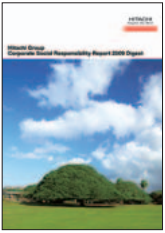







# Hitachi Group Environmental Sustainability Report 2009



# Environmental Activity Reporting Policy

Reports on material issues	Reports on detailed activities	Latest information
 <p data-bbox="384 450 576 577">    <b>booklet</b>  <i>Hitachi Group Corporate Social Responsibility Report 2009 Digest</i> </p>	 <p data-bbox="708 741 836 913">    <b>This booklet</b>  <i>Hitachi Group Environmental Sustainability Report 2009</i> </p>	
<p data-bbox="204 1032 368 1055"><b>On Hitachi, Ltd. Web site</b></p>  <p data-bbox="459 1032 692 1077">           CSR (corporate social responsibility):  <a href="http://www.hitachi.com/csr/">http://www.hitachi.com/csr/</a> </p>	 <p data-bbox="794 1032 1034 1077">           Environmental Activities:  <a href="http://www.hitachi.com/environment/">http://www.hitachi.com/environment/</a> </p>	

Up to now, the Hitachi Group has reported on environmental activities in CSR reports. From this year, to improve information disclosure, we are publishing the *Hitachi Group Environmental Sustainability Report 2009*. This report will provide stakeholders—customers, local communities, shareholders and investors, suppliers, and employees—with detailed information on our environmental protection activities. The focus is on our policies, environmental action, data on results, and plans and goals. This report not only publishes information and fulfills our disclosure obligations, but we expect it will also deepen and improve our activities, based on stakeholders' feedback. It is published both as a booklet and on our Web site, which provides information on our latest activities, as well as other details, such as a list of ISO 14001-certified sites.

## Related Reports

The *Hitachi Group CSR Report 2009 Digest* publicizes our fiscal 2008 policies on environmental protection and the highlights of our activities. Hitachi Group business groups and companies also issue their own CSR and environmental reports. As well, they publish their environmental activities on their Web sites.

For information on reports issued by Hitachi Group business groups and companies, please see:  
[http://www.hitachi.com/environment/activities/stakeholder\\_collabo/disclosure/more/rpt\\_open.html](http://www.hitachi.com/environment/activities/stakeholder_collabo/disclosure/more/rpt_open.html)

Period: Mainly fiscal 2008 (April 1, 2008 through March 31, 2009)

Companies: Hitachi, Ltd. and 944 consolidated companies

Scope of data: Hitachi, Ltd. and 241 consolidated companies (accounting for 90 percent of the environmental load of the Hitachi Group, including electricity used and waste generated)

## Guidelines Used in Preparing This Report:

GRI Sustainability Reporting Guidelines 2006, Global Reporting Initiative

Environmental Reporting Guidelines (FY 2007 version), Ministry of the Environment, Japan

\*This environmental sustainability report is published annually.

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### Symbol Marks Used in This Booklet

†: Technical terms, proper nouns, etc., in the text requiring explanation.

\*: Additional explanation of terms, etc., in tables or diagrams.

**WEB**: Indicates the title and URL of the Web page related to the article.

All pages can be accessed from

<http://www.hitachi.com/environment/activities/moredata.html>

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The Hitachi Group, with the goal of achieving a more sustainable society, is promoting global production that reduces the environmental burden of products

### Deepening environmental management through dialogue with stakeholders

This *Environmental Sustainability Report* is newly prepared to provide more detailed information on our environmental activities, which we have introduced in the *Hitachi Group Corporate Social Responsibility Report*. We believe that this will encourage deeper discussions with our stakeholders and, in turn, strengthen our environmental management. We look forward to further dialogue with you through this report.

Since our long-term plan, Environmental Vision 2025, was released in December 2007, I have been explaining the philosophy behind that vision and Hitachi Group actions to a range of stakeholders around the world. In addition, we held a number of environmental forums in Tokyo, Paris, Beijing, Washington, D.C., Singapore and elsewhere in fiscal 2008 to discuss environmental conservation and technology development with stakeholders. For me, what emerged from these forums was a great sense of urgency from all concerned—governments, companies and consumers—and that concrete action must be taken as soon as possible.

For global warming in particular, humankind's expertise and commitment are being challenged by the need to halt the increase in greenhouse gases for the world as a whole and change the trend of emissions into a downward

trajectory within the next five to ten years. Water issues too are reaching a crisis point in many places around the globe. Therefore, we must face global environmental challenges with global-scale solutions. At the same time, an emerging social trend is to see environmental action as a source of economic growth and employment, making this a growing market. Given these circumstances, I believe that Hitachi must work to realize a sustainable society based on the Corporate Credo of contributing to society through the development of superior, original technology and products. I see promoting environmental management to attain this goal as the responsibility of the entire Hitachi Group.

### Using the Hitachi Group's technological strength for environmental protection

Based on our medium-term plan, Environmental Vision 2015, we are pursuing a two-pronged environmental management strategy: reducing the environmental burden through *monozukuri* and supplying environmentally conscious products and services. In addition, our long-term plan, Environmental Vision 2025, sets the 2025 goal to help reduce annual CO<sub>2</sub> emissions by 100 million tonnes through Hitachi products and services with high environmental performance. For me, our dialogues with stakeholders have underscored the strong expectations they hold for

the development of new technologies and products that will contribute to achieving this goal. The stakeholders have made me strongly aware of the major responsibility that Hitachi bears in resolving global environmental issues.

Looking ahead, in the short-term, the Hitachi Group will focus on developing and distributing products that achieve substantial energy savings. For this reason, we are making all our products Hitachi Eco-Products. Our long-term program concentrates on innovative technologies; we will accelerate the development of environmentally conscious and energy-saving products and services. We will place special emphasis on a few core projects: nuclear power generation, which emits very little CO<sub>2</sub>; renewable energies and smart grids, for sustainable energy; and environmentally conscious data centers.

To remind employees that environmental protection is everyone's responsibility, we distributed Eco Badges in fiscal 2008 to all Hitachi Group employees around the world. Wearing these badges is a sign of each person's resolve to build environmental conservation into our daily work and doing what we can to realize Hitachi's environmental vision. Based on this personal awareness of every member, we at the Hitachi Group will intensify our efforts to realize a sustainable society through cooperation and dialogue with stakeholders.

July 2009



A handwritten signature in black ink that reads "T. Hatchoji".

Takashi Hatchoji  
Executive Vice President, Hitachi, Ltd.  
Hitachi Group Chief Environmental Strategy Officer

# Fiscal 2008 Highlights

Activities implemented and objectives achieved through environmental management in fiscal 2008



Regional environmental meeting for the promotion of environmental activities: sharing and resolving issues (Brussels)

Steady implementation and continual improvements of our Environmental Action Plan using the GREEN 21 evaluation system (see pages 14–15)



Super Eco-Factory that mainly produces data storage products (Hitachi Computer Products (Europe) S.A.S. in France)

Achieved industry-leading environmental efficiency and environmental load reduction; Nine additional facilities certificated as Super Eco-Factories & Offices (see pages 37–38)

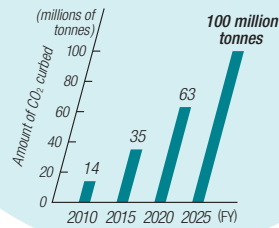
## Eco-Mind & Global Environmental Management



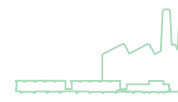
## Towards a Sustainable Society

Long-Term Environmental Vision 2025: Formulation of a specific plan “to help reduce annual CO<sub>2</sub> emissions by 100 million tonnes by 2025 through Hitachi products and services” (see page 9)

Plan for CO<sub>2</sub> Emission Reduction (base year FY 2005)



## Super Eco-Factories & Offices



## Next-Generation Products & Services



Increased the ratio of Eco-Product sales to total sales to 47 percent. 46 products and 745 models were newly certified as Eco-Products (for a total of 1,130 products and 6,961 models) (see pages 20–21)



Data storage for enhanced power saving: Hitachi Universal Storage Platform V

## Worldwide Environmental Partnerships



Eco Badges distributed to all 400,000 Hitachi employees: fostering employees' environmental awareness (see page 42)



Eco Badge with “Hitachi Tree” design

*Hitachi Group Corporate  
Environmental Management*



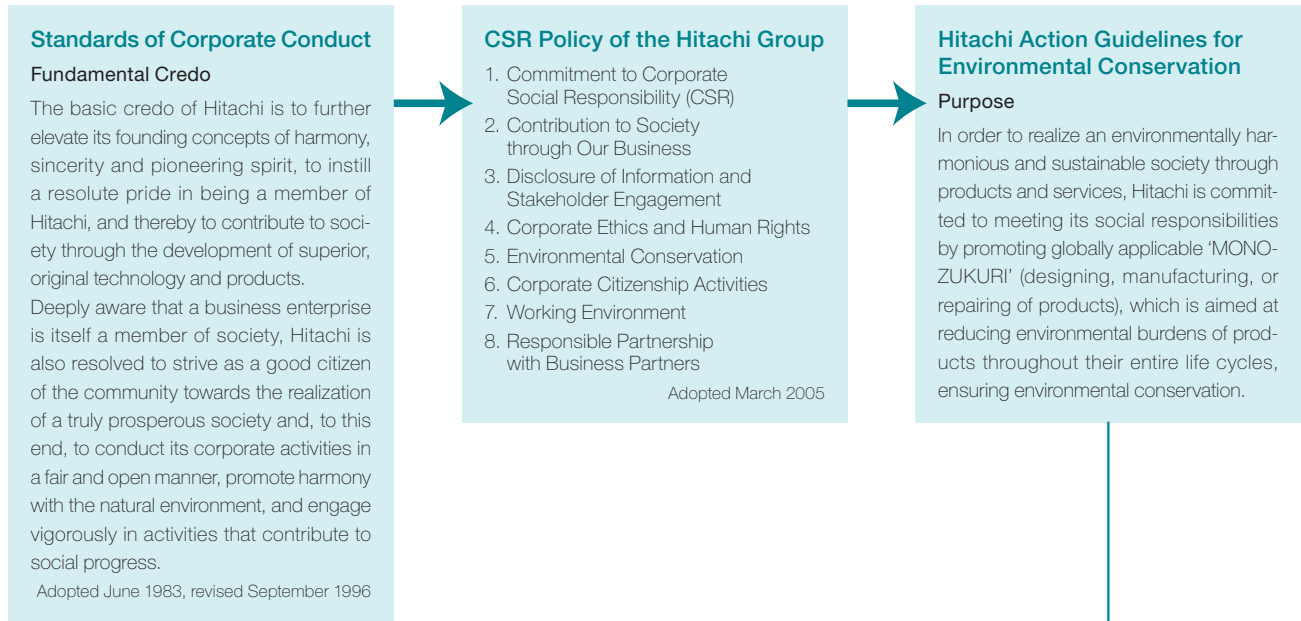
# Towards a Sustainable Society

The Hitachi Group is committed to achieving a more sustainable society by promoting global production that reduces the environmental burden of a product throughout its life cycle

# Hitachi Group Corporate Environmental Management

To realize a sustainable society, we have created an environmental vision. For this, we drew on our Standards of Corporate Conduct and its tenet “contributing to society through the development of superior, original technology and products,” as well as the CSR Policy of the Hitachi

Group and the Action Guidelines for Environmental Conservation. This vision sets out our management approach to global environmental issues. Also, for our business activities, we are guided by a plan up to fiscal 2015 and a longer-term plan up to fiscal 2025.



**Action Guidelines**

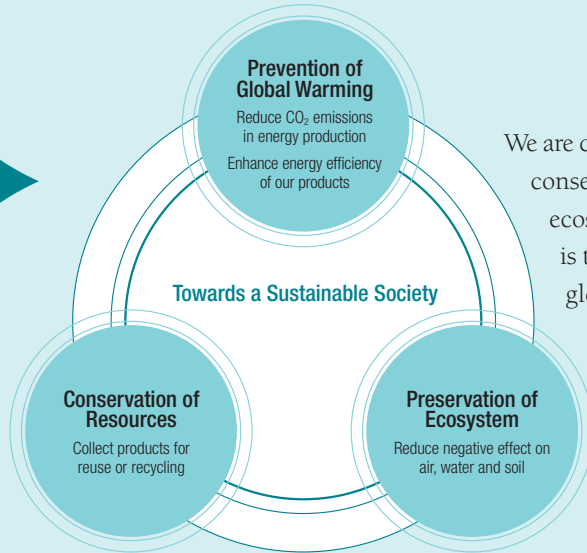
1. Global environmental conservation is a critical challenge shared by all humans. Hitachi is committed, therefore, to fulfilling its responsibilities by assisting in the realization of an environmentally harmonious and sustainable society as one of its management priorities.
2. Hitachi will make efforts to contribute to society by developing highly reliable technologies and production processes, while identifying needs considering concerns related to global environmental conservation and limited resources.
3. Members of the board in charge of environmental conservation are responsible for facilitating appropriate environmental conservation activities. Departments responsible for environmental conservation should endeavor to promote and ensure environmental conservation activities, including improving environment-related rules and regulations and setting goals for environmental burden reduction. These departments should also confirm that their environmental conservation activities are conducted in a proper manner and ensure that these activities are maintained and improved.
4. Hitachi will promote globally-applicable 'MONOZUKURI' with the aim of reducing environmental burdens at every stage, including product research and development, design, production, distribution, sales, usage, and final disposal.
5. Hitachi will investigate and review the environmental impact caused in the course of its 'MONOZUKURI' processes. Hitachi will also introduce excellent technologies and materials useful to safeguard the environment, in other words, to reduce environmental burdens through energy and resource saving, chemical substance management, recycling, and other measures.
6. Hitachi's environmental conservation efforts are not only to be focused on observing international environmental regulations and those of national and local governments, but also on conserving the environment by implementing voluntary environmental standards when necessary.
7. Regarding globally-applicable 'MONOZUKURI' activities, impact on the local environment and community are to be considered. In addition, measures that meet local communities' requests should be implemented.
8. Hitachi will educate its employees on the observance of environment-related laws, raise their environmental awareness, and encourage their interest in society at large and broad-based environmental conservation activities.
9. Hitachi will evaluate potential environmental problems and prevent them from occurring. In the event that any environmental problem occurs, Hitachi will take appropriate measures to minimize the environmental burden.
10. Hitachi will make efforts to disclose information on its environmental conservation activities to its relevant stakeholders. Hitachi will also actively communicate with these stakeholders so as to strengthen mutual understanding and forge cooperative relationships with them.

Adopted March 1993, revised November 2004



## Environmental Vision

The quest for a comfortable existence has led humankind to create a highly convenient society. Today's society, however, requires a vast amount of energy, and is causing problems, such as global warming, resource depletion, and environmental damage. We should challenge these common issues if we are to maintain a comfortable existence into the future.



We are committed to the prevention of global warming, the conservation of resources, and the preservation of the ecosystem as the three pillars of our vision. Our goal is to achieve a more sustainable society by promoting global production that reduces the environmental burden of a product throughout its life cycle.

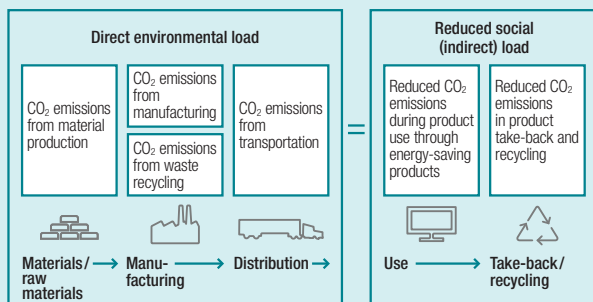
### Fiscal 2015 Goal: Medium-Term Environmental Vision 2015

# 2015

## Achieve *emission neutral*

We are working to achieve *emission neutral* by fiscal 2015 by pursuing production that reduces the environmental burden of products throughout their life cycle. *Emission neutral* means making the direct environmental load and the reduction of the social environmental load equal. Here, *direct* environmental load includes material production, manufacturing, and transportation, while the reduction of *social* environmental load is the environmental load of finished products, after delivery, which have been reduced with energy- and resource-saving products (compared with fiscal 2005 reference products). We intend to achieve *emission neutral* by reducing the environmental load of production activities, while at the same time improving the environmental efficiency of products to reduce their environmental load.

#### The Emission Neutral Concept



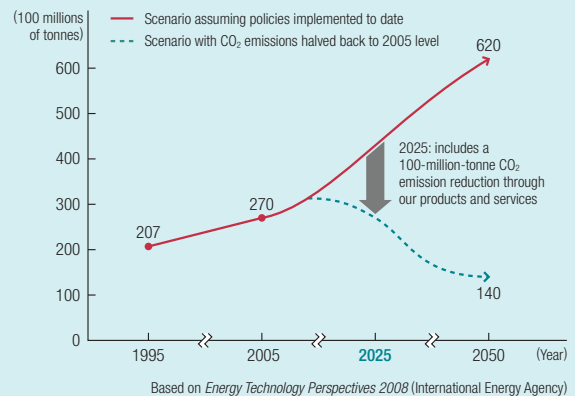
### Fiscal 2025 Goal: Long-Term Environmental Vision 2025

# 2025

## To help reduce annual CO<sub>2</sub> emissions by 100 million tonnes by 2025 through Hitachi products and services

We have set the long-term goal of helping to reduce annual CO<sub>2</sub> emissions by 100 million tonnes by 2025 through Hitachi products and services (base year fiscal 2005) by making and distributing products with less burden on the environment. If no new measures are taken (status quo), world CO<sub>2</sub> emissions in fiscal 2050 are expected to be twice the fiscal 2005 level. To stem the increase in global warming, CO<sub>2</sub> emissions need to be cut further compared with the status quo and we are supporting that goal by helping reduce emissions by 100 million tonnes per year by 2025.

#### Concept behind Hitachi's Fiscal 2025 CO<sub>2</sub> Emission Reduction Goal

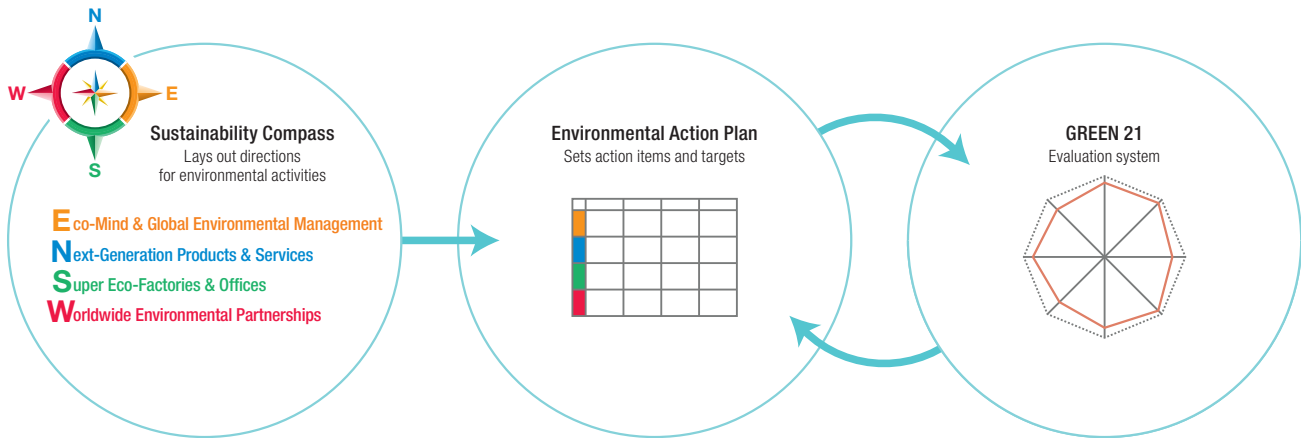


## Achieving the Medium-Term Plan: Environmental Vision 2015

The target of our medium-term plan, Environmental Vision 2015, is to achieve *emission neutral* by fiscal 2015 (page 7). Drawing on the Sustainability Compass, which lays out directions for environmental activities, we have developed an Environmental Action Plan with specific action items and targets for fiscal 2010. Action items include expanding our Eco-Product lineup, steps to counter global warming, efficient use of resources, and proactive communication on environmental issues. The

GREEN 21 evaluation system, which quantifies that year's Environmental Action Plan targets, is used to gauge our progress, verify the results, and ensure continual improvement.

The Environmental Action Plan is also optimized by adding action items and reviewing targets in response to, for example, changes in the global environment, requests from stakeholders, or early target achievement.



