MITSUBISHI ELECTRIC

Environmental Sustainability Report 2000

Ichiro Taniguchi President & CEO

Creating Together...
Towards a "Sustainable Society"

Increased social awareness and concern for the global environment
have brought forth a period of transition as we near the end of the 20th century.
The industrial economic system exemplified by mass production,
mass consumption and mass waste disposal that dominated the last 100 years
is changing, giving way to new demands for the 21st century, the actualization
of a "sustainable society"– a socio-economic order capable of continued growth while
simultaneously achieving real energy and resource conservation.
Mitsubishi Electric has chosen the realization of a sustainable society as its vision
of how future generations should live and is now initiating activities planned
to achieve this goal. By tapping our rich experience in building social infrastructure
and developing state-of-the- art products in fields such as information technology,
members of the Mitsubishi Electric Group will contribute actively
to the formation of a sustainable society in the 21st century.

The Mitsubishi Electric Group introduced its Environmental Plan company-wide
in fiscal 1993, setting the framework for voluntary activities to protect the environment.
Following our fiscal 1996 implementation of the 2nd Environmental Plan targeting
fiscal 2000, in order to strengthen and accelerate efforts towards the establishment
of a sustainable society, we have initiated the next step in our program,
the 3rd Environmental Plan, a full year ahead of schedule. Of course,
all of the action points laid out in the 2nd Environmental Plan are covered within
the new plan, but the 3rd Environmental Plan includes more stringent goals
for reducing the use of substances that pose risks to the environment
and promoting the efficient use of energy and resources. In addition, in order to improve
the recyclability of our products, we are putting special emphasis on our
"Design for the Environment(DFE)" program. We firmly believe that once the products
we are currently providing our customers reach the end of their lifecycles
10-15 years from now, the era of a truly cyclical society will have arrived.
Looking towards this time, we recognize that it is our responsibility to introduce
DFE techniques to the fullest extent possible in the design of our products today.

This report provides information on both the results of the Mitsubishi Electric Group's
efforts with regard to the environment in fiscal 1999 and the details of the
3rd Environmental Plan that commences this year.
The realization of a sustainable society will require wide-ranging efforts
from all members of society. With the understanding and support of
our shareholders, customers, business partners, and regional communities,
we hope to create together a sustainable society.

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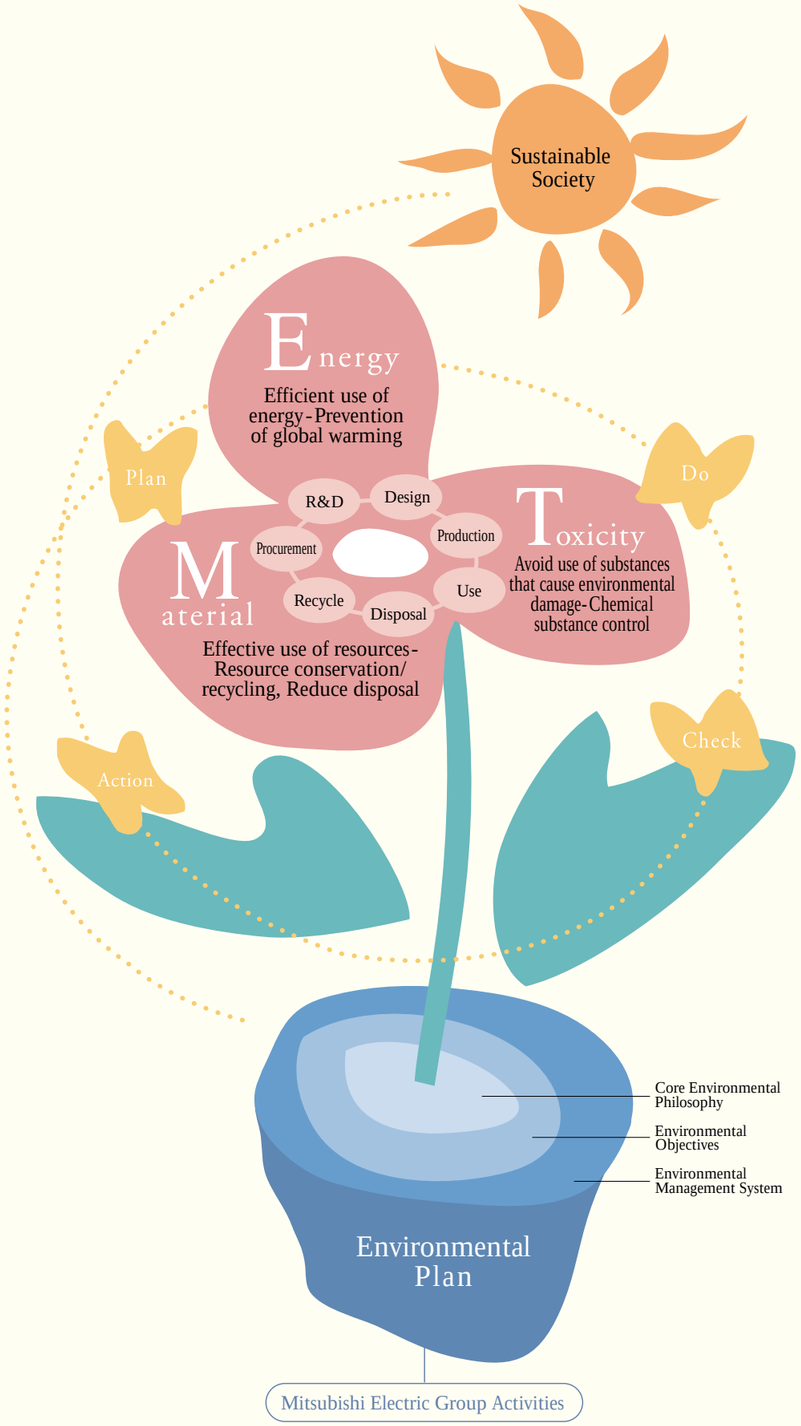


Corporate Profile

● Name : Mitsubishi Electric Corporation ● Head Office : Mitsubishi Denki Bldg., 2-2-3 Marunouchi, Chiyoda-ku, Tokyo 100-8310, Japan Tel : +81-3-3218-2111
● Date Established : January 15, 1921 ● Paid-in Capital : 175.8 billion yen (as of March 31, 2000) ● Employees : 42,989 (as of March 31, 2000)
● Sales (Fiscal 1999; Apr. 1, 1999 - Mar. 31, 2000) : Non-consolidated: 2.7050 trillion yen, Consolidated: 3.7742 trillion yen

Addressing Environmental Matters

Environmental Plan

The Mitsubishi Electric Group has been engaged in voluntary efforts to address environmental problems since fiscal 1993. These efforts have been built into our corporate organization under the framework of a company-wide environmental plan. The Environmental Plan has three main pillars: a core environmental philosophy/action policy, an environmental management system to implement this policy and a set of concrete environmental objectives regarding such issues as reducing the use of harmful substances and improving the efficiency of resource and energy utilization. We are continuously improving and revising these objectives in accordance with advances brought about by our past efforts and societal changes.

Core Environmental Philosophy

Under the international principle of "sustained development," the Mitsubishi Electric Group is committed to protecting and improving the global environment through all business activities and employees' actions, utilizing knowledge accumulated in the past as well as technologies developed in the future.

Environmental Action Policy

1 We will strive to reduce any negative environmental impact resulting from our products and activities. We will develop technologies and processes that are compatible with the environment. Products will be fully assessed over their entire lifecycle, and our facilities will promote resource efficiency, conservation and recycling.

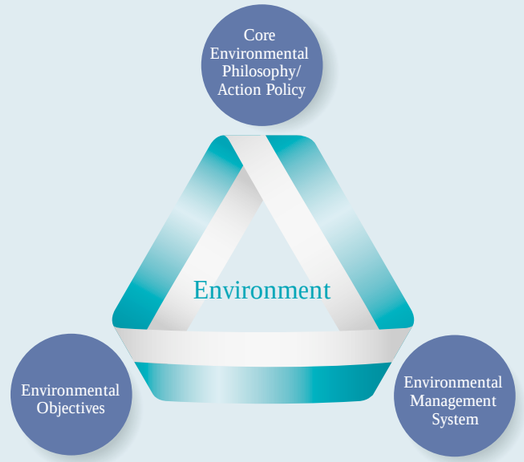
2 We are committed to understanding environmental problems and contributing to a universal awareness of the need for businesses to integrate their activities with the natural cycles of nature.

3 We will establish environmental management systems at all of our business sites and operate them according to accepted standards. At the same time, we will continually improve environmental controls through environmental audits and similar methods.

4 We will educate, train and motivate employees to be good environmental stewards in the own right, as well as support employees and their families when they engage in activities that promote environmental protection.

5 We will foster active communication and cooperation regarding environmental protection worldwide.

Basic structure of Mitsubishi Electric Group in promoting active volunteer activities and making environmental contributions through business operations

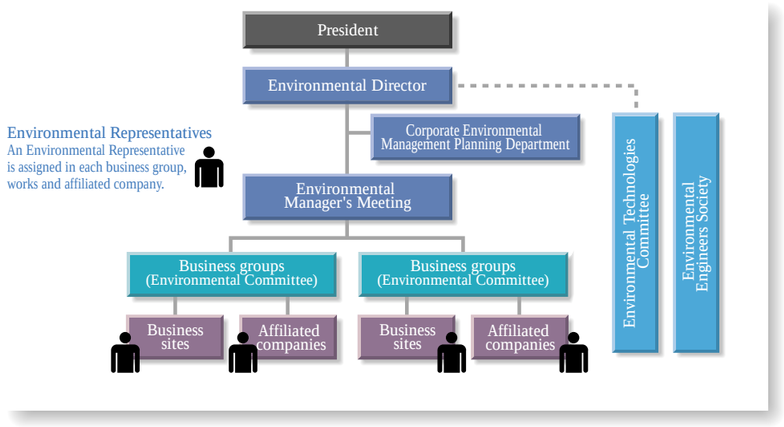


Tangible numerical targets for activities to reduce negative environmental impact

Constructed to uphold the philosophy and achieve action plans

Corporate Environmental Management Organization

Corporate environmental management is promoted based on the environmental plan under the following organizational structure.



Environmental Director

The basic policies and measures taken by the Mitsubishi Electric Group regarding environmental problems are finalized by the Environmental Director, who is responsible for reviewing, promoting, and amending the Environmental Plan.

Environmental Management System

All operations of Mitsubishi Electric and its affiliated companies follow an environmental management system based on the ISO 14001 set of international standards. All operations are continuously making efforts to improve on these standards.

