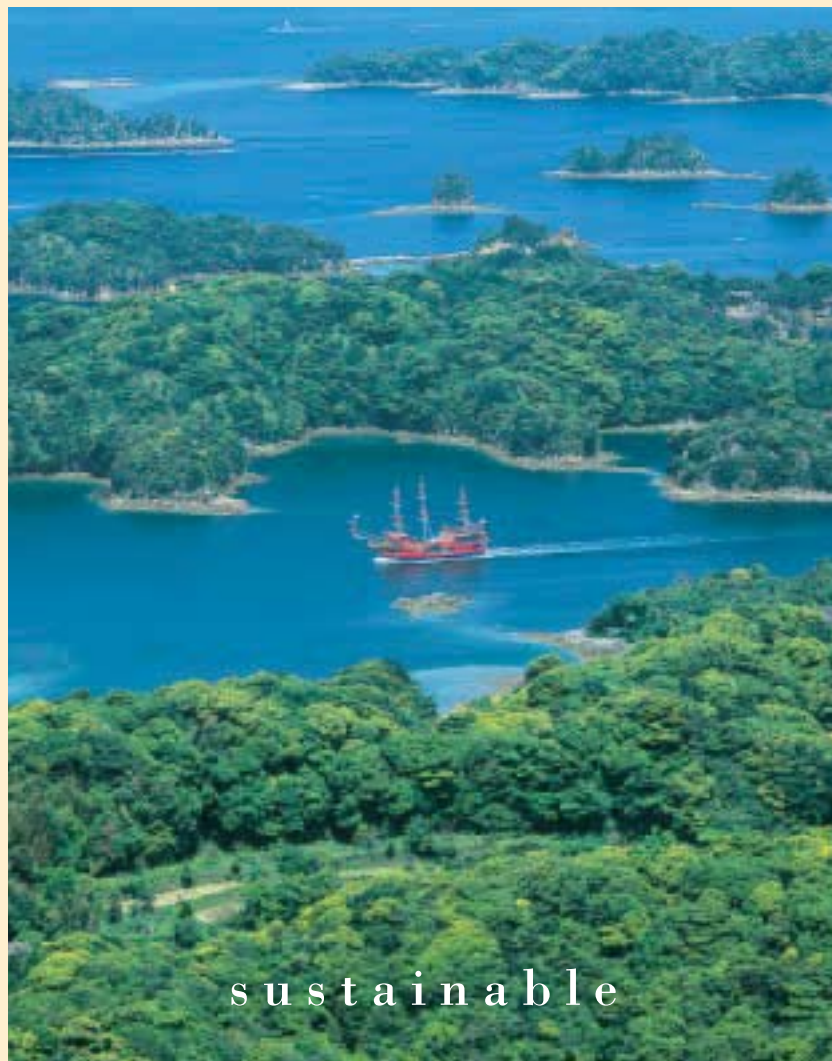


# 2005 Kyushu Electric Power Environment Action Report

## Glossary

Glossary of terms used in the 2005 Kyushu Electric Power Environment Action Report booklet  
and basic terms concerning the environment and related issues





## Accounting, Reporting and Publishing System for Greenhouse Gas Emissions (provisional translation)

p. 24

A system mandating that those who emit a certain amount or more of greenhouse gases report their emissions to the national government, and a system under which the government totals and announces reported figures. The system was introduced to form the foundation to encourage voluntary measures against global warming at all social strata by demanding emitters to calculate their level of emissions, and also to give incentives to and motivate people and businesses to reduce emissions on their own initiative by publicly announcing their emission levels in a visible form.

## Acid rain

p. 68

Defined as rain having a pH of 5.6 or lower. Pollutants from factories such as sulfur oxides or nitrogen oxides form a mist of sulfuric acid or nitric acid in the atmosphere. When the mist comes in contact with rainwater, the rain will be strongly acidic. Acid rain damages the ecosystems of lakes, marshes and forests as well as architectural structures.

## Agenda 21

Basic term

A specific action plan to achieve sustainable development, adopted at the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil in 1992.

## Air pollution / air pollutant

pp. 20,39, 59, 60, 62, 69

Atmospheric pollution caused by the combustion of fossil fuel in economic and social activities. Major pollutants are sulfur oxides, nitrogen oxides, carbon monoxide, suspended particulate matter and photochemical oxidants.

## Air Pollution Control Law

Basic term

One of its purposes is to protect public health and preserve the living environment with respect to air pollution: by controlling emissions of soot, smoke and particulate from the business activities of factories and business establishments; by controlling emissions of particulate in the demolishing of buildings; by promoting various measures concerning hazardous air pollutants; and, by setting maximum permissible limits for automobile exhaust gas, etc. The law is also focused on helping victims of air pollution-related health damage by defining corporate liability for compensation of such damage.

## Allowances for publicly recognized licenses and qualifications

p. 46

Rewarding system implemented by Kyushu Electric Power. Allowances or rewards are paid to personnel who have acquired a license or qualification related to their jobs or for self-development. It is aimed at motivating employees to educate themselves to deal effectively with diversified operations and tasks.

## Alternative Freons

pp. 24, 58

Manufactured by adding hydrogen partially or entirely, instead of the chlorine usually contained in specific Freons. HCFC (hydrochlorofluorocarbon)

and HFC (hydrofluorocarbons) are alternative Freons that contribute less to ozone layer depletion than specific Freons (ozone depletion potential of HCFC is 1/20 – 1/50 of that of CFC while that of HFC is zero). However, they still pose a threat in terms of global warming.

## Asbestos

Basic term

An extremely fine, fibrous mineral with excellent heat and chemical resistance and insulation properties. A large intake can increase the risk of diseases such as lung cancer.

## Award system for employees who devote themselves to the local community

p. 46

Established by Kyushu Electric Power in 1984. Employees who have contributed to enhancing the corporate image or company reputation through long-range activities in local communities are awarded. The objective is to encourage employees to be actively involved in social activities.

## Basel Convention

Basic term

An international agreement adopted by the United Nations Environment Programme (UNEP) in 1989, officially called the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal. It imposes strict controls on trans-border transport and disposal of hazardous wastes by stipulating the obligation to get export permission and give advance notice as well as to re-import in the case of improper exports or disposals.

## Basic Environment Law

p. 21

Established by the government in 1993 to define a basic policy for environmental issues. The law provides fundamental principles for environmental conservation and also defines the responsibilities of the state, local governments, businesses and citizens, respectively, as well as basic matters to be pursued by local governments, businesses and citizens.

## Basic Environment Plan

Basic term

Basic plan established by the government to promote the comprehensive and systematic implementation of environmental conservation-related policies in accordance with the Basic Environment Law.

## Basic Law for Environmental Pollution Control

Basic term

A law established in 1967 for pollution control/prevention. It defines environmental pollution and the responsibility of businesses, national and local governments and citizens with a view to preventing pollution, in particular, types of pollution that have a direct impact on the environment. In years to follow, social and economic activities based on mass-production, consumption and waste aggravated pollution in urban areas, and issues such as global warming and ozone layer depletion emerged. To address these issues, the Basic Environment Law was enacted in 1993 to replace the Basic Law for Environmental Pollution Control.

## Basic Law for Establishing a Recycling-based Society

Basic term

A law providing a basic framework for a recycling-oriented society in which few resources are consumed and in which the environmental load is reduced. In order to reduce the volume of waste finally disposed, the following priorities have been determined: (1) controlling (reducing) waste generation, (2) reusing used goods as is, (3) recycling used goods as raw materials, (4) heat recovery (thermal recycling), and (5) proper disposal.

## Binary-cycle generation

p. 26

A method of power generation in which turbines are rotated with the steam produced by heating and evaporating liquids with a low boiling point. It is called binary-cycle generation since electricity is produced with two heat cycles; the heat source system and the medium system. It is used in geothermal power generation and binary-cycle geothermal generation uses low-temperature steam and hot water, which were not usable in conventional methods, as the heat source by utilizing a medium with a low boiling point.

## Biological diversity

Basic term

Diversity in the living organisms on earth and the living environment. Intraspecific, interspecific and ecosystem diversities are included.

## Biochemical Oxygen Demand (BOD)

p. 57

The amount of oxygen consumed by microorganisms during decomposition of pollutants (organic matter) in river water or industrial wastewater. It is a commonly applied parameter for river pollution under environmental standards and the most stringent limit is set as 1mg/liter or less.

## Biomass

p. 42

Organic materials of biological origin used as energy sources which include debris from thinned woods, sawdust from lumbering, pruned plants, construction waste, manure from the livestock industry, organic matter collected in sewage treatment facilities and kitchen garbage.

## Bisphenol A epoxy resin

p. 40

An epoxide polymer used for adhesives, paints and electrical insulant. It has a strong adhesive ability on bonded surfaces and excellent resistance to chemicals and electrical insulating properties.

## Blue tide

Basic term

Abnormal discoloration in seawater caused by the rise of hypoxic water mass due to the decomposition of plankton sedimentation in eutrophic coastal waters, a process which consumes a significant amount of oxygen. Dissolved oxygen depletion produces hydrogen sulfide that affects the aquatic ecosystem.

## Boron and boron compounds

p. 40

An element occurring naturally only in combination, such as borax, and found in river water, groundwater, seawater and soil, particularly in volcanic zones. Boron and its compounds are used as glass material, solvents for plating, preservatives, pesticides and a neutron absorber for nuclear power plants.

## Capacity factor

pp. 19, 24, 71

The ratio of average power generated, for a period of time considered, to the total installed supply capacity of power plants or substations for the same period. It indicates the effectiveness of facility utilization. The efficient use of facilities and improvement of the capacity factor must be pursued through load leveling and rationalization of periodic inspections to ensure efficient power supply.

## Car Sharing

pp. 44, 68

The systematic shared use of automobiles owned by companies or groups. This new means of individual transportation is drawing attention as an alternative to privately owned cars.



## Carbon dioxide (CO<sub>2</sub>)

pp. 13, 17, 18, 20, 24, 26, 28, 33, 41, 42, 46, 58, 61, 66, 68, 71

A colorless, odorless gas and one of the greenhouse gases that absorb infrared rays. It is a greenhouse gas targeted for reduction under the Kyoto Protocol.

## Carbon monoxide (CO)

p. 24

A colorless, odorless toxic gas produced by the incomplete combustion of carbon-based compounds. It combines with hemoglobin in the blood, thereby reducing oxygen delivery capacity.

## Carbon neutral

p. 42

Refers to a characteristic of CO<sub>2</sub> equilibrium achieved when plants, which absorb atmospheric carbon dioxide (CO<sub>2</sub>) by photosynthesis, are burned as a fuel and emit the absorbed CO<sub>2</sub>, thereby offsetting the amount of CO<sub>2</sub> in the environment throughout their lifecycles.

## Carbon tetrachloride

p. 29

An ozone depleting substance mainly used as a fire-extinguishing agent or solvent as well as for dry cleaning. It has a very long life in the atmosphere and is as destructive of the ozone layer as specific freons.

## Cement material

p. 34

Coal ash, which may effectively substitute for clay, used in the production of cement with other cement materials, and limestone, clay, silica stone, ferric oxide fuel and gypsum.

## Certification/Registration Organization

Basic term

An organization that assesses the conformity of businesses to the standards for environmental management systems of the International Organization for Standardization (ISO).

## Chemical oxygen demand (COD)

p. 21

The amount of oxygen consumed to oxidize

organic matter in water with the oxidizing agent. It is often used as an indicator for water pollution since water with more organic matter requires more oxygen. The unit of COD is mg/liter, and 1mg/liter indicates that 1mg of oxygen is required for 1 liter of water. COD is applied under environmental standards to indicate the pollution level of lakes, marshes and seas. The most stringent limit for lakes and marshes is 1mg/liter or less.