**Environmental Action Plan** This chart shows the target and results for each action item in fiscal 2008 toward achieving fiscal 2010 goals

Category/item	Page(s)	Action goal	Evaluation index
<b>Eco-Mind &amp; Global Environmental Management</b>			
Establish environmental management systems (EMS)	pp. 14–15	Establish an integrated environmental management system in every business group/Group company	Integrated EMS certification acquisition by each business group/Group company
Nurture environmental literacy	p. 17	Boost percentage of employees receiving Hitachi Group-wide training (environmental e-learning)	Percentage of employees receiving training
Green purchasing	p. 24	Purchase products such as environmentally conscious office products	Green purchasing percentage
<b>Next-Generation Products &amp; Services</b>			
Promote Eco-Products	pp. 20–30	Expand Eco-Product lineup	Percentage of registered Eco-Products (ICT systems, digital media & consumer products) Percentage of registered Eco-Products (electronic devices; power & industrial systems; high functional materials & components; logistics, services & others, etc.) Percentage of Eco-Product sales Percentage of registered Super Eco-Products
	p. 23	Compliance with product environmental regulations	Compliance with REACH, etc.
<b>Super Eco-Factories &amp; Offices</b>			
Promote Super Eco-Factories & Offices	pp. 37–38	Build industry's most advanced factories and offices	Number of Super Eco-Factories & Offices certified
Prevent global warming	pp. 32–33	Reduce CO <sub>2</sub> emissions from energy sources	CO <sub>2</sub> emission reduction rate (base: FY 1990, Japan) Rate of reduction in CO <sub>2</sub> emissions per unit production (base: FY 2003, outside Japan)
	p. 33	Reduce energy used in transportation	Rate of reduction in energy for shipping per real unit output (base: FY 2006, Japan)
Use resources efficiently	p. 34	Reduce waste volume	Rate of waste volume reduction (total or per unit production) (base: FY 2000)
	pp. 34–35	Promote resource recycling	Resource recycling rate increase (base: FY 2005, Japan)
	p. 35	Use water effectively	Rate of reduction in volume of water used (base: FY 2005, outside Japan)
Chemical substance management	pp. 35–36	Improve chemical substance management and reduce emissions	Rate of reduction in VOC emissions into the atmosphere (base: FY 2000, Japan)
			Rate of reduction in VOC emissions into the atmosphere (base: FY 2005, outside Japan)
<b>Worldwide Environmental Partnerships</b>			
Environmental communication	pp. 40–43	Enhance environmental action through more two-way communication	Information disclosure on environmental action Promote global citizenship activities Dialogue with external stakeholders

## Achieving the Long-Term Plan: Environmental Vision 2025

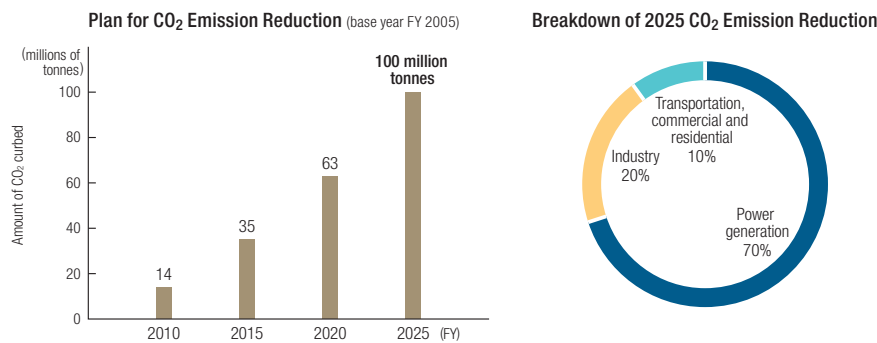
The goal of Environmental Vision 2025 is to help reduce annual CO<sub>2</sub> emissions by 100 million tonnes by 2025 through our products and services using our combined technological strengths (page 7). We aim to make all products Hitachi Eco-Products.<sup>†1</sup> We will also promote green technology, business investment, and collaborative projects in global markets.

To reduce CO<sub>2</sub> emissions, we plan to cut 70 million tonnes in electric power generation, and 30 million tonnes in energy consumption, including industry, transportation, and daily living (commercial and residential use). For electric power, we will improve coal-fired technology, build nuclear power plants—while expanding maintenance, repair, and other services—and stimulate renewable energy use with technologies such as batteries

and smart grids.<sup>†2</sup> For industry, we will supply high-efficiency inverters and transformers, while providing energy-saving services, and create power-saving data centers. For transportation and daily living, we will develop lithium-ion batteries for industry and cars, and reduce the energy consumption of air conditioners, washing machines, and other home appliances.

<sup>†1</sup> **Eco-Products:** Products that meet the standards set by the Assessment for DfE (Design for Environment) system, using criteria such as energy efficiency and resource recycling to quantify the environmental load.

<sup>†2</sup> **Smart grids:** Power distribution grids that integrate the conventional power infrastructure and ICT technology to include renewable energy and other dispersed power sources efficiently while maintaining reliable supply.



◆◆◆ : Achieved  
◆◆ : Partially achieved

Fiscal 2008 target	Fiscal 2008 results	Achievement level	Fiscal 2010 target
Promote acquisition of integrated EMS certification by every business group/Group company	Certification acquired: 4 business groups (Total: one HQ and 12 groups)	◆◆◆	Integrated EMS certification acquisition by one HQ and 25 groups
80%	89%	◆◆◆	90%
82%	82%	◆◆◆	90%
96%	98%	◆◆◆	100%
80% or higher	86%	◆◆◆	80% or higher
38%	47%	◆◆◆	50%
15%	18%	◆◆◆	30%
REACH regulation: Complete pre-registration and Phase 1 preparation	Pre-registration completed for 156 chemicals	◆◆◆	REACH regulation: Complete registration for all substances requiring registration (100 tonnes or more)
8 production facilities	9 production facilities (total: 26)	◆◆◆	Total of 30 production facilities
7%	14%	◆◆◆	12%
3%	3.3%	◆◆◆	5%
2%	10.5%	◆◆◆	11%
16% (total reduction and per unit production reduction)	25% (total reduction), 25% (per unit production reduction)	◆◆◆	25% (total reduction and per unit production reduction)
6%	11%	◆◆◆	10%
6%	8%	◆◆◆	10%
44%	62%	◆◆◆	50%
6%	24%	◆◆◆	10%
Continue and improve activities	More Web content Participation in eco-products exhibitions Dialogue with stakeholders Environmental classes given at schools, etc.	◆◆◆	Continue and improve activities

## Environmental Load Data for Corporate Activities (Fiscal 2008)

This chart shows resource inputs and the environmental load for fiscal 2008 business activities of the 242 Hitachi Group companies\*<sup>1</sup> covered in this report.

\*<sup>1</sup> These companies account for 90 percent (amount of power used and waste) of the environmental load of the Hitachi Group.

### INPUT <sup>†1</sup>

Business Activities (Japan)

<b>Total energy consumption (crude oil equivalent)</b>		<b>1,530,000 kℓ</b>
	Electricity	4.85 billion kWh
	Oil	308,000 kℓ
<b>Natural energy</b>	Electricity	0.509 million kWh

<b>Total input of materials</b>		
<b>Metals</b> 1,574 kt	Iron (including steel sheeting)	1,072 kt
	Stainless steel	36 kt
	Aluminum	69 kt
	Copper	273 kt
	Other nonferrous metals	124 kt
<b>Plastics</b> 168 kt	Thermoplastics	158 kt
	Thermohardened plastics	10 kt
<b>Rubber</b>		7 kt
<b>Other materials</b>		542 kt
<b>Chemical substances</b>	Handling volume for chemical substances covered under the PRTR law	178 kt
	Handling volume for ozone-depleting substances	1.9 t
	Handling volume for greenhouse gases	1,418 t

<b>Water consumption</b>		<b>59.26 million m<sup>3</sup></b>
	Surface water	6.58 million m <sup>3</sup>
	Industrial water	27.52 million m <sup>3</sup>
	Groundwater	25.16 million m <sup>3</sup>
	Rainwater	0.002 million m <sup>3</sup>

Business Activities (Outside Japan)

<b>Total energy consumption (crude oil equivalent)</b>		<b>550,000 kℓ</b>
	Electricity	1.68 billion kWh
	Oil	130,000 kℓ

<b>Total input of chemical substances</b>		
<b>Metals</b>		510 kt
<b>Plastics</b>		34 kt
<b>Rubber</b>		1 kt
<b>Other materials</b>		94 kt
<b>Chemical substances</b>	Handling volume for chemical substances covered under the PRTR law	11 kt

<b>Water consumption</b>		<b>12.22 million m<sup>3</sup></b>
	Surface water	5.29 million m <sup>3</sup>
	Industrial water	4.33 million m <sup>3</sup>
	Groundwater	2.60 million m <sup>3</sup>

\* Ratio to national total. Total figures for Japan are from the latest available data (fiscal 2006 data: the Ministry of the Environment's *Annual Report on the Environment and the Sound Material-Cycle Society in Japan 2008* and their fiscal 2007 PRTR data report).

†1 Input is the total volume of energy, materials (raw materials, chemicals, etc.), and water used in product manufacturing and other business operations.


†2 Output is the products, as well as the environmental load, including CO<sub>2</sub> and other chemicals, waste products, and wastewater, caused during business operations.

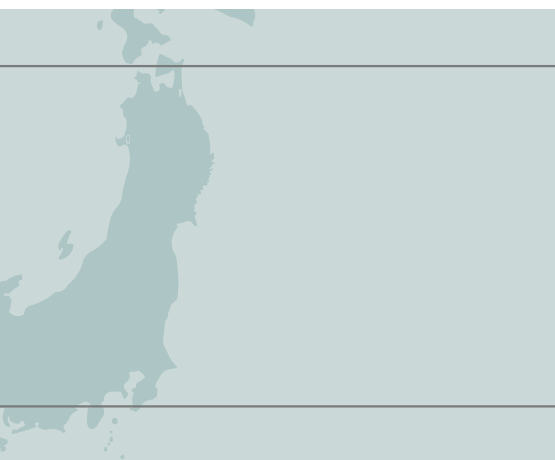
†3 GWPT: Global Warming Potential tonne. Converted to amount of CO<sub>2</sub> (t) by multiplying greenhouse gas emissions by the global warming potential. The global warming potential shows the extent of impact on global warming from a greenhouse gas, compared with the equivalent amount of CO<sub>2</sub>.


†4 The 354 chemical substances covered under Japan's Pollutant Release and Transfer Registers (PRTR) Law.

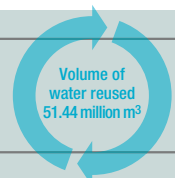
†5 ODPt: Ozone Depletion Potential tonne. Converted to CFC equivalent tonnes by multiplying ozone depletion emissions by the ozone depletion potential.


## OUTPUT<sup>†2</sup>

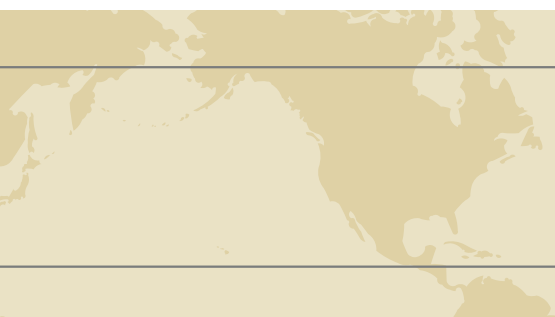
	CO <sub>2</sub> emissions	2,844 kt (2,844 kWGPt <sup>†3</sup> ) *0.2%
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	Total volume of products manufactured and sold		3,797 kt (including packaging) *0.85%
	Total volume of waste generated		
	Waste generated		551 kt *0.1%
	Waste reduction		39 kt *0.022%
	Recycling (rate) 524 kt (97%)	Volume reused	97 kt (18%)
		Volume of material recycled	372 kt (68%)
		Volume of thermal recycled	34 kt (6%)
	Final disposal (rate)		9 kt (1.7%) *0.04%
	Volume of chemical substances discharged or transferred		
	Discharge or transfer volume of chemical substances covered under the PRTR law		4.0 kt *0.9%
	SO <sub>x</sub>		64 t
	NO <sub>x</sub>		571 t
Volume of discharge for ozone-depleting substances		1.7 t (0.09 ODPt <sup>†5</sup> )	

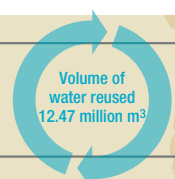
	Total volume of wastewater		51.56 million m <sup>3</sup>
	Breakdown of wastewater by destination	Public waters	41.29 million m <sup>3</sup>
		Sewerage system	8.80 million m <sup>3</sup>
		Underground infiltration, etc.	1.47 million m <sup>3</sup>
	Water quality	BOD (biological oxygen demand)	358 t
COD (chemical oxygen demand)		251 t	

 Volume of water reused  
51.44 million m<sup>3</sup>

	CO <sub>2</sub> emissions	1,514 kt (1,514 kWGPt)
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	Total volume of waste generated		
	Waste generated		160 kt
	Waste reduction		49 kt
	Recycling (rate) 63 kt (39%)	Volume reused	4 kt (2%)
		Volume of material recycled	58 kt (36%)
		Volume of thermal recycled	1 kt (1%)
	Final disposal (rate)		48 kt (30%)
	Volume of chemical substances released or transferred		
	Discharge or transfer volume of chemical substances covered under the PRTR law		0.4 kt
	SO <sub>x</sub>		11 t
NO <sub>x</sub>		23 t	

	Total volume of wastewater		12.01 million m <sup>3</sup>
	Breakdown of wastewater by destination	Public waters	3.17 million m <sup>3</sup>
		Sewerage system	8.34 million m <sup>3</sup>
		Underground infiltration, etc.	0.50 million m <sup>3</sup>
	Water quality	BOD (biological oxygen demand)	346 t
COD (chemical oxygen demand)		616 t	

 Volume of water reused  
12.47 million m<sup>3</sup>

## Environmental Load Information Collection Methods

The following standards and guidelines are used for determining the scope of the information collected on the Hitachi Group's environmental load, for establishing base year data, and for collating results.

Environment Information Item	Standards, Guidelines, Laws and Regulations, etc.
Energy	<ul style="list-style-type: none"> <li>• ISO 14064-1, which is based on the Greenhouse Gas Protocol (GHG Protocol) developed by the World Business Council for Sustainable Development</li> <li>• <i>Manual for Calculating and Reporting Greenhouse Gas Emissions</i>, Rev. 2.4 (Ministry of the Environment, Japan)</li> </ul>
Waste products	<ul style="list-style-type: none"> <li>• Japan's Waste Disposal and Public Cleansing Law</li> <li>• Flow of Industrial Waste Treatment (Ministry of the Environment, Japan)</li> </ul>
Volatile organic compounds (VOCs) and chemical substances	<ul style="list-style-type: none"> <li>• Japan's Pollutant Release and Transfer Registers (PRTR) Law</li> </ul>

## Environmental Load Evaluation System

The Hitachi Group's environmental load evaluation system is used by around 300 facilities in and outside Japan to determine the environmental load created by business activities. Data on the direct environmental load and the social environmental load can be recorded for every factory and office, and is centrally managed. The environmental loads of all facilities are collated and used for Environmental Action Plan goal management and to gauge progress toward achieving the *emission neutral* goal. External complaints, awards received, and communication with stakeholders are kept and shared within the Group to promote effective environmental action.

In fiscal 2008, we added automatic connectivity between the system and JWNET<sup>†1</sup> through EDI<sup>†2</sup> for creating and sending electronic manifests for waste disposal. This allows data to be centralized in the environmental load evaluation system's database, including contracts with industrial waste collection and transportation companies or waste disposal companies, and governmental authorizations.

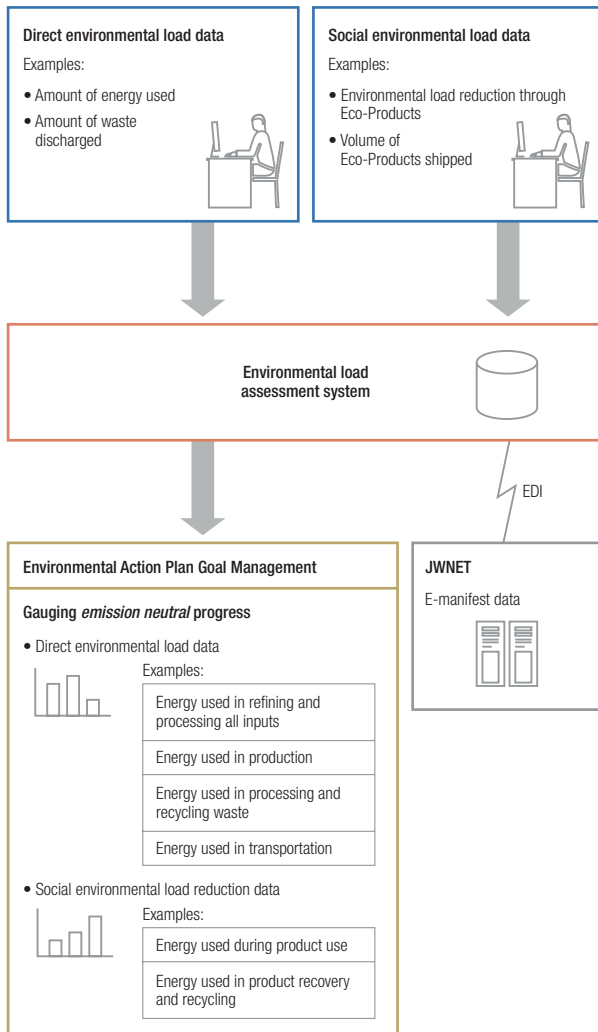
Because e-manifests<sup>†3</sup> are difficult to counterfeit, their merits include accurate monitoring of appropriate waste disposal and prompt responses to cases of inappropriate disposal, as well as enabling efficient information management by waste emitters, industrial waste collection and transportation companies, and waste disposal companies.

<sup>†1</sup> JWNET  
Japan Waste Network, operated by the Japan Industrial Waste Technology Center

<sup>†2</sup> EDI: Electronic Data Interchange  
A protocol for network communications to exchange data for electronic commerce automatically between computers.

<sup>†3</sup> Electronic manifest (e-manifest)  
Digital manifest enabling waste emitters, waste collection and transportation companies, and waste disposal companies to coordinate via a network and information processing center.

### Outline of Environmental Load Assessment System



E



# co-Mind & Global Environmental Management

From instilling eco-mind into our corporate culture to building a systematic environmental management system, we constantly strive for improvements and enhancements that support efficient environmental management and activities

# Environmental Management Framework



We are building a global network to support environmental management and are committed to its efficient operation

## Framework for Pursuing Environmental Administration

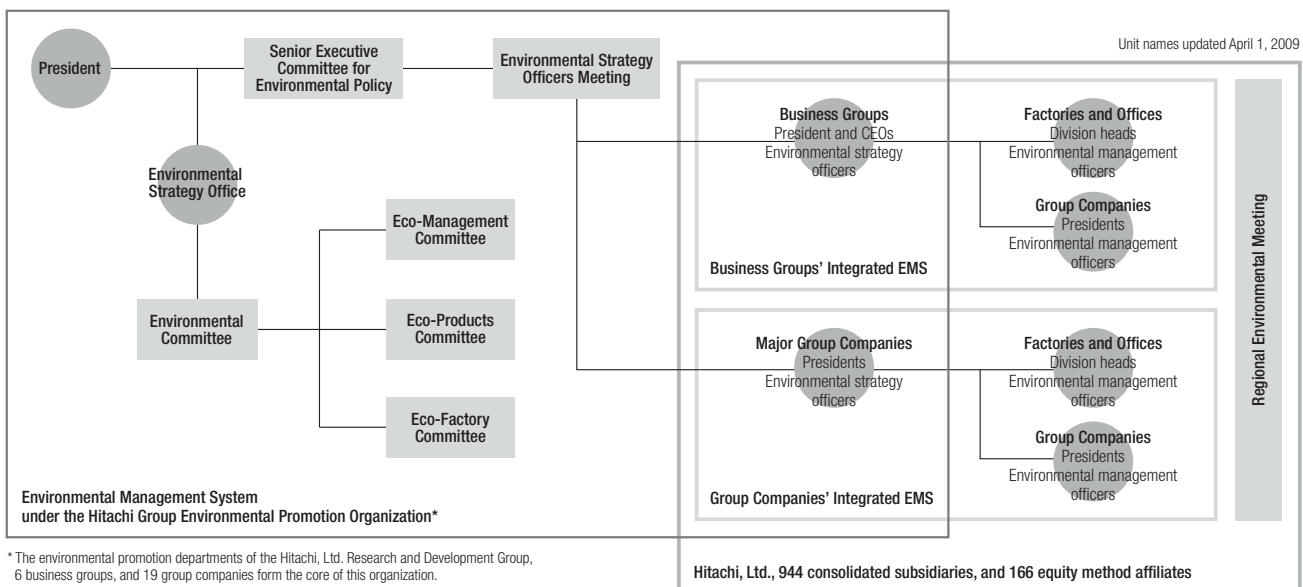
The Hitachi Group has developed an environmental administration structure that covers the Group as a whole.

Under this system, the Senior Executive Committee for Environmental Policy, chaired by the president of Hitachi, Ltd., deliberates and sets environmental policies and strategies for

the entire Group. These policies are disseminated via committees, such as the Environmental Strategy Officers Meeting, made up of the heads of the environmental operations units of business groups and Group companies. The Environmental Committee and subcommittees draft policies and action plans, then develop the technologies and evaluation methods needed to resolve issues and achieve goals.

Outside of Japan, we have built networks connecting the staff in charge of environmental issues. Regional Environmental Committees promote better understanding of Group policies while considering local issues and the best solutions. In fiscal 2008, we held regional meetings with the staff in charge of environmental issues in Europe (Brussels, Belgium), the Americas (San Jose, CA), China (Suzhou), and the rest of Asia (Manila, the Philippines) to share news about regulatory trends and best practices at various sites, and to exchange views on environmental issues. Strengthening these national and regional networks of environmental staff should facilitate a more rapid response to problems and help us design activities tailored to each country or region.

### Environmental Management System (EMS)



## topics Hitachi Maxell Group Earns Integrated EMS Certification



Operations committee meeting for the Hitachi Maxell Group integrated EMS

Until recently, each business site and affiliated company of the Hitachi Maxell Group had its own environmental policies based on a certified ISO 14001 environmental management system.