Environmental Manager's Meeting

This regular meeting of the environmental managers from all business groups and sites provides a means of confirming policy, reviewing the progress of activities implemented under the Environmental Plan, exchanging information and coordinating related matters between the different operations.

Environmental Technologies Commitee

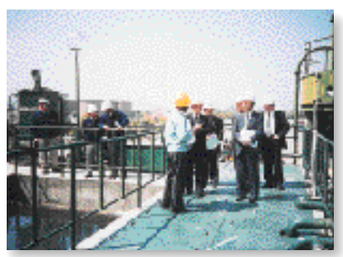
This committee is an advisory panel that reports to the Environmental Director. It addresses the technological topics necessary for meeting environmental objectives and promotes the development of evaluative techniques and common technologies that can be used throughout the company. The Environmental Technologies Committee has three subcommittees: Design for the Environment, Waste Treatment and Recycling, and Energy Conservation.

Environmental Engineers Society

This is in effect an internal study group aimed at promoting the interaction and education of Mitsubishi Electric engineers involved with environmental technologies. Over 500 engineers are currently participating in the activities of this group, which include lectures on environmental technologies, tours of related facilities and presentations of R&D results.

Environmental Audits

The Mitsubishi Electric Group has environmental management systems based on ISO14001 at all of its production facilities and major affiliated companies. Compliance at each site is checked by internal auditors and a team from an outside certification organization. In addition, the Mitsubishi Electric headquarters also conducts regular environmental audits to confirm of the progress of the company's Environmental Plan.



Actions to Present

Action in the 1970s

- President's policy for preventing environmental pollution introduced
- Mutual inspection of factories conducted
- Environmental White Paper issued

Actions in the 1980s

Committee for the Reduction of Ozone-depleting Substances (ODSs) established

1990

1991

- Corporate Environmental Management Planning Department established

1992

- Internal environmental audits conducted

1993

- Plan to phase out specific CFCs introduced

Core Environmental Philosophy/Action Plan adopted

- Policy to obtain ISO 14001 certification adopted

1994

1st Environmental Plan

- ISO 14001 certification acquisition project started

1995

- "Environmental Pollution Control Regulations" revised to "Environmental Control Regulations"

1996

- Phase out of specific CFCs completed

Core Environmental Philosophy/Action Plan revised

1997

1998

2nd Environmental Plan

- Used Home Electronics Products Recycling Business Management and Promotion Office established
- First issue of annual environmental report
- Hyper-Cycle Systems Co., Ltd. established
- Green-Cycle Systems Co., Ltd. established
- ISO 14001 certification acquired by all domestic manufacturing sites

1999

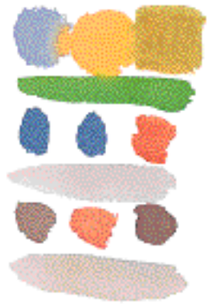
Full-scale operations started (see page 31)

- Environmental accounting standards adopted

2000

3rd Environmental Plan

Outline of 1999 Results



In fiscal 1999, activities based on the 2nd Environmental Plan (fiscal 1996-2000) produced the following results. A detailed account by theme is provided starting on page 13. In addition, environmental accounting standards were adopted and their implementation begun. For information on the fiscal 1999 environmental accounting standards, see page 10.

Environmental Management System Structure

Tangible Targets

ISO 14001 Certification
⇒Receive certification at all domestic manufacturing sites by the end of fiscal 1998. (acquired)
⇒Receive certification at all major affiliated companies by the end of fiscal 2000.

Environmental Objectives

Tangible Targets

Manufacturing processes

[Prevention of global warming]
⇒Reduce emissions of greenhouse gases by 25% by fiscal 2010 (compared to fiscal 1990 level of carbon-equivalent energy consumption to net sales).

[Resource Conservation & Recycling/Waste Disposal Reduction]
⇒Reduce total amount of consigned waste disposal by 30% by the end of fiscal 2000 (compared with fiscal 1995 levels).
⇒Restrict total waste disposal to less than 100,000t/yr by the end of fiscal 2000.
⇒Increase the rate of recycled resource use by more than 75% by the end of fiscal 2000.

⇒Identify the amounts of chemical substances used in manufacturing processes and set targets to reduce them.
⇒Eliminate the use of organic chlorine solvents by the end of fiscal 1999. (achieved)
⇒Reduce the use of volatile organic solvents in open systems and promote the recovery and reuse of these substances.

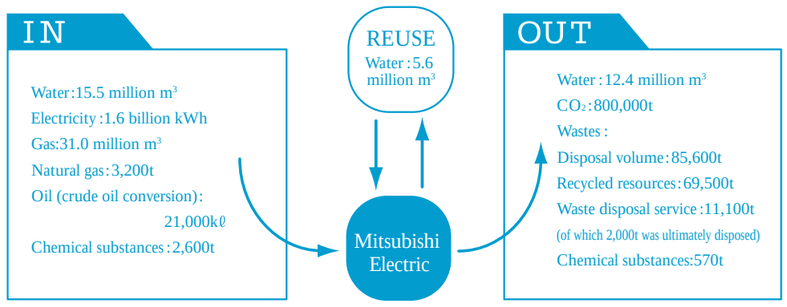
Products

[Prevention of Global Warming]
⇒Reduce both the active and standby-state electricity consumption of products by the end of fiscal 2000 (year standards, reduction amounts, and indices are set for each product).

[Resource Conservation & Recycling/Waste Disposal Reduction]
⇒Increase the use of recycled materials by 30% by the end of fiscal 2000 (compared with 1995 levels).
⇒Reduce the use of packaging materials by 20% by the end of fiscal 2000 (compared with 1995 levels).
⇒Increase the identification of plastic component materials to the maximum possible extent by the end of fiscal 2000.

[Control of Chemical Substances]
⇒Set targets to reduce or eliminate by substitution the use of chemical substances having a strong negative environmental impact by the end of fiscal 2000.
⇒Eliminate the use of hydrochlorofluorocarbons (HCFCs) in heating and refrigeration equipment by the end of fiscal 2010. Eliminate the use of HCFCs as foaming agents in refrigeration equipment by the end of fiscal 2004.

Resource Input & Output to the Environment



Steady progress was made towards a general realization of the goals stipulated in the 2nd Environmental Plan in fiscal 1999. However, in order to respond to the acceleration of social trends towards the realization of a sustainable society, Mitsubishi Electric drafted and adopted the "3rd Environmental Plan," which incorporates stronger and more expansive targets than earlier plans introduced by the company. For the specifics of this plan, please see pages 11-12.

Fiscal 1999 Progress Report

·17 domestic affiliated companies (18 sites) and 3 overseas affiliated companies (3 sites) acquired third-party ISO 14001 certification.

Evaluation: Very Good

Fiscal 1999 Progress Report

·Reduced CO_2 emissions by 10% compared with fiscal 1990 levels through energy conservation efforts. When compared on the basis of sales per CO_2 emissions, the reduction comes to 15% compared with fiscal 1990 levels. Although there is some distance to go to meet the fiscal 2010 target of a 25% reduction, we will intensify efforts to realize this important objective.
·Engaged in activities regarding greenhouse gases other than CO_2, including limiting the areas in which they are used, utilizing them in closed production systems, promoting methods to reclaim/reuse and decompose them, and developing substitute substances/technologies.

Evaluation: Very Good

·Reduced the amount of waste handled by our disposal service by 60% compared to fiscal 1995 levels through improvements in manufacturing processes and efforts to reuse waste oils and plastics.
·Reduced total emissions tonnage for the year to 85,600t, well below the 100,000t level and a 7% reduction.
·Increased the resource reuse rate on a year-on-year basis by 3 points from 78 to 81%.

Evaluation: Extremely Good

·Used a total of approximately 2,600t of 45 different chemical substances in manufacturing processes.
·Succeeded in phasing out all organic chlorine solvents such as trichloroethylene.
·Made efforts to reduce emissions by taking steps to rationalize the use of volatile organic solvents such as switching to non-solvent paints.

Evaluation: Extremely Good

·Set voluntary individual targets for various product fields, and worked to improve energy efficiency and reduce active and standby power consumption of products.
·Strengthened product energy conservation features.

Evaluation: Very Good

·Increased use of recycled materials to 2.5 times our fiscal 1995 level.
·Reduced the total amount of packaging materials used by 20% (compared to fiscal 1995 levels), including reductions in the use of materials such as wood and styrene foam.
·Included content labels on a wide variety of product categories, especially newly developed products.

Evaluation: Very Good

·Reduced use of substances such as vinyl chloride and polybrominated biphenyl (PBB) flame retardant, in addition to heavy metals. In cases where reductions or substitutions are technologically impossible, we are moving forward with efforts to control chemical substances used in products through measures such as facilitating their removal through innovative designs.
·Began activities to replace completely HCFC with hydrofluorocarbon (HFC) in the cooling units of refrigeration equipment by the end of fiscal year 2001.

Evaluation: Must Try Harder

The above results have been compiled by Mitsubishi Electric. All are self-evaluations.

Awards

Mitsubishi Electric has been presented numerous awards recognizing its environmental activities. The main awards received in fiscal 1999 are listed below.

	Award Name	Site/Product	Awarding Organization	In recognition of
Manufacturing process	Agency of Natural Resources and Energy Director's Prize for Energy Conservation	Shizuoka Works	Energy Conservation Center	Energy savings achieved through the use of a thermal cascade in a co-generation system
	Agency of Natural Resources and Energy Director's Prize for Excellence in Energy Control at a Production Facility (Electronics Category)	Saijo Factory	Energy Conservation Center	Participation of all workers in energy conservation activities to attain zero energy loss
	Council for the Promotion of Recycling, Chairman's Prize for Distinguished Service in Recycling	Communication Systems Center, Recycling Promotion Office	Council for the Promotion of Recycling	Thorough promotion of recycling activities
	Kyushu Bureau of International Trade and Industry Industrial Section Chief's Prize Excellence in Reforestation of Industrial Areas	Mitsubishi Electric Kumamoto Semiconductor Co., Ltd.	Kyushu Bureau of International Trade and Industry	Promotion of reforestation/tree-planting
	Science and Technology Agency Director's Prize for Creative Excellence	Kamakura Works	Industry Association of Kanagawa Prefecture	Cutting-oil separation device
Products	Japan Machinery Federation Chairman's Prize for Superiority in Energy-Saving Devices	Nagoya Works	Japan Machinery Federation	Energy-saving induction motor (Super Line Eco Series--satisfies both US and Japanese standards)/Industry's top motor in energy conservation and efficiency
	Energy Conservation Center Chairman's Grand Prize for Energy Conservation	Air-Conditioning and Refrigeration Systems Works	Energy Conservation Center	"City Multi R2" multi-unit air-conditioning system for building-use (new cooling system)
	Good Packaging Award (Large and Heavy Product Category)	Nakatsugawa Works, Mitsubishi Electric Engineering Co., Ltd.	Japan Packaging Machinery Manufacturers Association	Partially exposed package solution for business-use air conditioner "Lossnay"
	Agency of Natural Resources and Energy Director's Prize for Power Load Leveling Device/System	Shizuoka Works	Japan Heat Pump & Thermal Storage Center	Packaged air-conditioner "Eco-Ice Mini"-compact thermal storage features

Introduction of Environmental Accounting

Environmental accounting is a method of ascertaining quantitatively a company's investments and expenses with regard to environmental protection and the results of these financial outlays. Of course, the value of the products of environmental protection efforts, such as clean air and water or environmentally friendly products, cannot all be evaluated by financial analysis. While sufficiently aware of the limits inherent in this method, Mitsubishi Electric, by understanding the costs involved with its ever-expanding environmental activities, hopes to improve the effectiveness of related operations in the future.

