approaching the issue from the three perspectives of fuel, facilities, and operations. Owing to these measures, we are maintaining emission levels that are extremely low even by global standards.

## Outline of air pollution prevention measures in thermal power stations



## International comparison of SOx and NOx emission intensities (average of thermal power stations)



(Note) TEPCO figures represent FY2009 TEPCO performance. Figures for Japan are FY2008 values (based on a survey by the Federation of Electric Power Companies of Japan). Figures for the other 6 countries are 2005 values. TEPCO's SOx emission intensity was 0.14 and NOx emission intensity was 0.18 in FY2008 and FY2005.

Source: Calculated based on OECD, "OECD Environmental Data Compendium 2006/2007"; and IEA, "Energy Balances of OECD Countries 2010 Edition"

## Proper storage and detoxification of PCB\* waste

TEPCO takes the proper steps to properly store and manage PCB waste in its facilities in compliance with relevant laws and regulations, and is systematically implementing detoxification plans.

### \*PCB (polychlorinated biphenyls)

Organic compounds composed of carbon, hydrogen, and chlorine. As they do not decompose naturally, they tend to accumulate in the fatty tissue of organisms. The toxicity of PCBs came to light in the 1968 Kanemi Oil Poisoning Case, which led to a termination of PCB production in 1972.

## Remaining number of PCB-contaminated devices, number of devices treated, and future treatment targets (as of March 31, 2010)

	Treatment	Remaining number of devices	Number of devices treated & future treatment target
devices originally contained PCB insulating oil	Undertaken by JESCO (Japan Environmental Safety Corporation)	Approx. 3,500 transformers and capacitors*1	289 devices have been treated (2 were treated by TEPCO for research purposes) The rest will be systematically treated hereafter.
devices inadvertently containing PCB	Treated by TEPCO facilities and undertaken by JESCO*2	Approx. 620,000 pole transformers	Housing: 480,000 units have been treated by washing. Treatment target: approx. 100,000 units per year Insulating oil: 28,000 kℓ have been treated. Treatment target for TEPCO facilities: approx. 3,000 kℓ per year

\*1 Not include devices weighing less than 10 kg.

\*2 Insulating oil from the Tokyo region is separately treated by JESCO's Tokyo facility (low-concentration PCB treatment facility).

## Detoxification of PCB waste

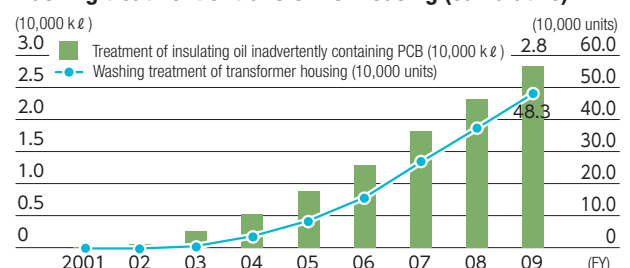
Since discovering that some of the insulating oil used in pole transformers contains trace amounts of PCB that should not be present in the first place, TEPCO has been systematically treating the transformers and oil at its 3 recycling centers and outsourcing the treatment of insulating oil from units within the Tokyo metropolitan area to JESCO's Tokyo Plant. The insulating oil that has been detoxified at TEPCO's facilities is thermally recycled\* as fuel for generating power, and the transformer housing is washed and its parts reused as raw material for steel/copper and roadbed material.

Since FY2008, TEPCO has subcontracted the treatment of devices that contain PCB as insulating oil to JESCO, and has treated 289 devices as of FY2009.

### \*Thermal recycling

The process of reusing the heat energy that is released when burning recovered waste.

## Treatment of insulating oil inadvertently containing PCB and washing treatment of transformer housing (cumulative)



(Note) Figures for FY2005 and on include amounts treated at JESCO's Tokyo Plant.

# Recycling of Resources



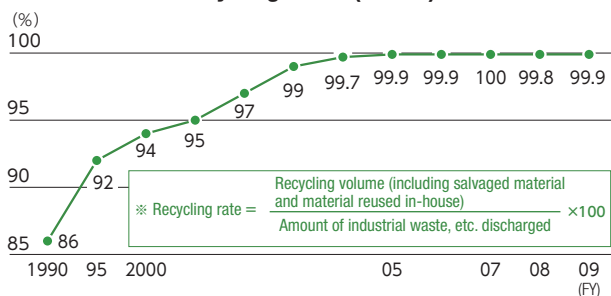
## Initiatives for industrial waste recycling

The TEPCO Group is making active efforts to attain a 100% recycling rate of industrial waste, with the aim of minimizing the environmental load of its business activities. We are also striving to create a recycling society by pursuing various eco-conscious business activities by Group companies.

## Achievements of TEPCO's recycling initiatives

In FY2001, we established the target of "achieving 100% recycling rate of industrial waste by FY2005," and practically achieved this target through Company-wide efforts. We came close to achieving this 100% target again in FY2009, as a result of continued efforts.

### Industrial waste recycling rate\* (TEPCO)



### Breakdown of major industrial waste (TEPCO, FY2009)

Unit: kt/year

Type of waste	Amount produced <sup>※1</sup>	Use after recycling
Coal ash	475.2	Raw material for cement, land reclamation, etc.
Scrapped concrete utility poles	109.7	Roadbed material, etc.
Desulfurized gypsum	90.7	Gypsum boards, cement raw material, etc.
Metal scraps	57.9	Metal materials, recycled cables, etc.
Waste oil	8.2	Fuel substitute, heat recovery, etc.
Shells	7.5	Fertilizer, raw material for cement, soil amendment, etc.
Sludge from wastewater treatment <sup>※2</sup>	5.0	Raw material for cement, steel, etc.
Insulator scraps	3.3	Blocks, roadbed material, etc.
Heavy/crude oil ash	2.6	Metal recovery, raw material for cement
Waste plastics	1.3	Plastic recycling, heat recovery, etc.
Concrete fragments	1.1	Roadbed material, etc.
Thermal insulation scraps	0.4	Recycled thermal insulation, roadbed material, etc.
Other	11.0	—
Total	774.0	Recycling volume <b>773.0</b> Waste sent to landfill <b>1.0</b> (Recycling rate <b>99.9%</b> )

※1 Amount of waste produced = Salvaged materials + materials reused in-house + industrial waste

Radioactive waste is not included in industrial waste, as it is separately governed by nuclear power laws and regulations.

※2 Weight after dewatering

(Note) Figures have been rounded to the nearest tenth.

## Recycling initiatives by TEPCO Group companies

TEPCO Group companies have established a target of achieving a 100% industrial waste recycling rate by FY2010, and are implementing recycling policies. The Group Environmental Committee supports each Group company's efforts to increase recycling rate, as appropriate to their respective businesses.

In FY2009, 9 companies achieved a recycling rate close to 100%, and 7 a recycling rate higher than 95%.

See p.50 for information on Group Environmental Committee.

## Promotion of recycling businesses by Group companies

Members of the TEPCO Group exploit their business expertise to launch diverse recycling projects.

### ■ Sewage sludge recycling

Tokyo Electric Power Environmental Engineering Co., Inc., a member of the TEPCO Group, manufactures non-fired brick blocks made partly from sewage sludge incineration ash. In addition to incineration ash, these bricks also contain quarry dirt and molten slag, and are made almost 80% of recycled materials.

The bricks also offer outstanding water permeability and water retention, and can help mitigate floods and the heat island effect. Furthermore, the production process of non-fired bricks emits less CO<sub>2</sub> compared to the production of fired bricks that consume fossil fuel.



Pavement made of non-fired bricks

[Web Tokyo Electric Power Environmental Engineering Co., Inc.](http://www.tee-kk.co.jp)  
: [www.tee-kk.co.jp](http://www.tee-kk.co.jp) (Japanese only)

### ■ Waste power generation

TOKYO WATERFRONT RECYCLE POWER CO., LTD., a TEPCO Group company, operates the recycling facility "Super Eco Plant" for industrial and medical waste. Metals, aluminum, slags, and other by-products of the recycling process are recovered, and waste heat is used to generate power. It emits less CO<sub>2</sub> compared to simple combustion facilities.



"Super Eco Plant"

[Web TOKYO WATERFRONT RECYCLE POWER CO., LTD.:](http://www.tgn.or.jp/tokyorp)  
[www.tgn.or.jp/tokyorp](http://www.tgn.or.jp/tokyorp) (Japanese only)

# Environmental Management

## Establishment of an environmental management framework

Each TEPCO Group company abides by its own environmental management system\* to ensure compliance with environmental laws and regulations, prevent pollution, steadily improve environmental performance, and otherwise manage the environmental aspects of its diverse business activities, and strives to improve the system on an ongoing basis.

### \*Environmental Management System (EMS)

A management scheme that promotes and controls the voluntary and ongoing efforts of companies and organizations to address environmental issues.

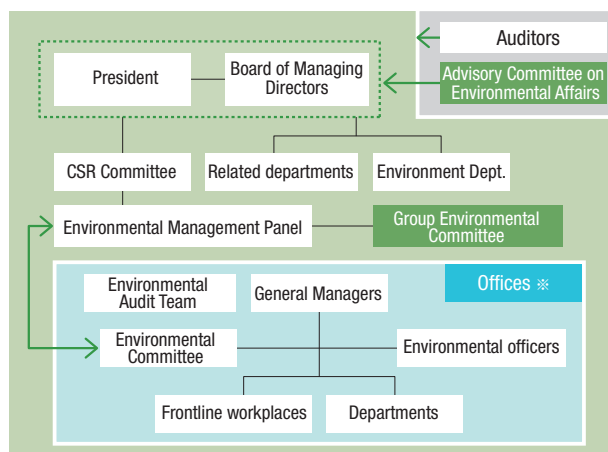
## Environmental management framework

The CSR Committee Environmental Management Panel established in the TEPCO Head Office sets environmental policies and targets for the entire Group, promotes environmental measures, and checks and reviews environmental performance. In other offices, the Environmental Committee assumes that role.

The TEPCO Advisory Committee on Environmental Affairs, composed of outside experts and specialists, provides guidance and advice on improving TEPCO's environmental initiatives. (See pp. 76-77 for details.)

Additionally, TEPCO and 40 Group companies have established the Group Environmental Committee to improve the Group's environmental management by sharing information, reducing environmental risks, and publicly disclosing pertinent information, as its priority policies.

## Environmental management framework



※ Offices: Branch offices, power system offices, thermal power offices, nuclear power stations, construction offices

## ■ Environmental management systems at TEPCO offices

All TEPCO offices that implement environmental conservation activities, including branch offices and power stations, establish and operate an environmental management system (EMS) conforming to the ISO14001\* standard.

An Environmental Audit Team composed of employees from each business unit regularly performs an internal environmental audit to verify EMS implementation status, and applies the audit results to improving daily operations and reviewing various systems to ensure continuous EMS enhancement.

TEPCO also considers ISO14001 certification as an effective tool for receiving objective third-party assessments of EMS operations and for taking environmental management to a higher level. Some TEPCO offices that have already acquired ISO14001 certification are actively improving their EMS based on the certification.

### \*ISO14001

An international standard for environmental management systems established by the International Organization for Standardization.

## ISO14001 certification status

Office	Scope of registration	Registration
Yamanashi Branch Office	All offices under its management	December 27, 1999
Chiba Branch Office※1	All offices under its management	March 29, 2000
Kashiwazaki-Kariwa Nuclear Power Station	Entire site of the Kashiwazaki-Kariwa Nuclear Power Station	August 20, 2001
Higashi Thermal Power Office※2	Head office and all thermal power stations under its operation (the Chiba, Goi, Anegasaki, Sodegaura, and Futtsu Thermal Power Stations)	February 25, 2002
Nishi Thermal Power Office※3	Head office and all thermal power stations under its operation (the Minami-Yokohama, Higashi-Ohgishima, Yokohama, Kawasaki, and Yokosuka Thermal Power Stations)	March 25, 2003

※1 The scope of registration was expanded to include all offices under the management of the branch office on March 29, 2006.

※2 The scope of registration was expanded to include all offices of the thermal power office on February 25, 2003.

※3 The scope of registration was expanded to include all offices of the thermal power office on March 24, 2010.

## ■ Environmental management systems in Group companies

Tokyo Electric Power Services Co., Ltd., a member of the TEPCO Group, provides advice and tools to support the establishment and operational improvement of EMS in other Group companies through the Group Environmental Committee. It also provides basic EMS training and company-specific internal environmental audit training, with the aim of increasing employee knowledge in Group companies.

As of March 31, 2010, 12 companies belonging to the Group Environmental Committee have acquired ISO14001 certification, and 20 companies are building an EMS that conforms to the ISO14001 standard. TEPCO Group companies keep track of their environmental load targets and achievements, compile environmental activity reports, and disclose them on their respective websites.

[Web Tokyo Electric Power Services Co., Ltd.: www.tepscoco.jp/index-e.html](http://www.tepscoco.jp/index-e.html)



**Comment from a stakeholder :**

Please continue to enhance environmental management and address environmental improvement. (Postcard)

**TEPCO's reply :**

TEPCO and the TEPCO Group make ongoing efforts to improve and review business operations by establishing and operating an environmental management system and regularly implementing internal audits.



## Improving employees' environmental awareness, knowledge and skills

TEPCO provides various employee training programs to assure its employees are capable of acting in an environmentally friendly manner at all times during the execution of their duties.

### ■ Training for employees assigned to environmental duties

A variety of training programs are available to employees who are assigned to environmental duties, such as Environmental Managers who play a central role in promoting environment management in their respective office, internal environmental auditors and waste management officers. These programs offer specific knowledge appropriate to each employee's experience level.

A broad menu of support services also helps employees enhance environmental awareness and knowledge, such as by sharing information on environmental laws/regulations and their amendments via Intranet, and providing consultation on environmental activities.

### ■ Environment education for all employees

At TEPCO, we implement general environment education for all employees. Through e-learning programs provided via Intranet, they develop environmental awareness by learning about TEPCO's environmental initiatives, about global environmental issues such as global warming, and about other topics related to the environment.

In June-July 2009, more than 10,000 employees participated in the TEPCO Examination (Environment) on the company's environmental initiatives. The examination allowed the participants to diagnose their own knowledge level, as well as inspired further interest in the environment.

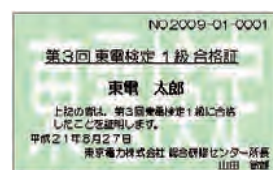
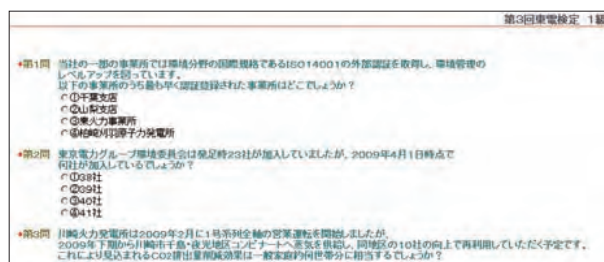
At the office level, independent efforts are being made to increase environmental awareness and knowledge among employees, such as by organizing study groups about the content of TEPCO's Sustainability Report, and holding lectures on heat pumps, electric vehicles, and other topics of high social interest.

## Major group environmental training programs (FY2009)

Name of program	Description	Attendance ※1 record
Training program for new Environmental Managers and environmental officers	EMS, trends in global warming issues, management of waste materials and hazardous substances, environmental communication, etc.	139
Environmental laws and regulations	Study of major environmental laws, regulations, and manuals, practical knowledge of compliance confirmation methods, etc.	69
Basic training in internal environmental auditing	Overview of EMS, basic internal auditing procedures, audit simulations, etc.	66
Workshop on proper waste treatment (for working-level and middle management-level employees)	Study of laws and regulations related to waste materials, practical knowledge of waste treatment methods, etc.	977 ※2
Training for development of nature observation guides	Knowledge of nature, safety measures, observation guidance skills, program-making, etc.	98 ※2
Qualification acquisition courses	Preparation for the Certification Test for Environmental Specialists (Eco Test) Preparation for the pollution control managers examination (air quality)	283

※1 Cumulative attendance

※2 Includes Group company employees



The TEPCO Examination (Environment) screen and certificate of completion

## The TEPCO Group's environmental performance

Item	Unit	TEPCO			TEPCO Group companies ※3		
		FY2007	FY2008	FY2009	FY2007	FY2008	FY2009
CO <sub>2</sub> emission ※1	kt-CO <sub>2</sub>	112	87	83	43	37	35
Electricity used in offices ※2	GWh	235	227	223	77	78	76
Water usage	million m <sup>3</sup>	1.34	1.28	1.23	0.44	0.42	0.39
Vehicle fuel consumption (gasoline consumed per driving distance)	ℓ/km	0.095	0.094	0.093	0.101	0.101	0.095
Gasoline consumption	million ℓ	5.28	4.96	4.70	4.56	4.66	4.39
Sheets of copy/printer paper purchased (A4 equivalent)	million	310	300	320	220	220	230
Industrial waste recycling rate	%	100	99.8	99.9	91.7	90.0	91.0
Industrial waste produced	kt	784	750	774	1,212	1,146	1,203

※1 Calculated based on electricity and gasoline consumption by offices. The following CO<sub>2</sub> emission intensity values were used: Electricity: TEPCO's yearly performance. Gasoline: 2.32 kg-CO<sub>2</sub>/ℓ

※2 Excludes electricity used in power stations

※3 The number of Group companies differs according to fiscal year. FY2007: 33 companies; FY2008: 34 companies; FY2009: 35 companies

# The TEPCO Group and the Community

TEPCO widely communicates with a diverse group of stakeholders in its business activities. Their views and requests are used to improve business operations and to retain strong customer trust.