In fiscal 2007, however, they began developing an integrated EMS covering all seven areas within Japan to strengthen corporate governance, to make environmental action more effective, and to coordinate with the EMS under the Hitachi Group's

Environmental Promotion Organization.

This process involved integrating each business's EMS-certified committee, ensuring compatibility with the goals and targets of the Hitachi Group Environmental Action Plan and EMS, as well as devising an integrated environmental evaluation system that takes account of the disparate methods used in each area. Certification was received in December 2008.



## Environmental Management System (EMS)

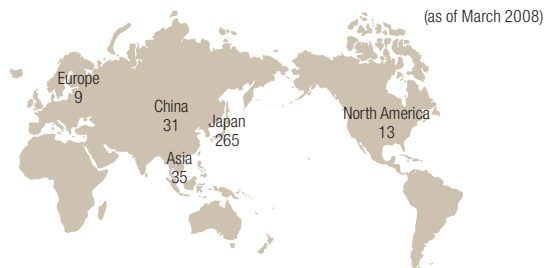
Within the Hitachi Group, we determine the minimum level of environmental management for each plant or factory according to its environmental load, determined by a multiple-criteria evaluation system. Any location where the environmental load exceeds a certain level is required to develop an environmental management system (EMS) based on ISO 14001 standards and then must be certified by an accredited outside agency. As of March 2009, individual certification had been obtained by 353 Group business locations inside and outside of Japan.

### Criteria for Environmental Management Level (major items)

Employees	≥ 500
Electric power consumption	≥ 6,000 MWh/year
Waste generated	≥ 500 tonnes/year
Water used	≥ 600 m <sup>3</sup> /day
Paper purchased	≥ 50 tonnes/year

### Status of ISO 14001 Certifications

	Japan		Outside Japan		Total
	Product Sites	Non-Production Sites	Product Sites	Non-Production Sites	
No. of certified sites	190	75	78	10	353



At the same time, we developed the Environmental Promotion Organization EMS to strengthen the Group's overall environmental management governance and to take advantage of our combined resources. It is designed to handle the wide diversity of our business groups and Group companies and obtained ISO 14001 certification in September 2006. The Environmental Promotion Organization covers the R&D Group, 6 business groups, and 19 Group companies.

We are also progressing toward the development and certification of integrated EMSs for each of our business groups and Group companies, with four more Group companies becoming certified in fiscal 2008. Currently, the R&D Group and 12 Group companies have been certified for an integrated EMS.

Our goal is to obtain integrated EMS certification for every business group and Group company under the Environmental Promotion Organization by 2010.

List of ISO 14001-certified sites  
[http://www.hitachi.com/environment/activities/mind\\_management/system/more/iso14001.html](http://www.hitachi.com/environment/activities/mind_management/system/more/iso14001.html)

## Improving Environmental Management

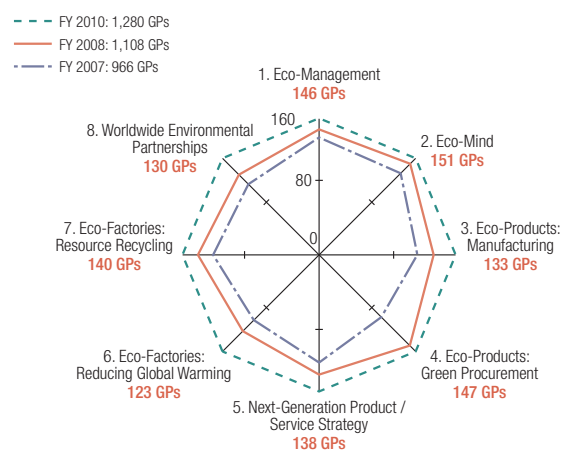


We evaluate progress under our Environmental Action Plan while promoting employee education and the sound use of management resources

### Evaluating Environmental Activities

For the steady implementation and improvement of the Environmental Action Plan and to make our environmental activities more effective, we developed a self-evaluation system: GREEN 21. This system quantifies progress toward each year's action goals, then displays radar charts. We use this to improve our environmental management. The evaluation consists of 55 items in eight categories aligned with the four axes of the Sustainability Compass. Assessments are made for each business site, with the results reflected in the performance evaluation of every business group and Group company. In this way, we identify weaknesses and show where improvements are needed for the next fiscal year. In fiscal 2008, the Group as a whole averaged 1,108 Green Points (GPs), beating the target of 1,024 by 84 points. For those companies that had low scores in fiscal 2007 for green procurement, we sent advisors from procurement and environmental promotion units, and offered assistance to suppliers, which resulted in better GPs.

### Green Point Average: Results and Targets



### Categories and Evaluation Items

1. Action plan, environmental accounting, risk management
2. Employee training and education
3. Ecodesign management system, Eco-Products, control of hazardous substances contained in products
4. Green procurement, green purchasing
5. Business and product strategy, sustainable business, publicity
6. Energy saving at production facilities, environmentally responsible distribution
7. Waste reduction, chemical substance management
8. Information disclosure, communication activities, global citizen activities

## GREEN 21 Awards

The GREEN 21 Award program began as a way to energize environmental activities and encourage best practices at every business group and Group company. The program honors outstanding environmentally conscious products and technologies, as well as ground-breaking initiatives for saving energy, conserving resources, and recycling—all judged using GREEN 21. In fiscal 2008, eight awards—four division awards and four honorable mentions—were given out.

### Fiscal 2008 GREEN 21 Awards

Category	Achievement	Recipient Unit
Division Awards	Enhancing the corporate brand through environmental management	Hitachi High-Technologies Corporation
	Developing a power-saving blade server	Enterprise Server Division, Hitachi, Ltd.
	Raising environmental awareness through community contributions	Hitachi Global Storage Technologies Singapore, Pte. Ltd.
	Promoting energy conservation and resource recycling	Narashino Division, Hitachi Industrial Equipment Systems Co., Ltd.
Honorable Mentions	Pursuing environmental management	Hitachi Via Mechanics, Ltd.
	Reducing CO <sub>2</sub> emissions through GeoMation Farm	Hitachi Software Engineering Co., Ltd.
	Creating an environmentally conscious installation for Hitachi Santa Park	Tohoku Area Operation, Hitachi, Ltd.
	Planting trees as an initiative of Hitachi Group companies in Hokkaido	Hokkaido Area Operation, Hitachi, Ltd.

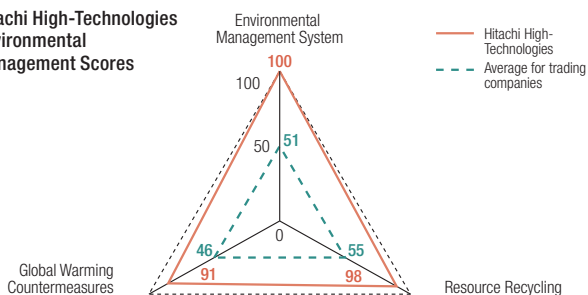
### GREEN 21 Award Winners for FY 2008

#### Eco-Mind & Global Environmental Management Award: Enhancing the corporate brand through environmental management

For six years running, Hitachi High-Technologies has earned a first-place ranking in the Nikkei Environmental Management Survey\* for its environmental efforts, including a commendation system to encourage environmental protection and for achieving zero emissions at a number of sites. Nikkei ranks companies by category according to their combined scores in three categories: environmental administration structure, global warming countermeasures, and resource recycling. A high score attests to the excellence of a company's environmental management and its outcome. Every year, the results of the Nikkei survey create new opportunities to tell stakeholders about our environmental programs and the value added to the corporate brand.

\*Survey of listed companies in Japan, conducted annually since 1997 by Nikkei Inc. Hitachi High-Technologies is categorized as a trading company.

#### Hitachi High-Technologies Environmental Management Scores



#### Next-Generation Products & Services Award: Developing a power-saving blade server

Hitachi, Ltd. is the first Japanese company to launch commercial production of a blade server equipped with virtualized server technology that allows a single physical server to replace two or more logical servers. By concentrating functions into a single unit that are typically performed by as many as six servers, the new BladeSymphony reduces power consumption by as much as two-thirds, helping to lower carbon emissions. Its groundbreaking features earned it a place among the Nikkan Kogyo Shimbun (Business & Technology Daily News) 2008 Best 10 New Products.\*

\*Program honoring 10 or more outstanding new products, selected from those newly developed and commercialized by Japanese companies. The awards were given for the fifty-first time in 2008.



BladeSymphony 1000 blade server

#### Worldwide Environmental Partnerships Award: Raising environmental awareness through community contributions

Hitachi Global Storage Technologies (Singapore) has been raising environmental awareness through community activities. As a participant in the government-sponsored Corporate and School Partnership Program since 2004, they have been raising environmental awareness in the community by, among other activities, sponsoring plant tours by schoolchildren, holding environmental events, and giving lectures on the importance of protecting the environment. In fiscal 2008, these programs were awarded by the National Environment Agency of Singapore. Company employees also contribute to the local community in many ways, such as cleaning up nearby rivers and reservoirs.



Schools compete at an environmental fair in Singapore

#### Super Eco-Factories & Offices Award: Promoting energy conservation and resource recycling

The Narashino Division of Hitachi Industrial Equipment Systems develops and manufactures energy-saving industrial equipment, including inverters and inverter-based compressors and pumps. By using their own products to conserve energy, in fiscal 2008 they reduced CO<sub>2</sub> emissions by 13,000 tonnes from fiscal 1990. In addition, a modal shift to rail transport for products earned them the Japanese Eco-Rail Mark, and an additional 400-tonne reduction in CO<sub>2</sub> emissions. They are also working to increase the use of alternative energy by installing solar power



systems and harnessing untapped energy through micro hydropower. Finally, with a total commitment to resource recycling, their rate of final waste disposal has been slashed to 0.09 percent.

Solar panels on the roof of a Narashino production facility

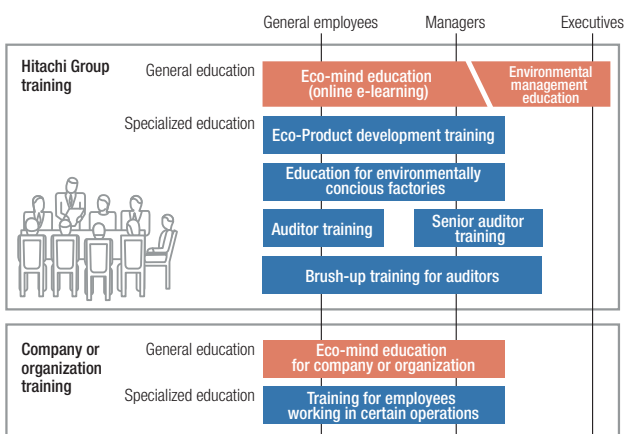
## Environmental Education

To improve our employees' understanding and awareness of environmental activities, we provide both training for all the Group and training programs for each Group company.

Through the training targeted at all the Group, we teach everyone, from general employees to executives, the basics of eco-mind and environmental management, covering topics such as our Environmental Vision, Environmental Action Plan and its goals, and their responsibilities as employees. Our online e-learning program spreads this knowledge and understanding throughout the Group using clearly illustrated, accessible course material in Japanese, English, and Chinese. Due largely to having employees outside Japan participate, 160,400 Group employees took the course in fiscal 2008.

We also provide specialized education to familiarize employees with our rules for environmentally conscious production. As well, we teach advanced skills and knowledge, including Eco-Product development training, primarily for design and manufacturing; education for environmentally conscious factories; and specialized training courses for EMS auditors and senior auditors. Brush-up training is also offered to help auditors polish and upgrade their skills and knowledge, and to stay up to date with the latest trends.

### Hitachi Group Education and Training System



Education and training at individual Group companies and sites start with general education, such as legal compliance, and energy and resource conservation measures that incorporate features of each type of business, in order to promote ISO 14001-based environmental activities and foster a low environmental impact approach. Training for employees whose work may have a big environmental effect focuses on actual work processes and emergency procedures.

## Environmental Accounting

We use an environmental accounting system to promote efficiency and to improve our environmental investments and activities, as well as to aid stakeholder understanding by providing information on the extent, efficacy, and efficiency of how we allocate management resources to environmental activities.

Environmental protection costs include environmentally driven R&D costs and capital investment. Environmental protection effects include both economic effects, in monetary terms, and physical effects, or the reduction in environmental load. Economic effects are calculated using data having financial evidence. Physical effects cover the reduction in the social environmental load resulting from the product's use, as well as decreases in the direct environmental load imposed by the manufacturing process. To help reduce the environmental load as efficiently as possible, we also assess the reduction effect per unit of expenditure.

In fiscal 2008, our environmental protection costs were 98 billion yen, about 4 percent less than 2007. Under the environmental protection effects heading, economic effects also declined, but physical effects improved due to environmentally conscious R&D and product design that yielded a 1 billion kWh decrease in energy consumption. In addition, by continuing global warming countermeasures, we achieved an 18 percent increase in the efficient use of energy during production.

 Required and actual numbers of legally certified staff  
[http://www.hitachi.com/environment/activities/mind\\_management/realize/more/qualification.html](http://www.hitachi.com/environment/activities/mind_management/realize/more/qualification.html)

## topics Life Cycle Assessment Training Pays Off

The Information & Telecommunication Systems Group provides training using a new environmental assessment technology tailored to the systems, software, and services that make up the core business—with benefits for both product development and marketing.

The heart of the course is hands-on use of the new SI-LCA<sup>†</sup> evaluation tool developed in-house to calculate the reduced

CO<sub>2</sub> emissions from installing a new system. SI-LCA can be used for simulations during the design process and for assessing the environmental performance of system products before they ship to customers, thus supporting the development and marketing of environmentally conscious products.

In fiscal 2008, 110 employees were given SI-LCA training, and feedback suggests that it succeeded in giving them an



understanding of quantitative environmental-load reduction assessment methods and their importance.

<sup>†</sup> SI-LCA  
 System Integration – Life Cycle Assessment

## Environmental Protection Costs

Item		Overview	Costs (Unit: billion yen)		
			FY 2006	FY 2007	FY 2008
Expenses	Business area costs	Costs of maintenance of equipment with low environmental burden, depreciation, etc.	39.24	39.72	33.31
	Upstream/downstream costs	Green procurement expenses, recovery and recycling of products and packaging, recycling expenses	2.89	2.79	1.97
	Management activities costs	Labor costs of environmental management, implementation and maintenance of environmental management system	10.31	11.30	11.20
	Research and development costs	R&D for the reduction of environmental burden caused by products and production processes, product design expenses	41.66	46.63	50.25
	Social activity costs	Environmental improvements such as afforestation and beautification, PR and publicity expenses	1.20	0.48	0.35
	Environmental damage costs	Environment-related measures, contributions, and levies	2.89	0.80	0.99
	Total		98.18	101.72	98.06
Total investment		Investment in energy-saving equipment and equipment that directly reduces environmental load	15.48	15.38	10.17

Equipment depreciation costs are calculated using the straight-line method over five years.

## Environmental Protection Effects

### Economic Effects<sup>\*1</sup>

Item		Overview	Effects (Unit: billion yen)		
			FY 2006	FY 2007	FY 2008
Net income effects		Profit on sales of recycled waste	12.28	14.50	10.90
Reduced expenses effects		Reduction in material costs due to resource saving, reduction in waste treatment costs due to reduced waste, reduction in power expenses due to energy saving	20.15	22.02	18.24
Total			32.43	36.52	29.14

Benefits on equipment investment are calculated using the straight-line method over five years, as with costs.

\*1 Economic effects include the following items:

1. Net income effects: benefits for which there is real income, including income from the sale of resalable material and income from environmental technology patents.
2. Reduced expenses effects: reduction in electricity and waste treatment expenses arising from environmental load reduction activities

### Physical Effects

Item		Overview	Amount Reduced (parentheses: equivalent number of households) <sup>*2-3</sup>		
			FY 2006	FY 2007	FY 2008
Reduction in the amount of energy used during production		Replacement of existing equipment with highly energy-efficient equipment	159 million kWh (38,000)	161 million kWh (38,000)	158 million kWh (38,000)
Reduction in the amount of final waste disposal		Decrease in final waste output volumes due to separation and recycling activities (compared with volume without sorting and recycling program)	6,375 t (42,000)	7,361 t (49,000)	6,752 t (45,000)
Reduction in the amount of energy consumed during product usage		Decrease in energy requirements of Hitachi products (compared with products prior to major design change)	813 million kWh (193,000)	723 million kWh (172,000)	1,004 million kWh (239,000)

Benefits on equipment investment are calculated using the straight-line method over five years, as with costs.

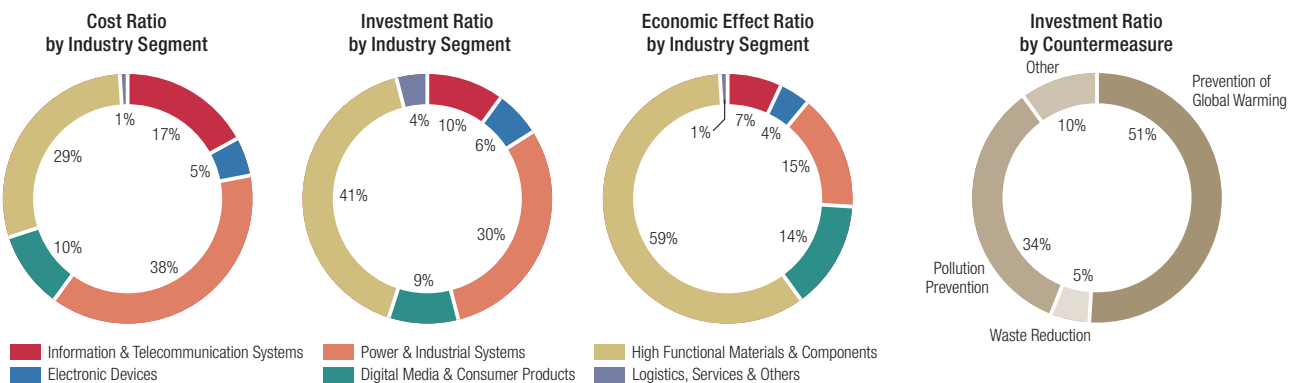
\*2 Calculation for household-number equivalent for energy-use reduction: decrease in energy used during production (or during product use) ÷ total annual power consumption per household. Source: The Energy Conservation Center, Japan, *Survey on Standby Power Consumption (FY 2005)*.

\*3 Calculation for household-number equivalent for final-waste disposal reduction: decrease in final waste generated during production ÷ (total annual volume of non-industrial final waste ÷ number of households). Sources: Ministry of the Environment, *Annual Report on the Environment in Japan 2005*; Statistics Bureau, *2005 Population Census*.

## Efficiency of Environmental Load Reduction<sup>\*4</sup>

Item	FY 2006	FY 2007	FY 2008
Reduction in energy used during production (million kWh/billion yen)	30	28	33
Reduction in amount of waste for final disposal (t/billion yen)	1,800	2,000	1,940

\*4 This is an indicator of the efficiency of environmental load reduction, calculated as the amount of environmental load reduction divided by expenses needed for the reduction.



# N



# ext-Generation Products & Services

To help achieve a sustainable material-cycle society, the Hitachi Group provides a wide range of products and services designed to reduce the burden on the environment through measures such as saving resources and energy, countering global warming, and minimizing the use of hazardous chemicals

# Expanding our Eco-Product Lineup



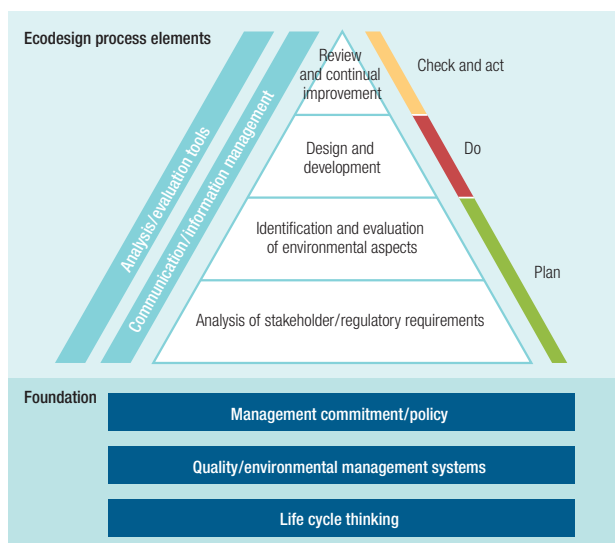
Through product assessment during design and green procurement, we are working to minimize the environmental burden of products

## Establishing Management Systems

We drew up the Hitachi Group Ecodesign Management Guidelines based on the IEC 62430 international standard (environmentally conscious design for electrical and electronic products and systems). Using these guidelines, we are establishing a management system where divisions such as business planning, design, procurement, manufacturing, and quality control are required to be environmentally conscious and to keep records on processes and results. The first step is to analyze environmental requirements, both legal and those of stakeholders. Next, we identify the environmental attributes of these requirements, such as energy efficiency, ease of disassembly and disposal, and the effects of these attributes. The analysis and the target setting (plan) leads to a PDCA (plan-do-check-act) cycle, followed by environmentally conscious design and development (do), and review and ongoing improvement (check and act). Each of these processes uses analysis and evaluation tools, and involves communication and information management.