## Clean Development Mechanism (CDM)

pp. 27, 46

One of the Kyoto Mechanisms. A developed country supports a developing country in completing an emissions reduction project and receives an achieved reduction amount. The developed country is allowed to receive part of an achieved emissions reductions as credit to apply to their own reduction requirement.

## Clean energy cars

pp. 19, 27, 29

Electric vehicles, hybrid cars, natural gas automobiles and methanol cars.

## Clinker ash

p. 34

A type of coal ash that particle accumulated at falls to and is collected from the bottom of a pulverized coal-fired boiler and pressurized fluid-bed boilers.

## Closed water area

Basic term

A body of water in an inland bay or sea, lake or marsh where water exchange rarely occurs for topographical reasons. Pollutants are likely to accumulate making maintenance or improvement of water quality difficult.

## Club of Rome

Basic term

A private organization comprised of scientists, economists, educators and businessmen, established in 1970 to search for a way to avoid the crisis for humans caused by the depletion of natural resources, aggravated environmental pollution and population growth. It was named the Club of Rome since its first meeting was held in Rome in 1968 prior to its establishment.

## CO<sub>2</sub> Absorption and Sequestration Method

p. 41

The application of photosynthesis function of plants (trees) to absorb, fix and store CO<sub>2</sub> in a solid form.

## CO<sub>2</sub> emissions intensity (end-use electricity)

pp. 18, 24, 29, 66, 69, 71

The amount of CO<sub>2</sub> emitted in the generation or consumption of 1kWh of electricity. CO<sub>2</sub> emissions intensity for end-use electricity refers to CO<sub>2</sub> emissions from 1kWh of electricity used by Kyushu Electric Power's end-users. Since electricity sold to customers includes electricity purchased from wholesale suppliers, the amount of CO<sub>2</sub> emissions recorded by Kyushu Electric Power will contain emissions from power generation by wholesale suppliers as well.

## Coal ash

pp. 19, 34, 41

Ash produced from the combustion of coal in coal thermal power plants, due to ash contained in coals at a rate of about 5-30%. There are two types of coal ash: fly ash collected in a precipitator and cracked welded ash, called clinker ash, collected at the bottom of a boiler.

## Combined cycle (combined power generation method)

p. 26

A Power generation method that combines gas and steam turbines. Heat from gas turbines is collected in a waste heat boiler, and the steam produced is used to rotate steam turbines.

## Compliance

pp. 05, 07, 13, 14, 46, 54

The act of complying with laws, regulations, corporate regulations and rules, and business agreements to prevent misconduct and enhance reliability among interested parties.

## Compost

Basic term

Fermented or decomposed waste, including kitchen garbage, fallen leaves, etc.

## Conference of Parties to the UN Framework Convention on Climate Change (COP)

Basic term

Aimed to establish a framework for the prevention of global warming and the related rules. The first session was held in March 1995 in Berlin by the parties to the United Nations Framework Convention on Climate Change, which was made effective in March 1994.

## Confidential document

pp. 34, 36, 56, 62

Prohibited to be disclosed due to the secrecy or confidentiality of contents. The term usually refers to corporate documents such as significant policies or human resources-related documents.

## Constant cycling at rated electric output

Basic term

In this operation method, the thermal output of nuclear reactors is reduced during winter to maintain a stable electrical output without overproduction (over 100% production) as thermal efficiency increases in winter due to the lower temperature of seawater. This method was once applied in operation.

## Constant cycling at rated thermal output

pp. 25, 33

In this operation method, nuclear reactors are operated at the rated thermal output as approved by the national government (100%). This increases electrical output to 101-104% in winter due to the lower temperature of seawater.

## Containers and Packaging Recycling Law

Basic term

A law promulgated in 1995 and officially called the "Law for Promotion of Sorted Collection and Recycling of Containers and Packaging." In order to reduce general waste and promote the utilization of reclaimed material, the law stipulates the roles of various parties with regard to containers and packaging which make up a large portion of household waste: consumers are to separate waste before disposal, municipalities are to collect garbage by type and manufacturers of containers and those responsible for packaging of products are to develop and produce recyclable products.

## Convention on Biological Diversity

Basic term

Aimed at preserving biological diversity, the sustainable use of its components and fair and equitable sharing of benefits arising from the utilization of genetic resources. The convention divides the diversities of all living organisms on earth into three elements: ecosystem, species and genes (intra-species).

## Corporate social responsibility (CSR)

pp. 05, 07

Operating style pursuing both social and economic values. Companies should fulfill their social responsibilities, for example, by complying with laws and/or social standards, being considerate of the environment, protecting the shareholders' interest and participating in social activities.

## Cryogenic power generation

p. 54

The volume of LNG expands 600 times when its temperature rises from minus 162°C to ambient temperature. The expansion pressure is utilized to drive a turbine and generate power.

## Denitration facility

pp. 18, 20, 39, 60

A facility to remove nitrogen oxides (NOx) from the flue gas generated by fuel combustion in the boilers at thermal power plants before they are released from chimneys into the atmosphere.

## Deposit-refund system

Basic term

A system in which deposits are collected when goods are sold, in addition to the selling prices, and refunded when the goods or containers are returned.

## Specific Designated chemical substances

pp. 40, 57, 59

Chemical substances designated by the PRTR Law (Law Concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management) that are hazardous to human health and the ecosystem. There are 354 Class I Designated Chemical Substances and 81 Class II Designated Chemical Substances.

## Desulfurization facility

pp. 18, 20, 34, 39, 60

A facility to remove sulfur oxides (SOx) from the flue gas generated by fuel combustion in the boilers at thermal power plants before they are released from chimneys to the atmosphere.

## Diatom earth

p. 41

Fossil of diatom, a phytoplankton mainly used in chinaware.

## Dichloropentafluoropropane

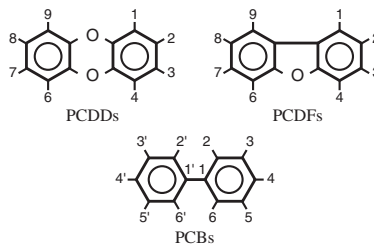
p. 59

Chlorofluorocarbon-replacing material (HCFC225) and a clear and colorless liquid that produces an ether-like odor and has a boiling point of 54°C. Used as detergent for various parts or components.

## Dioxins

p. 40

General term for certain organic compounds containing chlorine, including Polychlorinated Dibenzo-Para-Dioxins (PCDD), Polychlorinated Dibenzofurans (PCDF) and Coplanar Polychlorinated Biphenyls (Coplanar PCB), which are categorized into 224 different types based on the level of toxicity related to the location and number of chlorine molecules. Severe and acute toxicity have been proven through animal testing. Dioxins are said to cause cancer and deformation in humans and are produced mainly in the combustion of waste.



## Dissolved oxygen (DO)

Basic term

The amount of oxygen dissolved in water. It changes according to conditions including water temperature, atmospheric pressure and salt content. The level of DO is higher in clean water than in polluted water where oxygen consumption increases.

## District heating and cooling projects

Basic term

Air conditioning business based on the supply of cold water and steam (or hot water). Cold water and steam are transported by pipes from large-scale heat-generating plants to buildings located within a certain distance from supplying facilities for air conditioning purposes.

## Dose evaluation value

p. 18

Evaluation value for radiation dose that represents the degree to which people may be exposed to radioactive materials released by a nearby nuclear power plant. The dose evaluation value is controlled to be well below 0.05mSv/year, a target dose established under the guidelines of the Nuclear Safety Commission in Japan.

## Earth Day

Basic term

Earth Day is April 22, and its founding dates back to April 22, 1970 when large-scale demonstrations were organized throughout the United States for the purpose of appealing for the protection of the environment including pollution control and nature conservation. On this day, we celebrate the international collaboration by declaring our commitment to protect the global environment.

## Earth Summit

Basic term

An informal name for the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil in 1992, aiming for global environment protection and sustainable development. The conference resulted in the adoption of the Rio Declaration on Environment and Development, Agenda 21, and the State-ment of Forest Principles, setting forth rules for individuals and nations. At the conference, the UN Framework Convention on Climate Change and the Convention on Biological Diversity were opened for signature.

## Eco Mothers

pp. 13, 43, 66, 68, 71

The title of PR representatives who serve as intermediaries between Kyushu Electric Power and its customers regarding environmental issues. Their main task is to visit kindergartens and children's associations in the local community in order to read books about the environment and provide environmental information. They also seek the opinions of parents concerning environmental issues and environmental activities of the Kyushu Electric Power Co., Inc.

## Ecocute (CO<sub>2</sub> refrigerant heat pump-type water heater)

pp. 29, 69

Heat pump-type water heaters using a natural refrigerant (CO<sub>2</sub>: carbon dioxide) that store hot water during the night as electric water heaters.

## Eco-friendly products

pp. 37, 56, 61, 62

Products developed to reduce environment load over their lifecycle ranging from production to disposal.

## EcoLeaf

pp. 25, 67

An environmental labeling program, in which the quantitative data (calculated based on the Life Cycle Assessment (LCA) method) of environmental load generated from manufacturing to disposal of products is published, after the data is certified by third-party organizations.

## Electric vehicle

pp. 16, 19, 29, 45

A vehicle which operates with battery-equipped electric motors. It emits no exhaust gas, so its emission level is low even when exhaust gas from power plants in power generation is taken into account. It also contributes to drastically reducing engine noise.

## Emission Trading (ET)

p. 27

A solution adopted as one of the Kyoto Mechanisms, where CO<sub>2</sub> emissions are traded between countries or companies in order to achieve their CO<sub>2</sub> emission reduction target.

## Emissions intensity

pp. 39, 67

The amount of substances, such as CO<sub>2</sub>, NOx and SOx, emitted upon generation or consumption of 1kWh of electricity.

## Endocrine disrupting substances (EDS: aka. environmental hormones)

Basic term

A collective term used for certain chemicals that act like hormones once they enter the body and have the potential to disturb the endocrine (hormone) system in humans. Dioxins, polychlorinated biphenyls (PCBs) and DDT are suspected substances.

## Energy Conservation Law

Basic term

Formally known as the Law Regarding the Rationalization of Energy Use, promulgated in 1979 to promote rationalization (energy saving) by establishing specific standards for factories, buildings, machines and equipment. The law provides the Top Runners Approach in which standards for automobile fuel economy and energy conservation in electric appliances must be higher than those found in currently available products that have the best energy efficiency. Also, factories above a certain size are required to submit a plan for the rationalization of energy use.

## Engineering Manager for Waste Disposal Facilities

p. 46

Personnel required to be designated at waste treatment facilities according to the Article 21 of the Waste Management and Public Cleansing Law. They are responsible for the technical aspect of maintaining general or industrial waste treatment facilities.

## Environment Action Plan

pp. 12, 14, 70

Kyushu Electric Power places environmental conservation at the top of its tasklist of management and has proactively engaged in tackling environmental issues including global warming. The Action Plan is a company-wide implementation plan updated every year.

### **Environment Day**

p. 45

June 5th is designated in the Basic Environment Law as Environment Day. The purposes of the day is to promote interest in and understanding of environment conservation among people and motivate participation in environmental activities. June 5th is also World Environment Day, as designated by the United Nations.

### **Environment Impact Assessment Law**

p. 38

The law stipulates that environment impact assessment should be conducted on large-scale projects that may have a serious impact on the environment, for example, land development projects for roads, dams, railways, airfields, power plants, land reclamation and land readjustment. The law has been in full force since June 1999.

### **Environment Month**

pp. 20, 43, 44, 47, 60

June has been designated by the Ministry of Environment as Environment Month in Japan. Various events or programs are launched to raise awareness and promote environmental conservation activities during Environment Month. Kyushu Electric Power also names June "Environment Month" and organizes voluntary activities such as forestation, cleaning and other programs.