## Enhancement of customer services

At TEPCO, our goal is to provide services that are appreciated by our customers, and to continue building trust relationships.

Every month, we receive about 30,000 customer opinions through various dialogue opportunities. These opinions are shared across the Company, and are used to improve business operations and create new services.

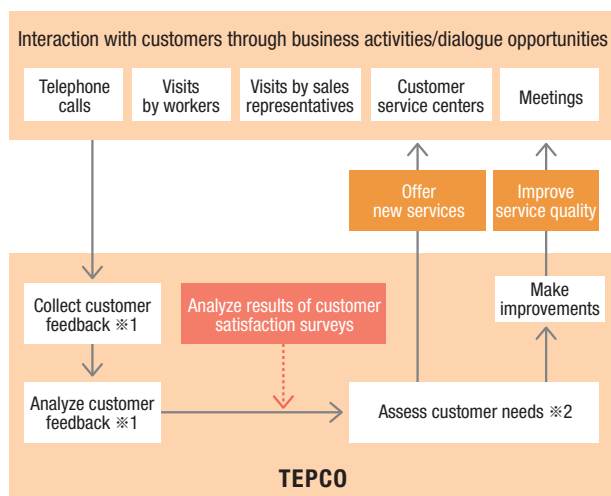
## Using customer feedback

Our offices and departments examine and analyze customer feedback to obtain clues for improving services and business operations. At customer service centers in each area, CS analysts play a central role in improving the quality of TEPCO services and operations in line with customer needs.



Meeting between CS analysts

## Utilization of customer feedback



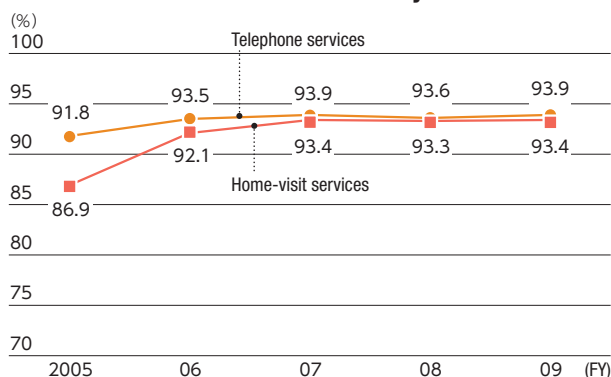
※1 Customer feedback is entered into an internal system, for use by all employees.  
 ※2 Based on the analysis results, an internal committee (Echo Committee) discusses new services and measures for improving quality.

> Contact Us

## Customer satisfaction surveys

Since FY1987, we conduct customer satisfaction surveys to assess our customers' satisfaction in the responses and work behaviors of TEPCO employees who process customer requests, such as those regarding relocation procedures or changes in ampere capacity by telephone or home visits. The results of the surveys are used to improve our operations and provide better services to our customers. We send out questionnaires to about 200,000 customers throughout the year. Results of the FY2008 survey showed that 93.9% of our customers are satisfied with our telephone services, and 93.4% are satisfied with our home-visit services.

## Results of customer satisfaction surveys



(Note) Figures represent the sums of the top two responses of "Fully satisfied" and "Satisfied," among five responses indicating the level of satisfaction regarding services.

## Services that have been improved by customer feedback

### ● The Switch! card application form has been improved.

The Switch! card application form now allows customers to enter up to three electricity contracts to be paid by credit card, so that customers who have multiple electricity contracts in a single location of electricity use can apply for credit card payment of multiple contracts with the same application form. This has been made possible with the cooperation of card operating companies.

Additionally, the conventional application form required customers to cut and paste part of the form to create a return envelope, but for more convenience to our customers, we now enclose a separate return envelope with the application form.

Finally, we have enlarged the printed text of the application form and provided more space for customers to fill in the required information.

### ● A flowchart of the standard process of introducing residential photovoltaic systems has been added to the Electricity Contract and Design handbook for people engaging in the design and marketing of residential houses.

In response to growing public interest in environmental performance and the dissemination of photovoltaic systems accompanying the new solar power purchase system, we have included an outline of the installation of photovoltaic systems, from application to payment, as well as wiring examples, in the Electricity Contract and Design handbook.

# Interaction with Customers

## Comfortable lifestyles based on electricity

TEPCO is recommending all-electric homes to residential customers under the slogan, "Switch! to low-carbon lifestyles." Recognizing the safety, comfort, economic efficiency, and environmental performance of all-electric homes, more than 95% of customers who have built an all-electric home say they are satisfied with the result. We will continue to support comfortable lifestyles through the use of electricity.

## Universal designs

To allow as many people as possible to lead safe and comfortable lifestyles through the use of electricity, we offer a variety of universally designed services at our showrooms.

For example, we produced a DVD that introduces how to select and use IH appliances, complete with closed captions, narrations, and sign language, so that elderly people and vision/hearing-impaired persons can easily understand.

Seeking to add comfort and safety to the daily living environments of our broad group of customers that include elderly and disabled persons, we also conducted surveys and studies and used the result to create the "Guidebook on All-electric Homes for Senior Citizens" as one of our universal design services. By sharing the knowledge we have acquired through these surveys and studies with product manufacturers, we contribute to the development of universal products that are easy to use by everyone. In local communities, we promote the use of IH cooking heaters for safe daily living, in cooperation with local governments and social welfare facilities.



"Guide to safe living" - Guidebook on all-electric homes for senior citizens (Japanese only)



"Comfortable kitchen life using an IH cooking heater" - Introductory DVD with closed captions, narrations, and sign language



Cooking class for the visually impaired (hosted by the TEPCO Chiba Branch Office)

## Provision of useful information on electricity

### ■ Proposals for comfortable living

The TEPCO Lifestyle Laboratory investigates and tests various electric appliances from the standpoint of users, and provides advice on how to select and use appliances that match each customer's needs, proposes energy-saving lifestyles, and provides other useful information. Along with the Switch! website, the Lifestyle Laboratory website comprehensively promotes convenient and comfortable living based on electricity.



Lifestyle Laboratory website



Switch! website (as of August 2010)

### ■ Information on electricity safety

Customers can learn about the safe use of electricity from our safety information booklets and website.



Booklet on electricity safety (Japanese only)



Booklet on electromagnetic fields (Japanese only)



# Environmental Communication

## TEPCO Nature School, a forum for communication with nature

TEPCO Nature School was established in April 2008 under the slogan, "Let us pass on abundant nature and nurturing spirits to the next generation." It brings together the various environmental communication activities which TEPCO has been implementing through the years, including nature observation events in the green areas of power plants and voluntary beech tree-planting activities in the Oze-Tokura Forest. To steadily continue with these activities, the school also directs its focus on the development of internal human resources, and receives advice and guidance from an Advisory Committee composed of outside biology experts and educators.

### Wildlife experience event for children and parents

TEPCO's power plants are surrounded by abundant greenery that fosters biodiversity. In addition to offering tours of power plant facilities, we focused our attention on the verdant environment surrounding those facilities and began sponsoring nature observation events in 1993, providing programs that match the seasons and opportunities for children and their parents to interact with nature.

At the Hitachinaka Thermal Power Station, TEPCO Nature School held a wildlife experience event for children and parents, in collaboration with Tokyo Electric Power Environmental Engineering Co., Inc., a member of the TEPCO Group. Prior to schools letting out, a group of 63 eager children and their parents (27 adults, 36 children) experienced the wonders of nature and wildlife.

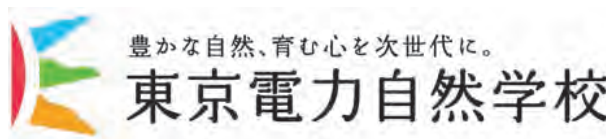
#### ● Program

- Capturing and observing wildlife (aquatic organisms and grasshoppers)
- Nighttime nature observation (including observation of fireflies)



Wildlife experience for children and parents

## The TEPCO Nature School logo



The shape of the logo symbolizes the sun's rays and the letter "E" for Earth, Energy, and Ecology. The colors represent the heat of the sun (red), clean water and air (blue), a verdant forest (green), and the earth (brown). Each of these elements is the source of TEPCO Nature School's activities.

### Facility and nature tour at Marunuma Dam

At Marunuma Dam, TEPCO Nature School provided a tour of the dam's facilities and the lush forest around the dam, in collaboration with Oze Corporation, a member of the TEPCO Group. The civil structure is designated an important cultural property, in recognition of its historical value.

A group of 27 participants, ranging in age from their 30s to 70s, learned about the mechanism of power generation and the dam's structure, and strolled along a lakeside nature trail, making brief stops to study the diverse species of massive trees in the area, which support the abundant water of the dam.

#### ● Program

- Observation of chestnuts
- The gradation of autumn leaves and its mechanism



Facility and nature tour at Marunuma Dam

### Development of internal human resources

At TEPCO, we also offer human resource training programs aimed at encouraging employees to widely participate in TEPCO Nature School activities. Employees who qualify as Nature Experience Leaders\* through these programs assume leadership roles in nature observation events and other environmental events held at our various power plants.

#### \*Nature Experience Leaders

A private qualification given to those who complete a training curriculum designated by the NPO Council for Outdoor and Nature Experiences (CONE)

## Initiatives for promoting interest in the environment

**TEPCO strives to promote interest in the environment across all generations of people through various initiatives.**

### Support for environment and energy education

To increase awareness of environmental issues across all generations, we offer environment and energy workshops for teachers and environment and energy courses for children. We will continue to promote effective environment and energy education as appropriate to the local characteristics of each region, in close cooperation with people who are in the position to educate the next generation.



Environment and energy course for children



Environment and energy workshop for teachers

#### Participants in FY2009 environment and energy courses

37,998	9,602	1,009
elementary school students	junior high school students	high school students

#### Participants in FY2009 environment and energy workshops

2,232  
teachers and educators

### National Environment Contest for University Students (Eco Contest)

Since 2003, we have sponsored the National Environment Contest, otherwise known as "Eco Contest," in support of the environmental initiatives of university students. Since university students have few opportunities to introduce their environmental initiatives to society, the contest provides a forum where they may present their activities to a panel of judges composed of environmental experts (members from academic, governmental offices, private companies, NPOs, etc.), students from throughout Japan, and the general audience, who evaluate each entry and select a winner according to a public screening process. In FY2009, approximately 1,300 students from 58 organizations participated in the contest.

To the university students, the contest is an ideal opportunity for them to review their own environmental activities and to obtain hints for new initiatives from the ideas and know-how of the other participants. To TEPCO, it is an ideal means for promoting student-led environmental activities throughout Japan and contributing to creating a better society.

### Disseminating and raising awareness of eco-conscious behavior

In January 2008, Chiyoda Ward adopted an ordinance to mitigate global warming, and established a CO<sub>2</sub> emission reduction target, as the first to do so among the 23 wards of Tokyo. It is also working to disseminate and raise awareness of the Chiyoda Eco System (CES), a scheme for promoting eco-conscious behavior among the ward's population, including those who commute to work or school in the ward, through the CES Promotion Association.

As a member of Chiyoda Ward, TEPCO's Ginza Branch Office took part in establishing the association, and shares in the efforts to promote eco-conscious behavior among all individuals, by cooperating in holding environmental lectures and exhibitions, recommending the use of personal chopsticks and eco lunch bags, and organizing cleanup events.



Symposium



Making personal chopsticks and eco bags

### "Naturing Festa – Enjoy Nature in Matsumoto"

Every year, TEPCO employees volunteer as operating staff members of "Naturing Festa – Enjoy Nature in Matsumoto," an event sponsored by Matsumoto City, Nagano Prefecture and held at a TEPCO-owned site.

The event provides children an opportunity to interact with nature while having fun. It inspires them to think about "preserving nature" and "the mutual significance of nature and environmental protection" through various programs, such as the CO<sub>2</sub> Diet Declaration program and woodworking classes using driftwoods from dams.

We will continue to take part in running the event and interacting with visitors through these programs, with the goal of nurturing the hearts and minds of children who will lead our future.



Naturing Festa



# Interaction with Local Communities

## Partnerships with local communities based on mutual collaboration

The business activities of the TEPCO Group are supported by local communities. As a member of these communities, we contribute to their development by collaborating with local residents and sponsoring activities related to local safety, education support, welfare, and culture.

## Producer-consumer exchange activities: connecting electricity producing and consuming regions

We organize and sponsor producer-consumer exchange activities to promote mutual understanding between communities where our nuclear power plants are located (electricity producing regions), such as Fukushima Prefecture, Niigata Prefecture, and Aomori Prefecture (under construction preparation), and the Tokyo metropolitan area, a major electricity consuming region.

For example, in the Tokyo metropolitan area, we sponsor special campaign events that introduce local tourist attractions and specialties of these electricity producing regions, publicize the regions through active use of television, radio, and other mass media, and hold face-to-face exchange events that bring together our regional TEPCO offices and customers.

### ■ "Home of Electricity" exchange event

We hold a "Home of Electricity" exchange event every year with the aim of communicating the importance of global environmental issues and energy conservation, and to promote exchanges between energy producing and consuming regions through sales of local specialty products from Fukushima and Niigata Prefectures, where our nuclear power plants are located, and introduction of folk crafts and tourist attractions in those regions. The event is held every late October in the Shinjuku Station West Exit Plaza.



"Home of Electricity" exchange event

### ■ TV program: "Aoi mori no kuni kara (From the land of blue forests)" (Aomori Television Broadcasting Co., Ltd.)

We sponsor a TV program, which features topics related to foods produced in Aomori Prefecture. It includes interviews with producers and introductions of restaurants in Tokyo that use those local food ingredients. (BS Fuji: Saturdays 9:54 - 10:00 pm)

## Promoting local safety

As a member of various local communities, the TEPCO Group takes an active part in promoting local safety.

### ■ Road ★ Supporters: preventing traffic accidents

TEPCO's Utsunomiya Branch hosts a conference called "11 Municipalities and TEPCO Disaster Prevention Summit" to discuss disaster responses and preliminary countermeasures with municipalities in the region it serves. The branch office launched this initiative based on the awareness that cooperation among local communities, government offices, and private companies is indispensable when faced with a large-scale disaster.

The Road ★ Supporters initiative is a public-private cooperation framework born from the conference. All staff members of the Utsunomiya Branch Office act as "road supporters" and help prevent traffic accidents by always carrying with them a "supporter card" listing contact offices in each municipality and promptly reporting any dangerous areas they discover to the relevant office.

### Prompt communication of danger areas to relevant municipal contact offices



### ■ Wiring diagnosis in homes of elderly people living alone

We collaborate with various local organizations to ensure safe and secure usage of electricity. TEPCO's Fuji Branch visits the homes of elderly people living alone and performs a safety inspection of electric facilities (insulation inspection, voltage measurement, confirmation of terminals and other parts, etc.) at the request of the Shibakawa Town Fire Department in Fujinomiya City. Many customers expressed their appreciation of the service, saying that it has relieved them of worries about electricity in their homes.



Wiring diagnosis for fire prevention (photo provided by Gakunan Asahi Newspaper)



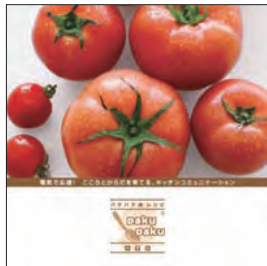
## Development and training of future supporters of local communities

The TEPCO Group utilizes the knowledge it has cultivated through its business activities to help promote the development and training of people who will support local communities in the future.