Adoption of Environmental Accounting Standards

Beginning with energy and waste disposal costs, the Mitsubishi Electric Group has totaled the values of its investments in facilities and R&D related to the environment. These totals have been applied in the development and promotion of our environmental policies.
In fiscal 1999, having received an official set of draft guidelines for environmental accounting* from the Environmental Agency, Mitsubishi Electric adopted a set of environmental accounting standards that included clear definitions of the expenditure items to be calculated and the range to which the standards were to be applied. We began using these standards for our fiscal 1999 accounting.

*Ascertaining Environmental Protection Costs/Official Statement Regarding Guidelines (draft)

Among the basic principles adopted as the environmental accounting standards for the Mitsubishi Electric Group, the most important are as follows:

1) The revenues and expenditures of environmental businesses and products that are designed to reduce negative environmental impact are not included.

In our environmental accounting, although the costs of lowering the negative impact on the environment of basic operational activities (centering on manufacturing activities) are included in our calculations, the costs of R&D and production as well as income from individual products with superior energy-saving functions or environmental businesses such as photo-voltaic power generation or water purification systems are not included. However, we do include the costs of research and development involving fundamental technologies that will be used in multiple products, such as work related to the development of HCFC refrigerant substitutes.

2) Coverage is limited to activities whose main purpose is to reduce negative environmental impact.

Although activities with the compound objectives of increasing production efficiency and reducing environmental impact are many, in our environmental accounting, the basic policy is to isolate and count only the portion intended to reduce the burden on the environment. When it is impossible to make clear distinctions, the entire amount is counted in cases where activities were initiated mainly for their environmental benefits and the entire amount is excluded if the case is otherwise.

3) The entire value of a capital investment is included in the total of the year in which it was actually implemented.

We have decided to include the entire value of a capital investment in the figures for the year in which the investment is implemented and do not make calculations involving depreciation. In addition, in cases where the results of a particular investment will continue to provide returns over multiple years, estimates of the expected results for up to a maximum of three years will be added to the total of the first year in which such as result is realized.

4) Revenues are limited to those that can be calculated on the basis of reliable supporting data.

In figuring results, we do not include hypothetical calculations of risk avoidance effects (so-called "equivalency effects") such as estimates of the compensatory value of not pursuing a particular environmental policy. Instead, we only include the results that are actually achieved such as savings from energy conservation activities or sales profits achieved due to the reuse of resources. In addition, we will provide other kinds of quantitative measures for environmental protection activities that cannot be expressed in monetary terms, such as reduction in CO_2 emissions.

Issues for the Future

As we have just begun our efforts with environmental accounting, it is likely that it will take some time before we arrive at a final set of standards. In addition, as it is not possible to convert the results of all environmental protection activities into monetary values, it is necessary to provide an integrated evaluation that also incorporates other quantitative measures to express the total reduction of the burden on the environment.While conscious of this situation, the Mitsubishi Electric Group, by continually gathering environmental accounting information, will make the utmost effort to apply this knowledge to improving the group's environmental protection activities. Furthermore, through our participation in groups such as the Environmental Agency's Study Group on Corporate Practice Regarding Environmental Accounting, we intend to contribute to the further advancement and standardization of environmental accounting methods and increase the social effectiveness of environmental accounting in general.

Environmental Account for Fiscal 1999

The fiscal 1999 environmental account for Mitsubishi Electric and its 47 major domestic and overseas affiliated companies (33 domestic, 14 overseas) is expressed in the chart below. Figures are divided in accordance with the classification system arranged in the Environmental Agency guidelines, "Towards the Establishment of an Environmental Accounting System" (published in March 2000).

Environmental Protection Expenditures for Activities

Upper row : Mitsubishi Electric Group
Lower row : Mitsubishi Electric (non-consolidated)
Unit: 100 million yen

Item	Capital investment	R&D costs	Operational expenses	Main content
Activities in the vicinity of operational sites	34.3 26.6	— —	67.6 54.3	
Pollution prevention	7.4 5.6	— —	26.8 21.9	Costs associated with the maintenance and improvement of water and gas emission treatment equipment
Global environmental protection	21.7 17.5	— —	2.2 1.7	Introduction of energy-saving equipment such as gas/co-generation systems, the substitution of devices that use hydrocarbon-based industrial rinses, etc.
Resource circulation	5.2 3.5	— —	38.6 30.7	Costs related to water collection/reuse, reduction of wastes, treatment/disposal, recycling, etc.
Activities upstream and downstream of production	0.2 0.0	— —	3.8 3.8	Costs related to the reuse/reduction of packing containers and packaging materials
Environmental management activities	0.0 0.0	— —	23.1 15.8	Costs related to the operation, maintenance and construction of our environmental management system, costs related to environmental education programs for employees
Research and development dedicated to reducing the negative impact of company activities on the environment	— —	22.8 22.5	— —	HCFC substitute refrigerant technology, SF_6 substitute insulator technology, development of lead-free product technology, etc.
Social activities	0.1 0.1	— —	7.9 7.1	Increasing the greenery in and around production facilities, regional volunteer activities, expenses related to participation in industry groups, etc.
Environmental restoration	6.8 6.5	— —	2.0 1.6	Expenses related to the clean-up of contaminated soil and underground water sources
Total	41.4 33.2	22.8 22.5	104.4 82.6	
	168.6 138.3			

*In the entry "Activities upstream and downstream of production" in the above chart, neither the cost differential between the purchase price of standard materials and "green" materials nor the effects of such purchases are included in the calculated figures. In addition, with regard to the "costs related to the recycling, collection, reuse and proper processing of products produced and/or sold" and their related effects, the earnings and expense figures of the recycling business conducted by members of the Mitsubishi Electric Group have been excluded.
*With regard to R&D expenses, only costs related to the development of basic technologies that reduce negative environmental impact are included; the development costs of specific products are not included in these calculations.

Revenues from Environmental Protection Activities

Upper row : Mitsubishi Electric Group
Lower row : Mitsubishi Electric (non-consolidated)
Unit: 100 million yen

Item	Amount	Main content
Profit	8.1 6.8	Profit from the sale of valued items incorporating recycling
Savings	63.9 47.6	Savings in electricity costs due to energy conservation efforts, savings in water costs resulting from the reuse of water supplies, savings in waste treatment costs due to waste reduction Savings in chemical expenses resulting from the reduced use of chemical substances, savings in the purchase cost of new items resulting from the reduction/reuse of packaging materials, etc.
Total	72.0 54.4	

*For fiscal 1999 environmental protection results expressed in material amounts, please see pages 7~8.

3rd Environmental Plan

The main themes of the 3rd Environmental Plan,
a three-year plan running from fiscal 2000 to fiscal 2002, are as follows:

1. Strengthening of environmental management in consolidated operations of the Mitsubishi Electric Group

The 3rd Environmental Plan targets Mitsubishi Electric subsidiaries and affiliated companies (excluding those managed by third parties)*1 that are important for strengthening and expanding the efforts of the Mitsubishi Electric Group.
Among group companies, those with activities deemed to have a relatively large impact on the environment are authorized as "plan-drafting companies."*2 These companies will introduce environment management systems, draft annual implementations to meet the objectives set in the 3rd Environmental Plan, and follow through with planned activities.

2. Setting new objectives to reduce negative environmental impact

In addition to expanding the existing objectives of the 2nd Environmental Plan, we have also added new objectives to the 3rd Environmental Plan. The specifics of the new plan's objectives appear in the chart to the right.

3. Strengthening of environmental policies regarding products

Although we have been actively involved in efforts to reduce the environmental impact of our products for some time, the 3rd Environmental Plan furthers our efforts by setting clear standards (as in fiscal 1999, "Core Philosophy Regarding Design for the Environment" and "Design for the Environment Handbook," which set tangible design and evaluation methods) and quantitatively assessing the level of conformance to these standards product by product. In this manner, we are attempting to improve and expand the range of DFE application throughout the company. For specifics regarding the "Core Philosophy Regarding Design for the Environment" and "Design for the Environment Handbook," please see pages 27 and 29.
In addition to promoting environmental policies for products as a whole, we are also aware of the need to reduce the negative environmental impact created during materials procurement. For this purpose, we are working to reduce the negative environmental impact caused at this stage by promoting "green procurement" with our suppliers and business partnerships.

4. Preparing and developing an environmental information system

We are furthering the preparation and development of an environmental information system that will enable us to move forward in the area of environment related operations more efficiently and effectively. Our "integrated environmental information system" is scheduled to begin operation in 2001. This system will allow the entire Mitsubishi Electric Group to have joint access to environmental management data.

5. Improving disclosure with measures such as the introduction of environmental accounting

It is becoming more and more important to provide customers, business partners, shareholders, and regional communities with correct and sufficient information regarding corporate efforts and achievements related to environmental protection. During execution of the 3rd Environmental Plan, we will continue to publish an environmental report that provides expanded information on the state of our group companies' efforts and the details of our ever-improving environmental accounting. In addition, we will promote further information disclosure regarding the environmental features of our products.

*1) Targeted companies: 110 domestic and 39 overseas companies (as of April 2000).
This excludes affiliated companies operating under the same EMS as a related Mitsubishi Electric site.
*2) Plan-drafting companies: 48 domestic and 16 overseas companies (as of April 2000).

New Environmental Objectives

Objectives from the 2nd Environmental Plan have been added to the 3rd Environmental Plan in expanded form.
Portions related to the objectives of the 2nd Environmental Plan are summarized as per their originally planned completion in 2000.