### **Environment PR**

p. 43

Delivery or disclosure of environmental policies and/or activities through reports, brochures, TV, newspapers and other forms of mass media.

### **Environmental accounting**

pp. 20, 56, 60, 66

A system used to understand or measure, analyze and publish in a quantitative manner, expressed in monetary or in material units, the costs and effects of environmental conservation activities of entities. Entities utilize the system to effectively and efficiently promote environmental conservation to achieve sustainable development while maintaining harmony with society.

### **Environmental impact assessment**

p. 38

A technique used for identifying the environmental impact of a project that may be hazardous to the environment before its implementation. The impact of the project on the environment will be studied, estimated and evaluated in order to find and implement the appropriate precautionary measures. In Japan, it is conducted in compliance with the Environment Impact Assessment Law for target projects undertaken by enterprises engaged in the operation of roads, dams, railways and power plants. The process requires the involvement of local residents, specialists and administrative agencies in charge of environmental matters. It is one of the most important measures for preventing environmental pollution.

### **Environmental Action Plan by the Japanese Electric Utility Industry**

p. 24

An action plan established in 1996 by 12 participants of the Federation of Electric Power Co. of Japan to state their goals to establish global

warming measures, create a recycle-oriented society and manage chemical substances, as well as clarify the activities necessary to achieve these goals. The plan is reviewed annually to ensure transparency and achieve its goals.

### **Environmental activity costs**

pp. 17, 20, 56, 60

Costs incurred to recover environmental disruption and protect the environment. For example, environmental disruption leads to environmental damages. Various expenses such as compensation for environmental damages or victims or repairs for environmental damages may be incurred. Usually, environmental protection activities require costs for the construction or development of environmental infrastructures and other investments.

### **Environmental administrator**

p. 47

Personnel responsible for managing comprehensively environmental activities implemented in each relevant operational unit. In his management, emphasis is placed on the accurate, complete and effective operation of the PDCA cycle. The first Environmental Administrator was appointed in August 2001 for each office and department at the Head Office and operational units of the branch office of Kyushu Electric Power.

### **Environmental audit**

p. 15

Process of evaluation based on objective evidence obtained in order to determine if environmental activities implemented by an entity comply with the related laws or regulations and/or the entity's related standards or environmental conservation manual. Kyushu Electric Power arranges an independent environmental audit to be conducted regularly under the control of the Management Administration Office company-wide in order to evaluate the performance of environmental activities.

### **Environmental conservation agreement**

pp. 15, 39, 54

Agreement concluded between a local government and a factory or business of a certain size in connection with pollution control.

### **Environmental corporate management**

pp. 05, 07, 12, 14, 52, 56, 60, 69, 70

Operation pursuing sustainable development of an entity with attention paid to the environment. It is a new operating style or strategy, in which businesses take advantage of friendly involvement in the environment, instead of regarding environmental activities as negative factors due to increased costs. At Kyushu Electric Power, the environmental operation is being pursued in its overall business activities under the Kyushu Electric Power Environment Chapter.

### **Environmental education**

pp. 21, 43, 44, 55, 56, 60, 66, 68, 71

Intended to define, sustain and improve an ideal human environment. Environmental education was enthusiastically inspired by the World Conservation Union (IUCN), UNESCO and UNEP which started its activities shortly after World War II.

### **Environmental efficiency**

pp. 13, 21

Idea or concept of promoting both a reduction in environmental load and economic advantages through energy saving, recycling of waste and production process using less energies. Environmental efficiency is assessed based on indicators obtained by dividing the quantity of

goods produced or services offered by the associated environmental load. Increasing environmental efficiency is considered essential for realizing sustainable societies.

### **Environmental load**

pp. 13, 18, 20, 35, 37, 54, 56, 58, 60, 66, 69, 71

Any disturbance in ecological system caused including items required for certain activities (e.g. energies, raw materials and parts), by-products produced or generated from activities (e.g. wastes, effluent, gas emissions and noise) and beneficial or valuable outputs (e.g. products and services).

### **Environmental management**

p. 53

Environmentally conscious corporate administration or management pursuing sustainable development. It is a new management style or strategy, in which businesses take advantage of friendly involvement in the environment, instead of regarding environmental activities as negative factors due to increased costs. At Kyushu Electric Power, the environmental management is being pursued in its overall business activities under the Kyushu Electric Power Environment Charter.

### **Environmental Management System (EMS)**

pp. 13, 14, 18, 20, 29, 35, 46, 53, 54, 56, 60, 70

A system in which organizations manage and control the reduction of environmental load on an ongoing basis utilizing the PDCA cycle.

### **Environmental monitoring**

p. 40

Surveillance and recognition of impact on the environment. Air quality, noise, vibration and water quality are inspected while a power plant is being constructed and/or after the operation of a power plant is started in order to measure, evaluate and analyze the impact of smoke, noise, vibration and thermal wastewater produced by power stations on the neighboring environment. Environmental monitoring is often conducted when a new power plant is constructed or an existing power plant facility is expanded.

### **Environmental NGOs**

pp. 43, 45, 66

Non-profit, non-governmental private groups and organizations that undertake environmental protection endeavors, including the World Wide Fund for Nature (WWF) and Greenpeace.

### **Environmental organization(s)**

pp. 20, 47, 60

Organization or group of people actively involved in environmental activities in local communities.

### **Environmental pollution**

Basic term

Defined by the Basic Environment Law as significantly expanded damages from dirty air and water, soil contamination, noise vibration, ground subsidence (excluding excavations from mining) and unpleasant odors. It is caused by business or human activities and results in negative effects on human health and the living environment (including properties, plants and animals closely connected to people's lives and growing environment of these organisms). Degradation of water conditions and bottom sediment is also defined as environmental pollution.

### **Environmental radiation**

p. 32

Radiation existing in the living environment of humans and other organisms.

### **Environmental standards**

p. 21

Referred to as “standards for conditions associated with air pollution, water pollution, soil contamination and noise, for which maintenance is desirable to protect human health and the living environment” in the Basic Environment Law.

### ESCO (Project)

p. 46

A qualified energy service company provides a comprehensive service for energy saving and receives part of the resulted benefits the customer is entitled to as remuneration.

### Ethylbenzene

pp. 40, 59

A colorless liquid found often in paint and varnish having a boiling point of 136.2°C and a melting point of -94°C.

### Ethylene glycol

p. 59

A colorless viscous liquid, producing very little odor, having a boiling point of 197.6°C and a melting point of -13°C. It is used as a synthetic material in dyes and perfumes or in air-conditioning refrigerants (anti-freeze).

### Eutrophication (adj. eutrophied, eutrophicated)

pp. 39, 42

The increase in the level of nutrient salts (nitrogen, phosphorus etc.) in certain areas of seas, lakes and marshes, likely caused by an inflow of wastewater from factories and households. It may cause red tides and the consequent death of marine life in seas, or water blooms in lakes and marshes, which result in odorous water.

### Exhaust gas recirculation combustion method

p. 39

A method that enables combustion at a low temperature and low oxygen level to reduce NOx emissions. A portion of the exhaust gas is either mixed into the combustion air or supplied into the combustion zone.

### Extended producer responsibility (EPR)

Basic term

An approach in which manufacturers are held liable for the disposal, treatment and recycling of their products in addition to their production and distribution. It is anticipated that the approach will promote the development of products that are easy to recycle or have low environmental load upon disposal.

### Factory Location Law

Basic term

Enacted in 1973 to regulate site selection for and construction of factories above a certain size (in the manufacturing and power supply industries) from an environmental protection standpoint. Construction of a new factory and additions to an existing factory must be reported to authorities. The ratio of production facility area to the area of the whole site and the ratio of environmental facility space, such as greenery areas, to the area of the whole site are regulated by the Law.

### Fast breeder reactor (FBR)

p. 30

Nuclear power reactor, using high-speed neutrons (fast neutrons), able to produce more nuclear fuel than power generation consumes.

This is a feature of the reactor likened to “breeding” (i.e. uranium-238 is changed to plutonium-239).

### Federation of Economic Organizations’ Charter for a Global Environment

Basic term

Declaration announced by the Federation of Economic Organizations (Keidanren) in 1991. The charter states that the tackling of environmental issues is essential to member companies for their existence and in their business activities and declares its commitment to implementing environmental activities voluntarily and proactively for environmental protection.

### Federation of Economic Organizations’ Voluntary Action Plan on the Environment

Basic term

A long-term scheme established by the Federation of Economic Organizations (Keidanren) in 1997 to pursue environmental activities effectively and continuously in all business segments of Japan. Targets are set and performance is assessed yearly, which enhances accountability. Participating companies are expected to voluntarily make the maximum effort in regarding the Plan as an incentive for social promise.

### Final disposal sites

Basic term

Disposal sites for general and industrial waste approved under the Waste Management and Public Cleansing Law. There are three types of sites: non-leachate controlled landfills for stable industrial waste, leachate-controlled landfills for domestic and industrial waste and isolated landfills for hazardous industrial waste.

### Flue gas

pp. 20, 60

A mixture of gases or smoke emitted from factory and power plant chimneys.

### Fluorocarbons Recovery and Destruction Law

Basic term

A law officially called the Law for Ensuring the Implementation of Recovery and Destruction of Fluorocarbons Concerning Specified Products. The law stipulates measures for recovery and destruction of Freons in specific products (e.g. commercial air conditioners, refrigerating equipment and automobile air conditioners) in order to reduce Freons emissions in the atmosphere.

(Effective January 1, 2005, car air conditioners are covered by the Automobile Recycling Law.)

### Forest Management Certification

pp. 45, 61

A system to certify the proper management of forests from environmental, social and economic perspectives. The labeling of corporate standards aimed at ensuring the use of products originating solely from certified forests through the entire process from production to processing to distribution, and the validity of such standards is called Chain of Custody (COC) Certification.

### Free Cash Flow (FCF)

pp. 04, 06

Cash at a company’s disposal. It is calculated by subtracting cash expenditures from the company’s cash flow produced by operating activities and indicates an increase/decrease in cash and cash equivalents.

### Freons / Chlorofluorocarbon

pp. 20, 29, 58, 60

A group of chemical compounds containing carbon

and fluorine. Some Freons, such as chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC), have been found to cause ozone layer depletion. Their production and use have been regulated since the adoption of the Montreal Protocol in 1987. Under the Kyoto Protocol, hydro fluoro carbons (HFC) and per fluoro carbons (PFC) were defined as greenhouse gases which should be reduced.

### Freons / Fluorocarbons

pp. 20, 29, 58, 60

A group of chemical compounds containing carbon and fluorine. Some Freons, such as chlorofluorocarbon (CFC) and hydro-chlorofluorocarbon (HCFC), have been found to cause ozone layer depletion. Their production and use have been regulated since the adoption of the Montreal Protocol in 1987.

### Fuel cells

p. 26

A device that utilizes the electrochemical reaction of hydrogen and oxygen that is a reverse reaction of water electrolysis, to produce water and electricity. This method of power generation theoretically has a high efficiency since fuel is directly converted into electricity through a chemical reaction and is characterized by low air pollutant emissions.

### Fuel-efficient vehicles

pp. 18, 27, 29

The shortened name for vehicles that are certified as fuel-efficient and low-emission and has been introduced in Kyushu Electric Power Co., Inc. The vehicles meet the fuel efficiency standards set forth in the Law Concerning the Rational Use of Energy (Notifications No. 2 and No. 3 issued in 1997 by the then Ministry of International Trade and Industry and the then Ministry of Transport, which set the criteria for car manufacturers to improve the performance of passenger cars and trucks) and are certified as low-emission vehicles in compliance with the “Low Emission Vehicle Certification Procedure.”

