



## Kyushu Electric Power CSR Report 2010 Glossary

### B

#### Binary Power Generation

This generation system comprises a thermal cycle from a heat source that combines with a low-boiling-point liquid medium to produce steam and drive a turbine to produce electricity, including for geothermal generation.

#### Biomass

The term refers to the number of organisms inhabiting a particular area or volume. Biomass can include livestock and household waste, thinned wood, lumber and wood from demolished houses.

### C

#### Carbon Credit

These credits are part of a project to suppress greenhouse gases, covering both a United Nations-approved framework on emission reductions, or allowances, and a United Nations emissions allowance setup for advanced nations. Trading in such credits can transfer them to countries with insufficient allowances.

#### Compliance

This complements corporate social responsibility, and goes beyond adhering to laws and regulations to encompass complying with social norms and operating ethically.

#### Corporate Governance

This covers corporate decision making, execution and oversight. It specifically

relates to important management decisions by a shareholder-elected board of directors and auditor assessments of whether directors fulfill their duties.

#### Corporate Social Responsibility

Also known by the CSR acronym, this is a framework for companies to contribute to sustainable development by comprehensively pursuing economic/ financial, environmental and social initiatives.

### E

#### Earth Wire

A conductive path that grounds an electrical circuit or appliance. By matching the electrical potential of the earth, current will not pass through the body if touching an appliance with malfunctioning insulation because there is no potential difference between the person and appliance, thus preventing electrocution.

#### Eco Cute

This is the name for a heat pump and water heater that harnesses carbon dioxide from the environment. They are highly efficient and conserve energy. The compressor heats air to create thermal energy for hot water, generating more than triple the thermal energy of consumed power. Unlike chlorofluorocarbon refrigerants, the carbon dioxide does not harm the ozone layer.

#### E-Learning

These are personal computer-based courses, which Kyushu Electric Power uses to educate all employees on such essentials as information security and compliance.

#### Electric Arc

A discharge of electricity between two electrodes.

#### Energy Security

This is about ensuring stable national energy supplies by shielding from the developments in the international situation.

#### Environmental Management System

This mechanism enables companies and other entities to voluntarily and consistently reduce environmental impact through Plan-Do-Check-Act cycles (see the entry in this glossary).

### F

#### Fail-Safe

This is a system that operates to ensure safety following a device breakdown. For example, a kerosene heater may automatically shut off following a large vibration.

#### Flextime Work

This system enables employees to attend and leave work when they want as long as they serve the required number of hours. Some setups have core work times. The Japanese government enacted flextime regula-

tions when it revised the Labour Standards Law in 1987.

### G

#### Gal

This is a unit of acceleration to describe the sway of an earthquake. It more accurately expresses sway than intensity. Generally speaking, the larger the gal the greater the earthquake intensity.

#### Global Environmental Issues

Environmental issues need to be addressed from a global perspective as global warming, ozone layer destruction and acid rain know no borders. Developing nations need international support for environmental solutions, including for the disappearance of tropical forests and declines in wildlife.

#### Global Warming

This is a phenomenon in which reduced natural absorption of carbon dioxide from deforestation and other human activity increases the overall temperature of the earth, with carbon dioxide and other greenhouse gases warming the earth's surface by sealing in the sun's heat.

#### Greenhouse Gases

CO<sub>2</sub>, methane and other atmospheric gases absorb solar heat and warm the surface of the earth. They are called greenhouse gases because they maintain the earth's average temperature of 15°C. Without them, the temperature would be around -18°C. The atmospheric density of greenhouse gases has increased because of human activity since the Industrial Revolution, and the effect is accelerating. The Kyoto Protocol defined the following as greenhouse gases and targets reductions in their emissions: CO<sub>2</sub>, methane, nitrogen dioxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

### H

#### Heat Pump

This technology uses a pump to heat air or water to increase and lower thermal energy. It is based on the same principle that air-conditioners and refrigerators

employ of compressing air to raise temperatures or suddenly expanding air to lower them.

#### High-Level Radioactive Waste

This is highly radioactive nuclear waste with fission byproducts from reprocessing spent fuel. Most of the components of spent fuel are recyclable uranium and plutonium that nuclear reprocessing recovers as resources. The non-recyclable components remain as liquid waste. In Japan, this waste is solidified into a stable state by pouring it into a stainless steel canister after mixing with melted glass material, which is called waste vitrification.

#### Human Error

A man-made mistake that causes unintentional results.

### I

#### Independent Power Producer

This term covers power wholesalers who own generating facilities but not transmission systems, unlike electric power companies. Japanese electric power companies are pursuing independent power producer operations in developing nations, including through alliances with foreign firms.

