

3 The Environmental Accounting System and its Utilization

Kyushu Electric Power proceeds with systematic improvement of environmental accounting to promote efficient and effective environmental activities and understanding of such activities by society.

1 Environmental accounting system

Fiscal 2002 environmental accounting

◇System's basic guidelines

The system is based on the "Fiscal 2002 Guidelines for Environmental Accounting" (March 2002 by the Ministry of the Environment). However, environmental activities are divided in Kyushu Electric Power's own unique way into small categories so that the content may be easily understood.

◇Accounting period

April 1, 2002 to March 31, 2003 (same as the business year)

◇Scope of accounting application

Kyushu Electric Power Co., Inc.

See page P67 for application of the environmental accounting to the Kyushu Electric Power Group companies

◇Scope of activities for the accounting application

The prevention, control, removal or reparation of any action that significantly hampers the environment, caused by business or non-business activities, and problems that might hinder efforts to support the environment.

Supplementary definition

● The above activities exclude those related to safety and sanitation (e.g. measures against particulates at workplaces) within the company and other activities that are deemed to be social conventions (e.g. low-noise transformers and electric motors).

◇Environmental activity costs

Investment and expenses in environmental activity costs are defined as follows:

● Investments:

expenditures for the fiscal year for items capitalized as assets such as investment in plant and equipment, and other financing for the purpose of environmental conservation

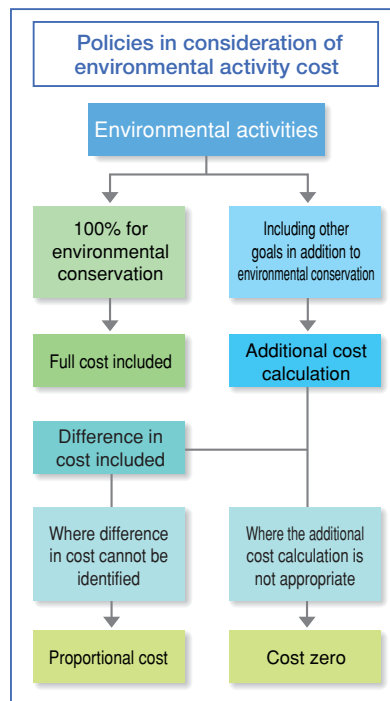
● Expenses:

expenditure for the purpose of environmental conservation, e.g. depreciation

expenses, lease expenses, repair expenses, maintenance and management expenses, commissioning expenses and personnel expenses

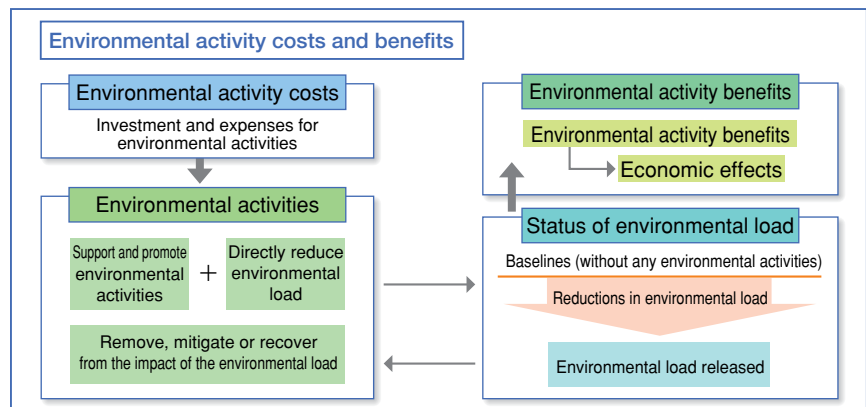
(N.B. Depreciation expenses are applicable for items equivalent to environmental activity facilities, and are calculated and added according to the service life and depreciation method of the financial and accounting practices.)

The full costs and differences in cost are used in the cost calculation as a principle; however, proportional costs are used where the differences in cost are difficult to identify.



◇Benefits of environmental activities

Benefits from environmental activities will be calculated as the effect of such activities, based on the amount of substances, and are defined according to the types of activities as follows:



● Activities that directly reduce the environmental load

Amount of environmental load reduction from the baseline* (conditions which would have occurred had there been no environmental targets) attributable to environmental activities. However, for items for which calculation of the environmental load reduction is difficult, the amount of influence on the environmental load reduction is posted.

*Baselines are set for their respective environmental activities. For example, the baseline for CO₂ reduction calculations is a situation where the electricity generated by all power generation methods was produced only by oil and coal-fired thermal generation; and that for SO_x reduction calculation is a situation where no desulfurization facility is installed.