### General waste (municipal solid waste)

pp. 21, 34, 36, 54, 60

“Waste other than industrial waste” as defined in the Waste Management and Public Cleansing Law. Specifically, this includes kitchen garbage and wastepaper from households, restaurants, stores and offices.

### Glass cullet

pp. 37, 41

Crushed pieces of used glass, including bottles for recycling materials.

### Global environment issues

pp. 13, 18, 44, 56, 61, 71

Environmental issues that go beyond national borders such as ozone layer depletion, acid rain and global warming, and the issues faced by developing countries including loss of tropical forests and endangered species of wild animals which require international efforts led by developed countries. These problems must be addressed from a global point of view.

### Global warming

pp. 12, 17, 20, 29, 41, 42, 43, 60, 66, 68, 71

Rising of the surface temperature of the earth due to greenhouse gas emissions. Concentrations of greenhouse gases (such as carbon dioxide, methane and nitrous oxide) in the atmosphere increase due to economic or social activities, and in turn the greenhouse effect is intensified.

## Global Warming Potential (GWP)

pp. 21, 28

An index used to calculate the level of greenhouse effect. It uses a relative scale based on the greenhouse effect of the reference gas, carbon dioxide, which has a GWP of exactly one. This potential is stipulated in the enforcement ordinance to promote global warming measures.

## Global Warming Prevention Headquarters

p. 24

An organization established by a cabinet decision following the adoption of the Kyoto Protocol to comprehensively promote measures both effective and specific to prevent global warming in line with the steady implementation of the Kyoto Protocol. It is headed by the Prime Minister.

## Green helper

p. 44

The title granted to individuals who completed forestation-related training classes offered by the Interchange Association for Promoting Forestation (NPO) to foster leadership for the "Forestation of Communities" program among local people.

## Green mark

Basic term

The mark established by the Paper Recycling Promotion Center in 1981 and printed on products manufactured from used paper. The purpose of the mark is to help consumers easily recognize the use of used paper and encourage used paper collection and use.



## Green Power Certificate

p. 27

Political incentive measure launched by the government to promote the use of renewable energies. It is awarded according to the amount of electricity generated using renewable energies and the green power may be sold to other companies.

## Green procurement

pp. 13, 17, 18, 20, 34, 37, 54, 56, 59, 60, 62

Priority purchasing or procurement of low environmental load products or services.

## Green products

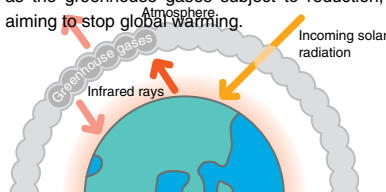
pp. 20, 37

Products such as plastic containers easily degraded by microorganisms developed to lessen impact on the environment while manufactured or used.

## Greenhouse gas(es):GHGs

pp. 07, 13, 24, 27, 55, 56, 58, 61, 66, 68

Atmospheric gases including CO<sub>2</sub> and methane that absorb solar heat in the atmosphere and warm the surface of the Earth. They maintain the earth's average temperature at approximately 15°C. Without these gases, the temperature would drop to -18°C. Since the Industrial Revolution, human activities have caused to increase the density of greenhouse gasses in the atmosphere, thereby accelerating the greenhouse effect. The Kyoto Protocol designated CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC and SF<sub>6</sub> as the greenhouse gases subject to reduction, aiming to stop global warming.



## Greenhouse Gas Reduction Fund

p. 20

Investment funds under which investors receive emission-reduction credits in return for their overseas investment in Joint Implementation (JI) and Clean Development Mechanism (CDM). Popular funds include the Prototype Carbon Fund (PCF) of the World Bank and the Japan Greenhouse Gas Reduction Fund (JGRF).

## Gross thermal efficiency

pp. 18, 26

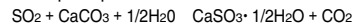
A ratio of gross output obtained by assuming that all electricity generated in the power plant becomes electric power effectively.

## Gypsum

p. 34

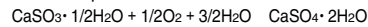
Mineral composed of calcium sulfate. In order to remove sulfur oxides, limestone (calcium carbonate) and exhaust gas are contacted in the desulfurization equipment of a thermal power plant to create gypsum.

Reaction formula (Wet limestone - Gypsum method)  
Absorption process:



(Sulfur dioxide gas)(Limestone slurry)(Calcium sulfite)(Carbon dioxide gas)

Oxidation process:



(Calcium sulfite) (Gypsum)

## Halons

pp. 20, 58, 60

A group of FKW-containing compounds such as bromine-containing bromodifluoromethane and bromotrifluoromethane. Halons are widely used in fire extinguishers because they are non-flammable and non-explosive, and have an excellent ability to extinguish fire. They are also safe from electrical fires and less hazardous than asphyxiating gases such as carbon dioxide and nitrogen gas.

## Heat pump water heater

pp. 28, 66, 71

A water heater that utilizes surrounding air to heat the refrigerant. The refrigerant is compressed, thereby raising their temperatures and the heat is transferred to cold water to supply hot water. It reduces power consumption to about 1/3 of that of electric heaters, making it an economical choice for hot water supply.

## Heat storage system

pp. 13, 24, 28

A system that stores energy in the form of cold or warm water produced at night in a heat storage tank for daytime use.

## Heavy / crude oil ash

p. 34

Substances like soot or ash that are generated through the combustion of heavy and crude oil. Vanadium, a rare metal contained in the ash, is collected and recycled to produce alloys.

## High burnup fuel

p. 33

Uranium-235 enriched for extended fuel burnup in a nuclear reactor than existing uranium fuel.

## High density concentration PCBs

pp. 13, 20

PCBs of 100% concentration used for capacitors or PCB of 60-70% concentration used for transformers. This term is used to distinguish

equipment applying high concentration PCBs from equipment that unintentionally contains trace amount of PCBs (equipment with trace PCB contamination).

## High-level radioactive waste

pp. 25, 30, 32

Waste, including wastewater or highly radioactive vitrified-form wastewater, that cannot be reused as fuel at reprocessing plants where uranium and plutonium are collected from spent nuclear fuel.

## High-pressure vacuum forming

p. 41

A method of forming thermoplastic resin such as plastic. Forming is completed in a vacuum sheet that is created by removing the air between sheet-typed materials softened by heat and a mould.

## Hot dip galvanization

p. 59

An anti-corrosion method to protect steel products. The products are dipped in melted metallic zinc to form a steel and zinc alloy layer and a zinc layer 70-100 μ m thick.

## Household eco-account book

pp. 47, 68

An account book designed for family use. An environmental account of their everyday life shows their impact on the environment. Primary items listed in the book include consumption of energy (electricity and gas) and water, trash and living, shopping and transportation.

## Hybrid car

pp. 18, 29

A car that runs on a combination of different power sources, such as an internal combustion engine and batteries or an electric motor.

## Hydrated lime

p. 41

Calcium hydroxide, Ca (OH) 2, generated when calcium oxide reacts with water. It is used to purify tap water and sewage, and to prevent pollution (by desulfurizing smoke, removing hydrogen chloride gas, and neutralizing industrial waste water).

## Hydrazine

p. 40

A colorless fuming unctuous liquid having an ammonia-like odor. It emits smoke in the air and reacts vigorously to metal, metallic oxides and porous substances that may cause a fire or explosion. It is used as a feed water treatment agent to remove dissolved oxygen from the boiler during power generation.

## Hydrocarbons

Basic term

General term for organic compounds consisting of carbon and hydrogen. Organic compounds containing oxygen and nitrogen together with hydrocarbons are generally called hydrocarbon substances. Major hydrocarbon substances, alcohols, aldehydes and esters, are believed to cause photochemical smog along with nitrogen oxides.

## Hydrochlorofluoro carbon (Alternative Freons)

pp. 24, 58

Manufactured by adding hydrogen partially or entirely, instead of the chlorine usually contained in specific Freons. HCFC (hydrochlorofluorocarbon) and HFC (hydrofluorocarbons) are alternative Freons that contribute less to ozone layer depletion than specific Freons (ozone depletion potential of HCFC is 1/20 - 1/60 of that of CFC while that of HFC is zero). However, they still pose a threat in terms of global warming.

## Hydrofluorocarbons (HFC)

pp. 13, 17, 28, 58, 69

A group of greenhouse gases targeted for reduction under the Kyoto Protocol. They are used as a propellant in sprays, refrigerants, and cushion core materials, etc.

## “Idling stop” (Engine idling control)

Basic term

This refers to avoiding unnecessary engine idling of automobiles while stopped and parked. This measure can help reduce the emission of greenhouse gases and air pollutants.

## Industrial waste

pp. 13, 17, 18, 20, 34, 56, 58, 60, 62, 69

Waste produced from business activities and categorized into 20 kinds of waste such as cinders, sludge, oil, acid, alkali, plastic, etc. It is usually produced in large quantities and requires the use of special technologies in treatment. Treatment is controlled by the Waste Management and Public Cleansing Law.

## Industrial Waste Final Disposal Site Engineering Controller

Basic term

Personnel appointed for industrial waste disposal facilities based on Article 21 of the Waste Management and Public Cleansing Law. Disposal sites covered by Article 7 of the Enforcement Ordinance must designate a Controller.

## Industrial Waste Intermediate Treatment Facility Engineering Controller

Basic term

Personnel appointed for industrial waste treatment facilities based on Article 21 of the Waste Management and Public Cleansing Law. The Controller is responsible for technologies related to the maintenance and control of facilities.

## In-furnace desulfurization

p. 39

A technology using a desulfurizing agent to absorb and remove SO<sub>x</sub> produced in fuel combustion from exhaust gas in the combustion equipment. Inexpensive limestone is often used as the desulfurizing agent.

## In-house power consumption

p. 16

Power consumed in the operation of power plants using equipment such as pumps, fans and lighting appliances.

## Intergovernmental Panel on Climate Change (IPCC)

Basic term

Established by the United Nations Environment Program (UNEP) and the World Meteorological Organization (WMO) in 1988 to serve as a place for government discussions. Global warming issues as well as global warming-related scientific findings and socioeconomic effects are discussed or assessed by governments from a scientific viewpoint. Countermeasures for global warming are now being discussed at IPCC.

## Internal environmental audit (auditors)

pp. 14, 46, 70

A regular audit of the environmental management system to determine whether the system meets the ISO14001 standard and is operated and

maintained properly. Internal environmental auditors are those who implement such audits.

## International Organization for Standardization (ISO)

Basic term

A non-governmental international organization located in Geneva, Switzerland which consists of standardization institutes from approximately 100 countries, and establishes world-wide standards for networks and industrial matters. ISO is not technically an abbreviation; however, it is used because “*isos*,” which means “equal” in Greek, well represents the organization. The Japanese Industrial Standards Committee (JISC) has been a member since 1952.

## Investor relations (IR)

Public relations activities launched for company shareholders.

## Iodine

p. 32

A halogen. The crystallized form of solid iodine is dark-purple, orthorhombic, and weaker than reactive chlorine and bromine. It does not dissolve well in water but does in a potassium iodine solution. Uncompounded iodine is designated as a poisonous substance for non medical purposes under the Poisonous and Deleterious Substances Control Law.

## IPP (Independent Power Producer)

p. 46

General term used for wholesale generators that own power generation facilities but no transmission system. Conventionally, an approval from the Ministry of Economy, Trade and Industry was required to engage in a wholesale power generation business. Upon revision to the Electricity Utilities Industry Law in 1995, the approval was not required in principal, and a power source tender system was introduced in the power industry. It has become easier to engage in a wholesale power generation business than before. Wholesale generators who newly entered this market are called IPP.

## ISO14001

pp. 46, 53, 54, 60

An international standard for environmental management. An external certification authority evaluates whether a system provides systematic management to determine, evaluate and improve environmental impacts resulting from the activities of a corporate organization, such as production, sales and recycling. The registration is issued to the organization that is judged to meet the standard.