### ■ TEPCO Food Classes

Food education is an important part of our social contribution activities in local communities. In FY2009, we held TEPCO Food Classes on 28 different occasions, and provided cooking lessons from the environment and energy perspective.

We also make ongoing efforts to provide food information, such as by creating and distributing "Paku-paku Recipes," a booklet containing a collection of vegetable-based recipes for elementary school children, and producing a CD of recipes that junior school teachers could use as supplementary teaching material in home economics cooking classes at school.



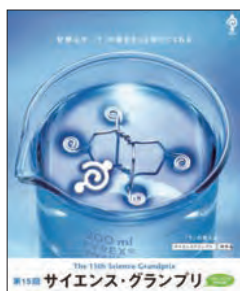
"Paku-paku Recipes"

### ■ Science Grand Prix

Science and technology play an indispensable role in our lives and in the development of industries. TEPCO, as a company that is deeply related to science and technology by producing energy and delivering electricity to customers, has held a Science Grand Prix since FY1995, with the desire to contribute to science education for the next generation.

Science Grand Prix is a contest of independent science projects for elementary and junior high school students in Tokyo and the eight prefectures that make up the TEPCO service area. It is held annually under the sponsorship of the Ministry of Education, Culture, Sports, Science and Technology, prefectural boards of education, and national elementary and junior high school science education councils.

We hope that the contest will encourage children to become more aware of various phenomena and occurrences in their daily lives, and will deepen their interest in science by pursuing those phenomena through experiments and observation. We will continue to host the contest in the future, to foster a spirit of technical innovation among children who will lead the 21st century.



Science Grand Prix

### ■ Support for work experience events

TEPCO's Koto Branch takes an active part in "Wakuwaku Week Tokyo," an event sponsored by Tokyo Prefecture for junior high school students. In cooperation with the boards of education of Tokyo and Koto Ward, we provide lectures on energy to students in the region, as well as offer hands-on experience in TEPCO's electricity meter-reading activities, cooking using IH cooking heaters, and riding a maintenance vehicle used for work in high places. Through such work experiences in actual working environments, we aim to foster social skills and work values in children. On the last day of the event, we present a certificate of completion to each participant.



Work experience event

### ■ Nursing care training program for junior high school students

TEPCO Partners Co., Inc., a member of the TEPCO Group, applies the expertise it has cultivated in the field of nursing services to promoting awareness of the unavoidable issue of nursing care. It arranges student visits to elderly daycare facilities and otherwise provides elementary and junior high school students various opportunities to interact with senior citizens and to experience work at nursing homes. It also teaches people about basic nursing care that would be useful to know should the need arise. These initiatives contribute to creating communities where people can age comfortably, safe in the knowledge that the issue of nursing care is supported by the entire community.



Visits to elderly daycare facilities by elementary school students



Nursing care training

### ■ Employment experience for handicapped students

Toden-Life Support Co., Ltd. operates private nursing homes and provides use of the homes as a place for practical training to students studying welfare at the Tokyo Metropolitan Eifuku Gakuen School, a school for students with special needs.

Every year since FY2008, the company has provided a 3-day employment experience to first grade students and a 2-week employment experience to second grade students of the school at its nursing homes, to set an example to other nursing service businesses and promote their employment of handicapped students.

Through exchanges of views with the teachers of the school, Toden-Life Support tries to provide the best



A trainee from Eifuku Gakuen School interacting with a nursing home resident

possible assistance and guidance program in response to the needs of the students.

**Web** Toden-Life Support Co., Ltd. : [www.toden-lifesupport.co.jp](http://www.toden-lifesupport.co.jp)  
(Japanese only)

### ■ Nuclear Fuel Eco School: teaching about radiation

Japan Nuclear Fuel Limited (JNFL), a member of the TEPCO Group, offers monthly Nuclear Fuel Eco Schools to local residents, to provide information on the mechanism and safety of radiation.

To facilitate proper understanding of radiation, a topic that few people are exposed to in their daily lives, Nuclear Fuel Eco Schools are held in combination with various types of culture classes. Participants' evaluations of the Nuclear Fuel Eco School have shown that the school has had a large impact on them, with many participants noting that it has dispelled the negative image they originally had of radiation and turned it to a positive image based on proper knowledge.



Part 1: Nuclear Fuel Eco School lecture on "radiation around us"



Part 2: Culture school lesson

**Web** Japan Nuclear Fuel Limited : [www.jnfl.co.jp/english/index.html](http://www.jnfl.co.jp/english/index.html)

### Social contribution through collaborative initiatives

The TEPCO Group contributes to society through collaborative initiatives with local communities and organizations.

#### ■ Lateral support for a collaborative activity between Kanagawa Prefecture and an environmental NPO

Office Chonai-kai (Office Neighborhood Association) is an environmental NPO, which engages in the Morino Chonai-kai (Forest Neighborhood Association) initiative to promote proper forest thinning. By encouraging member companies to use "forest thinning support paper," which costs 10% more than conventional paper, and contributing that 10% to promoting forest thinning, the initiative aims to achieve an economic balance between forest thinning and the utilization of products made from thinned trees.

In April 2010, the Kanagawa Prefecture Corporate Agency and the environmental NPO Morino Chonai-kai jointly launched the Kanagawa Morino Chonai-kai initiative at the proposal of TEPCO's Kanagawa Branch.

The Kanagawa Branch provides lateral support in inviting local companies to become supporters, and works closely with the prefecture and NPO to promote the growth of healthy forests in Kanagawa.



Kanagawa Morino Chonai-kai



Morino Chonai-kai logo

**Web** Morino Chonai-kai : [www.mori-cho.org/index-en.html](http://www.mori-cho.org/index-en.html)

#### ■ Local beautification and cleanup activities

At all offices of TEPCO Group companies, staff members collectively participate in the beautification and cleanup of their communities, such as around train stations, public streets, and even river basins, as members of their local community.

The TEPCO Group will continue to do its part in creating beautiful cityscapes in cooperation with local residents.



Members of TEPCO's Toukatsu Branch cleaning a road lined with cherry blossom trees



# Communication with Shareholders and Investors

## Promoting communication through IR activities

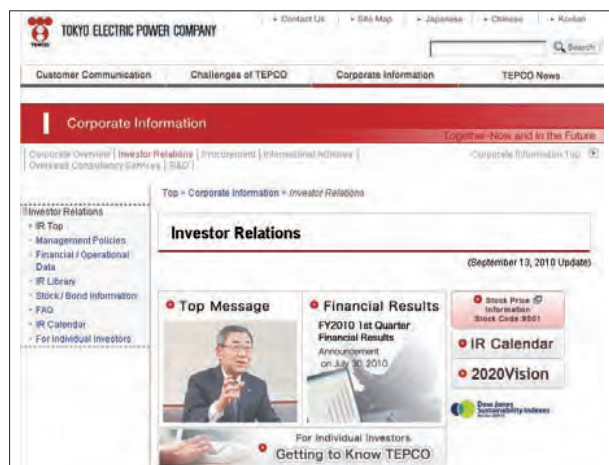
**TEPCO places high value on mutual communication with shareholders and investors, and places importance on IR activities to further improve business.**

## Providing IR information by means of various tools

To enhance business transparency and to incorporate external views in management decisions, we actively disclose information relevant to our shareholders and investors by means of annual reports and other such publications and our Internet website.

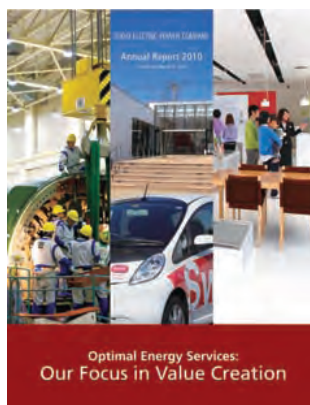
A host of IR information is available on our website, including management policies, financial results and other financial data, various reports such as investment reports and quarterly reports, annual reports, and performance reports, fact books, materials disclosed to the securities market, presentation materials(including videos),and FAQs.

### ■ Website



"Investor Relations" page

### ■ Publications



Introduces TEPCO's financial status (issued annually)



Information for shareholders (Japanese only)

## Explanatory meetings and tours

For our corporate investors and securities analysts, we hold an explanatory meeting to announce our business management plan at least once a year (end of March) and explanatory meetings to announce financial results at least twice a year (2Q (interim results), 4Q (full-year results)). After the closing of accounts, TEPCO management members personally visit and hold direct exchange of views with institutional investors inside and outside of Japan.

We also offer tours of our facilities, such as our power plants and research laboratories, so our investors may deepen their understanding of TEPCO's operations.

The views obtained through these IR activities are shared across the board and used to improve business activities and increase TEPCO's corporate value.

### ■ Explanatory meetings



IR Briefing Session

### ■ Facility tours



TEPCO showroom tour



# Interaction with the International Community

## Sustainable energy development

TEPCO aims to become a top runner in global energy services, and supports the sustainable development of energy around the world. By providing technologies and fostering human resources in the electricity sector, we help build electric power infrastructures that are necessary for comfortable living and promote the effective utilization of resources in developing countries.

## Contribution through e8 activities

TEPCO and major electric power companies in the G8 countries engage in international activities aimed at addressing global environmental issues and promoting sustainable energy development, through a nonprofit organization called "e8" (established in 1992).



e8 Tokyo Summit logo

The e8 members, including TEPCO, contribute to building human resource capacities in developing countries by sponsoring projects and seminars designed to provide information and specialized technologies that promote efficient power generation and electricity use in developing countries.

We also use the electric power technologies we have cultivated through the years to contribute to the sustainable development of energy and to the transfer of technical knowledge concerning the construction and operation of small-scale hydropower plants in developing countries.

From June 2009 to May 2010, TEPCO served as the chair of the e8, and initiated discussions on the "smart use of electricity" through the year. As a result, the e8 members confirmed that the promotion of high-efficiency, low-carbon electric power systems and the smart use of electricity based on the dissemination of high-efficiency appliances such as heat pumps and the shift to electricity use from other heat sources are effective countermeasures to climate change, and announced an e8 declaration on the smart use of electricity at the Tokyo Summit held in May.



e8 Tokyo Summit

Web e8 : [www.e8.org](http://www.e8.org)

## Mini hydropower project in the Philippines



Rice terraces in Ifugao Province

As a specific project under the framework of the e8, we focused on the abundance of water resources in the Philippines and launched a small-scale hydropower plant project as a means for helping to preserve the UNESCO World Heritage Site of the "Rice Terraces of the Philippine Cordilleras\*".

Our technical expertise in hydropower generation was instrumental in constructing a 200 kW power plant in Ifugao Province, which was donated to the Philippine government upon its completion in January 2010. It is now in operation, and the profit from selling the produced electricity to the local power distribution association will be used to preserve the rice terraces.

We hope this project will serve as a specific model and promote global interest and support in the preservation of rice terraces in the Philippines.

### \*Rice Terraces of the Philippine Cordilleras

The rice terraces were referred to as the "stairways to heaven" for their magnificent landscape, and were inscribed on the UNESCO World Heritage List in 1955. Thereafter, however, they have gradually fallen to ruin as a result of modernization trends that have lured the local population to the cities. In 2001, the site was placed on the World Heritage in Danger List.



Training of power plant operators



Power generation facility (sand basin)

**Comment from a stakeholder :**

Please keep implementing environmental measures that takes into consideration the entire world. (Postcard)

**TEPCO's reply :**

We engage in international activities aimed at addressing global environmental issues and promoting sustainable energy development, through a nonprofit organization called "e8," in collaboration with major electric power companies in the G8 countries.

## Overseas consultancy services

**The TEPCO Group offers a wide range of overseas consulting services based on its technical capabilities, expertise, human resources and other such management resources, to both contribute to the international community and to develop and expand its business.**

### Study for introduction of an energy management system in Serbia

Energy conservation is a major concern in Serbia, where energy consumption per GDP is comparatively high and energy resources other than coal are dependent on imports. In light of this situation, the country is seeking to introduce a system that would promote active energy-saving efforts by energy users.

In support of this initiative, TEPCO is implementing a study on the introduction of an energy management system in Serbia, under contract from Japan International Cooperation Agency (JICA). A survey team dispatched to Serbia is providing assistance in designing and introducing an optimum energy management system.



Local workshop in Serbia

### Project to support the national power development plan in Vietnam

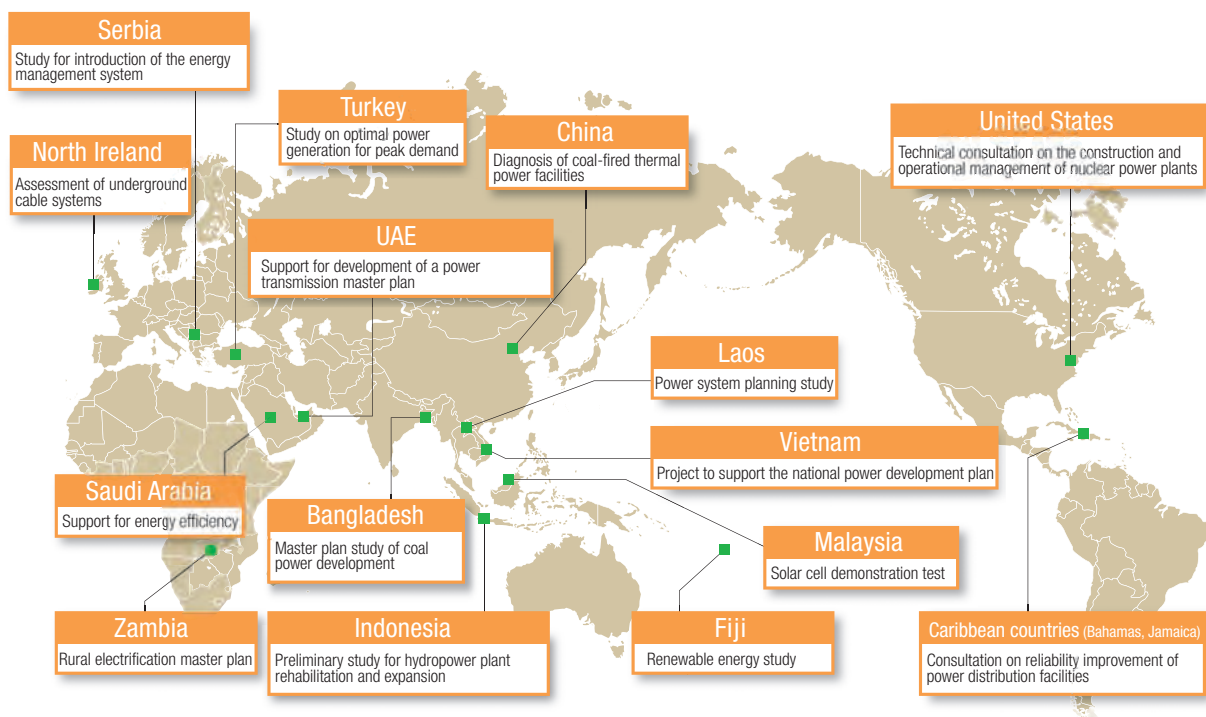
In Vietnam, we are implementing a project to support the country's national power development plan, under contract from JICA.

The Vietnamese government is slated to formulate the Seventh National Power Development Plan, which will define the country's national energy policies for the next twenty years, and the project will provide technical cooperation in making power demand estimations and preparing power system plans that are necessary for the formulation of the development plan. More specifically, through a series of five local studies, we will review the Sixth National Power Development Plan, evaluate and examine measures for improving the current power demand estimation method, and evaluate and provide support for power system plans that include power transmission from a nuclear power plant the country is planning to construct.



Local meeting in Vietnam

### Map of major overseas consultancy projects



## Initiatives for global-scale greenhouse gas reduction

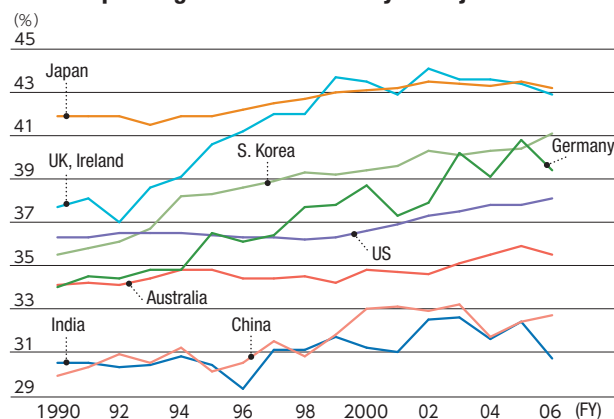
TEPCO and other Japanese electric power companies are transferring Japan's clean and efficient technologies abroad and promoting other initiatives for global-scale reduction of greenhouse gas emissions in the power generation sector, through participation in international cooperation activities sponsored by the Asia-Pacific Partnership on Clean Development and Climate (APP).