● Activities for the removal, mitigation or reparation of the impact of the environmental load

Amount of environmental load to which impact removal and other activities are implemented

● Activities that support and promote environmental load reduction (two items above)

Amount of activities that are required for support and promotion

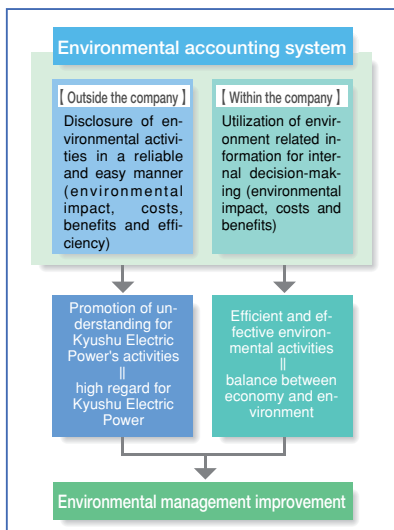
○Economic effects of environmental activities

Items of economic effect include cost reductions, savings and sales of unneeded supplies (i.e. real effects only) attendant on the reduction of environmental load that incurs costs whenever used or treated. However, estimated effects such as costs avoided from the reparation of environmental damages are not included.

For improvement of environmental accounting

◇Improvement of environmental management through environmental accounting

Kyushu Electric Power is proceeding with the systematic improvement of its environmental accounting system and more transparent environmental information disclosure. It also strives to utilize the system as a tool to further promote environmental management by incorporating the result from such accounting in internal decision-making.



◇Comprehensive understanding of environmental load (integration)

Environmental load and environmental activity benefits are expressed as the amount of CO₂, SO_x, NO_x, particulates and waste, and in different units. To comprehensively understand and announce the environmental load released in the course of business activities, trial calculations are made for the integration of environmental load categories.

$$\text{Integrated environmental load categories (benefits)} = \text{Environmental activity benefits} \times \text{integration coefficient}^*$$

*: The integration coefficient used is of the ELP method (developed by the Nagata Laboratory of Waseda University).

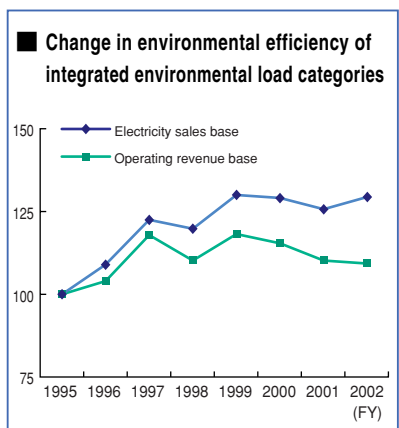
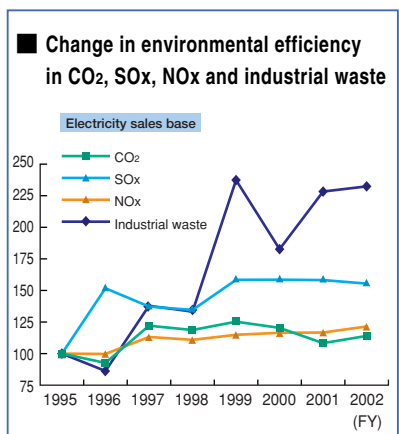
◇Environmental efficiency

For the realization of sustainable society, we must achieve the efficient use of resources and energy and reduce the environmental load per business activity. This attitude is based on the idea called "environmental efficiency", which was proposed in 1992 by the World Business Council for Sustainable Development

and can be expressed by the index below.

$$\text{Environmental efficiency} = \frac{\text{value of goods or services}}{\text{Amount of environmental load}}$$

Kyushu Electric Power started the trial calculation of environmental efficiency last fiscal year to use as a yardstick in determining and announcing the level of achievements in environmental management.



N.B. Environmental efficiency = Electricity sales (or operating revenue) ÷ each environmental load. However, all data used is based on Fiscal 1995 as a baseline of 100.

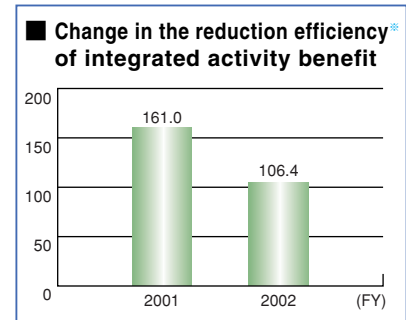
◇Environmental load reduction efficiency

For a company to improve environmental efficiency while achieving both growth and environmental friendliness, it is essential to improve the reduction efficiency of environmental load. This idea is expressed with the index below.

$$\text{Environmental load reduction efficiency} = \frac{\text{Environmental load reductions}}{\text{Environmental activity cost}}$$

Here, we have calculated the integrated environmental benefit (environmental

load reductions) for activities that directly reduce the environmental load, and divided it by the cost, thus obtaining the reduction efficiency.