## ISO-based system

pp. 20, 60

An environmental management system that meets the requirements of ISO14001 though the system is not officially registered.

## ISO9001

Basic term

An international standard for quality control. An external certification authority evaluates a system that systematically controls the quality of products and services that an organization offers. The registration is issued to the organization that is judged to meet the standard.

## Japan Nuclear Fuel Limited

p. 32

A company located in Rokkasho-mura Village in Aomori Prefecture that engages in four undertakings: uranium enrichment; low-level radioactive waste disposal; intermediate storage of high-level radioactive waste; and the reprocessing of nuclear fuel.

## JETRO

p. 46

An independent administrative institution established to contribute further to the development of the Japanese economy and society by promoting trade and investment, and conducting studies on developing countries. Officially known as the Independent Administrative Institution Japan External Trade Organization.

## JICA

p. 46

JICA is the acronym for the Japan International Cooperation Agency. Officially known as the Independent Administrative Institution Japan International Cooperation Agency, the organization is responsible mainly for bilateral aids (technological cooperation and grant aid) for Official Development Assistance (ODA).

## Joint Implementation (JI)

p. 27

One of the Kyoto Mechanisms. If a country invests in a project related to reducing carbon dioxide in the host country, the investing country is granted credits for emission reduction units in return.

## Kyoto Mechanism (Flexible Mechanism)

pp. 24, 27, 41, 46

Scheme launched for the Kyoto Protocol and aiming to achieve emissions reduction targets set forth in the Kyoto Protocol through international cooperation. It consists of the following:

- 1) Emissions trading: governments are allowed to trade allocated allowances between developed countries.
- 2) Joint Implementation (JI): developed countries collaborate to complete an emissions reduction project and receive emissions reductions in proportion to the amount of contribution.
- 3) Clean Development Mechanism (CDM): a developed country supports a developing country in completing an emissions reduction project and receives an achieved reduction amount.

## Kyoto Protocol

pp. 24, 61, 68

A protocol setting a numerical target for the reduction of greenhouse gas emissions that each participating developed nation should achieve to prevent global warming. Adopted in the Third Conference of Parties to the UN Framework Convention on Climate Change (COP3) held in Kyoto in December 1997, the protocol became effective in February 2005. Six kinds of gases, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>), are regulated under the Kyoto Protocol. It declared that developed countries including Russia and Eastern Europe are required to reduce total emissions by at least 5% on average from 1990 average emissions records in the five-year period starting 2008 (as for HFC, PFC and SF<sub>6</sub>, 1995 average level may be used as a base). Japan needs to reduce by 6%, the United States by 7%, the EU by 8%, and certain countries may increase by 10%. (The U.S.



announced its withdrawal from the Protocol.)

### **Kyoto Protocol Target Achievement Plan** [pp. 24, 69, 70](#)

A plan devised by the Japanese government which clarifies policies and measures to be taken in order to achieve Japan's 6% reduction commitment in the Kyoto Protocol to replace the Outline for Promotion of Efforts to Prevent Global Warming. This was decided by the cabinet in April, 2005.

### **Kyushu Green Power Fund** [p. 27](#)

A fund established in October 2000 to subsidize construction of wind and photovoltaic power generation facilities. The fund is administered by the Kyushu Industrial Advancement Center to ensure appropriate management of green contributions from customers.

### **Kyushu Industrial Advancement Center (KIAC)** [p. 27](#)

Foundation committed to stimulating industries in Kyushu. The center is involved in the study and research of grand designs, the development or exploitation of projects and related feasibility studies and the provision of support for projects.

### **Law Concerning Special Measures against Dioxins** [p. 40](#)

Designed to prevent and eliminate dioxin-related environmental pollution. It regulates exhaust gas, wastewater and waste disposal, provides measures on soil contamination, determines the allowable daily intake of dioxins and establishes environmental criteria.

### **Law Concerning Special Measure against PCB** [p. 59](#)

The law establishes a framework of obligations and responsibilities that national and local governments, businesses and citizens should jointly assume and fulfill in tackling global warming in response to the adoption of the Kyoto Protocol. It prescribes an action plan for the achievement of the Kyoto Protocol commitments and encourages citizen efforts by proposing the establishment of local councils, etc.

### **Law Concerning the Promotion of the Measures to Cope with Global Warming** [p. 24](#)

The law stipulates a framework for national and local governments, entities and citizens to jointly tackle global warming in response to the adoption of the Kyoto Protocol. It prescribes the development of the Kyoto Protocol Target Achievement Plan and measures to encourage citizen efforts including the establishment of local councils.

### **Law Concerning the Recovery and Destruction of Fluorocarbon (Fluorocarbons Recovery and Destruction Law)**

#### [Basic term](#)

A law officially called the Law for Ensuring the Implementation of Recovery and Destruction of Fluorocarbons Concerning Specified Products. The law stipulates measures for recovery and destruction of Freons in specific products (e.g. commercial air conditioners, refrigerating equipment and automobile air conditioners) in order to reduce Freons emissions in the

atmosphere.

### **Law for the Promotion of Nature Restoration**

#### [Basic term](#)

A law designed to protect, restore and create a natural environment and to minimize environmental damage. Such efforts will be pursued by various groups, including state and local governmental agencies, local residents, NPOs and intellectuals.

### **Law on Promoting Green Purchasing** [p. 62](#)

The Law Concerning the Promotion of Procurement of Eco-friendly Goods and Services by the State and Other Facilities established by the Japanese government on May 24, 2000 and enacted on April 1, 2001. State government and agencies are required to procure goods with lower environmental load. The Law aims to widen the range of green purchasing to local governments and private organizations and to promote the use of eco-friendly products nationwide to protect the global environment.

### **Law on Special Measures Concerning New Energy Use by Electric Utilities**

[pp. 18, 26](#)

Refer to the RPS Law.

### **Lead and its compounds**

[p. 59](#)

An odorless tasteless bluish gray metal often used in batteries, pigments, plating and soldering.

### **Life cycle assessment (LCA)**

[p. 25](#)

A method of environmental impact evaluation which addresses, in a quantified and objective manner, the whole process from collection of resources, production and use through disposal or recycling.

### **Limestone**

[pp. 19, 34, 41](#)

A sedimentary rock mainly composed of calcium carbonate (CaCO<sub>3</sub>; mineral calcite or mineral aragonite on rare occasions). It also contains magnesium carbonate, etc.

### **Limits to Growth**

#### [Basic term](#)

Research report published in 1972 by the Club of Rome. It warns that if current trends in population growth and environmental degradation continue, economic growth on earth will reach a limit within 100 years. In order to avoid global collapse, the report emphasizes the necessity of shifting priorities from growth to worldwide balance.

### **Liquefied natural gas (LNG)**

[pp. 16, 20, 24, 39, 54, 57, 58, 63](#)

Natural gas converted to liquid form by cooling methane (CH<sub>4</sub>)- and ethane (C<sub>2</sub>H<sub>6</sub>)-based natural gas to minus 162°C. It is transported on special tankers called LNG carriers and is regasified to use as fuel for power generation.

### **Liquefied petroleum gas (LPG)**

[pp. 57, 58](#)

Liquefied mixture of gases, chiefly propane and butane, generated in crude oil drilling or petroleum refinery.

### **London Convention**

#### [Basic term](#)

An international convention officially called the "Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter." It regulates the deliberate disposal at

sea from vessels, aircraft or platforms or by incineration.

### **Low NOx burner**

[p. 39](#)

A burner that incorporates one or a combination of the following methods in its structure to reduce NOx emissions: lowering the level of oxygen supply in combustion zones, lowering the maximum flame temperature, or shortening gas retention times in high temperature ranges.

### **Low-emission vehicles**

[p. 19](#)

Vehicles certified as meeting the emission standards under the "Low Emission Vehicle Certification Procedure (Ministry of Environment)," certified in three levels of 25, 50 or 75%-reductions from the latest regulation level).

### **Low-level radioactive waste**

[pp. 17, 21, 32](#)

Waste from nuclear power plants containing a low level of radioactive material, such as used work clothes, gloves and replaced equipment.

### **Low-level Radioactive Waste Disposal Center**

[p. 32](#)

A facility where low-level radioactive waste generated in the course of nuclear power plant operation is disposed. The waste is stored until the level of radioactivity attenuates to a level at which it poses no safety threat. The center started its operation in Rokkasho-mura Village, Aomori Prefecture, in December 1992.

### **Low-pollution and fuel-efficient vehicles**

[pp. 18, 20](#)

Clean energy vehicles (electric and hybrid vehicles) and vehicles certified as fuel-efficient and low-emission which Kyushu Electric Power Co., Inc. has been promoting to deploy to achieve its predetermined target.

### **Low-pollution vehicles**

[pp. 29, 45, 60](#)

Generally refers to vehicles "realizing significant reduction in environmental load by applying new technologies," that are one of the targets prescribed in the "Low-Pollution Vehicle Development and Promotion Action Plan" developed by the Japanese government. In concrete, low-pollution vehicles already in practical use include natural gas (CNG), electric, hybrid and methanol vehicles as well as those certified as fuel-efficient and low-emission vehicles. Next generation low-pollution vehicles include fuel cell vehicles and others that reduce environmental load by using new types of fuel or applying new technology, which will be materialized through a technological breakthrough.

### **Magnetic separation**

[p. 42](#)

One of separating methods using magnetism (magnetic force). Filtration, distillation and centrifugal separation are also separating methods.

### **Manganese and its compounds**

[p. 59](#)

A silvery metal that is very corrosive to acid and subject to surface oxidation. Manganese and its compounds are used as a deoxidant or as an additive to stainless and special steels.

### **Manifest system**

[Basic term](#)

This is a system set forth in the Waste Disposal Law. The system prevents environmental pollution resulting from unlawful dumping and inappropriate disposal of industrial waste. The system requires the producer of industrial waste to check the disposal process of the waste from collection and transportation to final disposal if such disposal is entrusted to other entities.

### Material safety data sheet (MSDS)

#### Basic term

A printed form containing data regarding the properties and handling of a certain chemical substance which is provided prior to or at the time of trading such substance between companies.

### Melia azedarah tree

#### p. 41

Deciduous tree of the Meliaceae family known for its excellent CO<sub>2</sub> absorption and found throughout East Asia and Japan.

### Methane (CH<sub>4</sub>)

#### pp. 13, 17, 24, 27, 54, 58, 69

A greenhouse gas whose effect is 21 times as much as that of carbon dioxide. It is produced through decomposition of organic matters by microorganisms under anaerobic conditions, such as those found in marshes, rice paddies and soil or during enteric fermentation of herbivores, as well as excavation for natural gas or coal.

### Milli-sievert

#### p. 32

One milli-sievert is 1/1000 sievert (Milli- means 1/1000). The sievert (Sv) is an SI derived unit to measure the biological effect of radiation on a human body.

### More stringent prefectural standard

#### Basic term

A more stringent standard, in addition to the Japanese national government's uniform standard for emission of particulates or discharge of waste-water, provided through a prefectural ordinance, in order to more fully achieve protection of human health or the living environment in the region.

### Mixed oxide (MOX) fuel

#### p. 30

A mixed fuel consisting of the plutonium and uranium oxides recovered in the reprocessing of spent fuel.

### Multifunctional heat pump

#### Basic term

Multifunctional heat pump-type air conditioner. The outdoor unit is capable of air conditioning, water heating and laundry dehumidification in a bathroom. In summer, heat emitted for cooling air is used to make hot water. In winter, water is heated using less expensive nighttime power in order to cover the increased use of hot water.

### National Environmental Policy Act (NEPA)

#### Basic term

A law established in the United States to urge administrative organizations to consider the environment in the decision-making process. This law, which is the first law in the world legislating environmental impact assessment, encouraged other countries to introduce their own environmental assessment system.