### Transfer of clean and efficient technologies and skills abroad

#### ■ World's highest thermal power generation efficiency

Japan's thermal power plants boast the world's highest levels of thermal power generation efficiency. While it is important to promote technology development to attain even higher levels of efficiency in the future, there is also great significance in implementing initiatives for the application of the high-efficiency technologies of Japanese electric power companies to emerging countries where power generation efficiency is still relatively low.

#### Thermal power generation efficiency in major countries



Source: ECOFYS, "International Comparison of Fossil Power Efficiency and CO<sub>2</sub> Intensity," 2009

#### ■ Effects of the operational and maintenance management improvement of thermal power plants

The thermal efficiency of thermal power plants particularly in developing countries tend to decline significantly with age once they commence operations. However, by improving operational and maintenance management methods, the same level of efficiency improvement can be expected as that which can be achieved through an overhaul of plant facilities. Improvement of operational and maintenance management methods also allows high-efficiency power plants to maintain their efficiency into the future (prevent efficiency decline), and is effective not only in preventing global warming but also in reducing fossil fuel consumption.

To support the development and improvement of technologies and skills that contribute to global warming on a global scale, TEPCO takes an active part in international cooperation activities sponsored by the Asia-Pacific Partnership on Clean Development and Climate (APP).

## Initiatives of the Asia-Pacific Partnership on Clean Development and Climate (APP)

### ■ Asia-Pacific Partnership on Clean Development and Climate (APP)

The APP was established in 2006 to promote the development, dissemination, and transfer of clean, efficient technologies toward energy security and climate change prevention. Its members include governmental agencies and private companies from the seven countries of Australia, China, India, Japan, South Korea, the United States, and Canada.

The seven countries are responsible for roughly half of the world's total CO<sub>2</sub> emission. Therefore, APP's practical initiatives aimed at reducing greenhouse gas emissions are significant as effective global warming countermeasures.

### ■ APP peer review\* activities at coal-fired thermal power plants

As one of APP's international cooperation activities in the power generation sector, TEPCO regularly participates in peer review activities toward the maintenance and improvement of thermal efficiency in coal-fired thermal power plants.

In 2009, the fifth peer review was held in South Korea. As a result of examining the causes of efficiency decline according to an efficient diagnosis method, it was found that the relevant power plants in South Korea have the potential to improve their thermal efficiency by about 0.6% (corresponding to an annual CO<sub>2</sub> reduction of roughly 58,000 tons).

The APP estimates that the United States, China and India combined could reduce around 1.3 billion tons of CO<sub>2</sub>, equivalent to total CO<sub>2</sub> emission by Japan, if their coal-fired thermal power plants reach the same level of efficiency as the latest plants in Japan. TEPCO will therefore continue to take part in the international cooperation activities of the APP.

#### \*Peer review

Activities in which power generation engineers (peers) mutually visit power plants in member countries and share best practices in problem solving through specialized exchanges of views toward their practical implementation.



Fifth peer review (in South Korea)

### Efficiency improvement and CO<sub>2</sub> reduction potentials confirmed through peer reviews

Third peer review (US)	Confirmed a thermal efficiency improvement potential of 1.0 – 1.5% (corresponding to an annual CO <sub>2</sub> reduction of approx. 90,000 tons/unit)
Fourth peer review (Australia)	Confirmed a thermal efficiency improvement potential of 0.5% (corresponding to an annual CO <sub>2</sub> reduction of approx. 24,000 tons/unit)
Fifth peer review (S. Korea)	Confirmed a thermal efficiency improvement potential of 0.6% (corresponding to an annual CO <sub>2</sub> reduction of approx. 58,000 tons/unit)

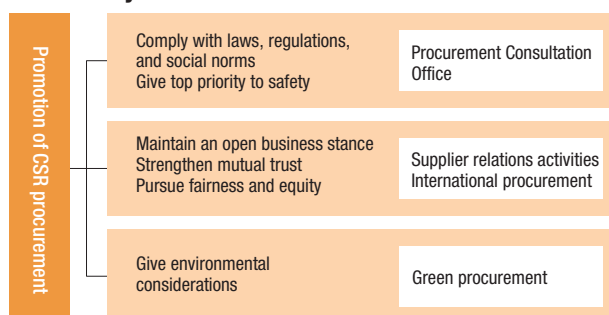


# Interaction with Business Partners

## Promotion of CSR procurement in collaboration with business partners

**TEPCO's Basic Policy on Procurement sets forth basic rules by which TEPCO should purchase materials from suppliers, and also contains TEPCO's requests of its business partners. We will strictly abide by this policy, to ensure proper CSR performance in procurement, while further strengthening legal compliance and safety awareness in collaboration with our business partners.**

### Basic Policy on Procurement



### Promoting CSR procurement

When changes occur in laws and commercial practices, TEPCO accordingly reflects those changes in its transactions with business partners. We revise the terms of order contracts, as well as the content of contracts and confirmation documents, and request our business partners to also comply with those changes.

In November 2006, we included fundamental principles of the international community (prohibition of child labor, prevention of forced labor, etc.) in our contracts with business suppliers, and clarified provisions concerning confidentiality of trade secrets and personal information. We also corrected some one-sided provisions, for instance by stipulating that both TEPCO and business partners have the mutual right to initiate changes to the terms of a contract. Furthermore, we intend to redouble our efforts to ensure and maintain proper transactions, by implementing various activities to verify the appropriateness of the cost base and transparency in our transactions with business partners.

We will continue upgrading our activities so that we may further promote CSR procurement based on our Basic Policy on Procurement, with the understanding and cooperation of our business partners.

### Procurement Advice Center

At the Procurement Advice Center (established in January 2003), staff members, who are independent of any departments that handle contracts, process problems, opinions, and requests from our business partners concerning their transaction with TEPCO.

By investigating issues and seeking improvement from a neutral standpoint, the advice center helps maintain relationships of mutual trust and ensures the transparency of procurement transactions.

## Expansion of supplier relations activities

As part of our supplier relations activities, we disclose our business plans and information on material orders (basic procurement policies, procedures, plans, etc.) on our website, and hold a procurement guidance seminar every April as a forum for engaging in direct communications with our business partners. In FY2010, representatives from approximately 400 partner companies attended the seminar.

We also hold regular small meetings with our business partners in specific procurement areas, such as the thermal power, nuclear power, power transmission, and power transformation areas, to exchange views and information on procurement issues.



Ninth Procurement Guidance Seminar

## Green procurement

We have been promoting green procurement since 2001.

We established green procurement guidelines that seek 100% green procurement of office supplies, a target that is being achieved steadily by many business units.

Moreover, in the process of procuring power facility equipment, we adopt proposals that reduce environmental burden, and promote environmental awareness in our 400 or so major business partners by requesting them to evaluate the status of their EMS (environmental management system) every two years by means of an original EMS checklist.

## Recycling and reusing equipment and resources

To contribute to a recycle-oriented society, we are expanding the reuse of power distribution equipment by reviewing their recycling criteria, and are working in cooperation with our business partners to recycle copper and aluminum cable scraps and to develop and adopt economically efficient products.

# Interaction with Employees

## Creating a fair and secure working environment

**TEPCO respects the personality and individuality of each and every employee, and is committed to creating a fair and secure working environment.**

### Labor-management relations

Based on our labor agreement, TEPCO has adopted a union shop system, in which all employees who do not hold a management position become members of TEPCO's labor union. We maintain good labor-management relations through the Labor-Management Committee, which meets regularly to discuss working hours and changes in working styles, and the Safety Council, which also meets regularly to ensure employee safety.

### Human rights

TEPCO has established Human Rights Education Committees and Human Rights Education Promoters for promoting human rights awareness. In fiscal 2009, a total of 35,170 employees received human rights training provided by the committee. We have also organized the Human Rights Association of Power Suppliers, as a Group-wide effort to promote human rights awareness. The association shares human rights information among Group companies, and provides lectures and support for human rights education, as necessary.

#### ■ Anti-harassment measures

To create a bright and comfortable workplace, we promote awareness of sexual and power harassment, and have also established consultation offices inside and outside the company to prevent harassment by and among TEPCO employees, temporary workers, and everyone related to TEPCO's businesses, and to resolve any problems should they occur.

### Health management

To help employees maintain and improve their health, TEPCO provides regular health checkups as required by law. We also engage our employees in healthcare guidance under industrial physicians and provide personal counseling to those who work prolonged hours. Employees who have mental or physical concerns may receive counseling by telephone or e-mail or through face-to-face counseling sessions with the cooperation of external specialist institutions. In FY2009, we focused on improving mental health with particular emphasis on disease prevention and health improvement. In addition to conventional seminars, we included a lecture on mental health issues and implemented a workplace stress diagnosis test. We also created a website on the services provided by external specialist institutions, to create an environment that encourages employees to take advantage of those services whenever necessary.

We also took measures against the outbreak of the H1N1 influenza virus and otherwise directed our efforts to protecting the health and safety of our employees.

## Embracing human resource diversity

**TEPCO practices fair and equal employment, with respect to human resource diversity.**

### Employment of people with disabilities

TEPCO actively promotes the employment of individuals with disabilities. To create new employment opportunities and to further support their social participation and independence, we established a company called TEPCO Humming Work Co., Ltd. in July 2008. The company mainly undertakes printing/copying, cleaning, and gardening (growing flowers and planting flowerbeds) work. Since its establishment, it has not only employed 50 individuals with disabilities, but it has also made wide-ranging efforts to promote the employment of such people, such as by receiving vocational interns from special education schools and assistance organizations, inviting some 1,500 visitors per year to the company, and giving lectures at various speaking engagements.

People with disabilities make up 2.1% (610 employees, as of June 1, 2010) of the entire workforce of the TEPCO Group, including TEPCO and our 13 affiliated companies. This percentage already surpasses the 1.8% statutory requirement, but we will continue to actively include people with disabilities in our employ.

 [TEPCO Humming Work Co., Ltd. : www.t-humming.co.jp](http://www.t-humming.co.jp) (Japanese only)

### Employment of older persons

In response to the revision of the Law for the Stabilization of Employment of the Aged (June 2004), we reviewed our existing employment system and introduced a new system that lets older workers work until they are 65 years old.

Under this system, employees ages 55 to 57 may choose to either work until the age of 65 through a re-employment or transfer scheme, or to work until the mandatory retirement age of 60, as suits their work-life plan.

### Empowerment of female employees

To support the empowerment of female employees who make up approximately 12% of TEPCO's entire workforce, the Diversity Development Office plays a central role in establishing measures and conditions that promote the participation of female employees. Workshops for the development of female managers and leaders have also been held on a continuous basis since February 2004, and have been attended by about 300 female employees so far. As a result of these initiatives, 9 women were promoted to managerial positions in FY2009, thus raising the total number of female managers to 63. Furthermore, cross-industrial exchange seminars are also held jointly with other interested companies, as awareness-raising opportunities for middle-level and young employees.

## Promoting good work / life balance

TEPCO believes that achieving a good work/life balance leads to greater productivity among employees and improved performance by the company as a whole. In fiscal 2007, we introduced a special flextime system, to create a comfortable workplace for expecting female employees and employees who must care for children or other family members. Through these efforts, we have achieved our target of 80% on the Work/Life Balance Index\*.

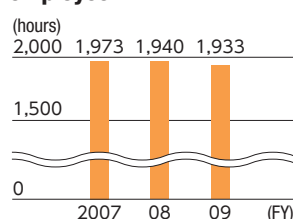
### \* Work/Life Balance Index

An index created by the Ministry of Health, Labor and Welfare, for companies to objectively evaluate the effectiveness of their measures and policies in support of good work/life balance

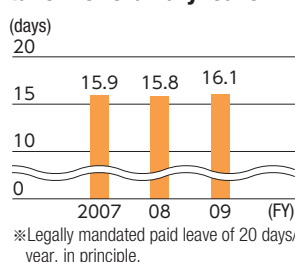
## Working hour regulation

We regulate working hours and promote well-balanced working styles from the three perspectives of "compliance (optimization of management)," "business reform (review of operational efficiency and working styles)," and "reform of employee awareness and workplace culture." We encourage our employees to principally work no later than 8 p.m., enforce a day of no overtime work, and make working hours "visible," so that each and every one of our employees may achieve a good work/life balance.

### Total working hours per employee



### Average number of days taken for ordinary leave\*



## Support for employees' volunteer activities

TEPCO's volunteer leave program allows employees to take up to five days per year, in principle, to participate in social service activities at their own initiative. 1,156 employees used the program in fiscal 2009. Since April 2002, we have continued to implement wide-ranging activities to encourage employees to use the program. For example, we established the TEPCO Volunteer Center, provided information on volunteer activities via Intranet.

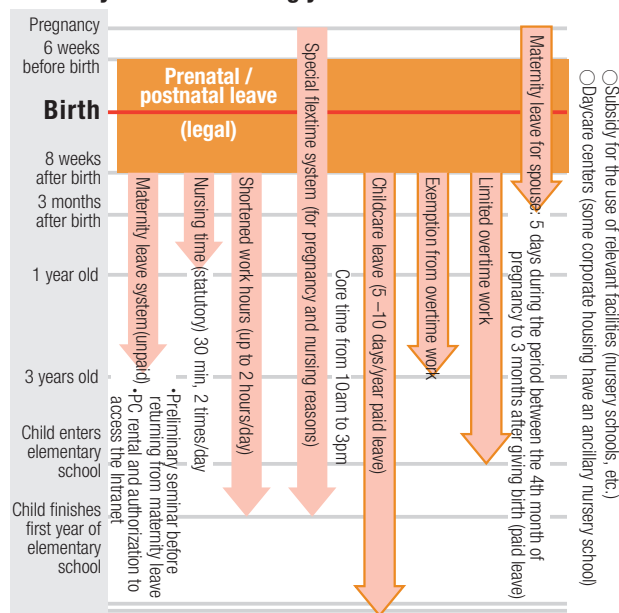
## Maternity and child-raising support

TEPCO provides a leave system, as well as system for returning to work after taking a leave, to create a comfortable working environment for expecting employees and employees who are raising children. To eliminate worries among female employees about returning to work, we also sponsor seminars by other female employees who have actually taken a parental leave and have returned to work after a certain absence.



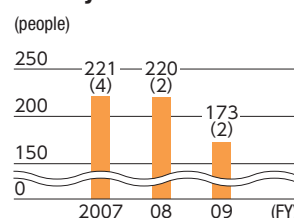
Parental leave seminar

## TEPCO's initiative to support work-life balance during maternity and child-rearing years



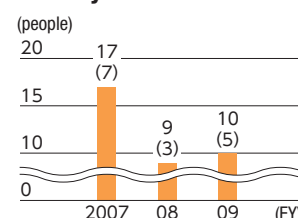
\* Even in workplaces that do not have a flextime system, employees who need to care for a child or another family member may also apply for the system on an individual basis.

### Number of employees who have used the parental leave system



(Note) Number of employees who began their leave during the fiscal year. Figures in parentheses represent number of men.

### Number of employees who have used the family care leave system



(Note) Number of employees who began their leave during the fiscal year. Figures in parentheses represent number of men.



### Pursuing business activities with top priority on safety

As TEPCO's power facilities are distributed over an extremely wide area, the understanding of local communities and the wider society is essential to pursuing business activities. Based on this awareness, we give top priority to safety and promote company-wide safety activities, to prevent accidents.

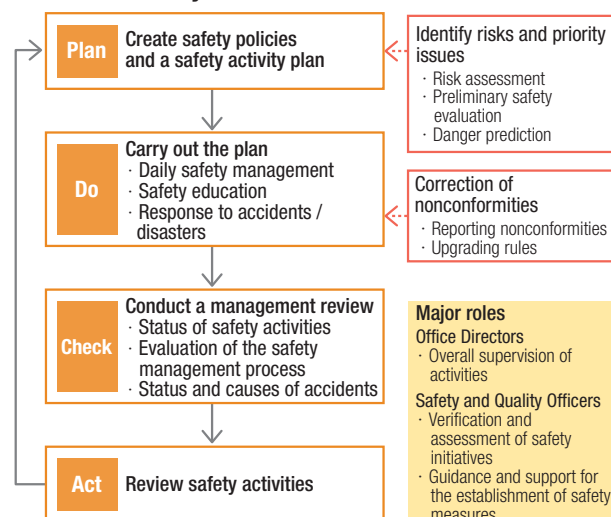
### Promotion and implementation of safety activities

To prevent accidents, our Head Office and other offices formulate and implement an annual Safety Activity Plan, based on risk assessments and other investigations. They also check and evaluate the status of safety activities and review them as necessary, to ensure the smooth flow of the PDCA safety management cycle and consistently improve safety.