Manufacturing Processes

Prevention of global warming

Reduce energy consumption through activities to contain CO_2 emissions

Tangible targets

- Reduce greenhouse gas emissions by 25% by fiscal 2010 (compared to fiscal 1990 levels of carbon-equivalent energy consumption to net sales).
  - Target a total improvement of over 1.5% per year at Mitsubishi Electric production sites.
  - Target a total improvement of over 1% per year at other Mitsubishi Electric facilities and affiliated companies
- Set reduction targets for greenhouse gas (GHG)*1 emissions.
  - HFC*2: Maintain plant emissions below 0.2% of total amount handled by fiscal 2002.
  - SF_6: Maintain plant/equipment (at time of installation) emissions below 3% of amount purchased by fiscal 2005.
  - PFC : Reduce plant emissions of PFC gas by 6% by fiscal 2002 (compared with fiscal 1998 levels); reduce plant emissions of liquid PFC emissions (total greenhouse effect value) by 10% (compared with fiscal 1995 levels).

Resource Conservation and Recycling/Waste Reduction

Considering resource conservation and recycling, and control of waste matter production

Tangible targets

- Shift the focus of waste reduction policies from conventional downstream (post-disposal) measures to upstream (pre-disposal: design) policies (i.e., promote measures integrated in product development, etc.)
- Assess waste generation levels related to the manufacturing processes of our leading products by the end of fiscal 2000 and set targets for waste reduction and resource reuse.
- Reduce the amount of waste disposed of by waste treatment services by 10% by the end of fiscal 2002 (roughly equivalent to a 30% decrease compared with fiscal 1998 levels).
- Set specific targets for reduction/reuse for each type of waste material.
- Reduce the total amount of waste disposed of by waste treatment services by 30% as of the end of fiscal 2000 (compared with fiscal 1995 levels).
- Reduce the total amount of waste generated to less than 100,000t/yr by the end of fiscal 2000.
- Increase the rate of resource reuse to more than 75% by the end of fiscal 2000.

Dioxin policies

- Ensure thorough compliance with regulations such as the "Law Concerning Special Measures against Dioxins" by the end of fiscal 2002.
- Discontinue the use of compact incinerators that, although not regulated devices, might possibly produce dioxins.

Control of Chemical Substances

Reduce emissions of chemical substances by controlling their use in manufacturing processes.

Tangible targets

- Eliminate the use of organic chlorine solvents, including use at the facilities of affiliated companies, by the end of fiscal 2000.
- Prepare for the operation of PRTR*3 and move forward with early implementation plans.
- Reduce the release of toluene and xylene group substances into the open atmosphere.

Products

Reduce negative environmental impact by applying "the Core Philosophy Regarding Design for the Environment" and the "Design for the Environment Handbook" to all of our products. Determine tangible targets on a product-by-product basis.

Tangible targets

- Work to set targets that reduce the burden of a product that has reached the end of its service life by assessing the processing required at the end of its life (EOL processing).
- Conduct a lifecycle assessment (LCA) in which a product's specific impact on the environment is specified, materials are chosen and manufacturing processes adjusted accordingly, and the resulting reduction in environmental impact verified.
- Promote "green procurement",working to reduce environmental burden from the procurement stage by assessing the chemical content of composite components and the suitability of utilizing recycled materials for new products.

[Effective use of resources] (M: Material)

Make efforts to increase recycling and ensure the effective use of resources for products and packaging materials.

Tangible targets

- Reduce the kinds of materials made of standard compound resins, etc.
- Plan to simplify disassembly and shorten disassembly times.
- Reduce the amount of packaging material used per product-company-wide reductions of 20% are to be achieved by the end of fiscal 2000 (compared with fiscal 1995 levels).
- Reduce the total amount of packaging materials used throughout the company by 10% compared with fiscal 1998 levels.
- Promote the reuse of used components and the re-manufacture of used products.
- Increase the use of recycled materials by 30% by the end of fiscal 2000 (compared with fiscal 1995 levels).
- Provide content information on products with plastic components.

[Energy efficiency] (E: Energy)

Improve energy efficiency and reduce power consumption in the active and standby modes of products.

Tangible targets

- Set targets for reducing power consumption in the active and standby modes of individual products.

[Avoidance of the discharge of harmful substances] (T: Toxicity)

Maintain thorough control of all chemical substances used in our products-make progress in the reduction/substitution of substances that pose risks to the environment.

Tangible targets

- Maintain thorough control of all chemical substances used in our products-make progress in the reduction/substitution of substances that pose risks to the environment - Mitsubishi Electric believes the following substances pose such risk: heavy metals (lead, cadmium, mercury, hexavalent chromium), polybrominated biphenyl (PBB) flame retardant, vinyl chloride resins, ozone-depleting substances, and greenhouse gases.
- Design products so that, in cases where it is technologically difficult to use a substitute, the harmful substance is made clearly distinguishable and easy to remove during disassembly.
- Eliminate the use of HCFC as a refrigerant in air-conditioning equipment by the end of fiscal 2010 and as a foaming agent in refrigeration equipment by the end of fiscal 2004.

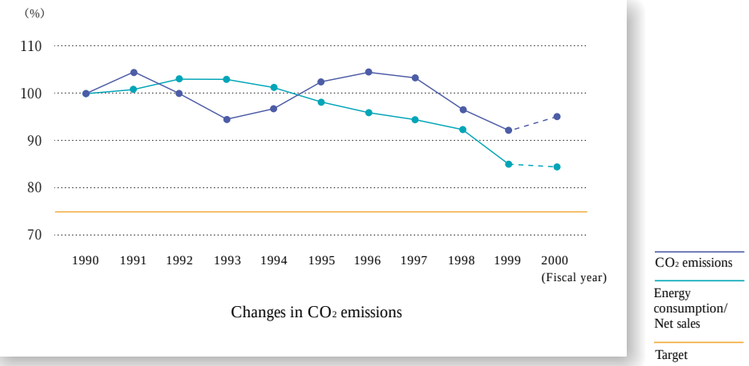
*1) Greenhouse gases: SF_6 (sulfur hexafluoride), PFC (perfluorocarbon), HFC (hydrofluorocarbon)
*2)This objective includes both HFC and HCFC.
*3)PRTR: Pollutant Release and Transfer Register

Details of Fiscal 1999 Results

Prevention of Global Warming

Reduction of CO_2 Emissions

At the Conference of the Parties Third Session of the United Nations Framework Convention on Climate Change (COP3) held in Kyoto, Japan, in December 1997, each of the developed countries assigned their own targets to promote the reduction of CO_2 emissions as an effort to prevent global warming. Since that time, revisions have been made to strengthen laws, such as the Global Warming Countermeasure Law and Energy Conservation Law (regarding energy use). As Mitsubishi Electric has been conducting a voluntary campaign to conserve energy for some time, we are already seeing results in our efforts to smoothly reduce CO_2 emissions.



Changes in CO_2 emissions

* Energy consumption converted to CO_2 values
* Carbon-equivalent coefficients are set based on 1990 standard values.
* t-CO_2=3.37 t-C

The total emission of CO_2 created by the operation of Mitsubishi Electric facilities was 800,000t-CO_2 for the year, accounting for 0.07% of the total CO_2 output of Japan. Compared to fiscal 1990 levels, emissions dropped by 10% (8,400t-CO_2). In fiscal 1999, although production increased by 2% over the previous year, energy use (due partially to energy conservation efforts) decreased by 5%, with a 7% decrease in terms of CO_2 energy consumption to net sales. Viewing our energy conservation performance by sector, energy use dropped at the facilities of our electric power and consumer products divisions, while the increased production at the manufacturing facilities of our communications, automotive parts and semiconductor divisions tended to cause a rise in electricity use. We are increasing our energy conservation efforts in these sectors.

Main Points of Energy Reduction Program

Promoted activities to reduce energy loss in manufacturing processes
(e.g., efforts to reduce energy loss at the Shizuoka Works).

Promoted the improvement of energy conservation at semiconductor production facilities
(e.g., energy conservation activities at the Saijo Factory).

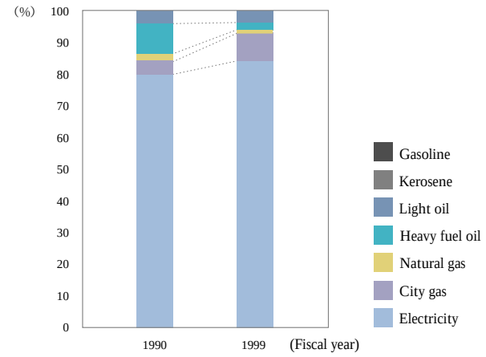
Promoted the effective use of thermal cascades from heat sources
(e.g., related efforts at the Air-Conditioning and Refrigeration Systems Works).

Built new facilities with energy conservation systems
(e.g., energy conservation control efforts at Communication Systems Center).

Through these efforts, we were able to reduce our total CO_2 emissions in terms of CO_2 energy consumption to net sales by 15% compared with fiscal 1990 levels. We are now working toward a 25% reduction by fiscal 2010. For leading examples of this aspect of our environmental program, please see "Meeting the Challenge Onsite" on page 15.

Energy Usage Details

Of all the energy utilized by Mitsubishi Electric in the last fiscal year, electricity accounted for 85% (carbon equivalent), or 1.6 billion kilowatts. Compared to the fiscal 1990 breakdown, our efforts to shift away from the use of crude oil to city-supplied natural gas and electricity have made significant progress.



Change in Use of Energy Sources

Efforts towards New Objectives

Mitsubishi Electric is currently striving towards a 25% reduction in our total CO_2 emissions in terms of CO_2 energy consumption to net sales by fiscal 2010 (as compared to fiscal 1990 level). As per the 3rd Environmental Plan, we are aiming to meet the following targets :

- Reduce CO_2 emissions by more than 1.5% per year at Mitsubishi Electric production facilities.
- Reduce CO_2 emissions by more than 1% per year at other Mitsubishi Electric facilities and affiliated companies.

As an issue for the future, we are working especially hard to be responsive to production changes in our efforts to increase the energy conservation of manufacturing processes and improve facilities and product quality. In the medium to long-term, we plan to implement the following policies.