### Native species

#### p. 42

Species inhabiting their normal distribution area. "Native" means "indigenous to a certain area", while species introduced from other areas are referred to as "foreign".

### Natural energy

#### pp. 24, 27, 66

Energy generated from natural phenomena, such as solar, geothermal, hydro and wind energy and tidal power. Because of its smaller environmental load, it is regarded as clean energy when compared with fossil fuel and nuclear energy.

### Natural gas

#### p. 46

General term used for gases emitted from the earth. Usually refers to combustible gases mostly composed of methane and ethane. It is used as a fuel or industrial raw materials.

### Natural parks

#### Basic term

Park designated by the Natural Parks Law, which is focused on protecting and preserving beautiful natural scenery for outdoor activities and education. National Parks and Quasi-National Parks designated by the national government and prefectural Nature Parks designated by local governments are included.

### NEDO

#### p. 46

A core organization that promotes and encourage research and development of technologies in the fields of industry, energy and environment in Japan. It makes use of public funds and its extensive network of research institutes with the business, academic and public sectors to facilitate research and development, that is hardly impossible for individual businesses to carry out alone. Officially known as the Independent Administrative Institution New Energy and Industrial Technology Development Organization.

### Neutron

#### p. 31

An elementary particle with zero electrical charge and a mass slightly greater than that of a proton, which is highly permeable. One of the components of atomic nucleus along with protons.

### Net thermal efficiency

#### pp. 18, 26

A ratio of net output to the electricity actually generated in the power plant obtained by subtracting the electric energy that is consumed by facilities necessary for power plant operation (in-house power consumption for pumps, fans and lighting, etc.).

### New energy

#### pp. 13, 18, 20, 26, 60

Energy essential for the introduction of alternative energy sources to oil. It is technically reaching the level appropriate for practical use but not widely used due to economical restrictions. Sources for new energy include photovoltaic, wind, solar thermal, waste, and biomass power generation, as well as fuel cells. Though harnessing natural energies, hydroelectric and geothermal power generation are not considered new energy as they are already in practical use.

### Nitrogen dioxide (NO<sub>2</sub>)

#### Basic term

A reddish brown irritant gas produced through the reaction of nitrogen monoxide and oxygen. It is hazardous when inhaled since it does not easily dissolve in water and can reach the deep part of the lungs without causing severe discomfort.

### Nitrogen oxides (NO<sub>x</sub>)

#### pp. 17, 18, 20, 25, 26, 38, 39, 57, 59, 69

Any of several oxides of nitrogen such as nitrogen monoxide (NO) and nitrogen dioxide (NO<sub>2</sub>). Nitrogen oxides are generated when fuel containing nitrogen is burned or when nitrogen in the air is oxidized during combustion. They are subject to regulation under the Air Pollution Control Law as hazardous substances.

### Nitrous oxide, N<sub>2</sub>O

#### pp. 13, 17, 24, 27, 58, 69

A greenhouse gas targeted for reduction under the Kyoto Protocol. Its greenhouse effect is 310 times greater than that of carbon dioxide. It is generated through combustion or use of nitrogen fertilizer.

### Noble gas

#### p. 32

Chemical elements belonging to Group 18 of the periodic table; helium, neon, argon, krypton, xenon, radon and a gas provisionally called ununoctium. Scientifically, all noble gasses are very inert due to their closed outer electron shells.

### NPO corporation (Specified nonprofit activity corporation)

#### pp. 43, 44, 67, 71

NPO (Non-Profit Organization or Not-for-Profit Organization) refers to non-profit, private organizations in various fields, such as health care, welfare, environment, culture, art, sports, community development, international cooperation, human exchange, human rights, peace, education and other support activities. NPO corporations are those certified under the Law to Promote Specified Nonprofit Activities (NPO Law) and are an active part of NPOs.

### Nuclear fuel

#### p. 16

Uranium fuel consisting of fissile uranium-235 and non-fissile uranium-238. MOX fuel used in plutonium (plutonium-thermal) projects is a type of nuclear fuel.

### Nuclear fuel cycle

#### pp. 25, 30

A cycle in which natural uranium undergoes the steps of mining and milling, conversion, enrichment, fuel fabrication to be its first mined, refined, converted, enriched, processed, and used as a nuclear fuel in a nuclear reactor. Within the same cycle the uranium is, and then subsequently recovered removed from the reactor for, reprocessing, refabrication and recycling before eventual disposal retreated, reprocessed and reused in the reactor, and the resulting residue is treated and disposed of as radioactive waste.

### Nuclear Waste Management Organization of Japan (NUMO)

#### p. 33

An organization established under the Specified Radioactive Waste Final Disposal Act (promulgated in June 2000). Based on the Act, the final disposal of high-level radioactive waste will commence in the second half of the 2030s. The selection of a site for and the construction of disposing facilities will be pursued in the near future.

### Nugget

#### p. 35

Aluminum wire and other scraps cut into small pieces that are sorted into the coatings and the conductors according to specific gravities.

## OJT

p. 10

The acronym for On the Job Training, or training offered in the workplace.

## Optical transmission equipment

p. 11

A communication device using optic fibers. It is used to communicate information among offices and other operational sites, for example, in-house telephones.

## Optimal combination of power sources

pp. 25, 67, 71

This refers to a well-balanced combination of power sources, such as hydro, thermal, nuclear and geothermal power, determined by comprehensive analysis of the reliability of the supply and the economical and environmental impact of each power source.

## Ozone hole

Basic term

An area of the ozone layer located at the heights of about 20-25km depleted of ozone. An ozone hole formation over Antarctica has been identified.

## Ozone layer

pp. 13, 21, 29, 54, 58, 60, 68

An atmospheric layer about 20km thick existing at heights of approximately 20-25km from the earth's surface containing relatively high ozone concentration. The ozone layer absorbs most harmful ultraviolet rays in sunlight.

## Ozone Layer Protection Law

Basic term

It refers to the Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures issued in 1988. The purpose of this Law is to ensure the smooth implementation of the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer, which work together to contribute to the protection of the ozone layer on an international level. It stipulates measures for the production and emission of specified substances such as Freons as well as rationalization of their consumptions.

## Park & Ride

Basic term

A system designed to reduce the number of privately-owned cars in congested downtown areas in which suburban commuters are prompted to drive to the nearest station, park at outlying parking lots and take public transportation to their final destinations. The system contributes to the reduction of exhaust gas emission and the conservation of energy sources.

## Particulate

pp. 20, 39, 60

A generic term for soot and solid particles (e.g. ash) produced by combustion. Once emitted from chimneys, they are mixed with aerosols, which are also called particulates, or settled dust or suspended dust.

## PDCA Cycle

p. 53

A management method that uses the following process: 1) Plan (preparation of policies and schemes); 2) Do (implementation and operation); 3) Check (inspection and correction); and 4) Action (review by the management). The cycle aims for the betterment of a system so that higher goals and targets are reached through the repetition of the cycle.

## Perfluorocarbons (PFC)

pp. 13, 28, 58, 69

A group of greenhouse gases targeted for reduction under the Kyoto Protocol, used in airtightness tests of electronic parts and equipment, and semiconductor etch processes, etc.

## Periodic inspection

pp. 24, 36

Inspections carried out systematically at nuclear power stations in compliance with the Electric Utilities Industry Law in order to maintain the safety of facilities, prevent problems, and ensure safe operation of the plants.

## Person Responsible for Environmental Management

p. 47

A person responsible for the comprehensive management of the PDCA cycle for environmental activities, which are carried out by business line in each office of the Kyushu Electric Power Co., Inc. based on the Environment Action Plan.

## Photochemical oxidant

Basic term

Substances having a strong acidity such as ozone (O<sub>3</sub>) and PAN (peroxyacetyl nitrate). Photochemical oxidants are produced when nitrogen oxides and hydrocarbons emitted from factories or cars react to the sun's ultraviolet rays.

## Photochemical smog

Basic term

Photochemical oxidants concentrated in one location. Caused by the combination of unusual meteorological factors such as strong sunlight, high temperatures, and lack of wind. Responsible for direct damage to our health such as eye and throat irritation.

## Plutonium

p. 30

A radioactive element, which exists in small amounts in the natural environment. Uranium 238 absorbs a neutron to turn into uranium 239. Uranium 239 changes into neptunium 239 after beta decay. Another beta decay turns neptunium 239 into plutonium 239, which is fissionable and thus used as MOX fuel.

## Plu-thermal (Plutonium-thermal) project (Plutonium use in light water reactors)

pp. 25, 30, 67

Utilization of MOX (mixed oxide) fuel in nuclear power plants. MOX is a mixed oxide of plutonium and uranium, which are obtained by reprocessing the spent nuclear fuel from nuclear power plants.

## Policy mix

p. 24

Economic policies combining several policies such as fiscal, monetary and exchange policies.

## Polluter-Pays Principle (PPP)

Basic term

A principle stating that those discharging pollutants should bear the cost for the prevention of environment pollution they caused. It was proposed by the Organization for Economic

Cooperation and Development (OECD) in 1972.

## Pollution Control Manager

pp. 18, 46

Qualified personnel appointed under the Law Concerning the Improvement of Pollution Prevention Systems in Specific Factories. Factories of a certain size are required to retain a Pollution Control Manager responsible for the technical duties of controlling pollution caused by smoke, wastewater, vibration and noise from factories.

## Pollution load levy

pp. 20, 60

Compulsory annual levy collected from applicable smoke and soot emitting facilities as set forth in the Air Pollution Control Law. It covers the damages related to impairments to health caused by significant air pollution attributable to business operations as prescribed by the Law Concerning Pollution-Related Health Damage Compensation and Other Measures.

## Pollution Session of the Diet

Basic term

Extraordinary session of the Diet held at the end of November 1970 (64th session), where fourteen bills were approved in areas including waste disposal, water pollution prevention and partial amendments to laws on noise regulation, air pollution prevention and nature parks. This implementation was prompted by requests from the public for countermeasures and the concern of pollution in society.

## Pollution-related Health Damage Compensation Law

p. 60

A law stipulating the payment of medical costs and compensation for officially recognized victims designated by a responsible party. The Law covers areas with a high incidence of asthma due to air pollution and areas with a high incidence of specific diseases such as Minamata disease, itai-itai disease and arseniasis due to environmental pollution.

## Polychlorinated biphenyl (PCB)

pp. 13, 20, 40, 59, 60

Any organic chlorine compounds consisting of carbon, hydrogen and chlorine, with chlorine (Cl) replacing hydrogen (H) in two joined hexagonal benzene rings. PCB was first introduced in industrial products in 1929 and widely used for insulating oil and impact papers for its superior heat resistance and insulation property. However, PCB was found to be difficult to break down in the environment and could accumulate in living organisms and have chronic toxicity. The production and import of PCB has been prohibited in principle since its 1974 designation as a specified chemical substance under the Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances (presently designated as a Type 1 Monitoring Chemical Substance), after being subject to an administrative directive for the suspension of its production and use.

## Potential of Hydrogen (pH)

Basic term

Concentration of solutions indicating the level of acidity and alkalinity. A pH of 7 indicates neutrality, while a pH above 7 indicates alkalinity, and below 7, acidity.

## Precipitator

p. 39

Equipment for collecting particulates in combustion gas. There are two types of collection: mechanical and electrical.

### **Pretreated water**

p. 42

Water that has been pretreated for purification. In magnetic separation, water impurities are magnetized in advance so that they may be collected by magnetic force.

### **PRTR system**

p. 40

A governmental system to calculate and publish the amounts of toxic chemical substances that are released into the environment (atmosphere, water or soils) and transported in waste based on reports from businesses and their estimates. PRTR stands for Pollutant Release and Transfer Register.