Safety and Quality Officers in each office encourage employees to individually look for potential risks and issues hidden in their business activities, and to discuss them within each workplace, to eliminate all causes of accidents.

The Head Office supports the efforts of other offices, such as by upgrading company-wide safety rules, providing safety education, examining causes and countermeasures for major accidents, and verifying and assessing the status of safety management. Committees at Head Office and other offices also regularly evaluate and debate concerns such as how to go about safety activities and what points to emphasize.

### Overview of safety activities in each office



### Safety initiatives of the TEPCO Group

TEPCO performs a variety of onsite work in partnership with Group companies that undertake facility inspection as well as with cooperating companies in the power distribution and communications fields (36 companies). To maintain strong cooperation with these partners, we mutually exchange information on safety activity systems and implementation status, and share information on potential causes of accidents.

In FY2009, the number of accidents involving second-degree minor injuries or worse, which was one of our priority reduction targets, remained unchanged since the previous year, but the number of fatal accidents fell from six cases in the previous year to a single case. We will continue to strengthen risk assessments and other disaster prevention activities, and to further improve the safety management activities of the entire Group.

### Number of accidents

		Deaths	Severe injuries ※1	Second degree minor injuries ※2	First degree minor injuries ※3	No impact on work ※4
FY2007	TEPCO employees	1	3	3	14	127
	Contractors	2	68	24	49	167
	general public	1	10	17	33	—
FY2008	TEPCO employees	0	6	3	9	67
	Contractors	5	48	20	28	129
	general public	1	7	18	27	—
FY2009	TEPCO employees	0	0	3	8	70
	Contractors	1	56	23	22	134
	general public	0	8	16	16	—

※1 Injuries resulting in a loss of at least 14 days of work (in the case of the general public, injuries diagnosed by a physician as requiring at least 30 days for treatment)

※2 Injuries resulting in a loss of 4 to 13 days of work (in the case of the general public, injuries diagnosed by a physician as requiring 10 to 29 days for treatment)

※3 Injuries resulting in a loss of 1 to 3 days of work (in the case of the general public, injuries diagnosed by a physician as requiring less than 10 days for treatment)

※4 Applies to TEPCO employees and contractors only

### Frequency※1 and severity※2

	TEPCO employees		全国全産業の合計値※3	
	Frequency	Severity	Frequency	Severity
FY2007	0.33	0.12	1.83	0.11
FY2008	0.29	0.00	1.75	0.10
FY2009	0.18	0.00	1.62	0.09

※1 The frequency of accidents, measured as the number of persons injured or killed in a labor accident resulting in a loss of at least one day of work, per one million hours of work

※2 The severity of accidents, measured as the number of days of work lost because of labor accidents, per 1,000 hours of work (0.00 means less than 0.005)

※3 Source: Ministry of Health, Labour and Welfare, "FY2009 Survey on Industrial Accidents" (inclusion of the medical and welfare sectors in FY2008)

### Active support of employee performance and capacity development

**TEPCO supports employee capacity development and employs an appropriate evaluation system to promote employees' individual initiatives and creativity.**

### Skill and performance evaluation

We ensure proper evaluation of each employee's skills and performance by conducting multilateral evaluations by more than one senior employee, disclosing details and evaluation criteria of the evaluation system on the Intranet, and notifying employees of their evaluation in an interview with their superior, from the perspective of increasing objectivity, transparency, and acceptance of evaluations. The implementation status and content of the interviews are monitored.

### Support systems that exploit employees' full abilities

TEPCO's Internal Recruiting System provides aspiring employees an opportunity to challenge themselves and realize their full potential. For employees who possess high professional knowledge, the Professional/Specialist System evaluates and accredits their technical expertise.

### Training systems

TEPCO supports the capacity development of its employees in many ways. Although on-the-job training and employees' self-development efforts are the two main pillars of employee training, all TEPCO departments, offices, and the General Training Center offer diverse training programs designed to help employees acquire the latest in specialized knowledge and skills in a short period of time, and to promote friendly competition for mutual growth.

The General Training Center, in particular, provides a wide range of training programs designed for different employee levels, from new employees to upper management, in line with the third principle of TEPCO's Management Vision 2010, to "Foster People and Technologies." The programs enhance the skills of each individual based on the concept that three types of human resources are necessary for supporting front-line workplaces, where employees must make consistent and independent efforts to improve work quality and efficiency. They include front-line workers with advanced technologies and skills and the ability to discover and solve issues; managers who possess outstanding management skills; and innovative leaders who can promptly respond to environmental changes and initiate management reforms.

The PDCA cycle ensures the effectiveness and efficiency of training programs, and proper workplace support is provided to promote the effective application of skills and knowledge acquired through training to actual workplace practices.

### Principal training programs offered by the TEPCO General Training Center

Goal Scope	Development/strengthening of management skills	Development/strengthening of abilities to discover and solve issues	Maintenance/transfer of front-line technologies and skills	Development of innovative leaders	Awareness-raising and others
Management	Office management training Branch office GM training Manager selection training Manager training Advanced leadership training Self management by objectives (MBO) training			Business management training	
General employees	Management skill improvement training Team leader training	Management basics II Management basics I Follow-up training for administrative university-graduate employees Practical skill development program	Technical leader training Security control systems (CES) training Facilities automation systems training Intensive technology course	Innovative leader training W-TΣP ※1	WT training ※2 Career vision training ※3 Follow-up training for consumer lifestyle advisors Training for young customer-service employees in the nuclear power sector Engineer ethics training
		New employee training (new employee orientation, control stations /comprehensive control stations, university-graduate electrical engineers, power distribution sector second semester)			

※1 W-TΣP: Offers young employees an opportunity to exercise and expand their potentials, and fosters employees who are capable of taking positive action to promote new technologies, business restructuring, and creation of corporate value

※2 WT training: Offers an opportunity to discuss the latest management issues among participants from various departments, to raise motivations for innovations and foster a positive and independent attitude toward work.

※3 Career vision training: Helps employees create a subjective career vision based on an understanding of their own values and strengths, and motivates them to develop the capacities necessary for realizing the vision

# TEPCO and Nuclear Power Generation

TEPCO aims to be a nuclear power operator worthy of the trust and confidence of all our stakeholders, and is committed to contributing to a low-carbon society by promoting the operations of eco-friendly nuclear power plants.

## TEPCO's nuclear power station

Nuclear power generation is an outstanding power generation method in terms of stability, environmental performance, and economic efficiency. TEPCO operates 17 nuclear reactors with a total capacity of 17.308 GW at the Fukushima Daiichi, Fukushima Daini, and Kashiwazaki-Kariwa Nuclear Power Stations. These power stations supply roughly 27% of all power generated by TEPCO.

There are plans for the construction of two additional reactors, Units No. 7 and 8, at the Fukushima Daiichi Nuclear Power Station, and preparations for the construction of the new Higashidori Nuclear Power Station (Aomori Prefecture) is currently underway.

We will continue promoting nuclear power generation, while placing top priority on ensuring safety.



Rendering of the power station  
Higashidori Nuclear Power Station  
(Aomori Prefecture)



Fukushima Daiichi Nuclear Power Station  
(Fukushima Prefecture)

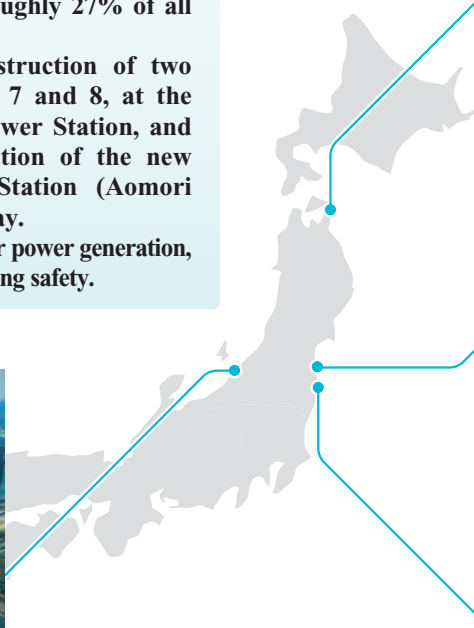


Fukushima Daini Nuclear Power Station  
(Fukushima Prefecture)

## List of nuclear power plants



Kashiwazaki-Kariwa Nuclear Power Station  
(Niigata Prefecture)



Name of power station	Location	Total capacity	Number of employees (as of Dec. 1, 2009)	Unit numbers	Output (by manufacturer)	Type of reactor	Commencement of operations
Fukushima Daiichi	Okuma and Futaba Towns, Futaba County, Fukushima Prefecture	4.696 GW	TEPCO employees: 1,056 Contractor employees: 4,230	Unit No. 1	460 MW (GE)	BWR	Mar. 1971
				Unit No. 2	784 MW (GE/Toshiba)	BWR	Jul. 1974
				Unit No. 3	784 MW (Toshiba)	BWR	Mar. 1976
				Unit No. 4	784 MW (Hitachi)	BWR	Oct. 1978
				Unit No. 5	784 MW (Toshiba)	BWR	Apr. 1978
				Unit No. 6	1,100 MW (GE/Toshiba)	BWR	Oct. 1979
				Unit No. 7	1,380 MW (—)	ABWR	Oct. 2016 (planned)
				Unit No. 8	1,380 MW (—)	ABWR	Oct. 2017 (planned)
Fukushima Daini	Tomioka and Naraha Towns, Futaba County, Fukushima Prefecture	4.400 GW	TEPCO employees: 717 Contractor employees: 2,923	Unit No. 1	1,100 MW (Toshiba)	BWR	Apr. 1982
				Unit No. 2	1,100 MW (Hitachi)	BWR	Feb. 1984
				Unit No. 3	1,100 MW (Toshiba)	BWR	Feb. 1985
				Unit No. 4	1,100 MW (Hitachi)	BWR	Aug. 1987
Kashiwazaki-Kariwa	Kashiwazaki City and Kariwa Town, Kariwa County, Niigata Prefecture	8.212 GW	TEPCO employees: 1,147 Contractor employees: 8,421	Unit No. 1	1,100 MW (Toshiba)	BWR	Sep. 1985
				Unit No. 2	1,100 MW (Toshiba)	BWR	Sep. 1990
				Unit No. 3	1,100 MW (Toshiba)	BWR	Aug. 1993
				Unit No. 4	1,100 MW (Hitachi)	BWR	Aug. 1994
				Unit No. 5	1,100 MW (Hitachi)	BWR	Apr. 1990
				Unit No. 6	1,356 MW (Toshiba/Hitachi/GE)	ABWR	Nov. 1996
				Unit No. 7	1,356 MW (Hitachi/Toshiba/GE)	ABWR	Jul. 1997
Higashidori (under preparation for construction)	Oaza-Odanosawa, Higashidori Village, Aomori Prefecture	—	TEPCO employees: 96	Unit No. 1	1,385 MW (—)	ABWR	Mar. 2017 (planned)
				Unit No. 2	1,385 MW (—)	ABWR	FY2020 or later (planned)



# Environmental Characteristics of Nuclear Power Generation

## Nuclear power generation's contribution to creating a low-carbon society

Nuclear power generation forms the core of global warming countermeasures as a power generating method that releases no CO<sub>2</sub> in the process of generating power.

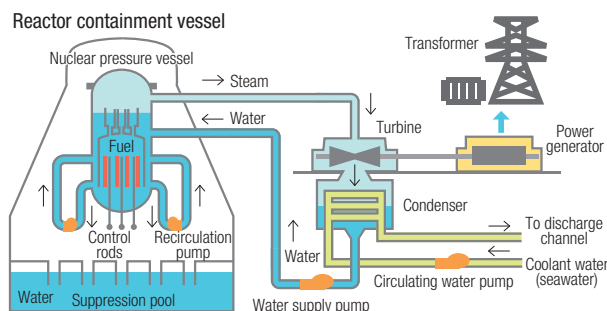
While placing top priority on ensuring safety, TEPCO promotes nuclear power generation as a base load supply, to secure stable energy supply and contribute to realizing a low-carbon society.

## CO<sub>2</sub>-free power generation

Nuclear power generation provides outstanding environmental performance. It generates power by utilizing the heat that is released during the nuclear fission of uranium fuel inside a reactor, and like photovoltaic and wind power generation, it releases no CO<sub>2</sub>, the primary cause of global warming, nor NO<sub>x</sub> and SO<sub>x</sub>, the major sources of air pollution, in the process of generating power.

See p. 32 for details on lifecycle CO<sub>2</sub> emissions by power source.

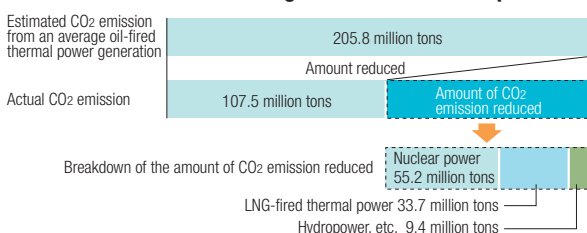
## Overview of nuclear power generation



## Curbing CO<sub>2</sub> emission through nuclear power generation

Through these initiatives we expect to reduce CO<sub>2</sub> emissions by approximately 98.3 million tons (48%), compared to if all electricity is produced by average oil-fired thermal power generation. Among the initiatives, nuclear power generation would contribute to reducing CO<sub>2</sub> emissions by approximately 55.2 million tons (corresponding to 56% of estimated total reduction of CO<sub>2</sub> emissions).

## CO<sub>2</sub> emission reduction through the combination of power sources



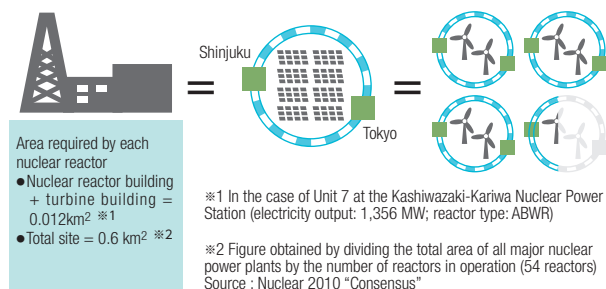
## Economically efficient nuclear power generation

To reduce carbon levels on the electricity supply side, we are promoting nuclear power generation, as well as the expanded utilization of sunlight, wind, and other renewable energy sources.

Photovoltaic and wind power generation systems are "zero emission power sources" that emit no CO<sub>2</sub> in the process of generating power, just like nuclear power generation. However, in order to produce the same amount of electricity as a single nuclear reactor, they require a vast area of land and considerable construction expenses. Therefore, it can be said that nuclear power generation is a more economically efficient power source compared to photovoltaic and wind power generation.

## Comparison of required area and cost between nuclear power and renewable energies (photovoltaic and wind power)

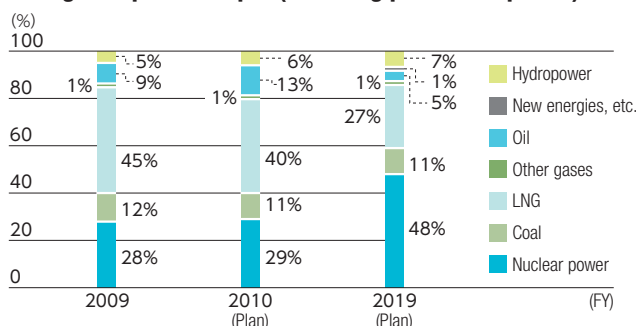
Nuclear power plant	Photovoltaic power generation	Wind power generation
1 million kW capacity reactor (approx. 280 billion yen) 54 reactors are currently in operation (nationwide)	Roughly the same area as that occupied by the Yamanote Line (58 km <sup>2</sup> ) (approx. 3.9 trillion yen)	Area corresponding to 3.4 times the area occupied by the Yamanote Line (214 km <sup>2</sup> ) (approx. 870 billion yen)



## Nuclear power generation as a base load supply source

Nuclear power contributed approximately 28% to the total amount of electricity produced by TEPCO in FY2009. We plan to increase the share of nuclear power to around 48% by FY2019, through safe and stable operations of existing plants and the construction of new plants.

