

4 Environmental Accounting

We introduced environmental accounting in fiscal 2000 with the aim of acquiring quantitative understanding of the costs and benefits of the environmental activities. The resulting costs and benefits are disclosed to the stakeholders, and also are analyzed to develop efficient and effective environmental activities. The results in fiscal 2004 are shown below.

1 Environmental Activity Costs and Benefits (FY2003 and FY2004 records)

Unit: 100 million yen (except for those specially indicated)

Category	Main activities	FY2003		FY2004		Items	Benefits		
		Investment	Cost	Investment	Cost		Benefits		
Global environment conservation	Global warming prevention	0.6	70.2	0.8	85.5	Nuclear power generation	33.33 million tons-CO ₂ /yr	32.06 million tons-CO ₂ /yr	
	Ozone layer protection	0.8	0.3	0.3	0.5	LNG power generation	5.59 million tons-CO ₂ /yr	5.85 million tons-CO ₂ /yr	
Local environment conservation	Air pollution prevention	57.4	156.0	9.2	105.4	Hydro/geothermal power generation	6.66 million tons-CO ₂ /yr	6.82 million tons-CO ₂ /yr	
	Water pollution prevention	16.4	28.9	7.4	29.0	New energy power generation and purchase	0.5 million tons-CO ₂ /yr	0.59 million tons-CO ₂ /yr	
	Noise and vibration prevention	7.4	1.4	4.3	1.0	Thermal efficiency improvement, transmission distribution loss reduction	2.52 million tons-CO ₂ /yr	2.64 million tons-CO ₂ /yr	
Resource recycling	Industrial waste	14.7	48.1	9.7	42.5	Greenhouse gas reduction fund	4,512 tons-CO ₂ /yr	0 tons-CO ₂ /yr	
	General waste	Reduction and recycling of industrial waste	10.7	10.6	3.1	8.6	Energy saving activities	217 tons-CO ₂ /yr	238 tons-CO ₂ /yr
		Disposal of industrial waste and PCB storage	0.5	5.9	0.9	7.0	SF ₆ emission reduction	0.4 million tons-CO ₂ /yr	0.55 million tons-CO ₂ /yr
	Radioactive waste and spent nuclear fuel	0.6	60.6	12.7	57.1	Freon emissions	0.2 ODP tons/yr	1.6 ODP tons/yr	
Green procurement	Additional costs incurred from green procurement	-	0.0	-	0.0	SO _x reduction	33,270 tons/yr	46,043 tons/yr	
Environmental activity management	Environmental activity organization	0.0	3.2	0.0	3.2	NO _x reduction	13,473 tons/yr	15,999 tons/yr	
	EMS application and maintenance	0.0	3.6	0.0	1.3	Particulate reduction	97,567 tons/yr	135,351 tons/yr	
	Environmental load measurement and monitoring	1.3	13.9	1.5	13.5	Environmental load reduced in wastewater	498 tons/yr	727 tons/yr	
Environment-related research	Environmental conservation	0.0	1.7	0.0	1.5	Managed appropriately in conformity with laws and ordinances	Managed appropriately in conformity with laws and ordinances	Managed appropriately in conformity with laws and ordinances	
	Environmental load control during transmission and distribution	0.0	0.0	0.0	0.0	Amount recycled	543 thousand tons/yr	590 thousand tons/yr	
Social activities	Greening of sites	8.5	11.9	3.3	13.4	Proper final disposal amount	46 thousand tons/yr	53 thousand tons/yr	
	Maintaining quality townscapes and surroundings	62.9	86.2	63.5	82.2	Used paper, shells, driftwood recycled	7,657 tons/yr	11,290 tons/yr	
	Environment Month	0.0	0.9	0.0	1.2	Used paper, shells, driftwood properly disposed	1,680 tons/yr	1,728 tons/yr	
	Supporting local environmental activities	0.0	0.2	0.0	0.6	Volume reduction in low-level radioactive waste	1,948 containers/yr (each equivalent to one 200-liter oil drum)	1,489 containers/yr (each equivalent to one 200-liter oil drum)	
	Environmental information disclosure	0.0	0.5	0.0	0.3	Amount of used nuclear fuel stored	2,914 assemblies	2,996 assemblies	
Response to environmental impairment	Pollution load levy and measures against oil leakage	0.0	7.8	0.0	7.1	Green products (power material and equipment) purchased through green procurement	-	10,430 items	
Total		181.9	513.2	116.6	463.3	Participants in training and lectures	17,820 persons/yr (gross)	17,133 persons/yr (gross)	
	Reference	9%	4%	6%	4%	Personnel with environment-related licenses	1,669 persons	1,813 persons	
		2,069	12,135	2,001	11,855	Sites acquired ISO 14001 certification	6 sites	6 sites	

Note: Costs include depreciation expense. Figures are rounded and may not add up to the total. Revisions were made to some items of the environmental activity costs for FY2003.

*1: Benchmark year for benefit calculation has been revised to FY1990.

*2: SF₆ emission reduction is converted to the weight of CO₂ using the global warming potential for SF₆ (23,900). The amount of reduction includes that attained by equipment overhaul and dismantlement.

*3: The emissions reduction for freons was converted into a relative value taking the ozone depletion potential (ODP) per unit weight of CFC-11 as 1.

*4: Reduction of wastewater load is determined by converting weight of each pollutant contained in the wastewater, measured based on the environmental standards, into the weight based on COD standards.

*5: High concentration PCB treatment costs, incurred and accrued in FY2004, are not included.

*6: Some items and standards under the environmental activity benefits have been revised.

*7: The figure does not include allowance for spent fuel reprocessing. (See the reference table).

*8: With respect to reprocessing the used nuclear fuel which is stored at the end of a fiscal year, the costs required in the future to reprocess such used nuclear fuel are partially accrued at each year-end in accordance with applicable regulations.