### **PRTR Law**

pp. 20, 55, 57, 59

A law promulgated in July 1999 and officially called the "Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management," which mandates notifications for the emission of environmental pollutants. It requires users of toxic substances to exercise voluntary management for such substances that were conventionally subject to control based on the regulatory standards.

### **Pumping generation**

Basic term

Pumping is to raise water to a higher location. In pumped-storage hydropower generation, reservoirs are built at the upper and lower parts of the power plant. Water is pumped up at night utilizing surplus power and is released to produce electricity during the daytime peak or in case of an emergency such as the failure of other power plants. The system utilizes its ability to store energy in the form of water since electricity cannot be stored easily.

### **Purified water**

p. 42

Water that is cleaned to remove impurities. For water purification by magnetic separation, purified water is obtained by removing magnetized impurities attracted to a magnet, and then filtering.

### **Qualified Person for Energy Management of Type1 Designated Factory**

pp. 18, 46

A person who passed the examination prescribed in the Law Concerning the Rational Use of Energy, a person who recognized having knowledge of and experience in energy management, or a person who is recognized by the Minister of Economy, Trade and Industry as having knowledge and Experience equivalent to or greater than those who passed the examination, all according to the Law Concerning the Rational Use of Energy. The law mandates plants of a certain size or larger to appoint energy managers selected from among their Qualified Persons for Energy Management Type 1 Designated Factory according to their level of energy consumption. An energy manager is responsible for facility maintenance as well as improving and supervising energy usage.

### **Radioactive waste**

pp. 18, 20, 30

Waste containing radioactive materials generated in various nuclear power facilities. Such waste is divided into two types according to the level of radioactivity. One is low-level radioactive waste that includes used work clothing from nuclear power plants and the water used to wash them. The other type is high-level radioactive waste that is produced after extracting unburned uranium and plutonium from spent fuel at the reprocessing plants.

### **Ramsar Convention**

Basic term

An international treaty officially called the "Convention on Wetlands of International Importance, Especially as Waterfowl Habitat." It aims to protect wetlands of international importance and the fauna and flora inhabiting those areas, as well as promote sustainable utilization of wetlands.

### **Rare plants**

p. 42

Certain plants that are not endangered but inhabit in a limited area or in very small numbers.

### **Ratio of recycled paper utilization**

pp. 56, 58, 62

The ratio of recycled paper usage to total paper usage. Recycled paper is a generic term for paper made from virgin pulp and used paper. To acquire the EcoMark as printing paper, various requirements apply, such as containing 70% or more recycled paper or having a whiteness level of 70% or less.

### **Raw water**

p. 42

Water from lakes and marshes, rivers and streams or dams, which has not been received any pretreatment and purification processing.

### **Reactor thermal power**

p. 33

Thermal energy produced from fission in nuclear reactors.

### **Reclaimed material**

p. 37

Recyclable materials such as used (or non-used) goods abandoned or collected and byproducts from factories (secondary goods from production, processing or repair of goods).

### **Recycling Law**

Basic term

A law promulgated in 1991 as the "Law for the Promotion of Utilization of Recycled Resources," and revised in 2000 as the "Law for Promotion of Effective Utilization of Recyclable Resources." The law enforces recycling to create a recycle-oriented society, which include: reinforced recycling measures such as product collection and recycling by business entities; reduction measures to decrease waste generation by conserving resources and prolonging the service life of products; reuse measures to utilize parts from collected products; and industrial waste reduction measures to reduce or recycle the byproducts of industrial waste.

### **Recycling rate**

pp. 18, 36, 56, 58, 62

The rate of recycling calculated by dividing the amount of recycled waste by the amount of total waste generated. "Recycling" refers to collecting waste that otherwise would have been subject to final disposal and then utilizing such waste as a material for useful products.

### **Refrigerant**

pp. 54, 59

Substances used as coolants in refrigerators and air conditioners. Representative refrigerants include chlorofluorocarbons. However, in order to stem ozone layer depletion and global warming, the prohibition of their use is now being promoted world-wide.

### **Refuse derived fuel (RDF)**

Basic term

A fuel produced by compressing and molding combustible waste, such as kitchen garbage, waste plastic and used paper after crushing and sorting it.

### **Recycling society**

pp. 12, 18, 34, 36, 54, 56, 61, 62, 66

A society having a low environmental load thanks to the minimization of waste. Such a society can be achieved by reflecting on the state of an economic society based on mass-production and mass-consumption with an eye towards maintaining, recycling and reusing our limited resources as long as possible. In fiscal 2000, the Basic Law for Establishing a Recycling-Based Society, which provides a basic framework for a recycling society and other individual recycling laws were established.

### **Red Data Book**

Basic term

A collection of the available information related to endangered species which explains their ecology, distribution and level of threat of extinction.

### **Red tide**

p. 39

Reddish or dark brown discoloration of seawater surface caused by the presence of an excessive growth of plankton. A high concentration of plankton consumes a large amount of oxygen in the water and causes marine life to die from oxygen deficiency. One possible cause is the progress of eutrophication due to nutritive salts, such as nitrogen and phosphorus, flowing into the water. Discoloration in lakes, marshes, dams and reservoirs caused by an increase in fresh-water plankton is called fresh-water red tide.

### **Regulated freons**

pp. 18, 29, 56, 58

Prohibited to manufacture and use due to their ozone layer depletion properties. The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted in 1987 on a global level, and the Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures was established in Japan in 1988.

### **Regulation of total emission**

Basic term

Restriction of the total sum of all emissions or discharges from factories to a certain level of concentration in a specified area devised in addition to the conventional emissions control of air pollutants and waste water in terms of concentration.

### **Regulatory control**

Basic term

Establishes a limit for wastewater, substances and noises emitted or discharged from factories. The impact on human health and agricultural products is considered for establishing the limits. Limits are provided in the Air Pollution Control Law, the Water Pollution Control Law and other laws or regulations.

## Renewable energy

pp. 07, 16, 25, 26, 42, 66

Repeatedly usable energy including solar, photovoltaic, hydro, wind, geothermal and biomass energies. This energy is not at risk of depletion unlike fossil or uranium fuels.

## Renewable Portfolio Standard (RPS)

pp. 18, 26

The law officially called the "Law on Special Measures Concerning New Energy Use by Electric Utilities." It aims to protect the environment through the promotion of new energy utilization by requiring power companies to generate or purchase a certain percent or more of electricity from new energy sources depending on their electricity sales.

## Reprocessing

p. 30

Safe processing of fission products separated from spent nuclear fuel from which uranium and plutonium have been extracted in advance using chemical products.

## Return on Assets (ROA)

pp. 04, 06

An indicator of profitability determined by dividing a company's income after tax (profit for the current term) by the total amount of assets. It indicates how efficiently assets or managerial resources are utilized to produce profit.

## Return on Equity (ROE)

p. 04

Ratio of net income for the current term to the shareholders' equity, expressed in percentage. It is the indicator most often used to comprehensively measure the company's profitability and efficiency by examining the amount of profit achieved with equity.

## Reused wastewater / recycled wastewater

p. 17

Rainwater or waste water recycled to flush the toilet or water plants.

## Risk management

Basic term

A technique of determining and analyzing potential risks so as to prevent or minimize the damage caused by such risks.

## Rocky-shore denudation

p. 41

Destruction of seaweed community such as kelp and *Undaria pinnatifida*, which bleaches shoreline rocks with lime.

## Seedlings obtained by tissue culture

p. 41

Seedlings grown under the method of tissue culture.

## Selection of superior family lines

p. 41

Family and line selection for seeds in which individual organisms are selected to create a superior variety, such as those having an excellent growth rate.

## Selective water intake

p. 39

A method of selectively removing the surface or bottom layer of water of dams as needed to prevent flooded turbid water from staying in dams too long or keeping the temperature of

water from dropping for irrigation purposes.

## Sink

p. 24

The atmosphere, forests and oceans that absorb greenhouse gases such as CO<sub>2</sub> are considered as sink. The Kyoto Protocol allows countries to factor in the net changes in GHG emissions by sources and removals by sinks resulting from direct human-induced land-use and forestry activities, limited to afforestation, reforestation and deforestation since 1990 (Kyoto Protocol Article 3.3). In the adopted accounting method, the amount of these GHG absorption is not factored into the emissions calculations for the Base Year (1990), while the amount of GHG emissions will be recognized in each commitment period.

## Sludge

pp. 34, 41

An organic or inorganic muddy deposit or sediment produced in the treatment of industrial wastewater and sewage as well as in various manufacturing processes.

## Smoke

p. 39

Generally refers to "soot" and "smoke" generated and discharged in fuel combustion process. The Air Pollution Control Law defines smoke as "sulfur oxides," "soot and dust," and "hazardous substances." Details are defined as follows:

- (1) sulfur oxides generated through the combustion of fuel and other materials;
- (2) dust generated through the combustion of fuel and other materials, or the use of electricity as a heat source; and of the substances generated by the combustion,
- (3) synthesis, decomposition or processing of materials, including cadmium and chlorine, those that may be hazardous to human health or the living environment and are designated as such by law or ordinances.

## Soil contamination

p. 69

Generally refers to a situation in which hazardous pollutants such as heavy metals and volatile organic compounds that are released and penetrate into topsoil, underground soil, and sometimes even ground water. The Soil Contamination Countermeasures Law stipulates the matters including substance names, their reference values and investigation requirements.

## Space radiation

p. 32

Radiation existing in the atmosphere such as gamma rays and cosmic rays emitted from space and the earth.

## Specially Controlled Industrial Waste

p. 34

A certain industrial waste that is volatile, toxic, infectious or has other properties harmful to human health or the living environment.

## Specially Controlled Industrial Waste Manager

p. 46

Entities with facilities generating Specially Controlled Industrial Waste are mandated to appoint persons responsible for its waste management (Article 12 of the Waste Management and Public Cleansing Law). They are responsible for understanding emitting conditions, arranging disposal plans, securing appropriate treatments, etc.

## Specific Designated chemical substances

pp. 40, 57, 59

Chemical substances designated by the PRTR Law (Law Concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management) that are hazardous to human health and the ecosystem. There are 354 Class I Designated Chemical Substances and 81 Class II Designated Chemical Substances.

## Specified Chlorofluorocarbon(Freons)

pp. 29, 58

Freon is a term used for any chemical compounds containing hydrocarbons such as methane and ethane combined with fluorine and chlorine. Specified Chlorofluorocarbon refers to the five Freons, CFC11, CFC12, CFC113, CFC114 and CFC115, which have high ozone layer depletion properties among about 20 Freons.

## Specified nonprofit activity corporation (NPO corporation)

pp. 31, 32

NPO (Non-Profit Organization or Not-for-Profit Organization) refers to non-profit, private organizations in various fields, such as health care, welfare, environment, culture, art, sports, community development, international cooperation, human exchange, human rights, peace, education and other support activities. NPO corporations are those certified under the Law to Promote Specified Nonprofit Activities(NPO Law) and are an active part of NPOs.

## Spent fuel storage

p. 20

Temporary storage of spent fuel removed from nuclear reactors. The spent fuel is stored in water to protect it from decay heat and provide a shield for radiation.

## Stakeholders

pp. 13, 20

All individuals and entities related to or involved in the operations of a company, such as customers, shareholders, investors, local communities, business partners (customers or affiliates) and employees.

## Styrene

p. 40

An aromatic and colorless liquid used as raw materials for synthetic rubber, synthetic resin paints and plastics such as polystyrene. It is suspected to be involved in causing sick building syndrome.

## Sulfur hexafluoride (SF<sub>6</sub>)

pp. 13, 17, 18, 20, 28, 56, 58, 60

A greenhouse gases whose emissions are targeted to be reduced under the Kyoto Protocol. Its effect is 23,900 times larger than that of CO<sub>2</sub>. As it does not exist in nature, this is an industrial product, a compound of fluorine and sulfur. It is chemically stable, has excellent insulating ability, and is used for insulating gas for circuit breakers and other purposes.