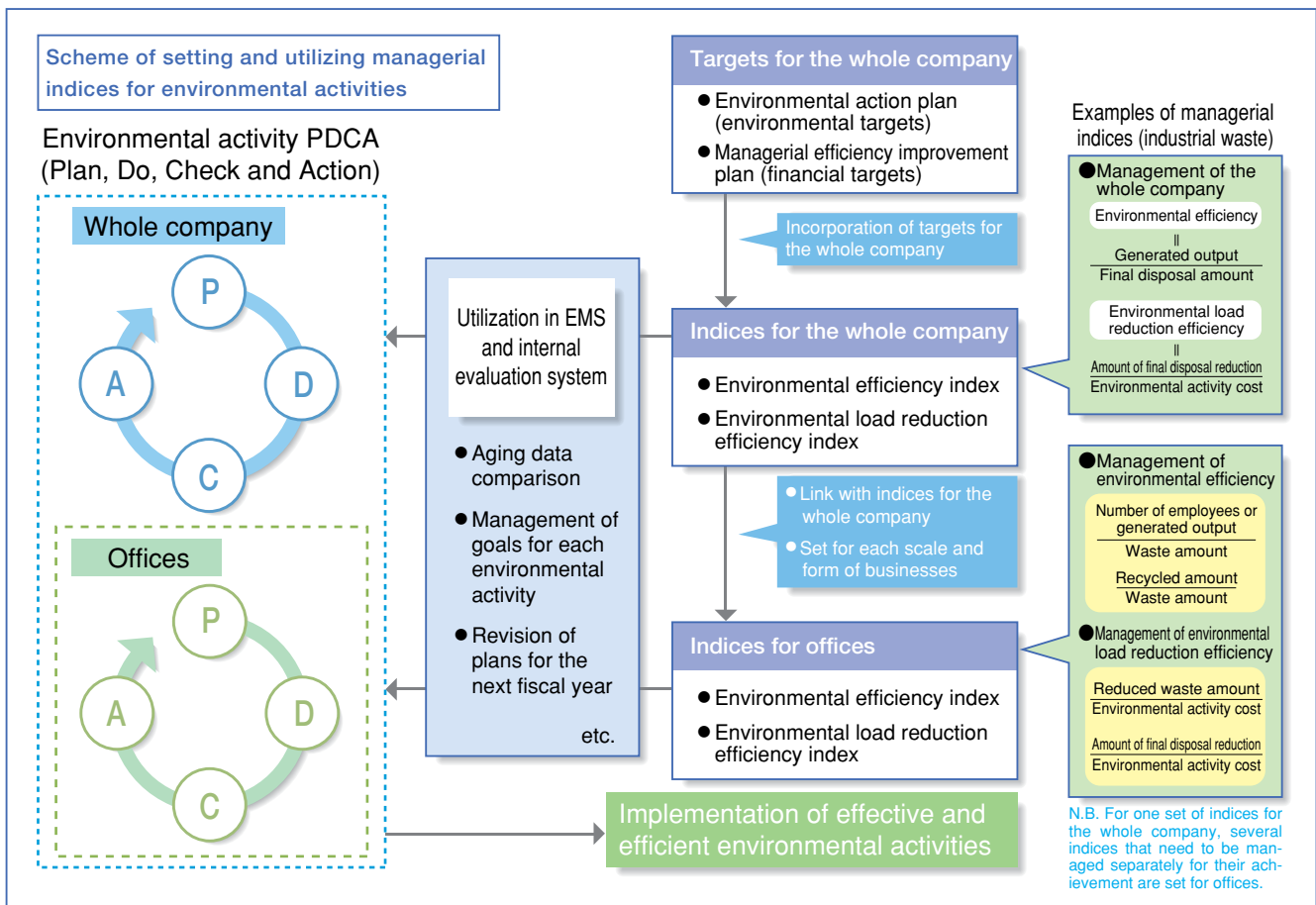


*Reduction efficiency = integrated environmental activity benefit (CO₂, SO_x, NO_x and particulates, wastewater, industrial waste and general waste) ÷ environmental activity costs and expenses

The trial calculation revealed that the reduction efficiency was lower by 30% compared to that of last fiscal year. This is mainly due to the facts that we have included the depreciation of the environmental facilities such as coal ash disposal facility in the expenses, and that more power was purchased from new energy sources with lower reduction efficiency. As seen here, the impact from individual activity is different, and as a result, the reduction efficiency calculated this time does not allow for appropriate overall evaluation. The effort for improved evaluation methods will continue into the future.