## Changes in power output (including purchased power)



# Safety Measures of Nuclear Power Station

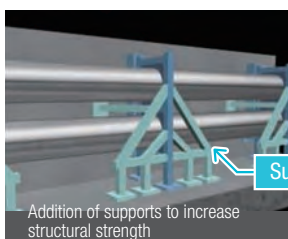
## Creating disaster-resistant nuclear power station

Ever since the July 16, 2007 Niigata-Chuetsu-Oki Earthquake, TEPCO has been taking various measures to strengthen the Kashiwazaki-Kariwa Nuclear Power Station against disaster. We are inspecting and evaluating all facilities, implementing the necessary restoration work, and improving seismic safety. We are applying the same initiatives to the Fukushima Daiichi and the Fukushima Daini Nuclear Power Stations, and have also incorporated the necessary considerations in the application for the construction of a nuclear reactor at the Higashidori Nuclear Power Station.

## Measures for seismic safety improvement

At the Kashiwazaki-Kariwa Nuclear Power Station, we are re-calculating earthquake motion for the purpose of increasing earthquake resistance, and are applying seismic reinforcement work to all seven units, to improve seismic safety at the power station.

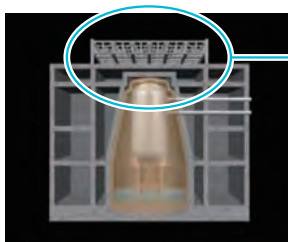
At the Fukushima Daiichi and Daini Nuclear Power Stations, we are confirming the seismic safety of all major equipment and facilities of high safety significance in all ten units. Based on the knowledge we gained through the Niigata-Chuetsu-Oki Earthquake, we are also making ongoing efforts to improve the seismic capacity of these power station.



Reinforcement of pipe supports (image)



Reinforcement of pipe supports  
(Kashiwazaki-Kariwa Nuclear Power Station)



Truss for supporting the roof of a reactor building (image)



Addition of copper materials  
(Kashiwazaki-Kariwa Nuclear Power Station)

## Construction of seismic-isolated buildings

Based on the experience in being unable to enter many buildings at our power plants during the Niigata-Chuetsu-Oki Earthquake, we have constructed seismic-isolated buildings that house an emergency response center and other important communications and power supply facilities that would provide the necessary foundation for disaster prevention activities in times of disaster. The seismic-isolated building at the Kashiwazaki-Kariwa Nuclear Power Station commenced operations in January 2010, and those at the Fukushima Daiichi and Daini Power Stations commenced operations in July 2010.

The seismic-isolated buildings feature an earthquake-proof structure in which a rubber or flexible soft material (antiseismic device) placed between the building and the ground foundation absorbs earthquake tremors. They are designed so that emergency responses could be managed even if an intensity-7 earthquake exceeding the Niigata-Chuetsu-Oki Earthquake occurs.



Seismic-isolated building at the Kashiwazaki-Kariwa Nuclear Power Station



Emergency response center at the Kashiwazaki-Kariwa Nuclear Power Station

## Strengthening disaster prevention organizations and frameworks

We also provide various training programs on a regular basis, including training based on nuclear disaster simulation and firefighting training for power plant personnel.



Fire station deployed at a power station



Operational training of a disaster prevention organization



### For safe and stable operations

**Mari Sato**  
Disaster Prevention and Safety Group,  
Disaster Prevention and Safety Division,  
Fukushima Daiichi Nuclear Power Station



Being involved in the planning and implementation of firefighting training, I firmly believe that any action that cannot be performed during regular training cannot be performed when it really counts, so it is important to repeat the necessary actions and make the body memorize them through training. My heart fills with pride as I watch members of the firefighting team apply themselves to rigorous training, wearing hot and heavy protective gear even in the summer.

As a member of our power station, I, too, apply myself to my daily duties to ensure safety, with strong, unwavering determination to "protect our workplace by ourselves" without fail.

## Development of personnel at nuclear power station

TEPCO's nuclear power station are committed to ensuring not only facility safety, but also safe operations by personnel. Through simulation training and simulated experiences of past errors, efforts are made to minimize human errors and to prevent or promptly detect abnormal incidents, for the safe and stable operations of nuclear power station.

### Skills Training Center

At nuclear power station, outstanding operators and maintenance staff need to be secured and their skills must consistently be improved, to maintain facility soundness and continue safe operations.

The Skills Training Center is equipped with the same types of equipment and devices that are actually used in our power station, and allows TEPCO employees and employees of cooperating companies to acquire knowledge of nuclear power and to improve technologies and skills for nuclear plant operations and maintenance.



Skills Training Center (Fukushima Daiichi Nuclear Power Station)



Simulated reactor (Fukushima Daiichi Nuclear Power Station)

### "Classes for Learning from mistakes"

We provide a training program called "Classes for Learning from mistakes," to prevent workers from making the same mistakes they have made before.

The program aims to increase awareness of safety among all workers engaging in nuclear power station operations, by providing simulated experiences of past errors using special simulation devices.

Begun in 2007 as a recurrence prevention initiative, the program has since expanded, so that it now offers a curriculum of 23 topics.

### Simulated experience of radioactive substance contamination

A glowing solvent is used to provide simulated experience of radioactive substance contamination and to teach about proper work processes within radioactive management zones.



When a radioactive substance is carried close to the body when transporting...



The substance adheres to work clothes (the bluish glow is the solvent simulated as a radioactive substance)

#### Learning how to carry items

Do not carry items that may cause adherence of radioactive substances close to the body

## Restoration status of the Kashiwazaki-Kariwa Nuclear Power Station

### ● Recommissioning of Units 1, 6, and 7

At the Kashiwazaki-Kariwa Nuclear Power Station, we are inspecting, restoring, and applying seismic reinforcement work, and otherwise confirming the safety of all units, and are sequentially recommending commercial operations of units that have received approval from the central and local governments.

So far, we recommenced commercial operations at Unit 7 in December 2009, Unit 6 in January 2010, and Unit 1 on August 4, 2010.



Receiving a completion certificate of regular inspections (Unit 1)



General load performance inspection (Unit 1)



Units 7 (in front) and 6 (center) after recommencement of commercial operations

### ● Status of other units

#### • Units 2 – 4

Inspections, evaluations, and seismic reinforcement work are being carried out in a careful and steady manner, while ensuring safety and fire prevention.

#### • Unit 5

Building, structure, and equipment inspections, seismic reinforcement work, and system function tests have been completed.



Seismic reinforcement of pipe supports (Unit 3)



Turbine inspection and restoration (Unit 4)



Seismic reinforcement work on the reactor building overhead crane (Unit 3)



# Nuclear Fuel Cycle

## Promoting the nuclear fuel cycle

Spent nuclear fuel contains unused fissionable uranium and newly produced plutonium. These substances can be collected, reprocessed, and reused as new fuel, to achieve effective utilization of energy resources.

This process of recycling uranium resources is referred to as the nuclear fuel cycle.

As a country that relies heavily on imports for most its energy needs, Japan is actively pursuing the establishment of the nuclear fuel cycle as a means for securing stable, long-term supplies of energy resources through the effective utilization of uranium, and for ensuring the proper treatment and disposal of radioactive waste.

## Plutonium-thermal power generation

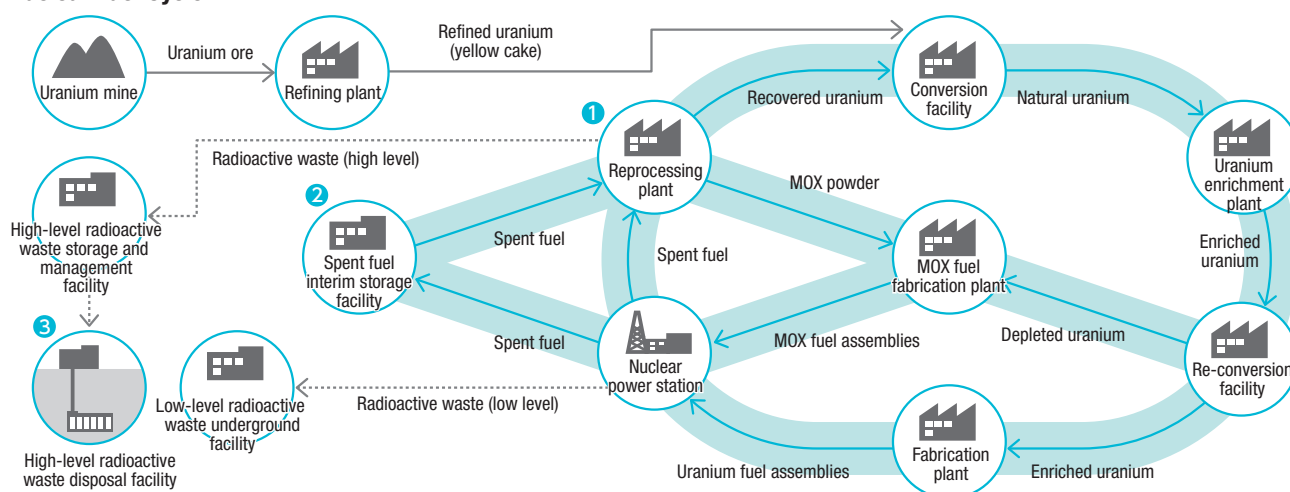
In plutonium-thermal ("plu-thermal") power generation, plutonium is removed from spent fuel and mixed with uranium to produce MOX\* fuels for use in existing nuclear power plants. This effective utilization of limited uranium resources is expected to contribute significantly to securing stable energy supply in the future.

To promote the introduction of plutonium-thermal power generation, electric power companies in Japan are making various efforts to obtain broad public acceptance of this new power generation method. At TEPCO, we have loaded MOX fuel into Unit 3 at the Fukushima Daiichi Nuclear Power Station in August 2010, and are steadily working our way toward the implementation of plutonium-thermal power generation.

\*MOX

Mixed oxide composed of uranium and plutonium

## Nuclear Fuel Cycle



## Reprocessing spent fuel ①

Japan Nuclear Fuel Limited (JNFL) is operating a nuclear fuel cycle business in Rokkasho village of Aomori Prefecture. So far, a uranium enrichment plant, a low-level radioactive waste burial center, and a high-level radioactive waste storage and management center have begun operations. Today, test operations are being conducted at the reprocessing plant with the aim to commence operations in the near future, and its safety functions and equipment/facility performance are being checked carefully.



JNFL's reprocessing plant (Rokkashomura, Aomori Prefecture)

## Storage of spent fuel ②

Recyclable-Fuel Storage Company (RFS), a company founded by TEPCO and the Japan Atomic Power Company in Mutsu City, Aomori Prefecture, is currently preparing to construct an intermediate storage facility (recycled-fuel storage center).



Rendering of the recycled-fuel storage center (slated to commence operations in 2012)

[Web Japan Nuclear Fuel Limited \(JNFL\) : www.jnfl.co.jp/english/index.html](http://www.jnfl.co.jp/english/index.html)

[Web Recyclable-Fuel Storage Company \(RFS\): www.rfsc.co.jp](http://www.rfsc.co.jp) (Japanese only)

### Disposal of high-level radioactive waste ③

Reprocessing facilities produce fissionable products and other waste materials in the process of recovering uranium and plutonium from spent fuels. These waste materials are liquids that have high levels of radioactivity, and are therefore called high-level radioactive waste.

High-level radioactive waste is mixed with glass components and melted at high temperatures. The molten waste is then solidified into chemically stable, vitrified waste in an anti-corrosive stainless container. Because vitrified waste has high calorific value, it must be stored and cooled for about 30 to 50 years and ultimately buried in a stable stratum more than 300 meters below the earth's surface.

This underground disposal method is internationally acknowledged as a highly viable method that poses fewer problems compared to the cosmic, seabed, and ice-sheet disposal methods that have been researched by international institutions and countries around the world. So far, countries such as Finland, Sweden, and France have adopted the underground disposal method.

In Japan, the Nuclear Waste Management Organization of Japan (NUMO) was established to undertake the disposal of nuclear waste, based on the Law on Final Disposal of Designated Radioactive Waste (Final Disposal Law).

NUMO is presently seeking candidate sites for preliminary investigation on the feasibility of siting a final repository. After investigating the appropriateness of candidate sites in terms of basic geological conditions such as the absence of volcanoes or active faults, a site will be surveyed and selected through a three-step survey process.

In June 2007, the Final Disposal Law was revised, and low-exothermic radioactive waste with long half-lives (transuranic (TRU) waste)\* was included among radioactive waste requiring underground disposal. In line with this revision, NUMO has expanded its operations to include the disposal of TRU waste in the same manner and schedule as high-level radioactive waste.

To ensure the proper disposal of radioactive waste, the government, NUMO, and electric power companies who bear a responsibility as generators of radioactive waste must fulfill their respective roles under a proper framework of role sharing and cooperation.

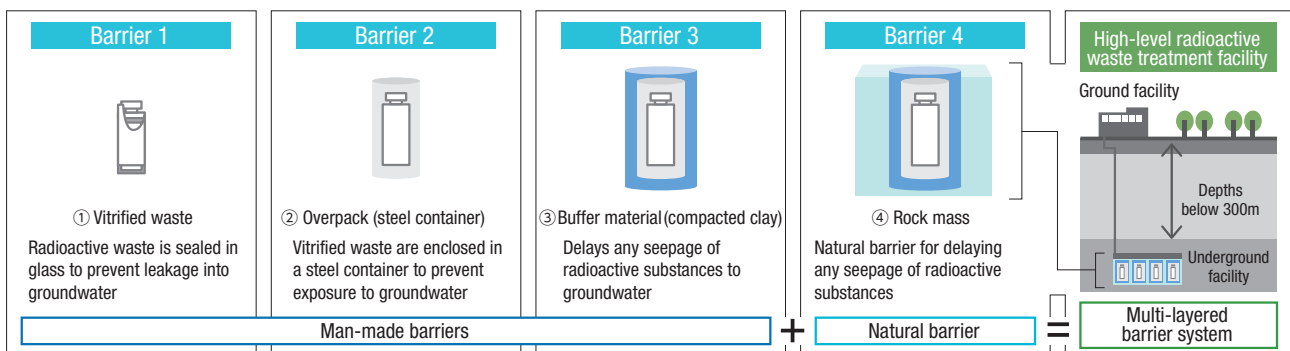
At TEPCO, we have enhanced our exhibitions on the underground disposal of high-level radioactive waste at our Electric Power Museum in Shibuya, Tokyo, and PR facilities at our nuclear power stations. We are also disseminating greater understanding of radioactive waste through various communications activities, and will continue these educational efforts.

\* Low-exothermic radioactive waste with long half-lives (transuranic (TRU) waste)

TRU waste is low-level radioactive waste that contains nuclides with long half-lives exceeding a certain level. It is produced during the operations and dismantlement of reprocessing plants and MOX fuel fabrication plants. There is an estimated 18,100m3 of TRU waste that needs to be disposed of.

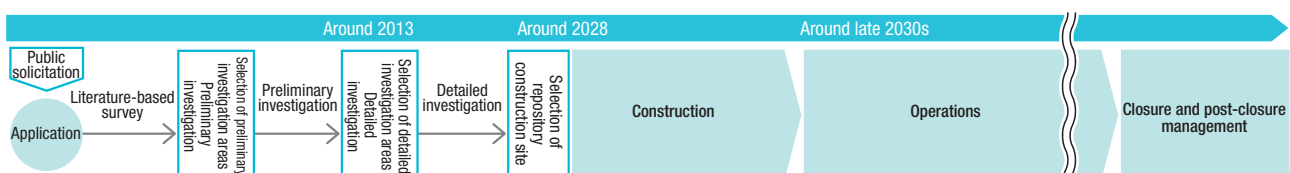
Web NUMO : [www.numo.or.jp/en/index.html](http://www.numo.or.jp/en/index.html)

### Image of a high-level radioactive waste disposal system



The multi-layered barrier system encloses radioactive waste in many layers of barriers to isolate high-level radioactive waste safely away from our lives over a long period of time.

### Schedule of underground disposal



At times, the government may consult with a municipality regarding the implementation of a literature-based survey, while giving full consideration to the wishes of the local community. The head of the municipality may accept or reject the government's proposition.