Moreover, we are incorporating the ecodesign concept into quality or environmental management systems at production facilities that have acquired ISO 9001 or ISO 14001

### Basic Concept of Ecodesign (Environmentally Conscious Design) Management



Source: 62430 ©IEC: 2009 Figure A.1

certification. We also are building up a system that can be clearly implemented, as well as bring out products with a reduced environmental burden that comply with the European Union EuP Directive†1 requirements.

## Design for Environment (DfE) Assessment System

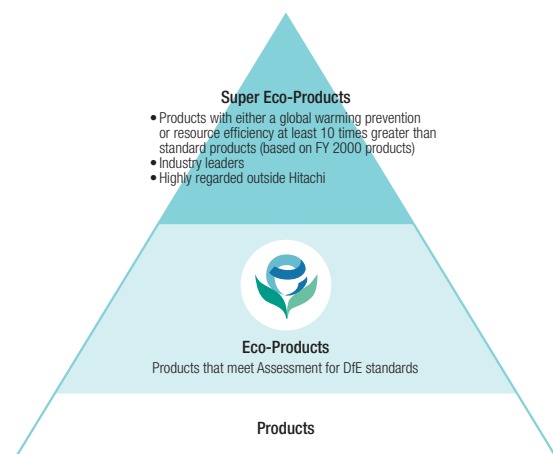
We have introduced a DfE assessment system as an analysis/evaluation tool used for ecodesign management. We use this system during product development to quantitatively assess and reduce the environmental burden of a product throughout its life cycle—from material procurement to production, distribution, use, and disposal. Products achieving a score above a certain level are designated as Eco-Products, and their environmental information is disclosed. DfE assessment is applied not only to hardware but also to systems, software, and other products. In fiscal 2008, the assessment was revised to comply with the European EuP Directive.

Taking advantage of our technological capabilities to make our products more environmentally efficient, we are developing products with the goal of making all Group products Eco-Products by fiscal 2025.

### Development of Super Eco-Products

To further develop environmentally conscious products, we have established the Super Eco-Products category for those Eco-Products that meet even more demanding requirements. The global warming prevention efficiency or resource efficiency (see page 22) of these products must be at least ten times greater than reference products (products of fiscal 2000), or they must be leaders in their industry in the energy efficiency standard achievement rate†2 and other factors, or must be highly rated outside the company. Our target is to have at least 30 percent of Eco-Products qualify as Super Eco-Products by fiscal 2010.

### Hitachi's Eco-Product System



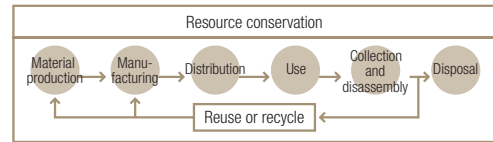
†1 EuP Directive  
Directive on Ecodesign of Energy-using Products

†2 Energy efficiency standard achievement rate  
This value indicates the rate of achievement of the energy efficiency targets set for applicable home appliances based on the Act on the Rational Use of Energy (also known as the energy saving law). The target values are defined by the most energy efficient products available at the time.

## How DfE Assessment Is Performed

At the product design stage, the environmental burden is assessed quantitatively at each product life cycle stage using DfE assessment criteria. If a product scores at least equal to or more than level 2 (the reference level before the latest major model change) in all eight criteria and its average over all the criteria is level 3 or more, it is designated an Eco-Product.

## Product Life Cycle



DfE assessment criteria (examples)

Assessment criteria	Life cycle stages	Assessment items (examples)
1. Resource reduction	Material, manufacturing	Size and weight reduction, yield, resource reduction
2. Longevity	Use	Upgradability, ease of maintenance, durability, and reliability
3. Recyclability	Reuse or recycle	Materials and parts that can be reused and recycled, use of recycled resources
4. Ease of disassembly and disposal	Production, C&D*	Ease of collection, disassembly, material separation, shredding, short disassembly time, safe disposal
5. Environmental protection	Material manufacturing, C&D, disposal	Environmental burden generated in manufacturing, maintenance, shipping, disposal, etc.
6. Energy efficiency	Manufacturing, use, C&D, disposal	Energy efficiency in product design, manufacturing processes, and distribution
7. Information provision	Use, C&D	Providing suitable information upon request, systematic approach for providing information
8. Packaging	Distribution	Resource reduction, recycling, ease of collection and shipping, ease of disposal, etc.

\* Collection and disassembly

DfE assessment input screen and results output screen (examples)

**Assessment sheet used to rate each criteria on a scale of 1 to 5**

Assessment criteria		Specific scales	A	B	Assessment level				
					Level 1 (worse than previous product)	Level 2 (same as previous product)	Level 3 (better than previous product)	Level 4 (action targets achieved)	Level 5 (industry leader)
(1) Product size and weight reduction	Volume or occupied area smaller?	Volume (m <sup>3</sup> ) or area (m <sup>2</sup> )	2	4	10% or more increase	Same	Smaller by less than 10%	Smaller by less than 20%	Smaller by 20% or more
	Product weight reduced?	Weight (kg)	2	5					
	Operation manual reduced?	Weight (g)	2	3					
(2) Parts and materials yield	Good parts yield?	Part reject rate (%), etc.	2	2					
	Good materials yield?	Sheet usage (%) of stamped parts, gate and runner amount of plastic parts (kg), etc.	2	3					
(3) Product resource reduction	Use of rare metals, other scarce resources reduced?	Weight (g)	2	2					

A: Previous product (before the latest major model change)  
B: New model

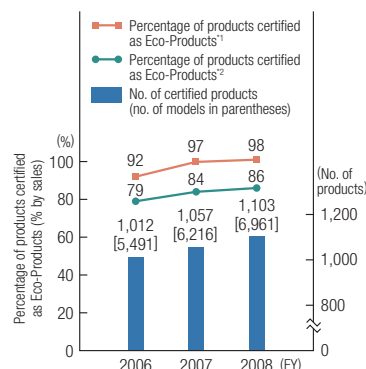
Products achieving a sufficient score are certified as Eco-Products, others are redesigned

Certification as Eco-Products → Environmental information disclosure

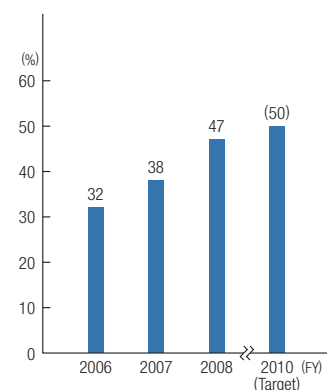
## Fiscal 2008 Outcome | Eco-Product Increase

In fiscal 2008, 1,103 products and 6,961 models were registered as Eco-Products, for a registration rate of 98 percent (applicable product scope: information and telecommunication systems, digital media and consumer products) and 86 percent (applicable product scope: electronic devices, power and industrial systems, high functional materials and components, logistics, services and others). The ratio of Eco-Product sales to total sales of the Hitachi Group increased to 47 percent. The number of Super Eco-Products included in these totals was 129 products and 375 models, or 18 percent of all Eco-Products. The goal for fiscal 2010 is to achieve a sales ratio of 50 percent for Eco-Products.

### Eco-Product Certification Trends



### Sales Ratio of Eco-Products



Registration rate (sales ratio) is the ratio of Eco-Product sales to sales of all products for which ecodesign is applicable.

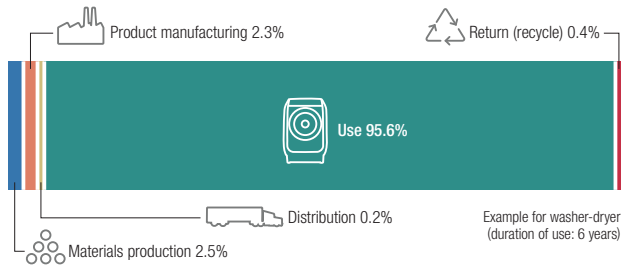
<sup>1</sup> Product categories: Information and telecommunications systems, digital media and consumer products

<sup>2</sup> Product categories: Electronic devices, power and industrial systems, high functional materials and components, logistics, services and others

## Making Products More Energy Efficient

To help prevent global warming, greenhouse gas emissions must be reduced over the entire product life cycle, not only during manufacturing and shipping but also during use. The Hitachi Group is working on energy-efficient products with lower greenhouse gas emissions while they are being used, the part of the product life cycle responsible for the greatest amount of emissions.

### Percentage of Greenhouse Gas Emissions in the Product Life Cycle (example)



As a measure of how effectively greenhouse gas emissions are being reduced during a product's life cycle, we introduced *global efficiency of warming prevention*. Rating a product's value for function, and during its life span, this measure shows the ratio of this value to the amount of greenhouse gas emissions over the product life cycle. In addition, *factor of global warming prevention* is used to indicate the amount of improvement in *efficiency of global warming prevention* compared with a reference product.

### Example of Improving Efficiency of Global Warming Prevention

Employing a low-speed high-efficiency motor and IQ-PAM\*<sup>1</sup> engine, this air conditioner has seasonal power consumption\*<sup>2</sup> of 1,336 kWh. To make it easy to replace, the room unit is just 798 mm wide, offering compactness and energy saving performance. Size and energy efficiency are further enhanced by an environmentally conscious control system based on a sensor that monitors the locations and movements of people. As a result, global warming prevention efficiency is improved from 0.03 for the reference product to 0.06, for a global warming prevention factor of 1.9.

\*1 The IQ-PAM engine, unique to Hitachi, is a controller circuit that gathers information from internal and external sensors for optimizing an air conditioner's performance and energy saving.

\*2 Seasonal power consumption is calculated based on conditions defined by the Japan Refrigeration and Air Conditioning Industry Association (JRA 4046). The Tokyo model for outside temperature conditions is used in the calculations.

Reference product: 1999 model RAS-S4010LX2	Evaluated product: 2008 model RAS-S40Y2
Efficiency of global warming prevention	Efficiency of global warming prevention
0.03	0.06
Factor of global warming prevention: 1.9	

## Global Warming Prevention Factor Calculation

### Definition of efficiency of global warming prevention

$$\text{Efficiency of Global Warming Prevention} = \frac{\text{Product function} \times \text{Product life span}}{\text{Volume of greenhouse gas emissions throughout the product life span}}$$

### Definition of factor of global warming prevention

$$\text{Factor of Global Warming Prevention} = \frac{\text{Efficiency of global warming prevention of evaluated product}}{\text{Efficiency of global warming prevention of reference product}}$$

## Making Products More Resource Efficient

The Hitachi Group uses *resource efficiency* to evaluate how effectively resources are being used during the product life cycle, such as making products lighter and more compact. Rating a product's value for function and during its life span, this measure shows the ratio of this value to the amount of resource use over the product life cycle.<sup>†1</sup> In addition, a *resource factor* is used to indicate the amount of improvement in resource efficiency compared with a reference product.

### Resource Factor Calculation

#### Definition of resource efficiency

$$\text{Resource Efficiency} = \frac{\text{Product function} \times \text{Product life span}}{\sum (\text{life cycle resource use} \times \text{value coefficient of each resource})}$$

#### Definition of resource factor

$$\text{Resource Factor} = \frac{\text{Resource efficiency of evaluated product}}{\text{Resource efficiency of reference product}}$$

†1 Amount of resource use over life cycle

Newly used resource amount + discarded resource amount

### Example of Improving Resource Efficiency

The Ultra Thin LCD TV has been produced with a thickness of just 35 mm\*<sup>1</sup> by applying advanced technologies, including confined-space fan-less ventilation that cuts internal heat and a thin LCD module with both high image quality and a thin profile (from using a newly developed diffuser). Moreover, a Hitachi-original rigid frame design strengthens the slimmed-down frame, and the power unit is 1/3 the thickness of conventional units.\*<sup>2</sup> As a result, resource efficiency is improved from 502 for the reference product to 1,439, for a resource factor of 2.9.

\*1 Display thickness 39 mm (35 mm at its thinnest point, not including protruding parts)

\*2 When compared with the Wooo 8000 Series

Reference product: 2005 model W32L-HR8000	Evaluated product: 2008 model UT32-WP770 (B/W)
Resource efficiency	Resource efficiency
502	1,439
Resource factor: 2.9	



## Controlling Chemical Substances Included in Products

For the Hitachi Group's voluntarily controlled chemical substances, we defined 13 prohibited substances (Level 1) and 12 controlled substances (Level 2), and took steps to comply with the RoHS directive†1 and other global regulations for chemical substances in products. We achieved RoHS compliance in July 2006.

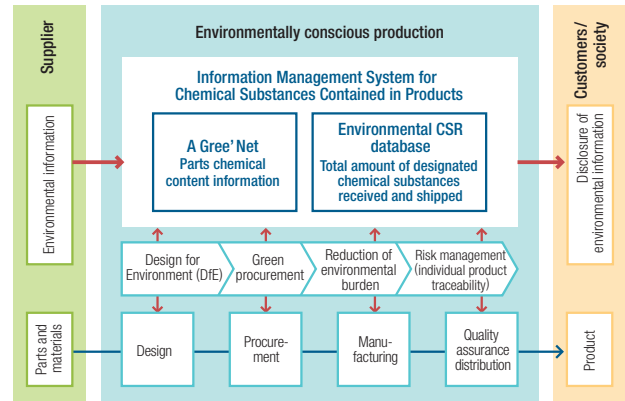
To comply with REACH,†2 a chemical substance regulation in Europe, in fiscal 2008, we made an all-out effort, including drawing up action guidelines, revising our information infrastructure, and improving our management structure. We now track all chemical substances used in the Hitachi Group, from raw materials to end products. To do this, a Group-wide committee compiled a list of controlled substances covered by the REACH regulation (by adding REACH Substances of Very High Concern (SVHC) to the existing list of controlled substances). The committee also drew up a set of procedures, and created an information infrastructure for compliance with the REACH regulation across the entire supply chain: procurement, production, and shipping. We began putting this system into operation in November 2008.

### Covering the Entire Supply Chain

Working closely with suppliers and customers, we improved our information management system for chemical substances across the supply chain, from procurement to sales. In November 2008, the integrated management system for chemical substances included in products, an IT system which had been used for the RoHS directive, was applied

to the REACH regulation. To collect data from thousands of suppliers, we use JAMP†3 information sheets (JAMP AIS†4 and JAMP MSDSplus†5). JAMP is a consortium for managing and disclosing chemical content in products. In addition, an information flow trial was started in January 2009 to test the information exchange on chemical substances in the entire supply chain.

### Integrated Management System for Chemical Substances Contained in Products



- †1 RoHS directive  
Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment
- †2 REACH regulation  
Registration, Evaluation, Authorisation and Restriction of Chemicals (EU)
- †3 JAMP  
Joint Article Management Promotion-consortium
- †4 JAMP AIS  
JAMP Article Information Sheet
- †5 JAMP MSDSplus  
JAMP Material Safety Data Sheet plus

### Hitachi Group's Voluntarily Controlled Chemical Substances

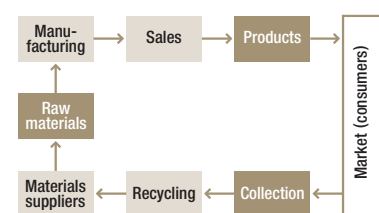
Classification	Application	Substance (group) names
Level 1 Prohibited substances	Chemical substances that the Hitachi Group prohibits from being included in procured products. (Chemical substances banned or restricted for use in products (including packing materials) by domestic or foreign regulations and potentially used for procured products for the Hitachi Group).	Cadmium and its compounds, hexavalent chromium compounds, lead and its compounds, mercury and its compounds, bis (tributyltin) oxide (TBTO), polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE), polychlorinated biphenyls (PCB), polychlorinated naphthalene (with 3 or more chlorines), short-chain chlorinated paraffin, asbestos, azo dyes/pigments, and ozone layer depleting substances
Level 2 Controlled substances	Substances that are not restricted for inclusion in procured products but for which monitoring and control are required by domestic or foreign regulations, or for which special consideration for recycling or appropriate disposal is required.	Antimony and its compounds, arsenic and its compounds, beryllium and its compounds, bismuth and its compounds, nickel and its compounds (excl. alloys), selenium and its compounds, brominated flame retardants, polyvinyl chloride (PVC), phthalate esters, tributyltins (TBT) and triphenyltins (TPT), ozone layer depleting substances (HCFC), radioactive materials, and potential REACH SVHC

## topics Increase in Resource Recycling from Used Products

Since fiscal 2001, the Hitachi Group has established and operated home appliance recycling companies in three locations in Japan—to take the initiative in working to create a material-cycle society. In fiscal 2008, we set up a framework for effective recycling of resources across the entire life cycle of Hitachi Group products, from material procurement to manufacture and

collection. As an example, we are working to separate components from hard drives, motors and other products that contain rare metals, so that these scarce and valuable resources can be recycled. We also developed equipment that disassembles used compressors and retrieves the motors, making it possible to recover rare metals from the motors.

### Resource Recycling



## Promotion of Green Procurement

The Hitachi Group has drawn up the Green Procurement Guidelines to gain cooperation from suppliers in the development of environmentally conscious products. Encouraging environmental protection activities by suppliers, we are asking for their understanding and cooperation to develop and supply products with low environmental burdens.

After identifying green suppliers—those who understand the importance of environmental protection and who voluntarily acquire environmental certification—we look for ways of working with them to further improve their operations from an environmental standpoint. These efforts include mutual exchange of proposals aimed at benefiting from energy and resource efficiency for lower costs, improved quality, and faster delivery.

For developing and making products that result in a lower environmental burden, we ask suppliers to (1) conserve resources (through miniaturization, standardization, etc.), (2) conserve energy, (3) aggressively pursue the three Rs,<sup>†1</sup> (4) reduce packaging materials, (5) properly manage chemical substances used in products, and (6) provide clear information. Of these, (1) to (4) can make suppliers more competitive by lowering costs and improving product functionality. To help drive home these advantages, we present case studies and encouragement.

Furthermore, we refer to the proportion of environmentally conscious office supplies purchased as the green purchasing rate, and we are promoting the use of the e-sourcing Mall as the office supply purchasing system at Hitachi Group companies. In fiscal 2008, the green purchasing rate reached 82 percent and we are aiming to increase it to 90 percent in fiscal 2010.

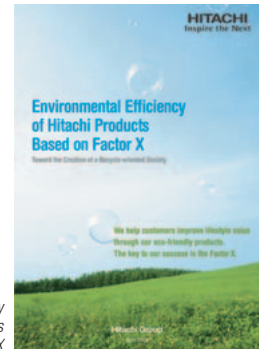
## Disclosure of Environmental Information

We disclose environmental information on Eco-Products and Super Eco-Products in accordance with ISO 14021, and add the mark below as a symbol of this activity. For Eco-Products and Super Eco-Products, we make available Web site datasheets for such information as power consumed during use. We also issue pamphlets that present quantitative data showing the efficiency of global warming prevention and resource efficiency of products compared with reference models.



Hitachi's environmental mark

Environmental Efficiency of Hitachi Products Based on Factor X



### †1 Three Rs

Reduce, reuse, recycle



Green Procurement Guidelines

[http://www.hitachi.com/environment/library/pdf/green\\_en.pdf](http://www.hitachi.com/environment/library/pdf/green_en.pdf)



Environmental Efficiency of Hitachi Products Based on Factor X, 2009 (English)

[http://www.hitachi.com/environment/library/pdf/factorx\\_en.pdf](http://www.hitachi.com/environment/library/pdf/factorx_en.pdf)



Products and packages recycling

<http://www.hitachi.com/environment/activities/ecoproducts/promote/more/wrapping.html>

## topics Involvement in International Standardization

For the wider adoption of environmental best practices, we support international standardization. In the IEC (International



IEC TC 111 Plenary in South Korea, October 2008

Electrotechnical Commission) Technical Committee 111 (the environmental standardization for electrical and electronic products and systems), for example, we lead the working group on standards for ecodesign. Since 2005, we have been drawing up international standards together with many other working group members around the world. As a result, the world's first horizontal international standard for ecodesign was issued on February 13, 2009. Based on our experience, this standard clearly defines ecodesign procedures. Therefore, it should contribute to the wider global adoption of ecodesign principles and raise the level of ecodesign around

the world, including in developing nations. We are now working to have it adopted as one of the harmonized standards for the European EuP directive.

Hitachi has also provided chairpersons, experts, and editors to international standards organizations, such as Ecma International, ISO (International Organization for Standardization), and ITU (International Telecommunication Union). In this way, we help to formulate and publish international standards, enabling us to share with the world our environmental technologies, such as the SI-LCA (System Integration-Life Cycle Assessment) methodology and energy conservation in data centers.

# Environmentally Conscious Manufacturing and Services: More Products



Here we introduce products and services that take advantage of synergies within the Hitachi Group to make a substantial contribution to environmental protection. We are working toward a sustainable society by, for example, reducing CO<sub>2</sub> emissions, as well as becoming market leaders. And we are expanding and strengthening this lineup even further.

## Energy

### Downwind Turbine Generation Systems

Power Systems, Hitachi, Ltd.

Our 2 mega-Watt downwind turbines realize high power generation efficiency, capacity to cope with severe lightening and stormy or turbulent conditions, and stable output achieved by highly reliable electrical system technology, while contributing to environmental protection.

- With favorable uphill winds on the slopes of mountains and hills, generation efficiency can be improved by around 8 percent.\*<sup>1</sup>
- Stable output is achieved using active power control.

\*<sup>1</sup> Comparison in uphill wind conditions with an upwind turbine based on our own simulations.



2MW downwind turbine

### Supercritical Pressure Thermal Power Plant

Power Systems, Hitachi, Ltd.