Utilization in the environmental activity management

Indices for environmental efficiency and environmental load reduction efficiency are useful in measuring the achievement level of company-wide environmental management. However, it is more important to utilize them in actual business operation. Kyushu Electric Power is considering a system which allows each office to utilize the environmental activity costs and the amount of reductions calculated in environmental accounting in actual environmental activity management. More specifically, we are considering the introduction of a system in which we set attainable managerial indices for the whole company or offices based on their scale and form of business, and encourage voluntary management from the aspects of environmental efficiency and environmental load reduction efficiency.



Development of computerized environmental accounting system

Kyushu Electric Power is actively engaged in the development of a more organized environmental accounting system. Based on the understanding of the environmental activity costs from Fiscal 2002, application of the newly developed computerized environmental accounting system was started in order to operate more efficiently. Kyushu Electric Power will keep working on improved management and more efficient business operation through software development such as the development of a comprehensive system that facilitates further cooperation with other departments.

Plans for the future

For the disclosure of more reliable and transparent environmental information, our environmental accounting system will be improved for better accuracy. Also, with the aim of establishing so-called internal environmental accounting, we will examine a method to utilize the environmental accounting system in environmental management, such as in the allocation of managerial resources to environmental activities.

C O L U M N NO.7 Understand More about Environmental Accounting

● Terms used in Environmental Accounting

[Wastewater load] P13,15
Pollutants in wastewater, which are examined for their significance according to the environmental criteria (impact on the environment) and converted into weight, based on COD (chemical oxygen demand)

[Proper final disposal amount] P15
The amount of waste that could not be reused or recycled and was disposed (by incineration or storage) properly according to the rules and regulations

[Volume reduction of low-level radioactive waste] P13,15
The volume of radioactive waste is reduced through incinerating, compressing or fusing solid waste at the power plants, or sending it to the Low-level Radioactive Waste Disposal Center of Japan Nuclear Fuel Limited in Rokkasho-mura, Aomori Prefecture. Volume reduction refers to the amount reduced by the above procedures, expressed in the number of 200-liter oil drums.

[No. of monitoring and measurement items] P15
Regarding the status of monitoring and measurement of each environmental load (SOx, NOx, turbidity, radiation, etc.), continuous monitoring and measurement items refer to "items for continuous monitoring and measurement." The other monitoring and measurement items refer to the cumulative total of "monitoring and measurement items × the number of times monitoring and measurements were conducted in a year".

[Buildings with scenic care] P14,15
Buildings that are constructed, after study and examination, in harmony with the surrounding environment, as well as with consideration for style, coloring and finishing material for the buildings

[Steel towers with scenic care] P15
Steel towers constructed with style and colors which blend well with the surrounding environment, and would not spoil or mismatch the scenery in city areas and parks

● Policy in calculating the environmental activity benefit (baselines)

The benefits from environmental activities that directly reduce the environmental load are calculated and reported as differences between the actual amount released and the amounts assumed in the baseline below.

Items	Baseline	
CO ₂ reductions	Nuclear, LNG, hydro and geothermal generation, and generation and purchase of power from new energy sources	Cases where electricity generated from such power sources was generated by thermal power generation except for that with LNG (based on the actual CO ₂ emission intensity of oil and coal-fired thermal power generation for the fiscal year)
	Efficiency improvement of power generation facilities	Cases where no improvements were made in transmission/distribution loss and thermal power production efficiency (based on the records from Fiscal 1970)
	Energy conservation activities	Cases where the introduction of equipment and facilities that lead to energy conservation, or vehicles that are fuel efficient or use clean energy were not made, thus no reduction in electricity or fuel consumption was achieved (based on the actual CO ₂ emission intensity for regular gasoline cars for the fiscal year)
	SF ₆ emissions reduction	Cases where no SF ₆ was recovered from equipment upon its overhaul and removal
SOx reductions	Cases where no desulfurization treatment or use of fuel with low sulfur content were pursued at power plants (based on the desulfurization efficiency and sulfur content of the fuel for the fiscal year)	
NOx reductions	Cases where no denitrification treatment was pursued at power plants (based on the denitrification efficiency for the fiscal year)	
Particulate reductions	Cases where no particulate collection was done at power plants (based on the particulate collection efficiency for the fiscal year)	
Wastewater load reductions	Cases where no wastewater treatment was pursued at power plants (based on the actual records for the fiscal year or wastewater load prior to designed treatment)	