Main activities	FY2003		FY2004	
	Investment	Cost	Investment	Cost
Allowance for used nuclear fuel reprocessing*7, etc.	0.0	270.4	0.0	266.3



2 Economic Effects from Environmental Activities (FY2003 and FY2004)

In fiscal 2004, our environmental activities brought about real economic effects, savings and income, of 15.24 billion yen.

(Unit: 100 million yen)

Category		Main activities	Benefits	
			FY2003	FY2004
Global environmental conservation	Global warming prevention*	Fuel cost savings from improvement of thermal efficiency and the transmission/distribution loss factor; introduction of energy-saving, low-emission/fuel-efficient vehicles	82.0	93.4
Resource recycling	Waste measures	Income from sales of unneeded supplies	1.7	2.4
	Waste reduction	Final disposal cost savings from recycling	37.4	36.6
Savings in statutory charges		Pollution load levy savings from SOx emissions reduction	15.5	20.0
Total			136.5	152.4

* Figures are rounded and may not add up to the total. Benchmark year for benefit calculation has been revised to FY1990.

3 FY2004 Calculation Results

Environmental activity investments and costs for fiscal 2004 were 11.66 billion yen and 46.33 billion yen respectively. Compared to fiscal 2003, environmental activity investments decreased by 6.53 billion yen and the costs decreased by 4.99 billion yen.

Investments

Engineering costs were newly incurred for facilitating Genkai Nuclear Power Station to deal with low-level radioactive waste. Overall investment decreased considerably, however, compared to fiscal 2003 since no capital investments in flue gas and wastewater treatment facilities were recorded after completion of the Unit 2 of Reihoku Thermal Power Station in fiscal 2003.

Costs

Power purchase costs increased due to the dissemination and promotion of the use of new energy sources. However, a substantial cost reduction was achieved compared to fiscal 2003. This is because of the decrease in fixed costs and depreciation expense from the dismantlement of the Units 1 and 2 of Shin Kokura Thermal Power Station and Minato Thermal Power Station.

Effects of environmental activity

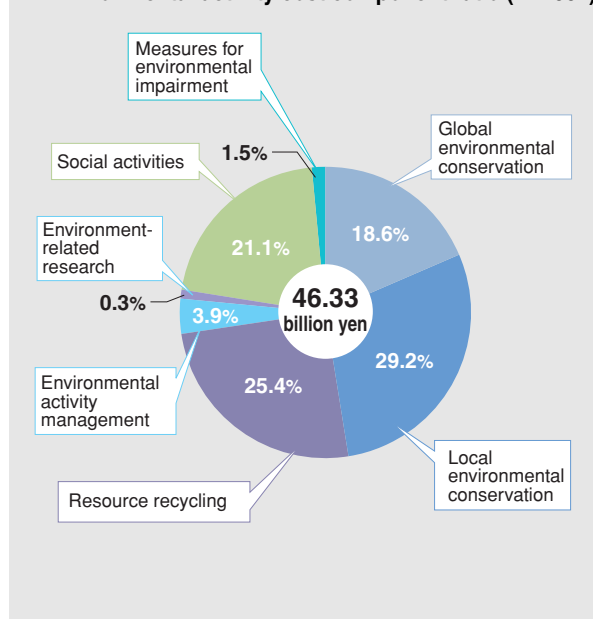
Other points that showed an increase/decrease from fiscal 2003 are: freon emissions due to inspection of fire control facilities installed at power stations; the amount of SOx and NOx reductions owing to the increase in power generation at thermal power stations.

4 Budgeting for Environmental Activity

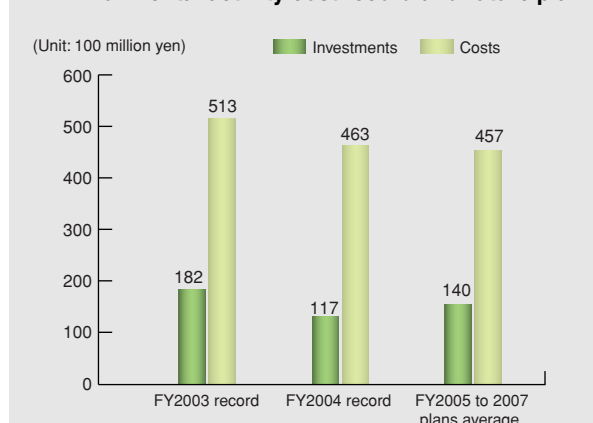
In fiscal 2004, we started to draft a future plan for the company's environmental activity costs allocation, which forms a part of our environmental accounting system. The future plan aims to realize an optimal allocation of the company's managerial resources. The plan is formulated through calculation of an optimal balance between activity costs and efficiency based on the criteria for environmental activity cost investments. Managerial resources are then allocated according to the plan.

We make further efforts to develop our environmental accounting system, aiming to achieve the best possible environmental efficiency and environmental load reduction rate per cost in the industry.

Environmental activity cost component ratio (FY2004)



Environmental activity cost record and future plan



TOPIC
No. 2

Towards the further development of optimal environmental accounting system

We actively take part in research activities for further utilization of environmental accounting system. Since fiscal 2003, the company has been taking part in a working group on an environmental budget matrix study set up under the surveys and studies on environmental business development and promotion commissioned by the Ministry of Economy, Trade and Industry. Research on potential application of the method was carried out with the guidance of Professor Yoshihiro Ito of Kobe University Graduate School (present Professor of Waseda University Graduate School of Commerce). Further studies will be conducted to establish an environmental accounting method that best suits our character of business.



Significant environment-related information reviewed by referring to the Standards for Environment Report Compilation.



Environmental terms described or defined in the attached glossary.