When this plant was built for MidAmerican Energy Company in 2007, it was the first time in 16 years that a supercritical\*<sup>1</sup> pressure thermal power plant went on line in the U.S. It uses a full array of technologies to achieve outstanding efficiency and environmental performance.

- Selected as 2007 Plant of the Year by *POWER* magazine in the U.S.

\*<sup>1</sup> Steam pressure at least 22.1 MPa



Walter Scott, Jr. Energy Center of MidAmerican Energy Company

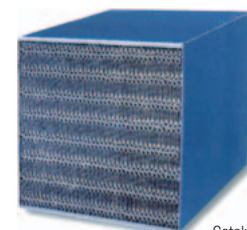
### NO<sub>x</sub> Removal Catalyst

Babcock-Hitachi K.K.

By decomposing nitrogen oxides (NO<sub>x</sub>) in emissions from power plants and boilers, this catalyst prevents the generation of acid rain and photochemical smog, which are worldwide environmental concerns.

- First in the world to develop a titanium oxide catalyst using ammonia\*<sup>1</sup>
- First to deliver systems to sites in Japan, Europe, the U.S., China and elsewhere

\*<sup>1</sup> Patent granted December 1973



Catalyst unit

### Nuclear Power Plants (BWRs\*<sup>1</sup>)

Power Systems, Hitachi, Ltd.

By building nuclear power plants, which emit far less CO<sub>2</sub> than fossil fuel-fired plants, we contribute to the prevention of global warming.

- CO<sub>2</sub> emissions reduced to 1/20 to 1/40 that of fossil fuel plants\*<sup>2</sup>
- Participating in new BWR plant construction in Japan

\*<sup>1</sup> Boiling water reactors

\*<sup>2</sup> Source: Press release by The Central Research Institute of Electric Power Industry (July 10, 2001)



Shimane Nuclear Power Station Unit 3, delivered to The Chugoku Electric Power Co., Inc.

## Information and Telecommunications

### Storage Products

Information & Telecommunication Systems, Hitachi, Ltd.

These key products in the IT power-saving plan for developing technology make IT equipment more environmentally compliant. By simplifying storage management, power consumption is being reduced.

- A range of power-saving features\*<sup>1</sup>
- Reduction in toxic chemical compounds
- Used products collected and recycled for effective resource use

\*<sup>1</sup> For example, adding the Massive Array of Idle Disks feature, Hitachi Adaptable Modular Storage 2000 reduces power consumption by about 40 percent.



Hitachi Universal Storage Platform V

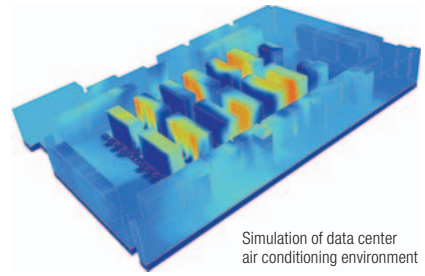
**Power-Saving Data Center Project**

Information & Telecommunication Systems, Hitachi, Ltd.

This project—bringing together the wide-ranging strengths of the Hitachi Group—promotes power savings in all aspects of data center operation, including IT equipment, air conditioning, power supply equipment and building design.

- Less power consumption from power saving and efficient operation of IT equipment and other facilities\*1
- Evaluation and analysis not only based on real temperature and humidity measurements but also on simulations
- Green IT Award 2008 (Jury's Special Award)

\*1 The target is a 50-percent reduction in power use by fiscal 2012 (from fiscal 2007 levels)



Simulation of data center air conditioning environment

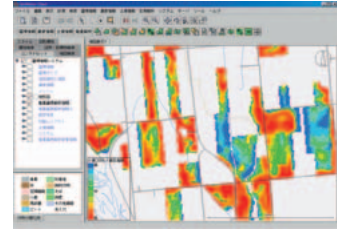
**Agricultural Information Management System: GeoMation Farm**

Hitachi Software Engineering Co., Ltd.

GeoMation Farm is a system that analyzes satellite images to determine crop growth. By optimizing the timing and sequence of crop harvesting, it reduces the environmental burden of farming.

- Makes harvesting and drying processes more efficient, cutting CO<sub>2</sub> emissions by 33 percent\*1
- Helps assure food safety, while supporting sustainable agriculture
- Winner of u-Japan Best Practices 2008 in the environmental category, the Green IT Promotion Council Award 2008 (President's Award), and the Eco-Products Award Promotion Council's President Award in the eco-services category at the 5th Eco-Products Awards 2008

\*1 The effectiveness of reducing the environmental burden for the entire system life cycle was estimated using Hitachi's SI-LCA methodology. (SI-LCA is a registered trademark of Hitachi, Ltd.)



Growth forecasting and eating quality analysis system

**Motor Drive Energy-Saving Service: HDRIVE®**

Industrial Systems, Hitachi, Ltd.

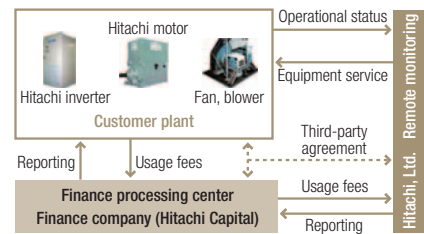
In the world's first energy-saving service of its kind,\*1 Hitachi inverters are installed in high voltage motors for fans, blowers, and pumps motors in customer plants, at no initial cost to the customer. Besides minimizing equipment spending, this service promotes energy conservation in plants.

- Average effective reduction in power consumption of 23 percent\*2
- CO<sub>2</sub> reduction visualized to raise employee awareness

\*1 Patent granted June 2007

\*2 Estimate based on actual results in Hitachi and customer plants where HDRIVE® has been introduced.

**HDRIVE System Overview**



**ESCO (Energy Service Company) Business**

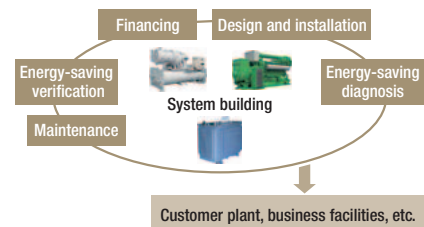
Urban Planning and Development Systems, Hitachi, Ltd.

Providing energy-saving systems and comprehensive services adapted to customer plants and business facilities, the ESCO solutions have the best record in the domestic market among manufacturers.\*1

- Guaranteed long-term energy saving benefits after retrofitting
- Takes advantage of Hitachi Group's comprehensive strength to implement energy-saving measures at numerous sites
- Winner of the Minister of the Environment Award for Activities to Prevent Global Warming (2006)

\*1 Source: "Electricity, gas, and energy service market strategy total survey in 2007" (Fuji-Keizai). Achievement data for fiscal 2005 given in the "Achievements and analyses of major corporations entering the market" section in "Analysis and future predictions for ESCO business market."

**Comprehensive ESCO Services**



**Excavators**

Hitachi Construction Machinery Co., Ltd.

Original technologies achieve unprecedented energy saving, performance, and reduction of environmental burden, winning high praise in Japan and overseas.

- Save fuel by raising productivity 12 percent.\*1

\*1 Compared with our earlier model (ZX200-1, sold in 2000)



ZX200-3 excavator

**High-Resolution FEB (Field Emission Beam) Scanning Electron Microscopes**

Hitachi High-Technologies Corporation

High-performance electron microscopes on semiconductor production lines contribute to energy saving. Since entering the industry in 1984, we have maintained the top share of the world market.\*1

- Resource recycling is improved by using an uncoated upper panel on the scanning table front cover.

\*1 2008 worldwide share was 82 percent (Dataquest survey)



CG4000 high-resolution FEB scanning electron microscope

### Continuous PCB<sup>\*1</sup> Online Monitoring System

Hitachi High-Technologies Corporation, Hitachi High-Tech Control Systems Corporation, Hitachi High-Tech Trading Corporation

A practical monitoring system was developed for continuous monitoring of gas emissions from plants that process highly toxic and persistent PCBs.

- Continuously measures for one month
- Detects PCB at levels as low as 3 µg/Nm<sup>3</sup>
- Winner of Hitachi Environment Foundation Environmental Award (2006)

\*1 PCBs: polychlorinated biphenyls



CP-2000P PCB monitoring system

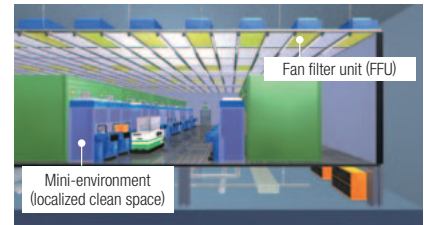
### Clean Rooms

Hitachi Plant Technologies, Ltd.

Hitachi clean rooms employ original energy-saving technology and contribute to environmental conservation with the number one market share in Japan.<sup>\*1</sup>

- Air conditioning optimized for each area, making use of airflow simulation and analysis techniques
- Localization of clean areas enabling highly advanced precision work environments, while saving energy
- Outside cold air use and waste heat recovery for heat source energy saving

\*1 Source: Fiscal 2008 results for each vendor in May 2009 issue of *Semiconductor Industry News*



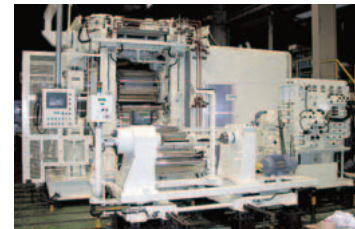
Energy-saving large-space clean room

### High Precision Roll Press Systems

Hitachi Engineering & Services Co., Ltd.

This equipment processes the electrode materials for lithium-ion rechargeable batteries, including those used for hybrid cars.

- Capable of high-precision, high-density processing



Roll press system

### Amorphous Transformers

Hitachi Industrial Equipment Systems, Co., Ltd.

Dramatically reducing CO<sub>2</sub> emissions, Hitachi amorphous transformers are the first in the world<sup>\*1</sup> to win United Nations recognition as a CDM (Clean Development Mechanism) for electric power transmission and distribution networks.

- Models available that reduce standby power by as much as 44 percent<sup>\*2</sup>
- Adopt amorphous metal materials in the iron core contributing to lower CO<sub>2</sub> emissions

\*1 March 2008 decision by the UN CDM Executive Board

\*2 Compared with JEM1482: 2005 standard for top runner transformers. Example at 50 percent three-phase kVA equivalent load (comparison with other Hitachi products).



Amorphous transformer

### Total Energy-Saving Solutions for Industry

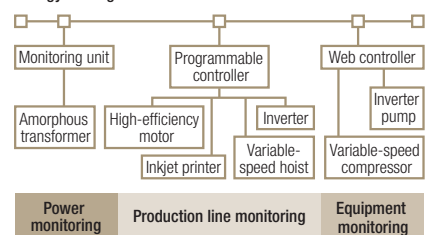
Hitachi Industrial Equipment Systems, Co., Ltd.

A full range of energy-saving solutions is provided specifically for each region and workplace—from equipment and machinery diagnosis to hardware and system provision, installation, maintenance and service.

- Wide array of energy-saving hardware and systems
- Industry-leading Factory Energy Management System (FEMS)<sup>\*1</sup>

\*1 Promoted by the Japan Electrical Manufacturers Association

#### Energy-Saving Solutions



### Laser Drilling Machines for Printed Circuit Boards

Hitachi Via Mechanics, Ltd.

Our 4-panel/4-beam laser drilling machine requires less electric power and compressed air than conventional 2-panel/2-beam models with the same output.

- Energy required for production reduced by 26 percent<sup>\*1</sup>
- Compressed air required for production reduced by 23 percent<sup>\*1</sup>

\*1 Compared with earlier Hitachi model (LC-2K212, sold in 2007)



LC-4K214/4L laser drilling machine for printed circuit boards

**Printed Wiring Board Drilling Machines**

Hitachi Via Mechanics, Ltd.

Highly cost-effective machines bring together the most productive technologies to reduce the environmental burden of printed board manufacturing.

- Energy required for production reduced by 19 percent<sup>\*1</sup>
- Feasible to recycle up to 97 percent

<sup>\*1</sup> Compared with earlier Hitachi model (ND-6N210, sold in 2003)



ND-6Ni 210 printed wiring board drilling machine

**Advanced Wastewater Treatment System for Nitrogen Removal: PEGASUS**

Hitachi Plant Technologies, Ltd.

Using microorganisms entrapped in PEG gel cubes,<sup>\*1</sup> this advanced wastewater treatment system efficiently removes nitrogen in domestic or industrial wastewater from low to high concentrations.

- Doubles the speed of nitrification and nitrogen removal<sup>\*2</sup>
- Easy to upgrade existing plant without expanding tank volumes
- Reduces energy requirements for supplying air

<sup>\*1</sup> A carrier material that retains nitrifying bacteria in the system

<sup>\*2</sup> Compared with conventional activated sludge method



Matsugashima Waste Water Treatment Plant in Ichihara City (Chiba Prefecture, Japan)

**Hybrid Drive System for Railways**

Industrial Systems, Hitachi, Ltd.

An environmentally conscious hybrid drive system<sup>\*1</sup> has been installed and put into commercial operation for the first time anywhere.<sup>\*2</sup>

- Improves fuel consumption by 10 percent and reduces toxic substances in engine exhaust by around 60 percent<sup>\*3</sup>
- Reduces maintenance by using the same components as the newest trains
- Won the Minister of the Environment Award in the eco-products category of the 4th Eco-Products Awards 2007

<sup>\*1</sup> Hybrid traction system developed jointly with East Japan Railway Company

<sup>\*2</sup> July 3, 2007 news release from East Japan Railway Company

<sup>\*3</sup> Comparison between conventional diesel-powered railcars of East Japan Railway Company and Kiha E200 (July 3, 2007 news release from East Japan Railway Company)



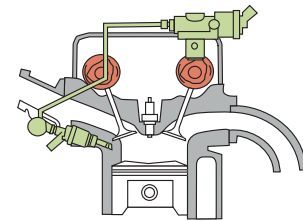
Kiha E200 DEMU<sup>\*4</sup> with hybrid drive system  
<sup>\*4</sup> Diesel Electric Multiple Unit

**Direct Injection System and Components for Automobile Engines**

Hitachi Automotive Systems, Ltd.

Our high-efficiency engine control system complies with the stricter fuel consumption (CO<sub>2</sub>) regulations that go into effect in 2010 in Japan.

- Combines a direct injection system and variable valve control system to reduce CO<sub>2</sub> emissions
- Optimizes the high-pressure fuel subsystem and valve control subsystem



Engine direct injection system

**Electric Propulsion Unit for Marine Vessels**

Defense Systems Group, Hitachi, Ltd.

Electric motor and inverter technologies were applied in developing one of the world's largest<sup>\*1</sup> electric propulsion units for icebreakers. The unit was delivered for use in the new Antarctic expedition ship *Shirase*.

- 10 to 12 percent reduction in CO<sub>2</sub> emissions<sup>\*2</sup>
- High reliability for withstanding the harsh conditions of a polar expedition
- Improved transporting efficiency

<sup>\*1</sup> Source: Comparative chart of icebreakers in various countries, in *Nankyoku Kansokusen Monogatari* (the Story of Antarctic Expedition Ships) (National Institute of Polar Research, 2005)

<sup>\*2</sup> In electric propulsion ships, due mainly to improvements in propulsion efficiency, CO<sub>2</sub> emissions per unit of cargo are expected to decrease 10 to 20 percent. Source: *Umi to Anzen* (The Sea and Safety) No. 526, 2005, Japan Maritime Disaster Prevention Center



Electric motor used in the propulsion unit, seen in dry dock

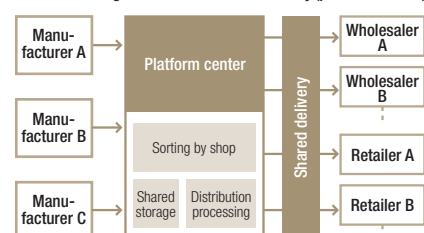
**Green Logistics**

Hitachi Transport System, Ltd.

By developing and providing logistics systems optimized for customer needs, we are reducing the total environmental burden of transportation.

- Winner of the Japan Federation of Freight Industries Logistics Environment Award in 2007 and the Eco-Products Award Promotion Council's President Award in the eco-services category at the 4th Eco-Products Awards 2007

Collaborative logistics within the same industry (platform service)



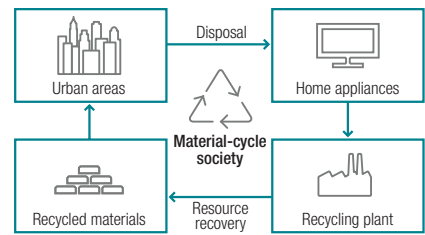
**Recycling Products to Recover Resources**

Hitachi Plant Technologies, Ltd., Tokyo Eco Recycle Co., Ltd.

We are recycling home appliances and other products to recover valuable resources found from the urban areas, helping to bring about a material-cycle society.

- Zero emissions (direct reclamation rate around 0.1 percent) for six years in a row
- Strong security and compliance measures when recycling IT devices

**Recycling Process**



**Cordless Impact Drivers**

Hitachi Koki Co., Ltd.

A newly developed brushless motor saves energy. An improved battery and optimized mechanism extend the lifetime of these impact drivers.

- Produces 30 percent more work per charge<sup>\*1</sup>
- Fewer charges for lower total power consumption

<sup>\*1</sup> Compared with our previous model (WH14DSL, sold in 2006)



WH14DBL  
Cordless  
Impact Driver

**Silver Oxide Batteries**

Hitachi Maxell, Ltd.

By eliminating hazardous substances from silver oxide batteries, widely used in watches, we are helping to prevent pollution of the environment.

- Zero use of mercury and lead
- Long life due to superior leak prevention
- Gold coated to reduce contact resistance



Silver oxide batteries

**Energy Efficient Room Air Conditioners: *Ion mist deodorizing***

Hitachi Appliances, Inc.

Our compact room air conditioners feature reduced power consumption.

- Achieved rate of energy-saving standard in Japan: 118 percent
- Winner of the 2007 Energy Conservation Grand Prize (Energy Conservation Center, Japan – Chairman Award)
- Use of stainless steel for better hygiene



RAS-S40X2 room air conditioner

**Drum-Type Washer-Dryer**

Hitachi Appliances, Inc.

Hitachi original technologies, such as heat recycling drying and wind ironing, save energy while turning out clean, well-finished laundry.

- A new way of drying clothes—thermal energy is not wasted
- Winner of the Minister of Economy, Trade and Industry Award of the 2008 Energy Conservation Grand Prize



BD-V3100/V2100  
washer-dryer

**Heat Pump Water Heater: *Eco Cute***

Hitachi Appliances, Inc.

Directly using tap water pressure, these compact, highly efficient water heaters have outstanding energy-saving performance.

- Achieves an APF<sup>\*1</sup> of 3.6
- Uses natural refrigerant (CO<sub>2</sub>)

<sup>\*1</sup> APF: Annual Performance Factor of hot-water supply



BHP-FSV37FD  
Eco Cute  
Premium Type

**Full HD Ultra Thin LCD TVs**

Hitachi Consumer Electronics Co., Ltd.

Ultra thin LCD TV, with thinner forms and advanced technologies, reduces its burden to the environment.

- Annual energy consumption reduced by approximately 21%<sup>\*1</sup>
- Power-saving mode reduces energy consumption by optimizing screen brightness.
- Thinner forms and lighter weight enhance efficient packaging and logistics with lower CO<sub>2</sub> emissions
- Compliant with J-Moss<sup>\*2</sup>/Green Mark standards

<sup>\*1</sup> Comparison of annual energy consumption of UT37-XP800 and UT37-XP770 (37inches (94cm visual size) Ultra Thin LCD Series designed for Japanese market).

<sup>\*2</sup> J-MOSS(JIS C 0950); Japanese Industrial Standards for Making the presence of the Specific chemical Substances for electrical and electronic equipment



UT37-XP800 Full HD LCD TV

**Separable Compact Fluorescent Lamps: *Bunrikun***

Hitachi Lighting, Ltd.

A major saving in resources was achieved by designing light bulb-shaped compact fluorescent lamps; The arc tube can be separated from the lighting circuit, allowing the circuits to be reused.

- Approximately 70 percent less resources used by reusing the lighting circuit<sup>\*1</sup>
- Uses around 80 percent less electricity than incandescent bulbs of similar brightness<sup>\*2</sup>

<sup>\*1</sup> Total weight including replacement parts over 30,000 hours of use

<sup>\*2</sup> Electric power use of 54-W incandescent bulb versus 12-W bulbs used with the *Bunrikun* series



FTH15EL/12/ADE Compact Fluorescent Lamps

**Lithium-Ion Rechargeable Batteries for Hybrid Vehicles**

Hitachi Automotive Systems, Ltd., Hitachi Vehicle Energy, Ltd.

The high-performance lithium-ion batteries that were developed for hybrid vehicles, which dramatically reduce fuel consumption, are now being mass produced.

- High output and high performance, helping to make hybrid vehicles more practical



Lithium-ion rechargeable battery

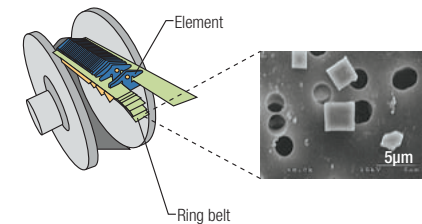
**Metal Ring Belt Material for Continuously Variable Transmissions**

Hitachi Metals, Ltd.

Developed specially for continuously variable transmissions (CVTs), this metal belt material has excellent fatigue strength and helps reduce CO<sub>2</sub> emissions by improving fuel consumption.