#### Information and Communications Technologies

The term IT became a popular way to comprehensively refer to information processing and communication technologies. Information and Communications Technologies is a more common term internationally.

#### Interconnection Capacity

Wind power capacity fluctuates according to the winds. If many wind farms are interconnected, a utility company's generator has to adjust for power fluctuations from those farms and for swings in power consumption. During the small hours, when electricity consumption drops, power generation ratios increase from nuclear plants and other facilities that cannot adjust output, decreasing adjustment from thermal power. When wind power output increases during such hours, there could be oversupply, reducing adjustment capabilities. So, limits to capabilities for increasing and

decreasing wind power output are called interconnection capacity.

#### Interlocks

These systems prevent machine misoperations. Such systems are in automatic transmission cars, and prevent drivers from starting engines when in the gears are in parked mode.

#### Intermediate storage sites

These offsite sites temporarily store and manage spent fuels from nuclear power stations until reprocessing. The sites store the fuels in dry casks and/or in pools.

#### Internal Controls

These are mechanisms inside companies and other organizations to promote wholesome and efficient corporate activities through compliance and risk management systems that prevent losses from fraud and other illegal acts or errors.

#### Intranet

These internal networks use Internet technology, integrating and sharing information through e-mail or browsers.

#### Investor Relations

This entails the timely, fair and ongoing disclosure of diverse financial and operational information to investors to increase their understanding of a company and ensure a proper share price and streamline funding.

#### ISO 14001

Under this international standard for environmental management, a third-party authority evaluates whether a company systematically identifies, assesses and reduces the environmental impacts of production, sales, recycling and other operations, and certifies those business sites that satisfy the prescribed standards.

## K

**Kyoto Mechanisms**

These mechanisms under the Kyoto Protocol aim to attain greenhouse gas reduction targets through international cooperation, and are as follows:

1. Clean Development Mechanism, in which industrialized nations help developing countries in emissions-reduction projects and are recognized for those reductions.
2. Joint implementation for emissions-reduction projects between developed nations, sharing the reductions according to their contribution to those initiatives.
3. Trading in emissions allowances between developed nations.

## L

**Liquefied Natural Gas**

This is produced by cooling methane- and ethane-based natural gas to about  $-160^{\circ}\text{C}$ . It is transported on special tankers and is regasified to fuel generating facilities.

**Low-Carbon Society**

This describes the successful construction of industrial and lifestyle structure that reduces emissions of carbon dioxide, a greenhouse gas that is considered a primary cause of global warming.

**Low-Level Radioactive Waste**

This waste is from nuclear power plants. It is caked with cement and other additives. After removing liquid operational waste, the procedure is to make uniformly-solidified cake put in drums with either cement or asphalt or a filled cake made by putting it with mortar into a drum for storage with metals, plastics, or other solid wastes either directly or after melting.

## M

**Mega Solar**

Mega means one million, while solar refers to the sun. Mega solar is the generic term for a solar power system with more than 1,000 kilowatts of capacity (or 1 megawatt, which equals 1 million watts).

**Maintenance Flow Power Generation**

Hydroelectric power generation that discharge dam water to regulate river flows to preserve downstream of dam scenery and river environments.

**Manhole Cover**

This steel cover is for manholes providing worker access to sewers or underground power or telecommunication cables.

**Mixed-Oxide Fuel**

This pluthermal fuel comprises uranium and plutonium oxides recovered from reprocessed spent fuel.

## N

**Nitrogen Oxides**

These include such compounds as nitrogen oxide and nitrogen dioxide, which result from burning fuel containing nitrogen or from oxidizing atmospheric nitrogen during combustion. The Air Pollution Control Law regulates these gases as hazardous substances.

**Nuclear Fuel Cycle**

Also known as the fission cycle, this covers everything from mining uranium ore, milling, conversion, enrichment, reconversion and processing as nuclear fuel to treating and reprocessing spent fuel, reusing that fuel and disposing of the waste. Because it lacks natural resources, Japan needs to establish a nuclear fuel cycle in which it recovers plutonium and uranium by reprocessing spent fuel, stabilizing the nation's energy supplies. Kyushu Electric Power promotes the use of plutonium for this cycle, and accords top priority to ensuring the safety of its nuclear power stations. Kyushu Electric Power uses pluthermal generation at the No. 3 unit of its Genkai Nuclear Power Station, and accords top priority to ensuring the safety of its nuclear power stations.

**Nuclear Power Usage Rates**

This indicates the operational efficiency of a nuclear power plant, comparing the electricity generated during a certain period with the maximum rated capacity.