Three Medium to Long-term Policies

1) Promote Energy Conservation through Intelligence and Innovation (reduce energy loss, expand the use of integrated devices for capturing and using waste heat such as co-generation systems)
2) Shift to Energy Sources with Minimal Negative Environmental Impact(change from use of oil to natural gas and electricity, which place less of a burden on the environment)
3) Actively Use New Renewable Energy Sources (introduction of new energy devices such as photo-voltaic, fuel cell, and wind power -generation systems as well as devices that capture unused energy)

Strengthening Energy Conservation Efforts

Energy Conservation Subcommittee Activities

The newly established Energy Conservation Subcommittee of the Environmental Technologies Committee has begun company-wide activities addressing the main theme of energy loss. Based on our energy loss reduction manual, improvements in energy conservation begin with measurements of energy use, with the presence of energy loss made clear by checklist-based inspections. At many of our model work sites, we are already witnessing reductions in energy loss and are currently using examples of these effective efforts as the basic contents for a company-wide sourcebook.

Energy loss classifications	Energy conservation improvement points
Energy loss during non-business hours	Stop use when unnecessary Stop use for unnecessary purposes
Energy loss during shutdown	Current loss during starting process Current loss during line shutdown
Energy loss due to cycle delays	Minimum cycle time values for each device Maximum cycle time for equipment operation
Energy loss due to defects	Zero defects
Energy loss from no-load operation within cycle	Portion that can be controlled during no-load operation
Excessive energy loss	Portion that can be controlled during operation
Facilities energy loss	Prevent loss from thermal radiation

Establishment of Corporate Energy Conservation Promotion Office

In order to unite our internal energy conservation activities, the Energy Conservation Promotion Office has been newly established. This office is moving forward with activities such as the promotion of inspections and improvement of energy conservation in manufacturing processes and the construction of energy control systems.

Meeting the Challenge Onsite

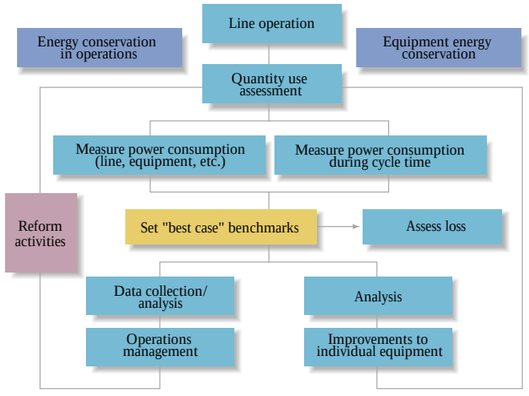
Reducing Energy Loss through Intelligence and Innovation

Shizuoka Works

At the Shizuoka Works, which manufactures refrigerators and air-conditioning equipment, a special vacuum-sealed refrigerator production line was installed. Power consumption readings were then taken for this "model" work site. With these readings, energy loss has been analyzed, and we are currently working toward the goal of reducing energy loss by 25% per unit over the next two years.
The main implemented activities include the reduction of defect rates by improving production conditions, improvement of equipment operation control methods, introduction of controls for the inverters in oil pressure motors, reduction of cycle time, and the full deactivation of power sources during periods of line shutdown, among others. Due to the combined effects of these energy conservation improvements, we were able to reduce electricity use by 17% in just one and a half years.

Steps toward Reducing Energy Loss

STEP 1: Set up individual devices to measure power consumption at each place where power is utilized.
STEP 2 : Assess the power consumption levels at each location.
STEP 3 : Set "best case" benchmarks based on energy loss analysis.
STEP 4 : Implement reform measures, follow-up.



In addition to such activities at the model site of the Shizuoka Works, the plant also implemented an energy conservation campaign that covers all of its operations. As a result, the Shizuoka Works reduced the CO_2 emissions of its total operations to 720t, a 3% drop on a year-on-year basis. The results produced by these steady energy conservation activities have received recognition. At the fiscal 1999 Energy Conservation Month awards ceremony, the Shizuoka Works received the Kanto Bureau of International Trade and Industry Chief's Prize for Superior Energy Control at a Production Facility (Thermal Category). In addition, the plant's efforts in the development of a co-generation system with a thermal-power cascade received the Agency of Natural Resources and Energy Director's Prize for Energy Conservation.

Employee Activities to Reduce Energy Loss

Saijo Factory

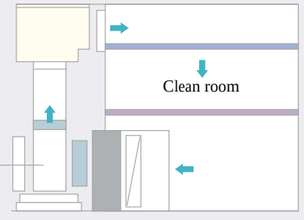
The Saijo Factory, which manufactures system large-scale integrated (LSI) devices, has thoroughly executed a series of energy conservation activities that are linked to its TPM* activities to achieve zero loss through the participation of all employees.

[Main Improvements in Energy Conservation]

- Reduced power consumption by replacing conventional, large scirocco fans with compact, low-pressure, energy-saving ventilation fans in newly constructed lines.
- Changed the wind-speed specification in the clean room from 0.30 to 0.25m/s. This reduces the required volume of circulating air and allows the intermittent shutdown of the air-conditioning units, thus lowering power consumption.
- Lowered restart temperature by adjusting the temperature/humidity controls on exterior air-conditioning units. This reduces usage of electricity and kerosene by lowering the load on freezers and boilers.
- Reduced power consumption by interconnecting receiver tanks to enable individual compressors, which previously operated independently for each plant building, to work in tandem, obviating the need for one compressor.

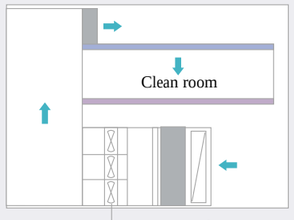
Introduction of Energy-saving Air Conditioning

Previous format



Large ventilation and air conditioning

New format



Compact, low-pressure, energy-saving ventilation/air conditioning

Due to the combined effects of these energy conservation improvements, Saijo Factory was able to lower energy consumption to 12,100t-CO_2/yr, an 8% reduction from the previous year. In addition, in terms of energy consumption as a percentage of units produced, the plant has made a large 47% reduction over the last five years. The results obtained through these steady energy conservation activities have received recognition. At the fiscal 1999 Energy Conservation Month awards ceremony, Saijo Factory received the Agency of Natural Resources and Energy Director's Prize for Superior Energy Control at a Production Facility (Electricity Category).

Cascading Technology Allowing Multiple Use of Thermal Exhaust

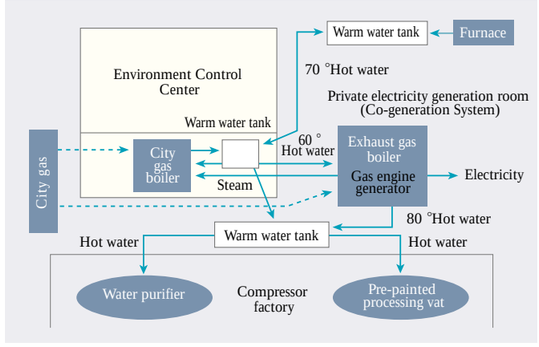
Air-Conditioning and Refrigeration Systems Works

The Air-Conditioning and Refrigeration Systems Works, which manufactures freezers and air-conditioning equipment, has realized an effective way to make multiple use of its thermal exhaust. The plant installed a co-generation system powered by a gas engine; this system, in order to make use of the thermal exhaust produced by its boiler (for component processing/heating), incorporates a cascade from high to low temperatures. Specifically, a system has been devised that can heat the plant from room temperature to 80 degrees Celsius using absolutely no extra fuel, an innovation that has dramatically improved energy conservation, reduced costs, and helped realize pollution-free use of exhaust gases.

Effective utilization of thermal exhaust

As a result of system implementation, the plant reduced its CO_2 emissions by 10% to an annual level of 1,100t. In addition, the plant is promoting fuel substitutions, eliminating the use of heavy oils (which are particularly burdensome on the environment), switching to oil-less processes and is realizing energy use patterns that have low impact on the environment as the result. Recognized for the effective use of thermal exhaust, the Air-Conditioning and Refrigeration Systems Works received the Kinki Bureau of International Trade and Industry Chief's Prize.

Expanded Co-generation System



Construction of a New Building with an Energy Conservation Control System

Communication Systems Center

The Communications Systems Center, which aims to provide hi-tech communications systems to link the world, constructed a five-story production/technology building with an advanced energy conservation control system.
The building's control system provides centralized monitoring and control functions for power, air conditioning and lighting for each floor, including levels with a communications equipment production line, an integrated network test chamber, a design room and an experiment room. The building's control system is also being applied to monitor the power conditions of the entire production site. In addition, the building's offices have been equipped with energy and space-saving low-power consumption personal computers and liquid-crystal display monitors. Finally, a 10kW photo-voltaic power-generation system has been installed on the building's roof.

New building

Photo-voltaic power-generation system

Due to the combined effects of these energy conservation improvements, over the last five years, operations at the Amagasaki site have realized a large 44% reduction in energy consumption as a percent of units produced. The results obtained by these steady energy conservation activities have received recognition. At the fiscal 1999 Energy Conservation Month awards ceremony, the Communication Systems Center received the Kinki Bureau of International Trade and Industry Chief's Prize for Superior Energy Control at a Production Facility (Electricity Category).

Reduction of Greenhouse Gases Other than CO_2

Hydrofluorocarbon (HFC), perfluorocarbon (PFC) and sulfur hexafluoride (SF_6), as thermally and chemically stable substances, have considerable utility and are used widely in industrial fields. However, these gases are greenhouse gases with global warming effects that are hundreds to many thousands times larger than that of CO_2. Accordingly, the Conference of the Parties Third Session of the United Nations Framework Convention on Climate Change (COP3) approved measures to reduce the emission of these gases.

In February 1998, the Minister of International Trade and Industry announced guidelines to reduce the emission of HFC and other gases in industrial operations. These guidelines call for the industrial sector to adopt voluntary emission control plans for these gases, to meet emission reduction targets and to disclose information regarding the status of plan implementation.

Mitsubishi Electric has been working to reduce the emission of these gases since fiscal 1996 by means such as limiting their areas of use, promoting their use in closed systems as well as their recovery, reuse and decomposition, and conducting R&D to introduce new technologies and substitute substances.

Hydrofluorocarbon (HFC)

Although chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) have been used widely in air-conditioning and refrigeration equipment to present day, both are substances that destroy the ozone layer. Accordingly, Mitsubishi Electric eliminated the use of CFC in 1995 and began a shift from HCFC to HFC (which is not harmful to the ozone layer) in 1998. This shift is scheduled for completion in major products by 2005 and in all products by 2010.

In general, HFC is a refrigerant that offers superior performance, safety and cost efficiency. However, because it is also a gas that has an influence on the greenhouse effect, Mitsubishi Electric is actively moving forward with measures to reduce the amount of its use per product, and is promoting recovery, reuse and leak prevention when products that use the substance are manufactured, serviced and recycled. In addition, as a long-term objective, we are developing refrigeration technology that has a lower impact on global warming than HFC-based systems.