- As a gearless system, improves fuel consumption by around 7 percent<sup>\*1</sup>
- Newly developed melting and cold rolling technologies minimize non-metallic inclusions and surface defects that can cause fractures

<sup>\*1</sup> Based on information on the Ministry of Land, Infrastructure, Transport and Tourism Web site (estimates of fuel efficiency improvements from CVT use)



Belt structure and nonmetal inclusions after refining

**Neodymium (Nd) Sintered Magnet: NEOMAX®**

Hitachi Metals, Ltd.

A world-first achievement: Hitachi Metals<sup>\*1</sup> has successfully developed and begun mass production of a high-performance sintered magnet.<sup>\*2</sup>

- Making possible smaller motors with higher efficiency
- A versatile product lineup and surface treatments for different uses, bringing energy-saving benefits to many different fields

<sup>\*1</sup> The company name at the time of the development was Sumitomo Special Metals Co., Ltd., which was integrated into Hitachi Metals in April 2007.

<sup>\*2</sup> Achieved a world-record maximum energy product of 474 KJ/m<sup>3</sup> (59.5 MGOe) in laboratory tests (*Rare Metal News*, No. 2224 (2005))



A wide range of products for diverse needs

**Lightweight Back Door Modules for Automotive Vehicles**

Hitachi Chemical Co., Ltd.

By using resin composite materials and integrating parts, lightweight modules are being created that result in lower vehicle weight, helping to reduce CO<sub>2</sub> emissions.

- Approximately 30 percent lighter than car door modules made of steel<sup>\*1</sup>
- Fewer parts for easier recycling
- High design flexibility helping to make lighter cars

<sup>\*1</sup> Comparison with steel back door modules for similar models produced in 1999



Back door module for Nissan Infiniti EX



# S uper Eco-Factories & Offices



To prevent global warming, use resources more efficiently and manage chemical substances, we apply the Super Eco-Factories & Offices certification system. We are reducing the environmental burden in our factories and offices

# Preventing Global Warming



We are working inside and outside of Japan to curb greenhouse gas emissions in every phase of the production process

## Reducing Greenhouse Gas Emissions from Production Processes

In the Hitachi Group, we are helping to prevent global warming by cutting the emission of CO<sub>2</sub> and other greenhouse gases by improving production, by adopting energy-efficient industrial equipment, and by switching to greener fuels, such as natural gas.

By fiscal 2012, we will cut the use of heavy oil in the Group to one-tenth the fiscal 2005 level, largely by switching to natural gas for material production, where heavy oil consumption is high. Because the repeated forging and heating used in producing materials, such as special steels, consumes much energy, we are rethinking continuous production and how to conserve energy through streamlining and other process improvements. We are trying to reduce CO<sub>2</sub> emissions by installing inverter-based equipment and other energy-efficient systems—among the best in the industry—that are manufactured within the Hitachi Group.

### Reducing CO<sub>2</sub> Emissions in Japan

In fiscal 2008, we raised our CO<sub>2</sub> emission reduction target for fiscal 2010 from 7 percent to 12 percent (from fiscal 1990). This new figure is in line with the industrial sector reduction target in the Japanese government's new Kyoto Protocol Target Achievement Plan, revised in March 2008 (11.3–12.1 percent). To ensure that this target is reached, we set—and

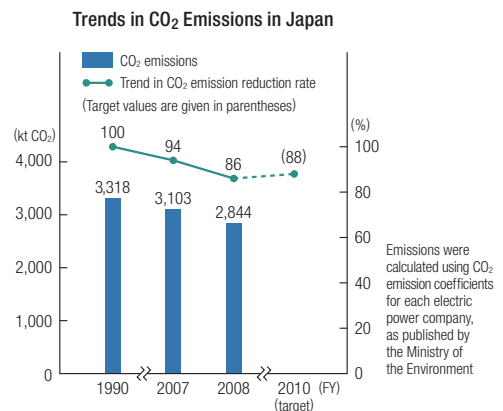
review annually—CO<sub>2</sub> emission objectives for each business group and company. As well, we are obliged to meet the targets of the eight industry associations that we belong to. Group operations that do not belong to industry associations (hospitals and offices, for instance) are working toward a 25 percent reduction in CO<sub>2</sub> emissions per unit production.

Japan's amended Law Concerning the Rational Use of Energy, recently revised to strengthen energy conservation in offices and other business operations, went into effect in April 2009. This law increases the number of Hitachi Group operations subject to regulation, and we are taking steps to ensure more meticulous management. These steps include revising our environmental load evaluation system, collecting energy-use data from all business sites, and establishing common standards for operating equipment.

At the same time, 16 sites of Hitachi, Ltd., and 12 companies in the Hitachi Group's electrical and electronics sectors have been participating in a Japanese program, launched in August 2008, entitled the Experimental Introduction of an Integrated Domestic Market for Emissions Trading. In this way, we are helping to formulate rules on emission reduction and technological development, as well as the design of an

### Fiscal 2008 Outcome | Reducing CO<sub>2</sub> Emissions in Japan

In fiscal 2008, the Hitachi Group invested 7.7 billion yen in energy-saving measures throughout Japan, yielding a 50,000-tonne drop in CO<sub>2</sub> emissions. Altogether, we have reduced CO<sub>2</sub> emissions in Japan by 259,000 tonnes, or 86 percent of the 1990 level.



Compact natural gas-burning once-through boilers with integrated control systems

### topics Fuel Switching Initiative

Since fiscal 2005, we have reduced heavy oil consumption by switching fuels. Based on the Group's own energy-saving technology and know-how, the switch mostly affects the materials sector, which accounts for more than 60 percent of CO<sub>2</sub> emissions. At the Shimodate Works of Hitachi Chemical Co. Ltd., where semiconductor materials and functional films are made, natural gas has replaced oil in steam boilers,

which are smaller and have been modernized with integrated control systems. As a result, CO<sub>2</sub> emissions fell to 45,000 tonnes in fiscal 2008, down sharply from 127,000 tonnes (fiscal 1990). We are also switching to natural gas (from heavy oil) for other equipment, including power generators and organic solvent deodorizers. The goal is to eliminate heavy fuel oil use by fiscal 2010, for even greater reductions in CO<sub>2</sub> emissions.

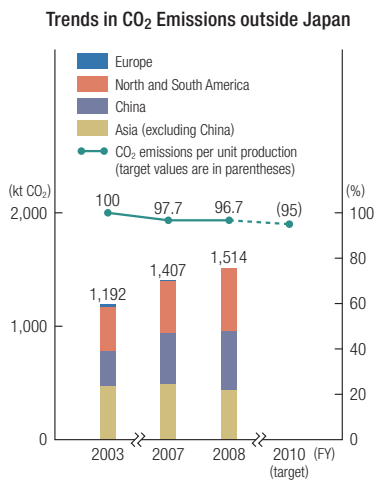
emission trading system. Since 2003, the Hitachi Group as a whole has participated in the Japanese Voluntary Emissions Trading Scheme (Ministry of the Environment), helping to identify issues and build a knowledge base on calculating CO<sub>2</sub> emissions and other practical aspects of emission trading.

### Reducing CO<sub>2</sub> Emissions outside Japan

Many of our production plants outside Japan are not in countries that signed the Kyoto Protocol. Nonetheless, because we believe that reducing global warming is independent of location, we distribute handbooks explaining our environmental management system in English and Chinese to raise awareness of energy conservation. In China and the Americas, where increased production sharply raises CO<sub>2</sub> emissions, we hold conferences of environmental managers to help pinpoint and resolve local environmental issues. To promote energy savings, moreover, we have set the goal of reducing CO<sub>2</sub> emissions per unit production by 1 percent annually. We can achieve this goal by installing energy-efficient equipment whenever we expand production or build new facilities.

#### Fiscal 2008 Outcome | Reducing CO<sub>2</sub> Emissions outside Japan

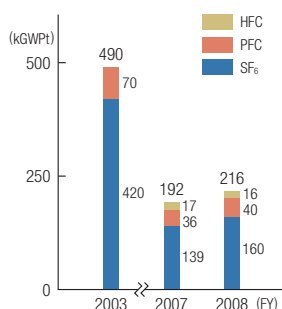
Owing to the transfer of production and the construction of new factories outside of Japan, CO<sub>2</sub> emissions increased 7.6 percent from the previous year to reach 1,514 kilotonnes in fiscal 2008. At the same time, emissions per unit production fell by 3.3 percent (fiscal 2003).



### Reducing Other Greenhouse Gases

Emissions of HFCs (hydrofluorocarbons), PFCs (per-fluorocarbons), and SF<sub>6</sub> (sulfur hexafluoride)—all greenhouse

#### Greenhouse Gas Emissions and Breakdown



gases—rose by 12.5 percent in fiscal 2008 because of expanded production. We are systematically installing scrubbers to reduce PFC emissions.

### Renewable Energy Sources

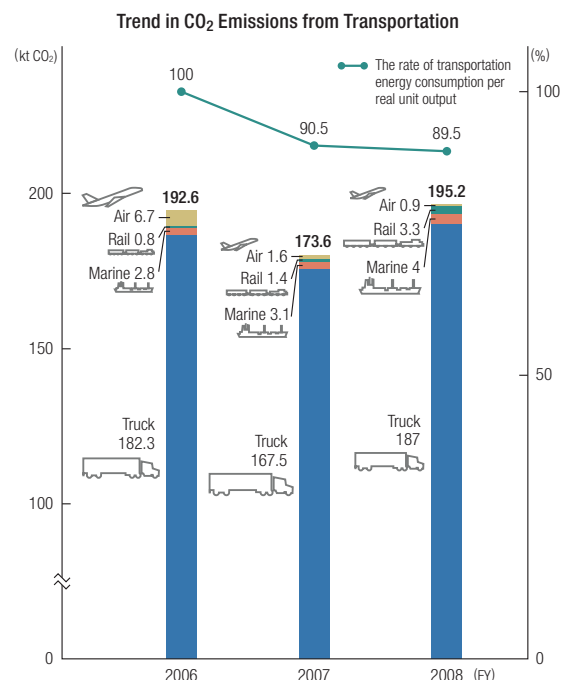
In fiscal 2008, 510 MWh of the electricity that we used came from solar and other renewable energy sources. Some Hitachi offices used electricity (445 MWh generated by wind power) supplied by Japan Natural Energy Company.

### Reducing CO<sub>2</sub> Emissions from Transportation

We both manufacture and ship products—ranging from semiconductors to heavy equipment. Our manufacturing and shipping operations collaborate to reduce transportation-related emissions by cutting the weight and size of products and packaging, as well as through a modal shift to rail and oceangoing ships. We are also increasing truck loads to reduce CO<sub>2</sub> emissions, shipping jointly with other companies, and devising new ways to ship containers of varying sizes. To promote energy efficiency, Hitachi Transport System, which handles about 40 percent of shipping within the Hitachi Group, equips all vehicles with digital tachographs linked to the Truck Information Control System. This system, developed in-house, checks daily fuel efficiency.

#### Fiscal 2008 Outcome | Reducing CO<sub>2</sub> Emissions from Transportation

CO<sub>2</sub> emissions from transportation increased 12 percent from the previous year due to an increase in shipments of basic materials, predominantly metals. However, energy used in transportation per real unit output was cut by 1 percent due to a modal shift that boosted the volume of rail and marine shipping in the Group by more than 60 percent over the previous year. In fiscal 2008, a Hitachi Industrial Equipment Systems product earned the Eco-Rail Mark, bringing the number of Eco-Rail Marks in the Hitachi Group to five products, two companies, and one business site.



# Using Resources Efficiently



We reduce the amount of waste generated in our operations and promote reuse and recycling

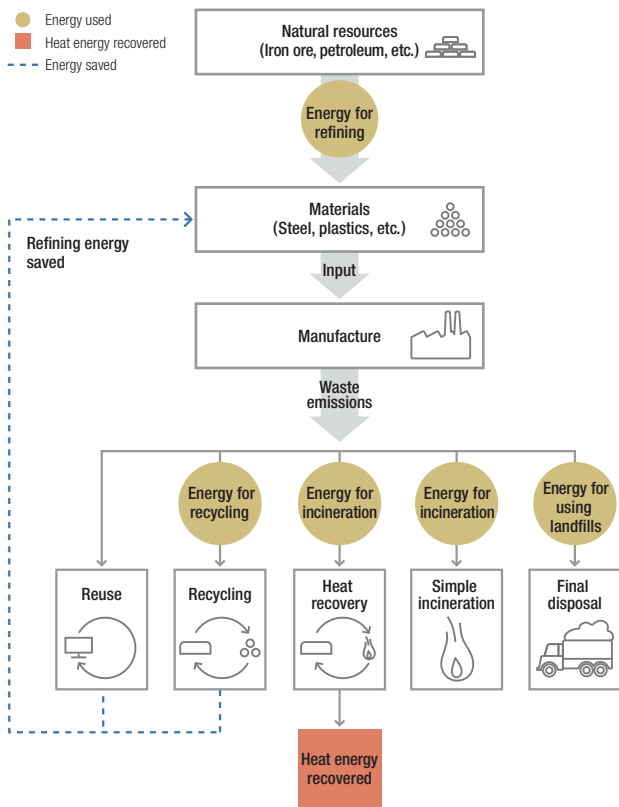
## Recycling

In the Hitachi Group, we believe in using the earth's natural resources wisely and well. For this reason, we are cutting our volume of waste<sup>†1</sup> and are promoting recycling.

Cutting waste is the most effective way to minimize our environmental burden. Accordingly, our fiscal 2010 goal is to reduce waste, including reusable resources with residual value, by 25 percent from the fiscal 2000 level. We now also use some surplus waste materials during manufacturing. Employing the 3R load concept, we evaluate the effectiveness of every waste treatment and disposal option, including reusing, recycling, heat recovery, incineration, and final disposal.

The 3R load concept applies the life cycle assessment approach to handling waste. This allows us to quantify the

### 3R Load Concept



Note: The amount of reused or recycled waste is assumed to offset that of its constituent raw materials.

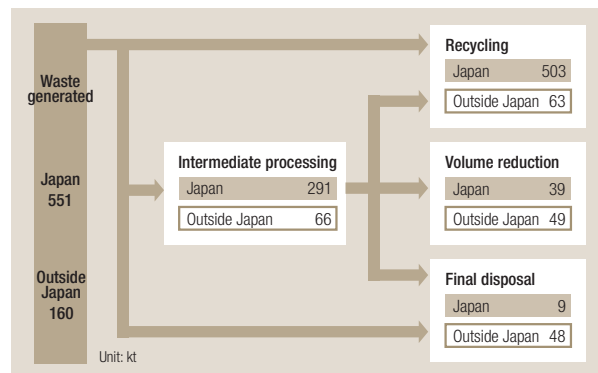
environmental load of every recycling and disposal option, taking into account both the energy used to treat or dispose of a material and the energy used to extract it from natural resources. Using this approach to calculating the 3R load, we intend to increase our resource recycling rate<sup>†2</sup> by 10 percent over the 2005 level by fiscal 2010.

### Fiscal 2008 Outcome | Promoting Resource Conservation

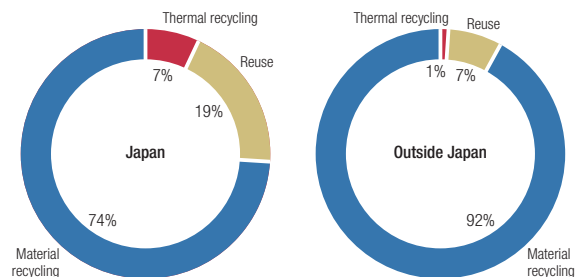
To manage industrial waste, we divide facilities into two groups: one group's goal is to cut the *total volume* of waste and the other group's goal is to reduce waste *per unit production*. In fiscal 2008, both groups achieved a 25 percent reduction from the corresponding fiscal 2000 levels. As a result, the total volume of waste generated in the Hitachi Group as a whole in fiscal 2008 was down 16 percent compared with fiscal 2000. Moreover, due to efforts to promote recycling and reduce final disposal, 149 facilities achieved zero emission\* status (up 13 from the previous year). For recycling, we shifted to using recycling methods with a lower environmental burden for resource conservation (shifting from thermal recovery to material recycling, and to reuse). In this way, we have increased our resource recycling rate to 11 percent above 2005 levels.

\* A zero emission facility is one with a final disposal rate of no more than 1 percent and less than 5 tonnes of final waste in any given year (Hitachi definition).

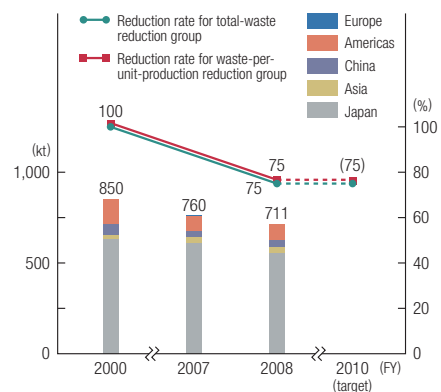
### Waste Treatment and Disposal Volumes



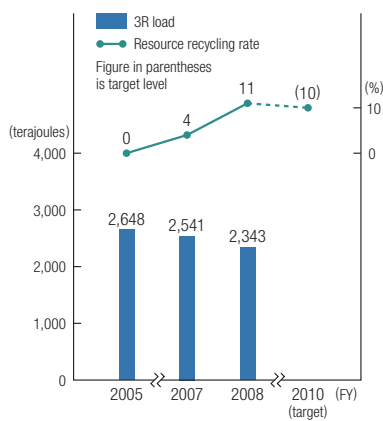
### Breakdown of Recycling Methods



### Trends in Waste Generation



Trend in the Resource Recycling Rate (Japan)

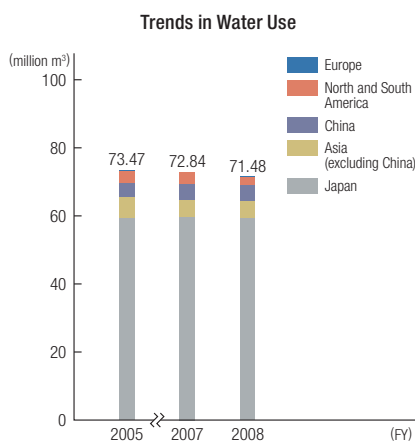


## Water Resource Conservation

Recycling water is an important priority worldwide, so we set the fiscal 2010 goal of reducing water use at facilities outside Japan by 10 percent from fiscal 2005 levels. To meet this target, we are focusing on reusing purified water during manufacturing and "cascading water use"<sup>†3</sup> (water used for cooling is reused in toilets, for example).

### Fiscal 2008 Outcome | Reducing Water Use

By promoting water conservation, the Hitachi Group kept total water use in fiscal 2008 to 71.48 million m<sup>3</sup>, 3 percent below the 2005 level. At electric appliance production plants in China and the rest of Asia, we effectively used water by reusing cooling water from manufacturing as coolant in other processes, and then we used it a third time for quality inspection. Due to these efforts, we were able to limit total water use in plants outside of Japan to 12.22 million m<sup>3</sup>, 8 percent below the 2005 level.



†1 Waste

Includes valuable resources.

†2 Resource recycling rate

Calculated as (base year 3R load minus subject year 3R load) divided by base year 3R load.

†3 Cascading water use

System to maximize water reuse by matching the water quality to the purpose.

**WEB** Zero emission sites

<http://www.hitachi.com/environment/activities/factory/use/more/zeroemission.html>

# Managing Chemical Substances

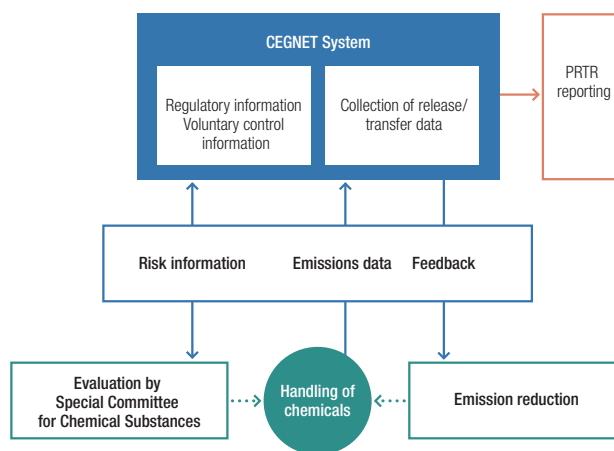


We have adopted a Group-wide IT system for managing chemical substances

## Chemical Risk Management

We manage chemical risk with an online chemical substance management system called CEGNET launched in 1998 in Japan. Using CEGNET we are maintaining a system that applies whenever a new chemical is used. Data on hazardous chemicals and applicable laws are collected, and a special committee for chemical substances determines the level of management. Whenever a regulated hazardous substance is used, its handling is carefully managed through close coordination among all business operations, including design, manufacturing, and purchasing.

### Comprehensive Management of Chemical Substances



## Reducing VOC Emissions

To prevent air pollution, we are reducing emissions of volatile organic compounds (VOCs), while monitoring and controlling the amounts released and transferred. Based on a program from the Ministry of the Environment to reduce VOC emissions by 2010, our own emission reduction plan covers 41 VOCs. Within Japan, we set the goal of reducing emissions by 50 percent (from fiscal 2000). Outside of Japan, taking into account the effect of transferring production or a production increase, we adopt the ratio of VOC emissions to the volume used as our measure. Our target is a 10-percent reduction in the emission ratio<sup>†1</sup> by fiscal 2010 (from fiscal 2005).