Source: Based on materials from the Nuclear Waste Management Organization of Japan (NUMO)

# FY2009 CSR Activities and Plans for FY2010

Field	Subject	Relevant page(s)	FY2009 goals
Management	Corporate governance and internal controls	P21	<ul style="list-style-type: none"> <li>Strengthen and enhance internal controls across the entire Group in accordance with TEPCO's basic policy</li> <li>Employ proper internal controls over financial reporting in accordance with the law on financial products trading</li> </ul>
	Risk management and disaster prevention measures	P22-23	<ul style="list-style-type: none"> <li>Examine and improve the emergency framework on a consistent basis, and reinforce regular risk management activities, including the implementation of awareness-raising activities at front-line workplaces</li> </ul>
	Compliance with corporate ethics	P24-25	<ul style="list-style-type: none"> <li>Enhance training tools and implement training programs on a continuous basis, to instill a firm awareness of corporate ethics in all employees</li> <li>Continue enforcing proper handling of personal information and confirm the status of personal information management on a continuous basis</li> </ul>
Environmental Initiatives	Environmental management	P50-51	<ul style="list-style-type: none"> <li>Continue to ensure proper management of environmental indicators and systematic implementation of internal environmental audits</li> <li>Support the continuous improvement of environmental management systems of all Group companies</li> </ul>
	Global warming prevention	P32-37	<b>Initiatives on the electricity supply side</b> <ul style="list-style-type: none"> <li>Maintain safe and stable operations of nuclear power station</li> <li>Increase the thermal efficiency of thermal power plants</li> <li>Expand renewable energy use</li> <li>Reduce CO<sub>2</sub> through the acquisition of carbon credits</li> </ul>
	Biodiversity conservation	P46-47	<b>Initiatives on the electricity demand side</b> <ul style="list-style-type: none"> <li>Continue disseminating the use of high-efficiency products</li> <li>Step up efforts to provide information and introduce tools related to global warming prevention, throughout the year</li> <li>Promote plans for the introduction of electric vehicles</li> <li>Disseminate and expand the use of an idle reduction external power supply system</li> </ul>
Interaction with Society	Air pollution and waste	P48-49	<ul style="list-style-type: none"> <li>Promote recycling measures appropriate to the circumstances of each Group company</li> <li>Maintain the world's highest level of SO<sub>x</sub> and NO<sub>x</sub> emissions control</li> <li>Promote proper management of PCB waste and its safe, proper, and efficient treatment</li> </ul>
	Interaction with customers	P52-53	<ul style="list-style-type: none"> <li>Enhance efforts to maintain and increase customer satisfaction</li> </ul>
	Interaction with local communities	P56-58	<ul style="list-style-type: none"> <li>Make ongoing efforts to disclose and communicate pertinent information</li> </ul>
	Interaction with business partners	P63	<ul style="list-style-type: none"> <li>Continue conducting "SR activities" through material procurement seminars and small meetings in each procurement area</li> <li>Use the results of EMS (environmental management system) surveys and confirm the status of EMS establishment by business partners on a continuous basis</li> </ul>
	Interaction with employees	P64-67	<b>Realizing diversity and good work-life balance</b> <ul style="list-style-type: none"> <li>Promote diversity in the workplace by developing the necessary environment and reviewing support measures for good work-life balance</li> <li>Promote employee awareness of working hours through campaigns and other activities on working hours</li> </ul> <b>Ensuring safety</b> <ul style="list-style-type: none"> <li>Place emphasis on the lateral dissemination of countermeasures against the recurrence of major disasters and on disaster prevention activities that take specific operational and facility characteristics into consideration, with the objective of further enhancing safety activities based on proper risk assessment</li> </ul> <b>Human resource development</b> <ul style="list-style-type: none"> <li>Reorganize and build training facilities to reinforce operational technologies and skills</li> <li>Develop human resources who are able to identify and solve issues on their own, or otherwise possess skills appropriate to today's business environment</li> </ul>



	FY2009 achievements	FY2010 plans
	<ul style="list-style-type: none"> <li>Developed and began operating internal controls in Group companies, and took measures to enhance and strengthen them in accordance with TEPCO's basic policy</li> <li>Properly operated and evaluated internal controls over financial reporting</li> </ul>	<ul style="list-style-type: none"> <li>Continue developing and operating internal controls across the entire Group, and evaluate and improve them as necessary</li> </ul>
	<ul style="list-style-type: none"> <li>Reviewed the disaster response framework and implemented emergency drills with the aim of enhancing response capacities</li> <li>Took measures to prevent and contain the outbreak of H1N1 influenza, and established specific guidelines for continuation of business</li> </ul>	<ul style="list-style-type: none"> <li>Examine and improve the emergency framework on a consistent basis, and reinforce regular risk management activities across the entire Group</li> </ul>
	<ul style="list-style-type: none"> <li>Produced and distributed case documents on nonconformities and other training tools designed for special management personnel and general employees, and implemented training programs on corporate ethics in each workplace</li> <li>Took measures to ensure information security from the technical/physical aspect as well as from the system/education aspect</li> </ul>	<ul style="list-style-type: none"> <li>Further enhance training tools, and implement training programs on corporate ethics for the TEPCO Group as a whole</li> <li>Continue enforcing the proper handling of personal information, and make ongoing efforts to maintain and improve information security</li> </ul>
	<ul style="list-style-type: none"> <li>Ensured proper management of environmental indicators</li> <li>Systematically implemented internal environmental audits and made ongoing efforts to improve business operations based on audit results</li> <li>Supported and provided training for the establishment and improved operation of environmental management systems of all Group companies</li> </ul>	<ul style="list-style-type: none"> <li>Continue proper management of environmental indicators and systematic implementation of internal environmental audits</li> <li>Support the continuous improvement of environmental management systems of all Group companies</li> </ul>
	<ul style="list-style-type: none"> <li>Took steps toward recommissioning the Kashiwazaki-Kariwa Nuclear Power Station and toward creating disaster-resistant nuclear power station</li> <li>Performed environmental assessment toward the introduction of MACC II</li> </ul>	<ul style="list-style-type: none"> <li>Maintain safe and stable operation at nuclear power station</li> <li>Increase the thermal efficiency of thermal power plants (promote plans for the introduction of MACC II)</li> </ul>
	<ul style="list-style-type: none"> <li>Achieved the obligatory amount under the RPS Law, promoted plans for the construction of mega solar and new hydropower plants, and planned the implementation of demonstration tests on expanding the introduction of wind power generation</li> <li>Acquire carbon credits in Japan and abroad</li> </ul>	<ul style="list-style-type: none"> <li>Achieve the obligatory amount under the RPS Law, and expand renewable energy use (promote mega solar projects, commence operations of new hydropower plants, and promote demonstration tests on expanding the introduction of wind power generation)</li> <li>Reduce CO<sub>2</sub> through the acquisition of carbon credits</li> </ul>
	<ul style="list-style-type: none"> <li>Engaged in the research and development of heat pumps and other high-efficiency products that provide outstanding environmental and economic performance, and implemented activities to disseminate electrification systems through experience-based facilities</li> <li>Assessed customer needs through direct feedback and questionnaires, and provided helpful information on achieving lifestyles that are comfortable and energy efficient at the same time based on in-house surveys and tests</li> <li>Provided information and proposed solutions for realizing a low-carbon society based on electrification, throughout the year</li> <li>Introduced electric vehicles to TEPCO offices for use as commercial vehicles (310 electric vehicles, 10 plug-in hybrid vehicles)</li> <li>Established the CHAdeMO Association with automobile manufacturers</li> </ul>	<ul style="list-style-type: none"> <li>Make ongoing efforts to disseminate, and promote the use of heat pumps and other high-efficiency products through wide-ranging solutions that propose the use of electrification systems</li> <li>Strengthen capacities to propose ideas that benefit the "precious lifestyles" of customers, and direct greater efforts to providing timely and effective information</li> <li>Provide information and propose solutions for realizing a low-carbon society based on electrification, throughout the year</li> <li>Promote the introduction of electric vehicles, and support the dissemination of quick chargers</li> </ul>
	<ul style="list-style-type: none"> <li>Expanded the installation of an idle reduction external power supply system and promoted dissemination activities</li> <li>Engaged in studies and research for the establishment of conservation measures suited to diverse natural environments</li> <li>Implemented (ongoing) natural environment conservation activities in Oze, etc.</li> <li>Offered diverse programs through TEPCO Nature School</li> <li>Promote recycling businesses appropriate to the circumstances of each Group company</li> </ul>	<ul style="list-style-type: none"> <li>Disseminate and expand the use of an idle reduction external power supply systems</li> <li>Engage in studies and research for the establishment of conservation measures suited to diverse natural environments</li> <li>Implement awareness-raising activities related to biodiversity conservation and ongoing activities to protect natural assets</li> <li>Promote recycling measures appropriate to the circumstances of each Group company</li> </ul>
	<ul style="list-style-type: none"> <li>Implemented ongoing measures for controlling the emission of air pollution substances from thermal power plants (fuel, facility and operational countermeasures)</li> <li>Detoxified and recycled insulating oil and components of devices inadvertently containing PCB. Treated devices with originally contained PCB insulating oil in a safe and appropriate manner</li> </ul>	<ul style="list-style-type: none"> <li>Maintain the world's highest level of SO<sub>x</sub> and NO<sub>x</sub> emissions control</li> <li>Promote the proper management of PCB waste and its safe, proper efficient treatment</li> </ul>
	<ul style="list-style-type: none"> <li>Improved customer services based on customer feedback and satisfaction surveys, on a continuous basis</li> <li>Implemented a wide range of producer-consumer exchange activities and other such activities for local environment conservation and education</li> </ul>	<ul style="list-style-type: none"> <li>Make ongoing efforts to maintain and increase customer satisfaction</li> <li>Display an attitude of unity and cooperation with local communities, and continue implementing local exchange activities that value interactions with local residents, on a regular basis</li> </ul>
	<ul style="list-style-type: none"> <li>Strengthened our relationships of trust with business partners through the continuation of communication activities, and directed efforts toward stable procurement based on information collection and communication</li> <li>Promoted green procurement and other eco-friendly procurement methods, and strengthened efforts for the creation of a low-carbon, energy-efficient society</li> </ul>	<ul style="list-style-type: none"> <li>Further strengthen relationships of trust with business partners through ongoing communication activities to realize stable procurement, and promote coordinated efforts with business partners toward essential improvement in procurement activities</li> <li>Promote efforts for the creation of a low-carbon, energy-efficient society, such as by implementing procurement activities relating to the introduction of mega solar power and other renewable energies, and developing the environment for greater dissemination of electric vehicles</li> </ul>
	<ul style="list-style-type: none"> <li>Considered reviewing support measures for good work-life balance in response to the amendment to the Child Care and Family Care Leave Act (for implementation in FY2010)</li> <li>Established company-wide simultaneous clocking-off days and continued implementing other measures for good work-life balance</li> <li>Promoted awareness of shorter working hours and efficient working styles through campaigns on working hours</li> <li>Disseminated and confirmed the implementation of countermeasures against the recurrence of major disasters</li> <li>Implemented disaster prevention activities based on the management of "unsafe" conditions and conduct</li> <li>Confirmed the safety management status in partner companies and held exchanges of views toward their improvement</li> </ul>	<ul style="list-style-type: none"> <li>Continue promoting diversity by developing the necessary environment and reviewing support measures for good work-life balance</li> <li>Realize good work-life balance by continuously implementing campaigns and activities on good work-life balance and shorter working hours</li> <li>Continue promoting the lateral dissemination of countermeasures against the recurrence of major disasters and improving disaster prevention activities that take specific operational and facility characteristics into consideration, with the objective of further enhancing safety activities based on proper risk assessment</li> </ul>
	<ul style="list-style-type: none"> <li>Provided training programs designed for new team leaders, and offered programs on developing management capacity</li> <li>Provided training on "improving the ability to identify and solve issues," "maintaining and improving front-line technologies and skills," and "development of innovative leaders"</li> </ul>	<ul style="list-style-type: none"> <li>Provide training programs on "maintaining and improving front-line technologies and skills," "developing and strengthening the ability to identify and solve issues," and "developing and strengthening management capacities," as a means for promoting consistent and independent efforts to improve work quality and efficiency and to maintain strong work environments</li> <li>Provided training on increasing "innovative skills and minds" that are capable of initiating management reforms based on anticipated changes in environment</li> </ul>

# Third Party Opinions (TEPCO Advisory Committee on Environmental Affairs)

The TEPCO Advisory Committee on Environmental Affairs, which was established in 1993, convenes every year, to widely receive opinions and advice from outside authorities and experts, on TEPCO's CSR and environmental initiatives. We are actively utilizing the opinions we have received in the fiscal 2009 meeting, to further enhance our activities.

## TEPCO Advisory Committee on Environmental Affairs

**Members** (in alphabetical order; job titles are those at the time of the meeting)

### Outside members

Toshihiko Goto	Chair, Environmental Auditing Research Group
Yojiro Ikawa	Editorial Writer, The YOMIURI SHIMBUN
Hiroko Kiba	Newscaster & Guest Professor, Chiba University
Shuzo Nishioka	Special Guest Researcher, National Institute for Environmental Studies
Marino Osami	Advisor, Japan Consumers' Association
Akemi Ori	Professor, Kanto Gakuin University College of Law
Kenji Yamaji	Professor of Electrical Engineering, School of Engineering, University of Tokyo

### TEPCO members

President and CSR Officers

- The 18th Meeting of the TEPCO Advisory Committee on Environmental Affairs: October 29, 2009



## Major opinions received in the fiscal 2009 meeting (top paragraph: opinion; bottom paragraph: overview of TEPCO's initiatives)

### About the Electricity Business in General

- ▶ What Japanese companies most lack is communication with stakeholders. TEPCO maintains good communication with residents of communities where its nuclear power plants are located, but perhaps not so much with residents in electricity consuming regions. TEPCO might obtain greater public understanding by more widely providing a broad range of information to large consuming regions.
- Based on the awareness that the TEPCO Group's business activities are supported by various stakeholders in society, we are strengthening communication with regions where our power plants are located, as well as with electricity consuming regions. We will continue to make active efforts to disclose pertinent information so that our nuclear power plants are worthy of the trust and confidence of our stakeholders, and to carefully listen to and utilize their diverse views and opinions to enhance customer services, improve business operations, and provide new services. (See pp.26-27, 52-58)
- ▶ It is common understanding that Japanese electric power companies excel in the area of technologies for automated power distribution. There is a new challenge, however, in coordinating with power generating systems of individual electricity users. By going beyond automated power distribution and sharing information with individual users, please create a system that could effectively incorporate the electricity and batteries used by individual users in adjusting the power demand and supply balance.
- We are directing active efforts to developing IT technologies such as new electronic meters, and will continue to take an active part in outside demonstration tests to develop technologies for building a smart network. (See special feature on p. 10)
- ▶ Realizing a low-carbon society is extremely important, and a matter of high social concern. Amid this heightening interest, many regard coal negatively, because it releases CO<sub>2</sub> into the atmosphere when burned. However, as coal is a significant source of energy from the perspectives of energy security and economic efficiency, greater efforts should be made to promote proper understanding of coal.
- Indeed, power generation using coal releases large amounts of CO<sub>2</sub> compared to other fuels, but we are aware that it is a resource that provides outstanding fuel supply stability and economic efficiency, and believe coal-fired thermal power generation will continue to be an indispensable source of power. Japan has already achieved the world's highest thermal efficiency level in coal-fired thermal power generation, but we will make continuous efforts to achieve even greater efficiency levels in the future. (See pp. 32, 33)

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## About TEPCO's initiatives to prevent global warming

- ▶ The international community faces a major challenge in reducing carbon emission levels in developing countries. As Japan is in a perfect position to utilize its outstanding technologies and human resources for the benefit of the world, please give serious consideration to doing so.
- We have thus far placed large emphasis on the overseas consulting business. We have provided technical consultation services and energy conservation support for the operations of power generation facilities, from the power generation to distribution facilities, using our wealth of management resources, including our technological capabilities, expertise, and human resources. We will continue contributing to sustainable energy development, with an aim to becoming a top runner in the global energy arena. (See pp. 60-62)
- ▶ Society seems to have only limited knowledge about the CO<sub>2</sub> emission intensity after reflecting carbon credits. However, CO<sub>2</sub> emission intensity of electricity is closely related to CO<sub>2</sub> emission levels, and is thus extremely important. Please provide more information on TEPCO's initiatives related to carbon credits in a manner that facilitates public understanding.
- The Law Concerning the Promotion of Measures to Cope with Global Warming allows to reflect carbon credits of Kyoto mechanisms, starting with the calculation of FY2008 CO<sub>2</sub> emission intensity values. Based on the Kyoto mechanism rules, we acquire carbon credits by cooperating in greenhouse gas reduction projects in developing countries, etc., and utilize the credits to achieve our voluntary reduction target for CO<sub>2</sub> emission intensity. Details on our voluntary target are provided in the section on "Initiatives for a Low-carbon Society," and details on greenhouse gas reduction projects that TEPCO supports are provided in the section on "Greenhouse Gas Reduction Projects (Carbon Credits)," in this report. (See pp. 31, 36)
- ▶ A look at domestic CO<sub>2</sub> emission levels shows that CO<sub>2</sub> emission in the residential sector has increased roughly 40% from 1990 level. One of the countermeasures against the increase CO<sub>2</sub> emissions in the residential sector is to change the way housewives and children think about energy use, by means of effective environmental tools in the classroom.
- We will more widely offer "environment and energy courses" to local children and "environment and energy workshops" to teachers, and otherwise continue to promote effective environment and energy education as appropriate to the local characteristics of each region, in close cooperation with people who are in a position to educate the next generation. (See pp. 54, 55)