## Sulfur dioxide (SO<sub>2</sub>)

Basic term

Sulfur dioxide is a pungent-smelling, colorless gas produced when fuel containing sulfur is combusted. It irritates the mucus membranes of the respiratory organs and may cause coughing, asthma and bronchitis.

## Sulfur oxides (SO<sub>x</sub>)

pp. 17, 18, 20, 25, 26, 39, 57, 59

Any oxide of sulfurs, such as sulfur dioxide

(SO<sub>2</sub>) and sulfur trioxide (SO<sub>3</sub>). They are formed primarily from fossil fuel combustion in which the sulfur content in fuel is oxidized. They are subject to regulation under the Air Pollution Control Law as they are hazardous to human health and the living environment.

### Superconductivity / superconductors

p. 42

Objects made of materials with superconductivity, for which electric resistance becomes zero at an extremely low temperature.

### Superconductors

p. 42

Objects made of materials with superconductivity, for which electric resistance becomes zero at an extremely low temperature.

### Surplus power

p. 26

This refers to excess power from non-utility generators of electricity in private power generation facilities such as those utilizing new energy sources (e.g. photovoltaic or wind power) or heat exhausted from waste incineration facilities. General electric utilities (power companies) purchase surplus power to effectively utilize such private generation facilities and to promote the diffusion of new energy sources.

### Suspended particulate matter (SPM)

Basic term

SPM refers to particulate matters that are suspended in the air, such as fine particles and dust, and that have the particle diameter of 10 μ m or less. SPM can build up in various parts of respiratory organs thereby affecting health.

### Suspended solid (SS)

Basic term

SS refers to the amount of material suspended in water. Such material causes turbidity of water and is used as one of the indicators for water quality.

### Sustainable society (development)

p. 12

A society in which the consumption of natural resources and environmental pollution are properly managed and in which economic activities and social welfare will be sustainable into the future.

### Thermal discharge

p. 21

Nuclear power plant thermal discharge. Seawater is used to cool the steam driving turbine-generators, so its temperature is higher when it returns to the ocean. The rise in temperature is about 7°C in Japan.

### Thermal efficiency

pp. 18, 21, 24, 26, 28, 60

A ratio of power output to the original input produced by the combustion of fuel in thermal power plants.

### Thermal recycling

Basic term

Recovery and utilization of thermal energy through incineration of waste.

### Tissue culture

p. 41

Technology to clone in a culture a portion of a

plant in a sterile test tube or under other conditions.

### Tolerable daily intake (TDI)

Basic term

Daily maximum intake, per 1kg of body weight, which is considered to have little significant effect on health when a person consumes a certain substance throughout their lifespan.

### Toluene

pp. 40, 59

A colorless flammable liquid used in explosives, perfume and synthetic resin.

### Total life cycle

Basic term

A series of stages for products from the collection of resources, production, distribution and use through the disposal of products.

### Toxicity Equivalency Quantity (TEQ)

p. 40

An index to express a level of dioxins (toxicity level). Since dioxins have different toxicity levels by type, the amount of dioxin is converted into the most toxic 2,3,7,8-Tetrachlorodibenzo-p-dioxins (2,3,7,8-TCDD).

### Trace amount of PCB

pp. 40, 59

A small amount of PCB that has been unintentionally contained in equipment. According to an investigation report to determine the cause prepared by Study Group on Measures for Low-Concentrated PCB Pollution, approximately 97% of the cases in which a small amount of PCB was detected (detected samples) showed the PCB density of 50 ppm or less.

### Transmission and distribution loss (factor)

pp. 16, 18, 20, 25, 28

The rate of power lost based on an initial quantity of power transmitted from a power plant. The loss occurs in the course of transmission or distribution.

### Trichlorofluoromethane (CFC-11)

p. 20

A substance that depletes the ozone layer and is regulated under the Montreal Protocol. It is designated as a Class 1 Designated Chemical Substance under the PRTR Law and is used as a raw material for plastics, refrigerant, foaming agent, sprays, and medicines, etc.

### Tris phosphate (dimethylphenyl)

p. 40

A pale yellow transparent liquid consisting of hydrogen, carbon, oxygen and phosphorus. It is not defined as a combustible; however, it burns and degrades in flame, emitting toxins. When the flame source is removed, tris phosphate ceases to burn on its own. It is often used as control oil for turbines in power plants.

### Two-stage combustion method

p. 39

A combustion method which controls NOx emissions by adjusting combustion air supply in two stages. First, combustion air is controlled to a level below theoretical air. Then additional air is supplied to supplement the shortage for complete combustion through the whole process.

### Type 1 Monitoring Chemical Substances

pp. 40, 59

354 substances covered by the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management. The 354

substances are specified in ordinances based on the opinion of governmental organizations such as the Ministry of Health, Labor and Welfare, the Ministry of Economy, Trade and Industry and the Ministry of Environment regarding toxicity to human health, fauna and flora.

### United Nations Conference on the Human Environment

Basic term

The first UN conference held in Stockholm, Sweden in 1972 to discuss general environmental issues under the slogan "Only One Earth." Developed countries were urged to shift their priorities from economic growth to environmental protection while economic development and assistance were emphasized for developing countries. The Declaration of the United Nations Conference of the Human Environment was announced and the International Action Plan for the Environment was adopted to promote protection of the irreplaceable earth.

### United Nations Environment Programme (UNEP)

Basic term

An organization aimed at implementing the Declaration of the United Nations Conference on the Human Environment and the International Action Plan for the Environment adopted at the United Nations Conference on the Human Environment in Stockholm, Sweden in 1972. It is responsible for comprehensively coordinating the activities of various existing UN organizations and addressing environmental issues that have not been attended to through international cooperation.

### United Nations Framework Convention on Climate Change

Basic term

Aimed to achieve the stabilization of greenhouse gas concentrations in the atmosphere, which should be maintained at a level that would prevent dangerous anthropogenic interference with the climate system. Through inter-governmental discussions started in February 1991, the convention was adopted at the INC (Intergovernmental Negotiating Committee) on May 9 1992, and was put into force in March 1994.

### Uranium

pp. 16, 30, 33

A radioactive element consisting of three isotopes; uranium-234, uranium-235 and uranium-238. A metallic element (symbol: U / atomic number: 92) also found in the natural environment. Among uranium isotopes, the readily fissionable uranium-235 is a major resource of nuclear power generation. Most of the naturally occurring radioisotopes are non-fission uranium-238 and natural uranium contains only about 0.7% of uranium-235.

### Urban heat island phenomenon

Basic term

A phenomenon in which a metropolitan area becomes significantly warmer than its suburbs. Major reasons are anthropogenic heat emissions from industrial activities and loss of greenery due to artificial environments, which reduce temperature drop by evapotranspiration.

### Used paper

pp. 17, 18, 20, 34, 36, 56, 58, 62

Paper used and discarded that may be utilized again as a material for paper instead of trees. Old or used newspapers, magazines,

corrugated cardboard and copy paper are included.

### **Vacuuming**

p. 41

Creation of a high vacuum state by removing gases from a certain place using a vacuum pump.

### **Valdez Principle**

Basic term

A set of ten guiding principles of corporate responsibility established as a measure to solve environmental problems. Its establishment was triggered by the crude oil leaked from the oil tanker Exxon Valdez off the coast of Alaska. The principles were announced by CERES, an American group promoting environmental conservation.

### **Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer**

Basic term

They provide the framework for international measures for ozone layer protection. The Vienna Convention was adopted in 1985, and the Montreal Protocol in 1987. To facilitate their accurate and smooth implementation in Japan, the Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures was established in 1988 to control the manufacturing of Freons and other substances.

### **Voluntary Plan for the Environment**

Basic term

Abbreviation of the action plan of companies to voluntarily address global environmental issues. Kyushu Electric Power established the Environment Voluntary Plan in 1992 and changed its title to the Environment Action Plan in 1998.

### **Volunteer leave system**

p. 46

The name of a special leave system which Kyushu Electric Power offers to support employees' participation in activities that contribute to society, such as social welfare activities organized by local governments.

### **Washington Convention**

Basic term

An international treaty officially called the "Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)," which seeks to ensure, with the efforts of both exporting and importing countries, that international trade does not threaten the survival of any endangered species of wild animal or plant.

### **Waste Disposal and Cleaning Law (Manifest system)**

Basic term

This is a system set forth in the Waste Disposal and Cleaning Law. The system prevents environmental pollution resulting from unlawful dumping and inappropriate disposal of industrial waste. The system requires the producer of industrial waste to check the disposal process of the waste from collection and transportation to final disposal if such disposal is entrusted to other entities.

### **Water pollution**

pp. 39, 60

Polluted state of water in seas, rivers, lakes and marshes due to human influence. Caused by mixing of harmful substances into water having a harmful affect of living organisms. Organic materials attributable to daily human activities are examples of harmful substances.

### **Water-soluble zinc compound**

p. 59

A shiny blue-tinged silvery white metal used for metal finishing such as galvanization.

### **Wildlife Protection Area**

Basic term

Areas designated by the Minister of Environment of Japan, governors of prefectures or other administrative divisions where hunting is prohibited under the Wildlife Protection and Hunting Law for the protection and propagation of wildlife. Areas that require special attention for these purposes are reserved as special wildlife protection areas and any activities that might have a negative impact on the wildlife are controlled.

### **World Bank**

p. 27

General term for the International Bank for Reconstruction and Development (IBRD) (established in 1946, 183 member countries), the International Finance Corporation (IFC) (established in 1956, 174 member countries) and the International Development Association (IDA) (established in 1960, 161 member countries), all of which fund governments and private enterprises in developing countries.

### **World Bank's Prototype Carbon Fund (PCF)**

Basic term

Established by the World Bank in January 2000 to invest funds from investors (countries or companies) in the greenhouse gas reduction-related projects of the developing or former East European countries and allocate greenhouse gas reduction outcome to investors.

### **World Summit on Sustainable Development**

Basic term

Summit hosted by the United Nations to discuss matters concerning further implementation of Agenda 21 and new issues ten years after Agenda 21 was adopted by the United Nations Conference on Environment and Development (2002). High-level discussions resulted in a comprehensive and specific plan for implementing Agenda 21 and the Johannesburg Declaration, which lists the political intentions of world leaders towards sustainable development.

### **Xylene**

pp. 40,59

Transparent and colorless liquid with a boiling temperature of approx. 140°C. It is fragrant and is contained in paints.

### **Yokkaichi pollution case**

Basic term

The suit filed in 1967 by the residents of Yokkaichi City in Mie Prefecture against the

companies operating within the Yokkaichi Industrial Complex concerning the air pollution that occurred in the 1960s. In 1972, the case concluded in favor of the plaintiff.

### **Zero emissions**

pp. 07, 13, 34, 54, 60, 68

A goal of producing no waste. Aimed at creating a production system using waste generated from the production process in other industries as reclaimed material in order to realize a no waste society. It was proposed by the United Nations University in response to the adoption of "sustainable development" at the Earth Summit. The United Nations University dispatches qualified personnel to companies desiring the realization of zero emissions. The Ministry of Economy, Trade and Industry is actively involved in widespread/prevalent efforts and introduced the Eco-Town Concept based on the idea of zero emissions. An increasing number of companies want to introduce the zero emissions concept in production activities.

### **3R**

pp. 34, 36, 68

The 3Rs refer to "Reduce" "Reuse" and "Recycle" of waste in this order and the order expresses the priority in waste disposal endeavors.



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1-82, Watanabedori 2-chome, Chuo-ku, Fukuoka 810-8720 Japan  
Phone: 81-92-761-3031

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