Considering the shift from HCFC to HFC and the fact that HFC is a greenhouse gas of the same level as HCFC, Mitsubishi Electric expresses its emission reduction targets as indexed figures that combine HCFC and HFC.

Emission reduction targets	● Reduce plant emissions to 0.2% of amount handled by fiscal 2002.
Fiscal 1999 results	Total amount handled : 2,286.4t/yr Emissions : 69.1t/yr As a percentage of total amount handled : 3.0%

Perfluorocarbon (PFC)

Fluorine gases such as PFC (CF_4, C_2F_6, etc.), HFC, SF_6 and NF_3 are used widely in semiconductor manufacture during the dry etching process and the cleaning of production equipment. Mitsubishi Electric is conducting the following voluntary activities to reduce the use of PFC.

- Reducing the amount of PFC used (through efficiency and process condition improvements).
- Considering the introduction of a PFC filtering device (improving filtering efficiency, evaluating test models).
- Considering substitute gases and PFC recovery/reuse methods (studies, consideration, basic evaluation, test model evaluations).

Mitsubishi Electric's PFC emission reduction targets and fiscal 1999 results are as follows:

Emission reduction targets:	● Reduce plant PFC gas emissions by 6% of fiscal 1998 levels by fiscal 2002. ● Reduce plant PFC liquid emissions by 10% of fiscal 1995 levels by fiscal 2002.
Fiscal 1999 results (Greenhouse effect index converted values)	PFC gas Fiscal 1998 plant emissions: 401,544t-CO_2/yr Fiscal 1999 plant emissions: 390,684t-CO_2/yr Reduction percentage: 2.7%
	Liquid PFC Fiscal 1995 plant emissions: 85,803t-CO_2/yr Fiscal 1999 plant emissions: 58,460t-CO_2/yr Reduction percentage: 31.8%

Sulfur hexafluoride (SF_6)

SF_6 is used as an insulating gas in electronic devices. Mitsubishi Electric established the SF_6 Emissions Reduction Committee and is currently working to reduce and control emissions of SF_6 gas used for electrical insulation. Furthermore, an SF_6 gas recovery device is being introduced for the collection and reuse of SF_6 gas. SF_6 emission reduction targets and fiscal 1999 results are as follows.

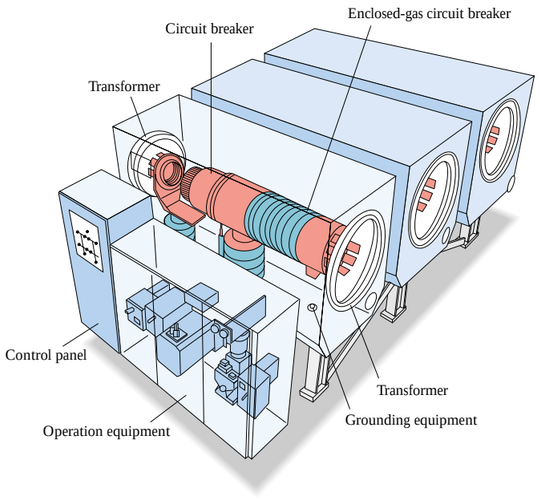
Emission reduction targets	● Reduce plant and installation period emissions to 3% of amount purchased by fiscal 2005.
Fiscal 1999 results	Amount purchased: 362t/yr Emissions : 66t/yr

Meeting the Challenge Onsite

Reduction in Use of Enclosed SF_6 Gas

Although gas arresters in gas-insulated substations (GISs) utilize enclosed SF_6 gas as an insulating medium, Mitsubishi Electric has been successful in raising the resistance level of the zinc-oxide substance used in metal-oxide arresters, cutting the amount of zinc-oxide used in half and reducing volume by approximately 40-60% in comparison with conventional arresters. Through this innovation, the amount of enclosed SF_6 gas could be reduced by 60%. In addition, we have developed a compound gas-modulated circuit breaker (GMCB) that combines several component devices such as gas circuit breaker, disconnector and grounding device all in a single unit. Using measures such as combining components and unifying controls for three phase circuitry, we have created a compact product that is 65% lighter and has 25% less volume than conventional products in the same category. The space required for installation has also been cut by 30%. By emphasizing compactness in design, our gas circuit breakers require only about 55% of the enclosed SF_6 used in conventional gas circuit breakers.

Compound Gas-Modulated Circuit Breaker



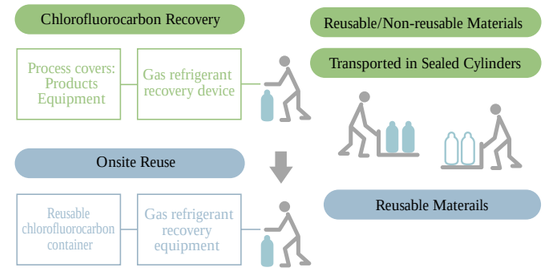
Efforts to Reduce SF_6 Emissions

During the GIS development stage, we conducted tests using large-current circuit breakers and were able to recover and reuse nearly 100% of the SF_6 gas filling. However, during these tests, decomposed SF_6 gas was emitted, prompting us to develop equipment to prevent these emissions and reproduce exceptionally pure SF_6 gas filling. This equipment has been in use since April 1995. In addition, in the production phase of fully developed GIS systems, we have made advances in SF_6 emission recovery during product functionality testing and strengthened the capabilities of our recovery system by such measures as introducing equipment that can prevent emissions at conditions below atmospheric pressure. In this way, Mitsubishi Electric is continually improving on its efforts to reduce SF_6 gas emission. Moreover, we are making further progress in emission reduction by introducing portable SF_6 recovery devices for use during product installation and inspection at customer sites.

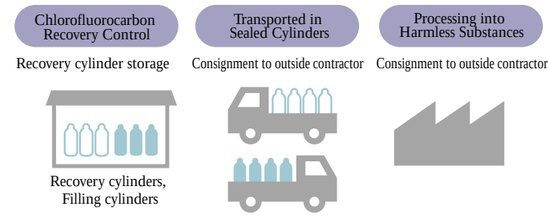
Recovery/Reuse of HFC Refrigerants

As compressors that utilize HFC or HCFC as refrigerant are installed in air-conditioning equipment such as room and packaged air conditioners, home refrigerators and similar appliances, in order to avoid the release of chlorofluorocarbons into the atmosphere during the development, production, recovery and reuse of these products, we have developed six devices to recover liquid refrigerants and 22 devices to recover refrigerants in gaseous state and are actively reusing recovered material. In addition, Mitsubishi Electric has established a system in which chlorofluorocarbon emissions that cannot be reused due to contamination with impurities are disposed of by a special external contractor that processes the material to render it harmless to the environment.

Division Handling Chlorofluorocarbon



Chlorofluorocarbon Recovery Control Division



Cyclopentane Foam

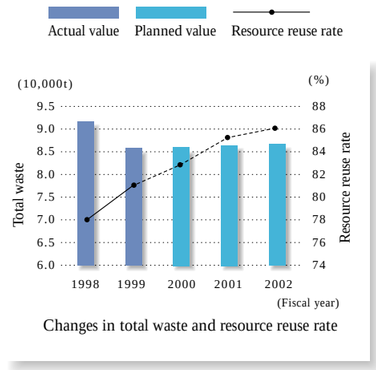
In the past, urethane foam was used in the insulation of refrigerators, with HCFC utilized as a foaming agent. HCFC has been used as a substitute for chlorofluorocarbon substances banned by the Ozone Layer Protection Law in 1995. However, although HCFC has a small impact on ozone depletion, its effect is not zero. Mitsubishi Electric is gradually switching from HCFC to a cyclopentane foaming agent, a substance that not only has no impact on the ozone layer, but also has an extremely small greenhouse effect in comparison with HCFC. The switchover in major products was completed by February 1999 and will be completed in all products by the end of fiscal 2004.

(Refrigerator rear faceplate)
This refrigerator uses cyclopentane as the foaming agent.

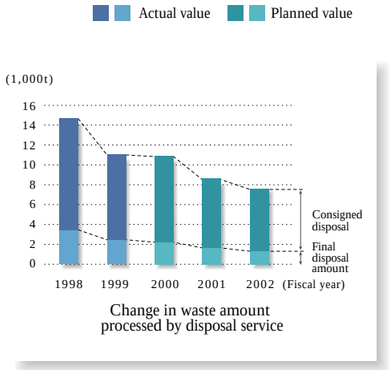
Resource Conservation and Recycling / Waste Reduction

In May 2000, the Promotion of the Formation of a Sustainable Society Law was enacted and regulations regarding waste management and purification (Waste Disposal and Public Cleansing Law) were revised. Committed to reducing the total volume of waste processed by its disposal services by 30% before the end of fiscal 2000 (compared to fiscal 1995 levels), Mitsubishi Electric achieved this target in fiscal 1998. In fiscal 1999, we continued to move forward with our efforts to reduce waste processed by our disposal services and conducted many activities targeting the reduction of waste generation.

Activities in Fiscal 1999



Changes in total waste and resource reuse rate

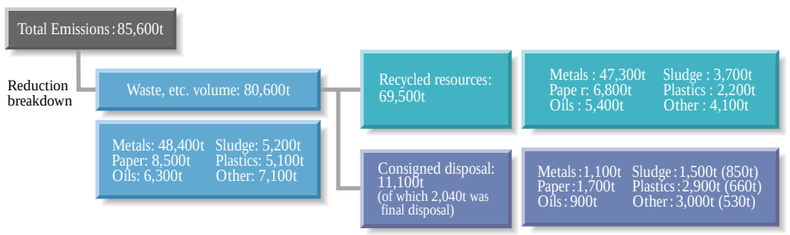


Change in waste amount processed by disposal service

Waste processed by disposal services in fiscal 1999 was reduced by 27% compared with the previous year's level (60% compared to the fiscal 1995 level). In addition, total waste was reduced by 7% on a year-on-year basis to 86,500t, and the resource reuse rate improved 3 points to 81%. Specifically, liquid waste was greatly reduced through improvements in our cathode-ray tube manufacturing process and conversion to long-life machine processing oils. In addition, we made efforts that included the introduction of equipment to process dry sludge resulting from water treatment, the conversion of waste plastics to serve as basic materials for cement, and the recycling of materials through reduction in blast furnaces.

We are concentrating our efforts on suppressing waste in the manufacturing process so that, in the future, when production increases, the total amount of waste generated will not. In order to make effective use of wastes as resources, we are promoting the recycling of combined materials and moving forward with efforts to reduce the amount of final waste; plans are to lower the amount to 2% of total waste by the end of fiscal 2002.