## O

**One-Stop Services**

This means the ability to handle all required and relevant operations with a single procedure.

## P

**Plan-Do-Check-Act (PDCA) Cycle**

This management technique covers planning (preparing policies and schemes), doing (implementing and operating), checking (inspecting and correcting), and acting (reviewing plans). The cycle repeats in the pursuit of higher goals.

**Pluthermal**

This is the use of mixed-oxide fuel made of reprocessed spent plutonium and uranium fuel from nuclear power plants and used in these facilities.

**Plutonium**

Trace amounts of this radioactive element exist in nature. Uranium 238 absorbs a neutron to turn into uranium 239, which becomes neptunium 239 after beta decay. Further beta decay transforms neptunium 239 into fissionable plutonium 239, which is used as mixed-oxide fuel.

**Pumped Storage Generation**

This entails installing lower and higher elevation reservoirs from a power plant and pumping water upward at nights or off-peak times to generate power during the day by releasing the water, when electric power is most needed or for emergencies like accidents at other power plants. This method enables the conversion of electricity that cannot be stored.

## R

**Recycling-Oriented Society**

This is a society that minimizes its environmental impact to perpetually secure finite resources, notably by moving away from the model of mass production, consumption and disposal to recycle or repeatedly use resources, thus reducing its waste.

**Renewable Energy**

This includes solar lighting, hydroelectric power, wind power, biomass, geothermal heat, wave power and ocean thermal energy, in contrast to such finite fossil energy sources as oil, coal and natural gas.

**Renewables Portfolio Standard**

This legal standard requires power companies to generate or buy a certain percentage of their electricity from renewable sources.

## S

**Shin Ene Top 100 Best Applications of the New Energy**

The Ministry of Economy, Trade and Industry and the New Energy and Industrial Development Organization launched this program in FY2008 to select outstanding new energy projects from around Japan that complement regional requirements.

**Special-Purpose Subsidiary**

The Minister of Health, Labour and Welfare approves the creation of such entities if they provide workplaces that are suitable for physically-challenged people and fulfill other conditions, the goal being to promote employment opportunities for such people.

**Spent Fuel**

This is removed from a reactor after use at a nuclear power plant. The spent fuel is highly radioactive and generates considerable decay heat. It is stored in a pool for several years to reducing radiation and decay heat.

**Stakeholders**

These are all individuals and entities related to or involved in the operations of a company, notably customers, shareholders, investors, communities, business partners (both as customers or affiliates) and employees.

**Standard Ground Motion Ss**

These parameters are based on new earthquake resistant guidelines, covering risk assumptions for rare ground motions that could nonetheless damage facilities significantly while occupied. The parameters reflect geological conditions, the structure circumferences

around sites, and such seismological considerations as seismic activity status and earthquake engineering. Nuclear power stations are designed to sufficiently resist earthquake ground motion.

**Sulfur Oxides**

These compounds include sulfur dioxide and sulfur trioxide, and result from burning oil, coal and other fossil fuels. They are hazardous to humans and are subject to the Air Pollution Control Law.

**Sustainable Society**

In such a society, the present generation collaborates to use natural resources without harming demand requirements or other interests of future generations.

## T

**Thermal Efficiency**

This is a ratio of power output to the original input from the combustion of fuel at thermal power plants. Generating-end thermal efficiency is a ratio of the gross output of electricity generated to the thermal energy supplied. Transmission-end thermal efficiency is a ratio of the net output of electricity, less the power consumed at a facility, including pumps, fans and lighting, to the thermal energy input.

**Transmission and Distribution Losses**

These are partial energy losses, such as of heat, that occur during the process of delivering power, and stem from transmission and distribution line resistance. The transmission and distribution loss rate refers to the electric power lost through transmission and distribution lines after generation at a power station.

## U

**Ubiquitous Society**

This is a society in which everyone enjoys complete access to a computer at any time or place. A white paper "Information and communications in Japan" by the Ministry of Internal Affairs and Communications defines a ubiquitous society as a networked environment in which anything and anyone has access from anywhere at any time.

**Universal service**

This is a service consistently offered nationwide at a reasonable price.

## V

**Visual Display Terminal Safeguards**

These measures aim to alleviate mental and physical fatigue from using these terminals in the workplace.

## W

**Work-Life Balance**

This encompasses various activities to enlighten employees about balancing their professional and personal lives.

**Worker Health and Safety Management System**

This is a voluntary, ongoing framework for improving workplace safety and health.

## Z

**Zero Emissions**

This is a concept for targeting zero CO<sub>2</sub> and waste emissions from corporate (industrial) activities.