In fiscal 2008, Hitachi Displays, Ltd. installed an exhaust

gas treatment system (concentration/regenerative thermal oxidation method) to reduce atmospheric emissions from VOC solvents used to make LCD panels. VOC vapor in exhaust gas is trapped in an absorber condenser, then completely oxidized and rendered harmless. In this way, we cut VOC emissions by 44 percent over the previous year.

### Managing PRTR Substances

To comply with Japan's Pollutant Release and Transfer Registers (PRTR) Law, we monitor the chemical substances released into the atmosphere or public waters, transferred outside our facilities as waste, or discharged into sewage systems. In Japan, we report this data to local governments, as required by law. Although substances handled in very small quantities need not be reported, our policy is to keep data on all PRTR substances, provided the amount is 10 kilograms or more per year, so that we can cut back on those substances as well.

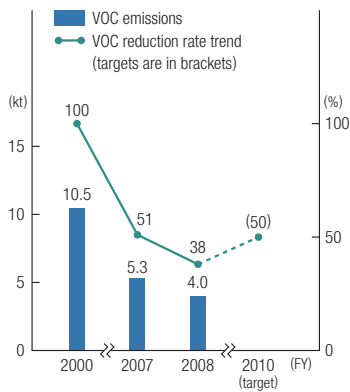
#### †1 Reduction in emission ratio

The percent difference between the 2005 emission ratio and the emission ratio in the subject year. The emission ratio is calculated as VOC emissions divided by total volume of VOC handled.

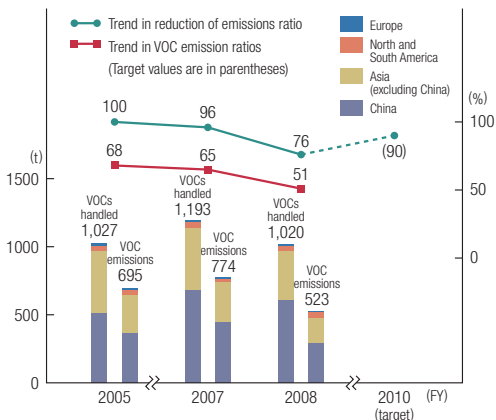
### Fiscal 2008 Outcome | Reducing VOC Emissions

In fiscal 2008, our VOC emissions in Japan totaled 4,000 tonnes, 62 percent below the 2000 level. Emissions from our plants outside Japan totaled 523 tonnes, a 24 percent reduction in the emission ratio compared with the baseline year, fiscal 2005.

#### Trend in VOC Emissions (Japan)



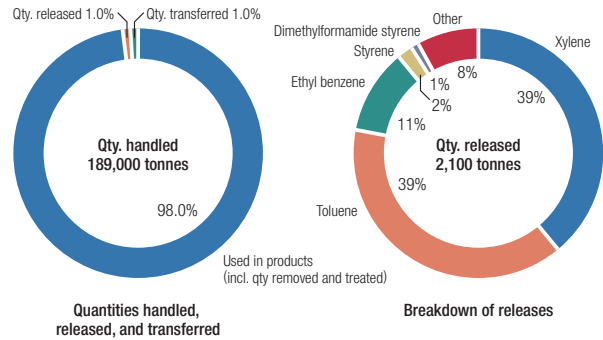
#### Trend in VOC Emissions (outside Japan)



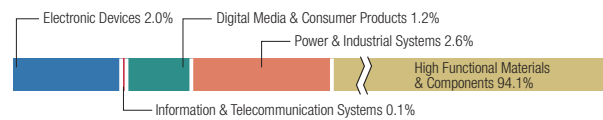
### Fiscal 2008 Outcome | PRTR Compliance

In fiscal 2008, the Hitachi Group used 120 of the 354 PRTR substance groups, handling approximately 189,000 tonnes. Of this amount, 1 percent was released and 1 percent transferred. In fiscal 2008, 110 of our facilities submitted PRTR reports to local governments.

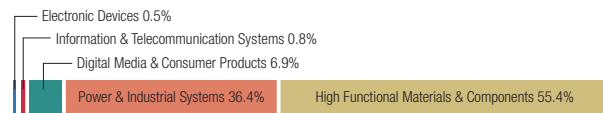
#### Quantity of PRTR Substances Handled, Released, and Transferred



#### Breakdown of PRTR Substances Handled by Industry Segment



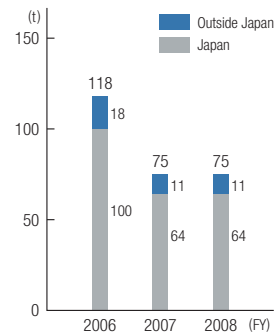
#### Breakdown of PRTR Substances Released and Transferred by Industry Segment



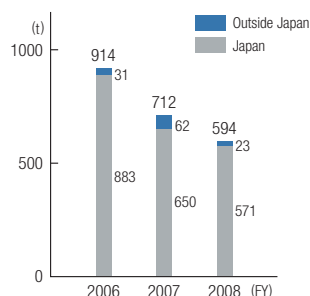
### Fiscal 2008 Outcome | SO<sub>x</sub> (Sulfur Oxides) and NO<sub>x</sub> (Nitrogen Oxides) Emissions

In fiscal 2008, SO<sub>x</sub> emissions by Hitachi Group operations in Japan were 64 tonnes, a 36 percent reduction from fiscal 2006, and NO<sub>x</sub> emissions fell to 571 tonnes, a 35 percent drop from 2006. SO<sub>x</sub> emissions from all facilities outside Japan totaled 11 tonnes, down 39 percent from fiscal 2006, and NO<sub>x</sub> emissions outside Japan came to 23 tonnes, a reduction of 26 percent.

#### SO<sub>x</sub> Emission Trend



#### NO<sub>x</sub> Emission Trend



## Rigorous Pollution Control



We monitor and manage our business activities so that they do not adversely impact the surrounding environment

## Super Eco-Factories & Offices



We certify facilities that achieve outstanding results in reducing their environmental burden, energizing environmental action

### Pollution Control Based on Voluntary Standards

For pollution control, the Hitachi Group uses voluntary standards stricter than those imposed by law. As well, we share information within the Group on major regulations and new legislation. In fiscal 2008, there were no environmental incidents resulting in fines, but there were four where legal limits were exceeded. In all four cases, the cause was identified and the issue resolved before the end of the fiscal year. To prevent incidents from happening or reoccurring, we rigorously monitor and manage data.

#### Incidents of Legal Limits Being Exceeded

	Water quality	Waste	Total
Japan	2	2	4
Outside Japan	0	0	0

(Fiscal 2008)

#### Number of Complaints

	Noise	Odor	Air	Other	Total
Japan	10	3	2	2	17
Outside Japan	1	0	0	0	1

(Fiscal 2008)

### Preventing Pollution of Soil and Groundwater

We are working to prevent leaks of chemical substances into the soil or groundwater by converting underground piping, pits, and tanks to above the ground, making inspections easier. Underground tanks not yet converted are carefully tested for corrosion and inspected using such techniques as ultrasonic testing.

Up to fiscal 2008, 90 percent of facilities that use chemicals have reported completing groundwater and soil decontamination, or that there is no contamination. The remaining facilities are taking countermeasures, and we continue to monitor groundwater at all locations.

### Promoting Super Eco-Factories & Offices

A Super Eco-Factory & Office certification is given to facilities that achieve outstanding results and take pioneering steps in environmental load reduction as a way to encourage the dissemination of best practices and energize environmental activities.

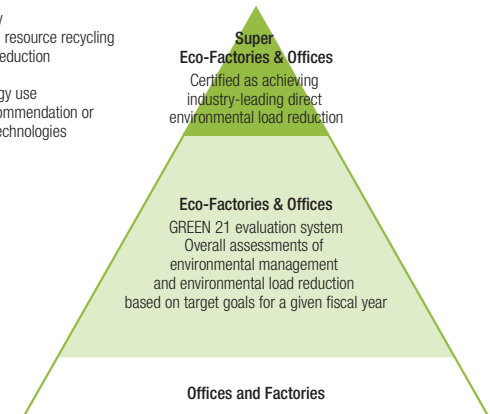
The Hitachi Group certifies as Eco-Factories & Offices those facilities that have met their target goals for the fiscal year under the GREEN 21 evaluation system. A further assessment is conducted based on six criteria, including energy efficiency, improvements in resource recycling, and VOC emission reduction, to certify those facilities that achieve industry-leading environmental efficiency and environmental load reduction as Super Eco-Factories & Offices. Previously certified facilities are reassessed every year to determine whether they will keep their designations.

Based on their fiscal 2008 performance, nine more facilities were named Super Eco-Factories & Offices, bringing the total to 26 (16 in Japan and 10 outside). We intend to raise the total for the entire Hitachi Group to 30 by fiscal 2010.

We inform our stakeholders about environmental load reduction at Super Eco-Factories & Offices through the Hitachi Web site, as well as through tours for local residents. We also use these locations as venues for Hitachi Group exchanges on leading-edge environmental technologies.

#### Super Eco-Factory & Office Certification Criteria

1. Energy efficiency
2. Improvements in resource recycling
3. VOC emissions reduction
4. Water recycling
5. Renewable energy use
6. Other (special commendation or use of original technologies to meet targets)



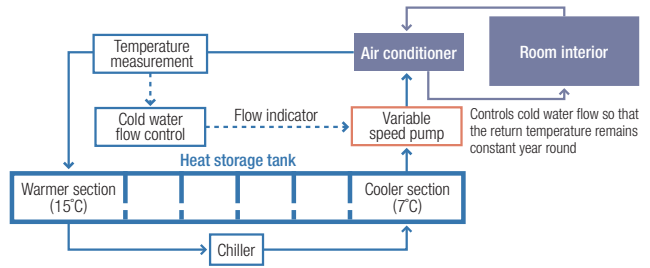
**Takasago Works, Hitachi Cable, Ltd.**

Hitachi Cable's Takasago Works in Hitachi City, Ibaraki Prefecture, Japan makes gallium arsenide (GaAs) and gallium nitride (GaN) single-crystal semiconductor wafers. In the plant, there are many clean rooms, and because air conditioners for clean rooms use three to four times more energy than ordinary air conditioners, reducing their environmental load has long been a challenge. Using inexpensive PLCs (programmable logic controllers), Takasago Works engineers developed their own control system that responds to load changes. They have been promoting energy saving in clean room air conditioning since 2007.

The central air conditioning system at the Takasago Works uses a heat storage tank. Cold water from the cooler part of the tank is used in the air conditioner. After the cold water is warmed by the air in the room, it is returned to the warmer part of the storage tank. Generally, a variable speed pump is controlled to keep the pressure of the cold water constant. However, in spring and fall, when the air conditioning load is light, cold water is returned to the storage tank before it can warm up, causing chiller inefficiencies. To prevent this from happening, the engineers developed a cold water control system that handles load fluctuations and boosts efficiencies. This system<sup>\*1</sup> controls the variable speed pump to keep the temperature of the returning water around 15°C. The result has been an 810-tonne, or 30 percent, reduction in annual CO<sub>2</sub> emissions over previous levels.

\*1 Domestic patent pending

**Central air conditioning system**



View of the factory



View of the factory

**Hitachi Haramachi Electronics Co., Ltd.**

Hitachi Haramachi Electronics in Soma City, Fukushima Prefecture, Japan handles the post-processing of power semiconductors and manufactures airtight terminals from ceramics.

The pure water used for dicing and cutting in the process of manufacturing high-voltage diodes has conventionally been wasted, but now it is being processed with activated carbon and reused. At the same time, waste heat is used to heat industrial-use water that in turn makes pure water. This system saves the energy equivalent of 76 kiloliters of heavy oil. Moreover, since 2005, final waste has been reduced to less than 0.1 percent. The plant has achieved zero emissions for the seventh consecutive year. In fiscal 2007, Ibaraki Prefecture acknowledged the company, calling it "earth friendly."



Membrane-assisted water decontamination device

**Hitachi Computer Products (Europe) S.A.S.**

Hitachi Computer Products (Europe) S.A.S. is a manufacturing base on the outskirts of Orléans, France, that makes data storage products. More than 80 percent of the company's large (500,000 m<sup>2</sup>) and verdant site is covered with trees.

Over the last three years, the company has been using a management model developed by the EFQM (European Foundation for Quality Management) on product quality, the environment and safety, to successfully reduce energy consumption, waste, VOC emissions, and water use. At the site, where VOC emissions have been cut to one-seventh of their previous levels, the fiscal 2010 environmental goals have already been met. This achievement shows the united commitment of employees in protecting their rich natural environment through, for example, environment patrols.

The company is also an active participant in the geothermal power generation project launched by the local economic association of Orléans and its environs. The goal is to use subterranean heat from a depth of 1,000 meters to create energy. The company intends to use this geothermal energy to reduce CO<sub>2</sub> emissions by 30 percent.

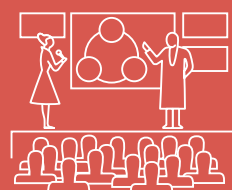


HICEF site: administration building in foreground, factory in background



# W

# orldwide Environmental Partnerships



The Hitachi Group is disclosing information to and communicating with stakeholders: customers, local communities, shareholders, investors, suppliers, and employees

# Information Disclosure and Engaging in Dialogue



Communication and dialogue with stakeholders through reports and the Internet

## Disclosure on Environmental Activities

Hitachi has annually published a report that discloses the policies underlying our environmental activities, the content and results of our efforts, and our plans. From 1998 through 2004, this publication was called the *Hitachi Environmental Report*. From 2005 to 2008, we expanded the content to include our corporate social contribution and responsibility by publishing a CSR report.

In 2009, however, we are separately publishing an environmental sustainability report. This report contains the environmental information requested by stakeholders, including our policies and data on the environmental burden that our operations impose in different regions of the world: Europe, the Americas, China, and the rest of Asia.

In addition, our Web site has information—in easy-to-understand articles and interviews—not just on our corporate environmental activities, but also on how each location handles environmental concerns and how we develop energy-saving products. We are constantly working to expand and update the information. We have been awarded the Environmental Goo Grand Prize 2008 in the corporate category in recognition of our excellence in publishing Web-based information on environmental protection and our social contribution.

## Participation at Exhibitions

The Hitachi Group participates in exhibitions in Japan and around the world to publicize the Group's environmental activities and the strong eco-consciousness of Hitachi technologies and products.

In Japan, we have participated in the Eco-Products Exhibition—the largest exhibition of environmentally conscious products in Japan—every year since the first exhibition was held in 1999. At Eco-Products 2008 in December, we featured 31 products and services that help to realize a sustainable society. Especially popular was an environmental quiz that was displayed on a screen showing species endangered by global warming, such as polar bears and gorillas.

Outside Japan, Hitachi participated in the 5th Eco-Products International Fair 2009 held in Manila, the Philippines



The Hitachi booth at Eco-Products 2008 held in Tokyo

in March 2009, displaying eight products, including household appliances and industrial machinery. As part of that exhibition, visitors attached cards with environmental messages that they had written onto an “eco tree.”

## Dialogue with Stakeholders


Through dialogue with stakeholders, we try to deepen their understanding of our environmental activities, while creating opportunities to listen to requests and concerns.

In a dialogue meeting with stakeholders held in New York in March 2009, we participated in a global debate and exchanged wide-ranging opinions on global environmental strategies, focusing on our activities to realize our environmental vision. In these discussions, stakeholders asked us to “provide easy-to-understand explanations of environmental management, product standards, and measuring methods,” to “actively disclose globally integrated environmental data,” and to “apply Hitachi solutions to environmental issues that should be given high priority.”

In the future, we will disclose more of this information in this report. We intend to help solve environmental problems, reduce the burden imposed on the environment through *monozukuri* manufacturing, and intensify our environmental activities.



Participating stakeholders: Jason Morrison, Pacific Institute; Shin Furuya, Domini Social Investments; Peter Holzaepfel, The Climate Group; Leslie Cordes, The UN Foundation; Richard A. Liroff, Investor Environmental Health Network; Mark Cohen, Resources for the Future  
Facilitators: Dunstan Hope, BSR; Raj Sapru, BSR  
Main Hitachi Group participants: Tadahiko Ishigaki, Senior Vice President and Executive Officer, Chief Executive for the Americas; Takashi Hatochoji, Hitachi Group Chief Environmental Strategy Officer; Kiyoshi Kinugawa, President, Hitachi America, Ltd.

 List of environmental exhibitions  
[http://www.hitachi.com/environment/activities/stakeholder\\_collabo/disclosure/more/exhibition.html](http://www.hitachi.com/environment/activities/stakeholder_collabo/disclosure/more/exhibition.html)

 Environmental reports published by Hitachi Group companies and production facilities  
[http://www.hitachi.com/environment/activities/stakeholder\\_collabo/disclosure/more/rpt\\_open.html](http://www.hitachi.com/environment/activities/stakeholder_collabo/disclosure/more/rpt_open.html)

# Pursuing Activities as a Global Citizen



Environmental protection and contributing to society

## Contributing to Environmental Education

In fiscal 2008, we began environmental programs in pre-schools and elementary schools in China. The dual purpose is to increase understanding of our environmental actions and to give children the chance to think about the environment. In Beijing, for example, Hitachi (China) Ltd. held a class at a Beijing elementary school for 244 second-graders to share thoughts through an eco quiz and other events. Showing their commitment to environmentalism, every child signed a banner with the slogan, "Let's all work together to create beautiful, green homes." The children showed immense interest. We created



A teacher from Hitachi visits a class at a Beijing elementary school

an opportunity for youngsters to think about issues such as water and air pollution, reducing waste, and global warming. Through our support of environmental education, such as these classroom visits, we will further contribute to society.

Similar projects are underway in Japan. Hitachi Global Storage Technologies, for example, participates—through the education programs of Kanagawa Prefecture—by introducing into local communities new energy and energy-saving technologies. Every year, there are hands-on environmental projects and other experiences. In fiscal 2008, a food-based theme was chosen: "Let's all make environmentally friendly curry!" One-hundred children at two elementary schools were taught how eating locally produced food is good for the planet and how to measure the CO<sub>2</sub> emissions they generate. They also enjoyed creating household account books that encourage thinking of individual ways to reduce energy consumption.



A teacher from Hitachi visits a class at an elementary school in Kanagawa Prefecture

## Regional Environmental Protection

Since fiscal 2005, Hitachi High-Technologies Corporation planted and cared for 2.3 hectares of national forest (the Hitachi High-Technologies Yasato Forest in Ishioka, Ibaraki Prefecture, Japan). In Fiscal 2008, 81 new employees, along with 91 prospective employees and family members, cleared away grass and underbrush.

## topics Elementary School Reporters Interview Factory Personnel

Six members of the *Kanagawa Shimbun's* junior reporters' club visited the Yokohama plant of Hitachi Consumer Electronics Co., Ltd., which designs and develops flat-screen TVs. The elementary school students asked questions about the facility's environmental activities.

Responding to a question about why flat-screen televisions are good for the environment, plant personnel described the technical creativity by using 3-D CAD systems, and explained how environmental

issues are handled. Examples of this include designing products to be easily disassembled for better recycling, and the fact that flat-screen televisions help to emit less CO<sub>2</sub> during transportation. The young reporters were also given a tour of the plant, looking at polystyrene foam reducing, and on-site product disassembly and sorting. In this way, they were shown how Hitachi is reducing and recycling. Their observations were published in the *Kanagawa Shimbun* newspaper.



Young reporters getting the story on television recycling



Volunteers working in the Hitachi High-Technologies Yasato Forest

**Environmental Protection Effects of Hitachi High-Technologies Yasato Forest in Fiscal 2007**

Absorption/storage of CO <sub>2</sub>	12.7 tonnes per year: equivalent to the annual CO <sub>2</sub> emissions of 40 people
Protecting water resources (mitigating floods and droughts; improving water quality)	206 m <sup>3</sup> per year: equivalent to 103,000 two-liter bottles
Preventing ground erosion	5 m <sup>3</sup> per year: equivalent to one 10-tonne truck load

Data from the Kanto Regional Forest Office

Commissioning an environmental NGO G-Net, Hitachi Construction Machinery (Shanghai) Co., Ltd. began planting the Hitachi Construction Machinery (Shanghai) Forest in the Horqin Desert in the Inner Mongolia Autonomous Region of China in 2005. The ultimate goal of this project, which includes local residents, is to improve lives by restoring vegetation to the desert, enabling the sustainable use of the land. For that goal, it is necessary for local people, who contribute to desertification through overgrazing, to change their views and then

firmly establish how to improve their lives with afforested land. Ultimately, this problem must be solved by the local people, making it necessary to proceed in stages while changing their awareness. In fiscal 2008, we suggested to local residents with high awareness to cultivate crops between rows of recently planted poplar trees. We also discussed their need to prepare the environment for cultivation by watering and weeding. We will continue providing support for "greening" activities like this one.

**Preservation of Biodiversity**

To conserve the natural environment in Tokyo, Hitachi Software Engineering Co., Ltd. participates in the Tokyo Greenship Action project, where citizens, NPOs, private companies, administrative agencies, and other entities maintain conservation areas in Tokyo. In fiscal 2008, on three occasions, 89 employees worked to thin trees, mow grass, and harvest rice in green conservation areas and *satoyama* (natural woodlands near populated areas) conservation areas, under the guidance of a mountain protection NPO. At a *satoyama* in Akiruno, Tokyo, a habitat for several rare species including northern goshawks, giant flying squirrels, and Tokyo salamanders, people reaffirmed the importance of protecting nature while thinning out trees to restore forests on steep, densely overgrown slopes.