Processing Flow



Introduction of Input/Output Analysis to Promote Waste Reduction/Recycling

In order to shift from "end of pipe" measures that reduce the amount of waste discharged to upstream policies that concentrate on preventing the creation of waste from the onset, analysis that encompasses the manufacturing process is necessary. One such method is known as input/output analysis (I/O analysis). Because this method analyzes the material balance between basic materials input, secondary materials, discharged by-products and unneeded elements, it raises and places on the agenda issues related to design and process improvements. The Environmental Technologies Committee and its Waste Treatment and Recycling Subcommittee conduct evaluations and discussions regarding the introduction of new technologies using this method. For a detailed example regarding the Image and Information Systems Works, please see page 21.

Strengthening the Company-wide Waste Management System

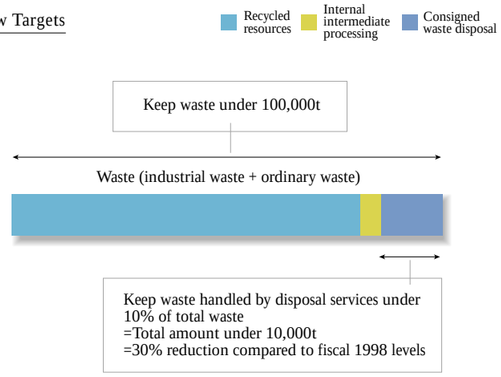
In order to ensure the proper processing and reduction of waste materials, we have prepared company-wide waste control regulations and specified a waste manager for each company site including branch offices. Several times a year, these managers participate in a general meeting that allows them to confirm and respond to changes in company regulations and exchange information regarding related trends within and outside of the company.

Efforts to Meet New Targets

With the 3rd Environmental Plan, we are continuing to strengthen our environmental efforts and are working towards the ultimate goal of zero emissions:

- Assess the waste emissions situation related to the manufacturing processes of the leading products of each production site for the purpose of working towards the ultimate goal of zero emissions, and set emission reduction/resource recycling targets by the end of fiscal 2000.
- Reduce waste handled by waste disposal services to 10% of total waste by the end of fiscal 2002.
- Set concrete category-specific targets for the reduction/reuse of waste materials.By assessing how waste is generated during the manufacturing processes of leading products and providing feedback regarding issues for the design and production phases, we are making efforts to suppress emissions and increase the use of recycled resources. Additionally, based on our activities up to the present, we are implementing policies to reduce both total waste and the amount of waste handled by our waste disposal services. In order to reduce total waste, finer control indicators are necessary. For this reason, we are setting category-specific reduction and resource recycling targets for each type of waste material (scrap metal, waste plastics, etc.).

New Targets



Efforts towards Zero Emissions

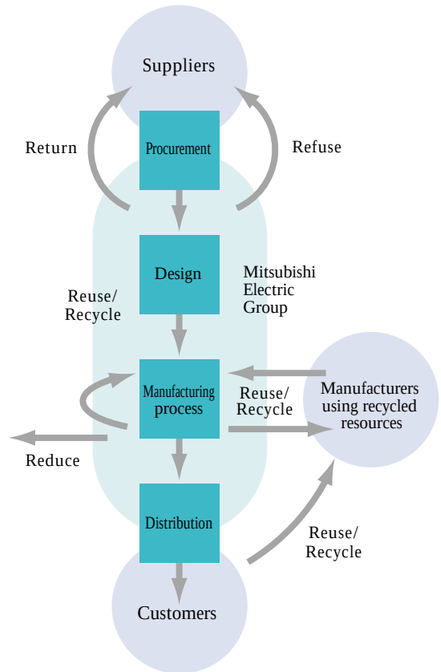
Although there are various meanings associated with the phrase "zero emissions," at Mitsubishi Electric, it serves as the general term for our efforts to minimize resource loss through the reduction and effective use of by-products and unnecessary elements generated during the manufacturing process. To prevent resource loss, we are working together with suppliers to conduct operations under a "5R" strategy that consists of the 3Rs (Reduce, Reuse, and Recycle) and two additional Rs, Refuse (refuse to use unnecessary elements) and Return (return packaging materials and items that can be reused), which are enforced to promote "green procurement."

Measures to Handle Dioxins

There are 13 incineration facilities in active operation at Mitsubishi Electric sites. During the previous year, we measured the dioxin concentration in the gases emitted from these facilities and confirmed that all cleared the standards set by the regulations of the Waste Disposal and Public Cleansing Law. In addition, on January 1, 2000, we began to enforce the stricter standards stipulated by the Law Concerning Special Measures against Dioxins. In accordance with the 3rd Environmental Plan, we are enforcing strict compliance with this new law and are discontinuing the use of existing incinerators that have a high potentiality of generating dioxins. In addition, in cases where disposal services are contracted to an outside agency, we confirm the contractor's compliance with the new law.

All activities are based on our efforts to realize maximum reductions in the emission of wastes.

Implementation of the 5Rs



Meeting the Challenge Onsite

Waste Analysis Using Input/Output (I/O) Analysis

Image and Information Systems Works

In July of last year, we began I/O analysis of the cathode-ray tube (CRT) manufacturing process at the Image and Information Systems Works. Assessing the compositional elements of materials used in the manufacturing process, we are analyzing such issues as how materials are processed and what ingredients are added to them. Instead of looking at the glass used in CRTs as mere glass, we clarify its compositional elements such as silicic acid, barium oxide, etc. Next, by examining issues such as to what degree each element is included in final products and which processes generate which kinds of wastes, it becomes clear which processes are problematic. For example, although sludge can be recycled as a basic material for cement, if it contains large amounts of fluorine, it becomes difficult to recycle. By improving rinsing processes that use fluorine, we have been able to make the resultant sludge reusable as basic material for cement. In addition, we have been able to verify that the strict separation of phosphor sludge allows it to be converted into a nonferrous material.
In the future, in order not only to convert waste into reusable resources, but also to avoid producing resource losses overall, we will continue our activities to reduce waste by tracing their generation back to the manufacturing process.

TPM* Activities and Zero Emissions

Shizuoka Works

Based on the 5R concept (Reduce, Reuse, Recycle, Refuse and Return), the Shizuoka Works has adopted the goal of "zero production loss = zero waste" and is conducting analyses and quantification of all types of loss as part of its ongoing TPM activities.
The works' target is "zero loss = zero emissions." For example, the plant is involved in efforts to reduce wastes through improving defect rates and yields and the active development of new ways of using recycled resources. Further, it is working to improve resource loss through such measures as research into the development of reusable urethane (insulating material used in refrigerators) conducted as a chartered project of the New Energy and Industrial Technology Development Organization (NEDO). In addition, this kind of quantitative loss improvement provides feedback for designers and continues to be useful in the development of products that create material losses during their production (i.e., the feedback helps increase the efficient use of resources).

*TPM: Total productive maintenance

Zero Emission of Industrial Wastes

Kumamoto Factory

The Kumamoto Factory has been involved in activities to convert industrial wastes into reusable materials since its production and waste control departments began cooperating together 10 years ago. Due to these efforts, the factory was able to achieve a 99.8% resource reuse rate (industrial waste, 1,772t/yr; reused resources, 1,769t/yr) in fiscal 1999. The three major pillars of this effort are "recycle," "reuse," and "heat recovery as fuel." Concrete examples include the reuse of ion-exchange resin; the recycling of fluoride calcium, fluorescent lights, mold resins, and styrene foam, among other materials; and the use of heat recovered from various types of alcohol, film processing liquid, and oil as fuel. Specifically, in February 2000, although for only one month, the factory was able to achieve zero emissions (zero industrial waste for landfill disposal). For the future, the Kumamoto Factory is shifting its efforts to where resources are used in manufacturing processes (i.e., where waste materials are generated), and is moving forward with plans to further reduce industrial wastes and recover high-quality, reusable resources.

Award for Distinguished Efforts to Promote Recycling

Communication Systems Center

In October 1999, the Communications Systems Center received the Chairman's Prize from the Council for the Promotion of Recycling for its efforts to reduce waste and promote recycling. Within the work site, in addition to metals, bottles, cans and wood shavings, workers made thorough efforts to separate and collect plastics/pet bottles, styrene foam and batteries. Batteries were separated into groups of nickel-cadmium, button, mercury and others. In addition, the plant shifted from normal washcloths, which had previously been thrown away after use, to a rental service that provides reusable cleaning cloths. In a tie-up with a refining company, the plant is also recycling plating sludge by recovering copper from it. Through efforts such as these, the plant has reduced the amount of waste handled by its disposal service from 853t in fiscal 1997 to 663t.

Paper Cups

The lamentation on the inside of paper cups makes them particularly difficult items to recycle. However, the plant located a recycling company and, since November 1998, has conducted the collection and separation of 780,000 cups per year (approximately 300kg of paper cups per month). This material is being recycled as toilet paper for use at the plant.

Cigarette Packages

The Communication Systems Center not only collects and separates paper used for office equipment, but also shredded paper, paper wrappings for disposable chopsticks and even cigarette packages with the cellophane wrapper/aluminum foil covering removed. In the midst of busy days, conducting this kind of detailed waste separation was, of course, met with some resistance. However, through employee classes on waste management, the situation improved and the resulting high level of awareness among individual employees has served as the foundation for these activities.

Collection and Separation of General Waste

Kita-Itami Administration Center

In October 1999, at two of the waste collection areas servicing the Kita-Itami Administration Center, collection bins capable of separating waste into 11 different types replaced older bins that were only able to separate waste into four types. These bins have increased the efficiency of general waste collection and the resource reuse rate. The offices were able to reduce operating costs as well. In the future, all waste collection areas will be equipped with this new type of collection bin.

Conversion of Cooking Waste and Leftovers into Compost/ Conversion of Wood Shavings into Wood Chips

Nagoya Works

The Nagoya Works has introduced equipment to convert waste materials into compost and wood chips that are scattered over onsite greenery. This includes fertilizer made of cooking waste and leftovers as well as wood chips from industrial wood shavings. Through this innovation, the works is able to utilize 150t of recycled resources annually.