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## About TEPCO's initiatives concerning nuclear power generation

- ▶ According to current forecasts, the demand and supply balance of uranium might reverse itself in 2030 and cause a surge in uranium prices, much like they did with oil. When forecasting through to 2050, it seems likely that securing uranium will become an important issue.
- Demand for uranium is expected to grow steadily in the future, given the construction of new nuclear power station around the world today, but in response to this trend, uranium supply is also expected to increase, as the development of new uranium mines advances after a period of inactivity. To procure uranium resources in stable and economical manner in the future, we have entered into a long-term purchase agreement with a steady supplier, while also strategically strengthening our voluntary development efforts. Additionally, to realize the effective utilization of uranium resources, we will steadily promote the nuclear fuel cycle as an indispensable requirement for long-term, stable supply of energy. (See pp. 18, 72)
- ▶ Improving the facility utilization rate of nuclear power station is certainly necessary for realizing a low-carbon society, but please provide more information on TEPCO's plans for the construction of new power station, the treatment of spent fuel, and other such needs for the continuation of nuclear power generation, in future sustainability reports.
- To secure stable energy supply and to realize a low-carbon society, we believe it is essential to improve the facility utilization rate of nuclear power station and to steadily promote plans for the construction and expansion of power station, based on the major premise of ensuring safe and stable operations. We plan to develop 4.145 GW of nuclear power over the next ten years and increase its ratio to about 48% of total power generation by FY2019. In Rokkashomura Village in Aomori Prefecture, Japan Nuclear Fuel Limited is conducting test operations of a reprocessing plant, toward commencement of commercial operations in the near future. We will also continue providing steady support for this initiative. (See pp. 72, 73)



# Communication with readers of the TEPCO Sustainability Report

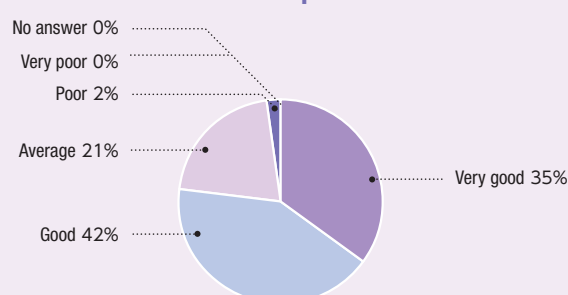
Last year, we published 50,000 copies of Sustainability Report 2009 in Japanese and 2,000 copies in English, and distributed them to stakeholders who have an interest in the TEPCO Group's business activities.

We regard this report as one of our tools for communication with our stakeholders, and utilize the views and opinions we receive from readers via questionnaire form and the Internet to improve our business activities and produce an even better report.

## Results from the questionnaire form (FY2009 report)

Number of feedbacks 620

### Overall evaluation of the report



### Some specific opinions from stakeholders

- ▶ Please include a wider range of third-party opinions in the report to enhance communication with readers.

— We provide numerous third-party views and opinions on this page and in the upper margins of main body pages.

- ▶ Please provide information on the LCA of nuclear power generation in comparison with other power sources.

— The section on “Producing Low-CO<sub>2</sub> Electricity” introduces lifecycle CO<sub>2</sub> emissions by power source. (Details on p. 32)

- ▶ TEPCO should strive to develop deeper public understanding of its nature preservation activities in Oze.

— Based on the awareness that the beautiful environment of Oze is a national asset, we have spent many years protecting it with pride and responsibility as owner of the land. In addition, we widely introduce the natural environment of Oze and our environmental conservation initiatives via website (<http://www.tepco.co.jp/oze/index-j.html> (Japanese only)) and various booklets. (Details on p. 47)

- ▶ Please provide information related to plutonium-thermal power generation and MOX fuels in more detail.

— Uranium, which is used as fuel for nuclear power generation, is a limited resource, as are oil and coal. To promote the effective use of uranium resources, all electric power companies in Japan, including TEPCO, are making various efforts to deepen public understanding of plutonium-thermal power generation, in which MOX fuels that are produced by separating plutonium from spent fuel and mixing it with uranium are used as fuel in existing nuclear power station. (Details on p. 72)

### Information that was of interest or concern (multiple answers)

【 Feature 】 Realizing a Low-carbon Society through Electrification	pages 8–9	78
【 The TEPCO Group's Environmental Initiatives 】 The TEPCO Group's Global Warming Initiatives	pages 30–45	78
【 Reaching for Sustainability 】 The Energy Situation	pages 12–13	75
【 TEPCO and Nuclear Power 】 Creating Disaster-resistant Nuclear Power Stations	pages 70–71	64
【 TEPCO and Nuclear Power 】 Disclosure of Nuclear Power Station Information	pages 68–69	58

- ▶ TEPCO should provide on-demand courses for children on environmental and energy issues and promote greater interaction with society.

— We offer environment and energy courses for children and environment and energy workshops for teachers, and otherwise engage in diverse environment and energy support activities with people of all ages. (Details on p. 55)

- ▶ Please explain more about coal-fired power generation and CCS.

— We are taking advantage of the benefits of coal, which is available in abundance from diverse sources, while also employing various countermeasures to curb CO<sub>2</sub> emissions as much as possible during power generation. We are also conducting research and studies on an ongoing basis, on IGCC (integrated coal gasification combined cycle) and CCS (carbon dioxide capture and storage), which are globally acknowledged as effective new technologies against global warming. (Details on p. 33)

- ▶ TEPCO should make more active approaches to local communities (local government, NPOs, etc.).

— TEPCO offices play an active role in supporting joint projects with prefectural authorities and environmental NPOs, and various other local activities as a member of their respective community. (Details on p. 58)

- ▶ Please provide some words from frontline workers.

— This year's report contains two columns written by frontline workers: “Protecting the watershed forest” (p. 47) and “For safe and stable operations” (p. 70).

# Profile

Since its establishment in 1951, the Tokyo Electric Power Company, Inc. (TEPCO) has continuously delivered a stable supply of high-quality electricity through an integrated system of power generation, transmission and distribution. TEPCO supplies electricity to the Tokyo metropolitan region, which, though it covers only about 10% of Japan's total land area, is home to about 30% of its population and is the political and economic heart of the nation. TEPCO's electricity sales in FY2009 totaled 280.2 TWh in volume. This roughly equals one-third of the national total and is about the same as generated in all of Italy.

## Business outline

Corporate Name:

Tokyo Electric Power Company, Inc. (TEPCO)

Head Office:

1-1-3 Uchisaiwai-cho, Chiyoda-ku, Tokyo, JAPAN

Established: May 1, 1951

Equity capital: 676.4 billion yen

Shareholders: 794,653

Sales turnover: 5,016.2 billion yen (FY2009)\*

Ordinary income or loss: 204.3 billion yen (FY2009)\*

Net income or loss: 133.7 billion yen (FY2009)\*

Gross assets: 13.204 trillion yen\*

Employees: 38,227

Electricity sales: 280.2 TWh (FY2009)

Maximum output: 64.3 GW (July 24, 2001)

As of March 31, 2010

\* Consolidated basis

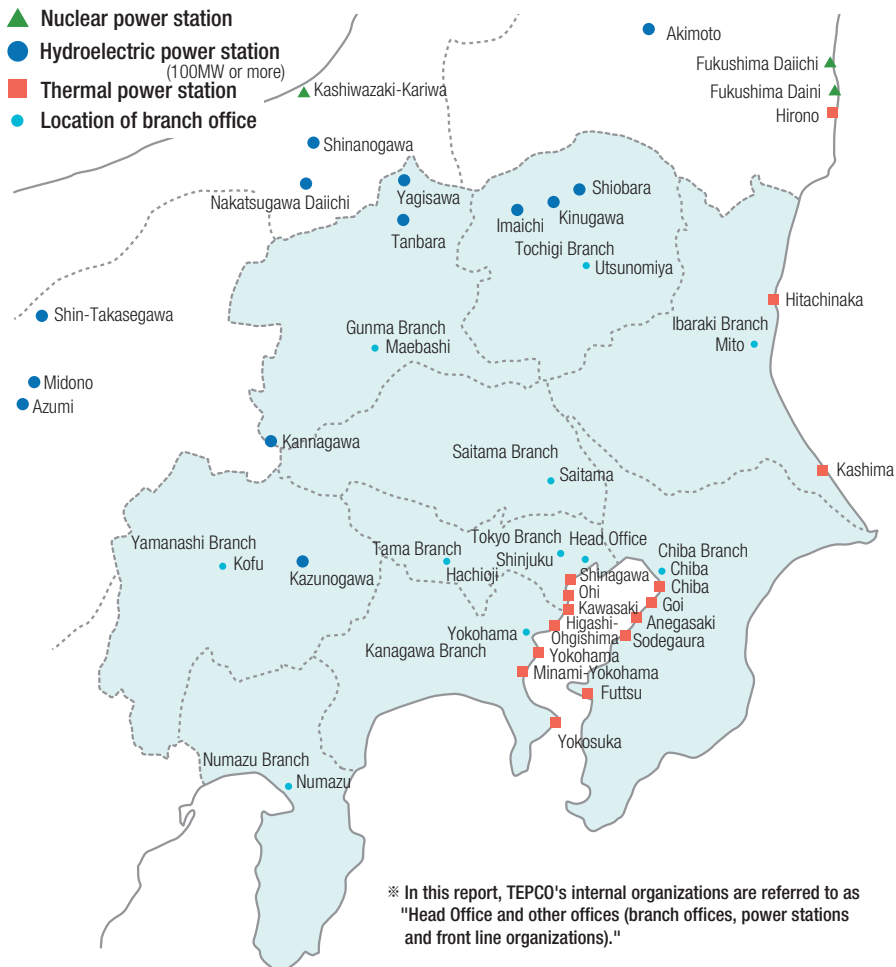
## Power Stations and Branch Offices

▲ Nuclear power station

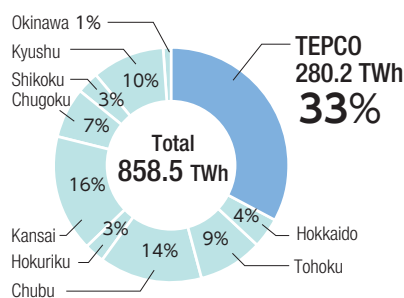
● Hydroelectric power station  
(100MW or more)

■ Thermal power station

● Location of branch office



## Electricity sales by the 10 electric utilities



※ FY2009 results

※ In this report, TEPCO's internal organizations are referred to as "Head Office and other offices (branch offices, power stations and front line organizations)."

## Major affiliated companies

### Electricity businesses

The Tokyo Electric Generation Company, Incorporated  
Kimitsu Cooperative Thermal Power Company, Inc.  
Kashima Kyodo Electric Power Co., Ltd.  
Soma Kyodo Power Company, Ltd.  
Joban Joint Power Co., Ltd.  
The Japan Atomic Power Company

### Information and communications businesses

Familynet-Japan Corporation  
TEPCO Cable Television Inc.  
TEPCO Optical Network Engineering Inc.  
TEPCO Systems Corporation  
TEPCO Uquest, Ltd.  
At Tokyo Corporation  
Tokyo Records Management Co., Inc.  
Japan e-Market Co., Ltd.  
Tepsys Solutions Corporation  
Japan Cablenet Holdings Limited  
Japan Digital Serve Corporation  
TEPCO Office Service Corporation

### Energy and environment businesses

Toden Kogyo Co., Ltd.  
Tokyo Electric Power Environmental Engineering Co., Inc.  
Tokyo Electric Power Services Co., Ltd.  
Tokyo Densetsu Service Co., Ltd.  
TEPCO Home Service Co., Ltd.  
Tosetsu Civil Engineering Consultant Inc.

Kandenko Co., Ltd.  
SNK Co., Ltd.  
Japan Nuclear Security System Co., Ltd.  
Transmission Line Construction Co., Ltd.  
Tokyo Keiki Kogyo Co., Ltd.  
TEPCO Logistics Co., Ltd.  
TokoElectric Corporation  
Takaoka Electric Mfg. Co., Ltd.  
Toshiba Toko Meter Systems Co., Ltd.  
TEPCO Resources Inc.  
TEPCO Australia Pty. Ltd.  
TEPCO Trading Co., Ltd.  
Recyclable-Fuel Storage Company  
Pacific LNG Shipping Limited  
Pacific LNG Yuso Limited  
Pacific Eurus Shipping Limited  
Transocean LNG Yuso Limited  
LNG Marine Transport Limited  
Cygnus LNG Shipping Limited  
Tokyo Timor Sea Resources Inc. (USA)  
Nanmei Kousan Co., Ltd.  
TEPCO-Yu Company, Limited  
TEPSTAR Co., Ltd.  
TEPCO Darwin LNG Pty. Ltd.  
Tokyo Timor Sea Resources Pty. Ltd. (Australia)  
Nanso Service Co., Ltd.  
Japan Nuclear Fuel Limited  
Pacific Hope Shipping Limited  
Japan Coal Development Co., Ltd.  
Nuclear Fuel Transport Company, Ltd.  
CELT Inc.

Tokyo Toshi Service Company  
Bio Fuel Co., Inc.  
Kawasaki Steam Net Co., Ltd.  
Morigasaki Energy Service Co., Ltd.  
Isehara Energy Service Co., Ltd.  
Tokyo Waterfront Recycle Power Co., Ltd.  
Hitachi Heat Energy Co., Ltd.  
Japan Natural Energy Company Limited  
Haneda Solar Power Co., Ltd.  
Japan Facility Solutions, Inc.  
Kanto Natural Gas Development Co., Ltd.  
Aoyama Energy Service Co., Ltd.  
Fuchu D.H.C. Co., Ltd.  
Clean Coal Power R&D Co., Ltd.  
Tokyo Heat Energy Co., Ltd.  
Tas Forest Holdings Pty. Ltd.

### Residential environment and lifestyle-related businesses

Toden Real Estate Co., Inc.  
Oze Corporation  
TEPCO Land Management Corporation  
ReBITA Inc.  
Mutsu-Ogawara Habitat Inc.  
Toso Real Estate Management Co., Ltd.  
TF Service Co., Ltd.  
Tokyo Living Service Co., Ltd.  
TEPCO Public Relations Co., Ltd.  
TEPCO Humming Work Co., Ltd.  
CareerRise Corporation  
TEPCO Town Planning Corporation Limited  
The TEPCO Reinsurance Company PCC Limited

TEPCO Partners Co., Inc.  
Toden Life Support Co., Ltd.  
Toden Kokoku Co., Ltd.  
TEPCO Call Advance Inc.  
Good-Serv Co., Ltd.  
Houseplus Corporation, Inc.  
Kankyou Bika Center Inc.  
Atema Kogen Resort Inc.  
Japan Utility Subway Ltd.  
Daido Industrial Arts Co., Ltd.  
Houseplus Architectural Inspection, Inc.  
Tokyo Electric Power Company International B.V.  
Eurus Energy Holdings Corporation  
Tokyo Electric Power Company International Paiton I B.V.  
TM Energy (Australia) Pty. Ltd.  
Tokyo Electric Power Company International Paiton II B.V.  
CIPI-GP Ltd.  
Capital Indonesia Power I.C.V.  
Japan Uranium Management Inc.  
SAP-Japan Co., Ltd.  
Loy Yang Marketing Holdings Pty. Limited  
ITM Investment Company Limited  
Great Energy Alliance Corporation Pty. Limited  
ITM O&M Company Limited  
Star Buck Power Corporation  
Team Energy Corporation



TOKYO ELECTRIC POWER COMPANY