Twenty-seven employees and family members of Hitachi Cable, Ltd.'s Hidaka Plant volunteered to maintain a nearby natural park. The park's wetlands provide habitat for many small animals and insects. To protect this environment, the volunteers weeded out grass for better exposure, cleaned waterways that support aquatic animals, and removed trash.



Poplars planted in the Hitachi Construction Machinery (Shanghai) Forest help reverse desertification



Employees of Hitachi Software Engineering thinning out trees



Volunteers from Hitachi Cable, Ltd. helping to maintain a natural park

**topics** Distribution of Eco Badges to All 400,000 Hitachi Employees

In fiscal 2008, to foster environmental awareness within the Hitachi Group, we distributed Eco Badges featuring the Hitachi Tree to all management and employees in Japan and abroad. We encourage all management and employees to wear the badge, as well as live every day dedicated

to achieving annual goals based on our environmental vision. Many employees are saying that their environmental awareness has increased since they first put on their badge. For our personnel outside Japan, the badge is creating a renewed sense of solidarity with the Hitachi Group.



# Stakeholder Evaluations



We cooperate with institutional surveys to bring us closer to society's ideal

## Fiscal 2008 External Evaluations

To ensure that stakeholders receive the information that they require, we cooperate with SRI†<sup>1</sup> ratings and other environmental surveys.

### DJSI

The Swiss asset management company Sustainability Asset Management (SAM) selects companies that are sustainability leaders and tracks their performance using the Dow Jones Sustainability World Indexes (DJSI World). In fiscal 2008, SAM launched the Dow Jones Sustainability Asia Pacific Index (DJSI Asia Pacific). Hitachi, Ltd. and Hitachi Chemical Co., Ltd. were in the top 20 percent of the 600 companies surveyed. Hitachi, Ltd. is rated highly—one of the top 40 companies—for environmental action, making the Dow Jones Sustainability Asia Pacific 40 Index.

### CDP

Backed by 385 institutional investors with a total asset value of US\$57 trillion, the Carbon Disclosure Project (CDP) assesses the potential risks and opportunities that climate change poses for 3,000 of the world's leading companies. We have submitted our philosophy, action program and achievements to the CDP. Out of 150 Japanese companies assessed by CDP, we were among the 21 companies selected for outstanding information disclosure.

### Nikkei Environmental Management Survey

In fiscal 2008, Hitachi placed third in an environmental management performance survey by Nikkei Inc. of Japan's listed companies. Corporate ratings are based on the total score in five areas: environmental management, global warming prevention, resource recycling, product policies, and pollution prevention. We scored highly for preventing global warming and reducing our environmental burden through recycling.

### Trend in Total Score and Rank (2006–2008)

	2006	2007	2008
Score*(%)	88	93	95
Rank	4	5	3

\*Calculated by dividing total points for that fiscal year by total points possible.

### †1 SRI (Socially Responsible Investment)

An approach to investing where shares are selected partly on the basis of criteria relating to CSR.

 External environment awards

[http://www.hitachi.com/environment/activities/stakeholder\\_collabo/assessment/more/commentation.html](http://www.hitachi.com/environment/activities/stakeholder_collabo/assessment/more/commentation.html)

## Independent Experts Comment on Our Environmental Activities and Our Response



### Looking for an Environmental Vision 2050

**Mr. Toshihiko Goto**  
Chairman, Environmental Auditing Research Group

I applaud Hitachi's strategic targeting of the environment, reflected in their environmental sustainability and CSR reports, and the commitment expressed in the Chief Environmental Strategy Officer's message. However, what is needed now, I feel, is an Environmental Vision 2050 and the re-evaluation of medium-term and strategic goals for 2025 based on that vision.

This report precisely quantifies all environmental management items, including products, plants and activities, and I like the way the report and the Hitachi Web site are linked for ease of understanding. Hitachi makes a solid social contribution to biological diversity, but I would also like to be able to see what steps are being taken by the businesses of the Hitachi Group.

In closing, I would add that Hitachi should move quickly to create a system that accurately measures greenhouse gas emissions across the broad range of all Hitachi Group companies.



### To Foster an Environmental Culture

**Dr. Mika Takaoka**  
Professor, College of Business, Rikkyo University

I congratulate Hitachi for publishing an environmental report this year, in addition to a CSR report. This report takes a global perspective in providing analysis and information on the progress of Hitachi's environmental management activities in 2008. One outstanding feature is that it highlights Japan's role as an international environmental leader, and it includes environmental data from around the world to promote local partnerships with international stakeholders. Detailed evaluations used during the design phase show Hitachi's commitment to global environmental conservation through manufacturing environmentally conscious products.

I look forward to seeing environmental actions by Hitachi based on fostering the type of environmental culture needed for consumers to make the transition to environmentally and socially conscious lifestyles.

### Our Response

Thank you for your extremely valuable views on the release of our first environmental report since 2004.

At this stage, our environmental programs are directed toward fiscal 2025, but we would like to take on, as a future challenge, the suggestion that we look even further ahead to 2050 and create an environmental strategy that is oriented to that time. We also plan to strengthen our efforts to make environmentally and socially conscious lifestyles possible through our technologies, products and services, as well as to garner consumer understanding for what we are doing.

We will continue working to realize a sustainable society by paying close attention to the views of all our stakeholders.

Shigeru Azuhata  
General Manager, Environmental Strategy Office, Vice President and Executive Officer  
Hitachi, Ltd.

## Company Profile

Corporate Name: Hitachi, Ltd.

Incorporated: February 1, 1920 (founded in 1910)

Head Office:

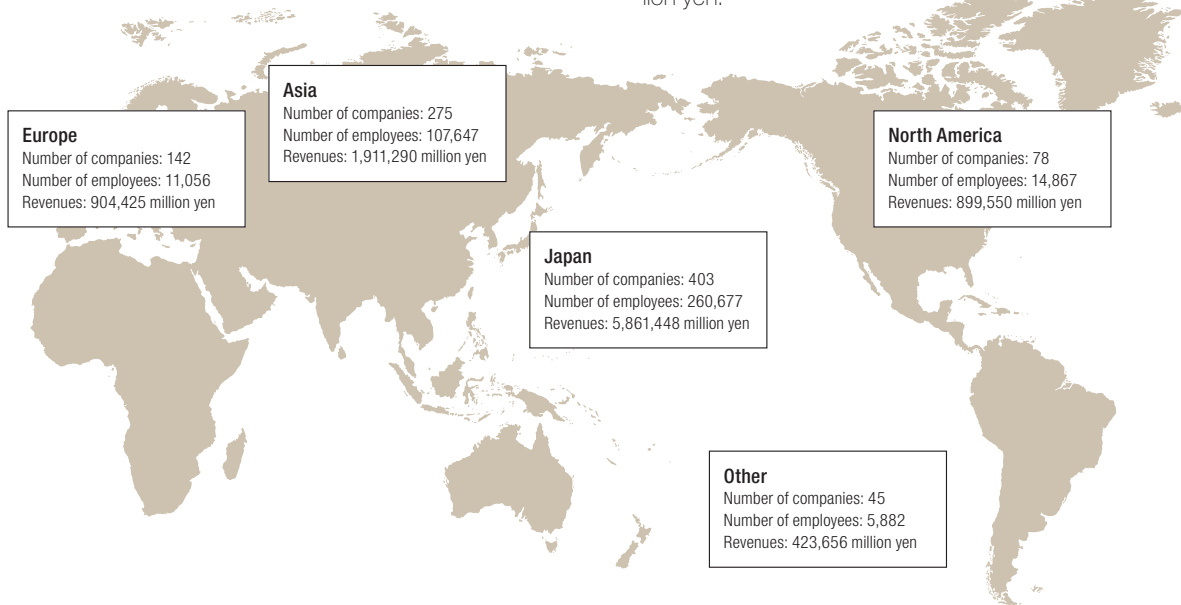
1-6-6 Marunouchi, Chiyoda-ku, Tokyo 100-8280, Japan

Representative:

Takashi Kawamura, Chairman, President  
and Chief Executive Officer

## About Hitachi Group

The Hitachi Group is composed of a total of 1,110 companies, including Hitachi, Ltd. The Group has 403 consolidated subsidiaries in Japan and 540 outside Japan as well as 77 equity-method affiliates in Japan and 89 outside Japan. It has seven industry segments (see following page) and about 400,000 employees. The Group boasts total revenues of about 10 trillion yen.



## Economic Performance

### As of March 31, 2009

Common Stock: 282,033 million yen

Number of employees (unconsolidated basis): 40,549

Number of employees (consolidated basis): 400,129

Number of consolidated subsidiaries:  
943 (Japan: 403, outside Japan: 540)

Number of equity-method affiliates:  
166 (Japan: 77, outside Japan: 89)

### Period: Fiscal year ending March 31, 2009 (consolidated basis)

Revenues:

10,000.3 billion yen (89% compared with the previous year)

Operating income:

127.1 billion yen (37% compared with the previous year)

Capital investment:

788.4 billion yen (81% compared with the previous year)

R&D expenditure:

416.5 billion yen (97% compared with the previous year)

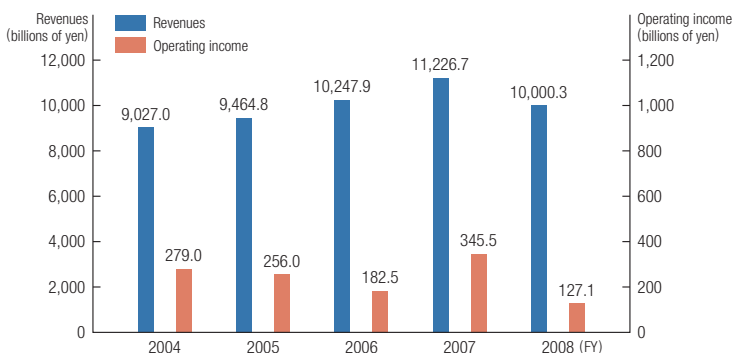
Overseas output as a percentage of consolidated net sales: 24%

See Web site for economic performance reports.

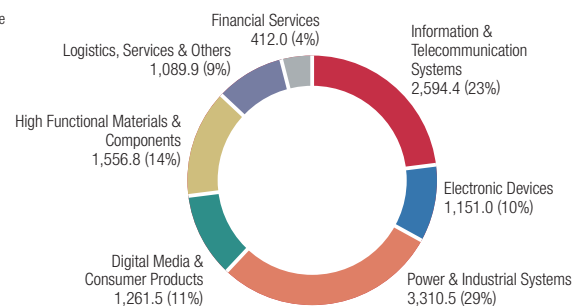
<http://www.hitachi.com/IR-e/>

## Financial Results (consolidated basis)

### Revenues and Operating Income



### Revenues by Industry Segment in Fiscal 2008 (billions of yen)



Total Sales by Industry: 11,376 billion yen  
Consolidated Net Sales: 10,000 billion yen

## Major Fields of Business and Products

### Information & Telecommunication Systems



Data center  
(unification control center)



Hitachi Global Storage Technologies' 500-gigabyte 2.5-inch hard disk drive



Large disk array subsystem

- Systems integration, outsourcing services, software, hard disk drives, disk array subsystems, servers, mainframes, PCs, telecommunication equipment, ATMs
- Hitachi Communication Technologies, Ltd., Hitachi Kokusai Electric Inc., Hitachi-Omron Terminal Solutions, Corp., Hitachi Computer Products (America), Inc., Hitachi Computer Products (Europe) S.A.S., Hitachi Global Storage Technologies Netherlands B.V., Hitachi Electronics Services Co., Ltd., Hitachi Information & Control Solutions, Ltd., Hitachi Information Systems, Ltd., Hitachi Software Engineering Co., Ltd., Hitachi Systems & Services, Ltd., Hitachi Data Systems Corporation, Hitachi Information & Telecommunication Systems Global Holding Corporation

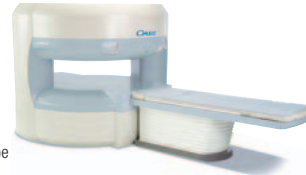
### Electronic Devices



Hitachi Displays' 3.2-inch wide and IPS LCD for "One-Seg" compatible mobile phones



Hitachi High-Technologies' scanning electron microscope



Hitachi Medical's superconducting high-field open MRI machine

- Liquid crystal displays (LCD), semiconductor manufacturing equipment, testing and measurement, medical electronics equipment, semiconductors
- Hitachi Displays, Ltd., Hitachi High-Technologies Corporation, Hitachi Medical Corporation, Hitachi Display Devices (Suzhou) Co., Ltd.

### Power & Industrial Systems



Monorail\* in Dubai, UAE



Hitachi Construction Machinery's hydraulic excavator



Hitachi Vehicle Energy's square lithium-ion battery for hybrid vehicles

- Nuclear power plants, thermal power plants, hydroelectric power plants, industrial machinery and plants, automotive products, construction machinery, elevators, escalators, railway vehicles, power tools
- Babcock-Hitachi K.K., Clarion Co., Ltd., Hitachi Construction Machinery Co., Ltd., Hitachi-GE Nuclear Energy, Ltd., Hitachi Industrial Equipment Systems Co., Ltd., Hitachi Koki Co., Ltd., Hitachi Via Mechanics, Ltd., Hitachi Automotive Products (USA), Inc., Hitachi Elevator (China) Co., Ltd., Hitachi Building Systems Co., Ltd., Hitachi Engineering & Services Co., Ltd., Hitachi Mobile Co., Ltd., Hitachi Plant Technologies, Ltd., Hitachi Power Europe GmbH

### Digital Media & Consumer Products



UT (Ultra Thin) LCD TVs



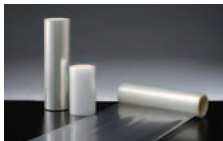
Hitachi Appliances' drum-type washer-dryer



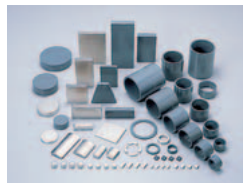
Hitachi Maxell's prismatic lithium-ion rechargeable batteries featuring thin type and high capacity

- Optical disk drives, Plasma TVs, LCD TVs, LCD projectors, mobile phones, room air conditioners, refrigerators, washing machines, information storage media, batteries, air-conditioning equipment
- Hitachi Appliances, Inc., Hitachi Maxell, Ltd., Hitachi Media Electronics Co., Ltd., Hitachi Plasma Display Ltd., Hitachi Home Electronics (America), Inc., Shanghai Hitachi Household Appliances Co., Ltd.

### High Functional Materials & Components



Hitachi Chemical's adhesive films for display



Hitachi Metal's neodymium magnet NEOMAX®



Hitachi Cable's halogen-free 150°C heat-resistant power supply harness for HEV

- Wires & cables, copper products, semiconductor materials, circuit boards and materials, organic/inorganic chemical products, synthetic resin products, display related materials, specialty steels, magnetic materials and components, high-grade casting components and materials
- Hitachi Cable, Ltd., Hitachi Chemical Co., Ltd., Hitachi Metals, Ltd.

### Logistics, Services & Others



Hitachi Transport System's Keihin Distribution Center, a distribution center equipped with security systems

- General trading, logistics, property management
- Chuo Shoji, Ltd., Hitachi Life, Ltd., Hitachi Transport System, Ltd., Nikkyo Create, Ltd., Hitachi America, Ltd., Hitachi Asia Ltd., Hitachi (China) Ltd., Hitachi Europe Ltd.

### Financial Services



Multifunctional IC card and electronic toll collection auto card

- Leasing, loan guarantees, insurance services
- Hitachi Capital Corporation, Hitachi Insurance Services, Ltd.

● Major Products & Services ■ Major Consolidated Subsidiaries (As of March 31, 2009) The products marked with an asterisk in the above table are those of Hitachi, Ltd.  
(Notes) 1 Hitachi Kokusai Electric Inc. has become a consolidated subsidiary of Hitachi, Ltd. through a take-over bid to acquire its shares.  
2 Hitachi Data Systems Corporation merged with Hitachi Data Systems Holding Corporation on March 31, 2009.  
3 Hitachi Information & Telecommunication Systems Global Holding Corporation was established on April 1, 2008 to oversee Hitachi Data Systems, etc.  
4 Hitachi Koki Co., Ltd. has become a consolidated subsidiary of Hitachi, Ltd. through a takeover bid to acquire its shares.  
5 Hitachi Mobile Co., Ltd. changed its name to Hitachi Auto Parts & Service Co., Ltd. on April 1, 2009.  
6 Fujitsu Hitachi Plasma Display Limited changed its name to Hitachi Plasma Display Limited on April 1, 2008.

# HITACHI

Inspire the Next

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 **Hitachi, Ltd.**

Environmental Strategy Office

1-6-1 Marunouchi, Chiyoda-ku, Tokyo, 100-8220, Japan

Tel: +81-3-3258-1111 Fax: +81-3-4235-5835 <http://www.hitachi.com/environment/>

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**On the cover:** The cover photo is from Moanalua Garden Park (Monkey Pod tree), Oahu Island, Hawaii. This tree has become known as the "Hitachi Tree" through television commercials over many years. It represents the qualities that we like to emphasize at Hitachi—synergy, growth, and strength. (Photo: Tor Johnson)



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# Questionnaire on Hitachi Group Environmental Sustainability Report 2009

What were your impressions after reading the *Hitachi Group Environmental Sustainability Report 2009*? Your opinion and comments are valuable to us for our future environmental activities. Please help us by completing the questionnaire below and sending it to the address on the right.

Environmental Strategy Office, Hitachi, Ltd.  
1-6-1 Marunouchi, Chiyoda-ku, Tokyo 100-8220 Japan

**Fax: +81-3-4235-5835**

## Q1. What were your impressions of the *Hitachi Group Environmental Sustainability Report 2009*?

(Please select only one from the following)

- |                     |                                       |                                      |                                       |
|---------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| (1) Intelligibility | <input type="checkbox"/> High         | <input type="checkbox"/> Average     | <input type="checkbox"/> Low          |
| (2) Volume          | <input type="checkbox"/> Too much     | <input type="checkbox"/> Appropriate | <input type="checkbox"/> Too little   |
| (3) Layout          | <input type="checkbox"/> Easy to read | <input type="checkbox"/> Average     | <input type="checkbox"/> Hard to read |
| (4) Articles        | <input type="checkbox"/> Excellent    | <input type="checkbox"/> Average     | <input type="checkbox"/> Inadequate   |

• Please explain the reasons for your selections

## Q2. Which of the following sections of the report did you find valuable? (You may select more than one)

- commitment—Message from the Chief Environmental Strategy Officer  
 vision—Hitachi Group Corporate Environmental Management

### Eco-Mind & Global Environmental Management

- Environmental Management Framework  Improving Environmental Management

### Next-Generation Products & Services

- Expanding Our Eco-Product Lineup  Environmentally Conscious Manufacturing and Services: More Products

### Super Eco-Factories & Offices

- Preventing Global Warming  Using Resources Efficiently  Managing Chemical Substances  
 Rigorous Pollution Control  Super Eco-Factories & Offices

### Worldwide Environmental Partnerships

- Information Disclosure and Engaging in Dialogue  Pursuing Activities as a Global Citizen  Stakeholder Evaluations

## Q3. What is your opinion of the Hitachi Group's environmental activities?

(You may select more than one in each category)

- |                                   |  |  |  |
|-----------------------------------|--|--|--|
| (1) Areas of excellence           | <input type="checkbox"/> Prevention of global warming                            | <input type="checkbox"/> Conservation of resources | <input type="checkbox"/> Preservation of the ecosystem |
|                                   | <input type="checkbox"/> Partnership with consumers, local residents, NPOs, etc. |  |  |
| (2) Areas for further improvement | <input type="checkbox"/> Prevention of global warming                            | <input type="checkbox"/> Conservation of resources | <input type="checkbox"/> Preservation of the ecosystem |
|                                   | <input type="checkbox"/> Partnership with consumers, local residents, NPOs, etc. |  |  |

## Q4. This year the Hitachi Group has divided its annual CSR reporting into two separate publications, the *Hitachi Group CSR Report 2009 Digest*, which summarizes our CSR initiatives, and the *Hitachi Group Environmental Sustainability Report 2009*, which focuses on our environmental activities. What is your opinion of the new format for reporting environmental activities?

- Reader-friendly  
— Reason(s):  More information  Easier to find information  Other ( )
- Not reader-friendly  
— Reason(s):  Too much information  Hard to find information  Other ( )

## Q5. Which of the following best describes you or your relationship to Hitachi? (Please select one only)

- Customer  Shareholder/investor  Supplier  Government/public administration employee  
 Research/education institution employee  News/media employee  Student  NPO/NGO representative  
 Resident near Hitachi Group facility  Hitachi Group employee/family member  Other ( )

## Q6. How did you find out about this *Environmental Sustainability Report*? (Please select one only)

- Newspaper  Magazine  Web site  Seminar  Exhibition  From a Hitachi employee  
 Other ( )

## Q7. Did reading the *Environmental Sustainability Report 2009* improve your environmental image of the Hitachi brand?

- It improved my image  It did not change my image  It worsened my image

## Q8. Please write below any other comments or requests you have regarding the *Hitachi Group Environmental Sustainability Report* or the Group's environmental activities and initiatives

Thank you for your cooperation

We will use your feedback to improve our environmental report and our environmental activities.