Collection bin capable of separating waste into 11 types

Equipment to convert waste into compost

Equipment to create wood chips

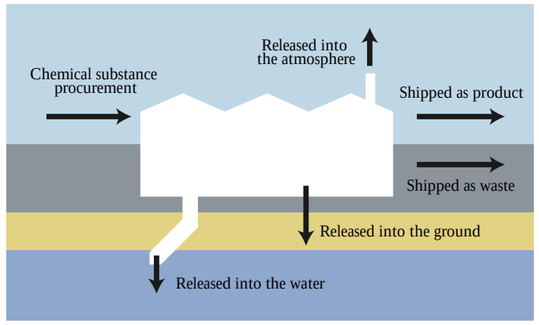
Control of Chemical Substances

The Special Measures to Promote Improvement of the Control and Measurement of Chemical Substance Emissions into the Environment Law (Chemical Substance Control Promotion Law) was promulgated on July 13, 1999, and went into effect on March 30, 2000. This law made the Pollutant Release and Transfer Register (PRTR: registry that accounts for the release of chemical substances into the environment as well as the transport of chemical wastes) a legal system. At Mitsubishi Electric, we have been implementing chemical control policies under the PRTR since 1997. In addition, as a result of our PRTR efforts, we have set targets regarding the chemical substances most often released into the environment and have moved forward with emission reductions and rationalization of the use of these substances. As part of this program, we were able to eliminate the use of organic chloride compounds such as trichloroethylene and dichloromethane in fiscal 1999.

Voluntary Control System (category-based control, materials balance control)

Mitsubishi Electric prohibits the use of 27 types of chemical substances, and categorizes some 488 other chemical substances into four classes targeted for the company's voluntary control system. In cases where targeted substances are utilized in manufacturing processes or products, after the materials balance has been specified, efforts are made to reduce the emission of the substances that pose a significant risk to the environment as well as to replace dangerous substances with those that cause little or no harm. In fiscal 2000, we are moving forward with a revised list of substances targeted for control in order to coordinate it with the "first category chemical substances" targeted by PRTR in the Chemical Substance Control Promotion Law.

Category-based Control, Materials



Chemical Substance Classification (by fiscal 1999)

Control classification	Substance (type) number	Substance example	Control action
S substances	27	PCBs, specified chlorofluorocarbons (ozone-depleting substances), some asbestos, etc.	Eliminated from manufacturing processes, products
A substances	13	Organic chloride compounds, trichloroethylene, dichloromethane, etc.	Air Pollution Control Law voluntary control targets. Manage targets based on adopted emissions reduction plan.
B substances	144	Chemical substances targeted for control by the PRTR system, specified cholorofluorocharbans, sulfur hexafluoride, etc.	Materials balance control implemented, utilization/emission reductions promoted where possible (detailed management conditions set according to environmental risk considerations)
C1 substances	255		
C2 substances	76		

Chemical Substance Control System

The chemical substance control system developed by Mitsubishi Electric utilizes electronic data interchange (EDI) transaction data for materials purchased at operations sites and automatically calculates statistics relating to their use for the head office. Once the purchase quantity reported in the EDI transaction data is converted to product weight, the component weights of the chemical substances in a product are computed. Additionally, conversion to release and waste transfer amounts can also be determined based on past results. Applying this system for the control of chemical substances presents the following three advantages:

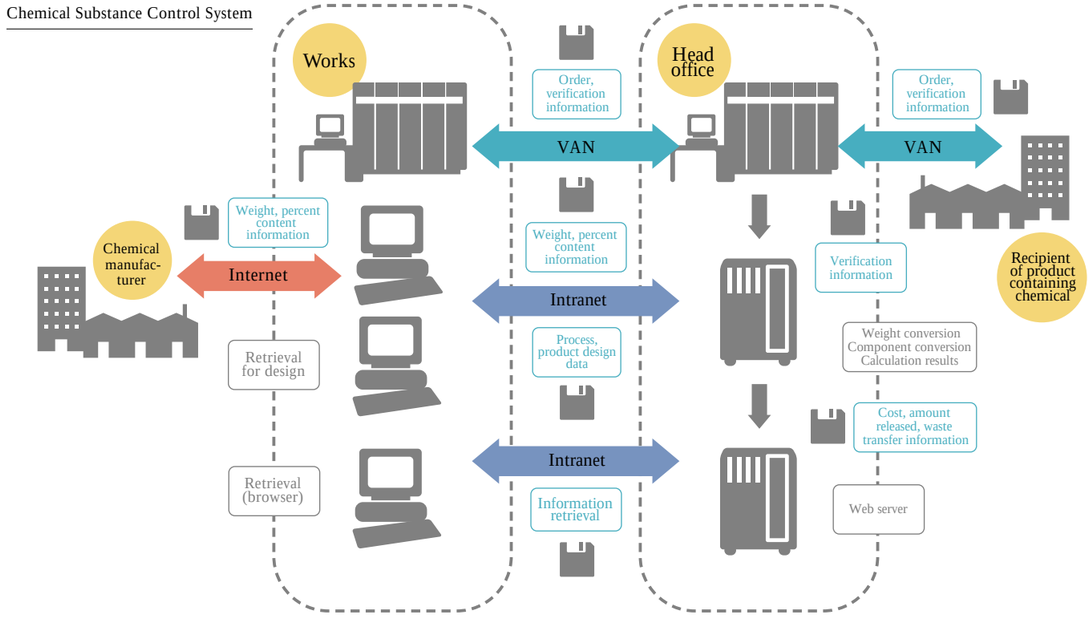
1) Labor savings for computation and management services (efficiency of automation over manual operation),

2) Information disseminated on a company-wide basis (component data obtained from each operation is available throughout the company), and

3) Consolidation of "green" procurement infrastructure (in which products with unknown components cannot be purchased).

In the future, Mitsubishi Electric plans to expand its chemical substance control system to include affiliated companies as well as to link the system to its design system as the company advances its Design for the Environment (DFE) program.

Chemical Substance Control System

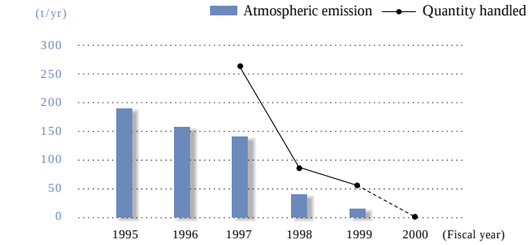


Mitsubishi Electric PRTR

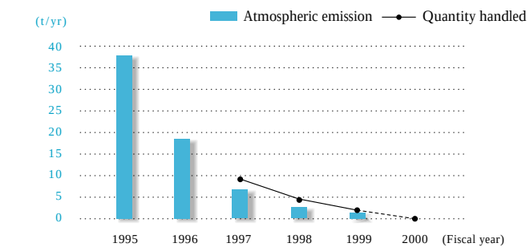
The results of calculations utilizing the chemical substance control system are shown on page 25. A total of 2,600t of chemical substances were utilized at 26 sites in Japan, with a breakdown showing 45 chemical substances categorized into 40 groups according to classification and substance type.

The overall rate of release was 22.1%, of which 97.9% was released into the atmosphere. Chemical substances noted for large release volumes included the xylene group and toluene among others, which are utilized as solvents in paints and varnishes. In addition, the company targeted the phasing out of class A substances, particularly trichloroethylene and dichloromethane, in view of the large volumes of these materials released into the atmosphere, as well as other organic chloride compounds by the end of fiscal 1999 (i.e., zero use fiscal 2000). This objective was successfully completed. The results of reduction efforts up to this point are shown in the graphs to the right.

Change in Trichloroethylene Emitted into the Atmosphere and Quantity Handled



Change in Dichloromethane Emitted into the Atmosphere and Quantity Handled



Efforts to Fulfill New Objectives

Toluene and xylene group substances:

1) Decomposed in the open atmosphere in anywhere from a few days to a few months

2) Decomposed by microbes

3) Low potential to concentrate in living organisms

4) By-products of oil refining processes and are thus inexpensive

Because of advantages such as those listed above, these substances have been used for various industrial activities. In Mitsubishi Electric's fiscal 1999 PRTR, emissions of these substances were the highest among the company's most commonly released substances; the situation being the same for the electrical and electronics industry and industrial sector in general. Mitsubishi Electric mainly uses toluene and xylene group substances in solvents for paints utilized in the coating of products. Solvent-type paints containing these substances are superior to water-soluble paints due to their anticorrosion qualities. Further, these kinds of paints also provide superior characteristics in many other areas including variety of color tones and levels of glossiness that may be achieved. However, toluene and xylene group substances are acknowledged to have effects on the central nervous system and kidneys. While always giving sufficient care to the handling of these substances in the past, we are now moving forward with efforts to replace solvent-type paints wherever possible with non-solvent paints in order to reduce the overall discharge of these substances into the environment. With the 3rd Environmental Plan, in addition to continuing progress related to the PRTR, Mitsubishi Electric takes the potential impact on product quality into consideration when setting numerical targets for each production facility to reduce emissions and rationalize the use of toluene and xylene group substances.

Mitsubishi Electric PRTR (fiscal 1999, units : t/yr)

Company control classification	Chemical name	Electric/electronics machinery 5-organization PRTR substance number	Quantity handled	Quantity released into atmosphere	Quantity released into water	Quantity released into ground	Quantity consumed	Quantity disposed of	Quantity transferred as waste	Quantity recycled	Control reclamation
Substance A	Trichloroethylene	72	51.49	19.71	0.00	0.00	0.00	0.00	6.28	25.50	0.00
Substance A	Formaldehyde	105	4.60	1.72	0.06	0.00	1.87	0.54	0.41	0.00	0.00
Substance A	Dichloromethane	50	1.62	1.00	0.00	0.00	0.00	0.50	0.12	0.00	0.00
Substance A	Trichloromethane	32	0.38	0.26	0.00	0.00	0.00	0.06	0.01	0.05	0.00
Substance A	Benzene	100	0.04	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.00
Substance A	Nickel compound	81	1.28	0.01	0.00	0.00	1.05	0.12	0.06	0.00	0.03
Substance B	Lead solder	905	78.54	0.03	0.01	0.00	55.32	0.05	2.06	21.06	0.00
Substance B	Chromium compound (Cr6)	24	0.37	0.01	0.00	0.00	0.10	0.16	0.10	0.00	0.00
Substance B	Talc	—	5.14	0.01	0.00	0.00	5.02	0.07	0.04	0.00	0.00
Substance B	Beryllium and compounds	99	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Substance B	Mercury and compounds	62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substance B	Arsenic and compounds	87	16.17	0.00	0.00	0.00	0.16	0.00	16.00	0.00	0.00
Substance B	Manganese compounds	107	0.30	0.00	0.15	0.00	0.03	0.11	0.00	0.00	0.00
Substance C1	Xylene group (complex)	21	347.20	249.22	0.00	0.00	0.19	16.52	13.11	68.16	0.00
Substance C1	Toluene	79	250.31	187.10	0.00	0.00	0.00	34.31	21.53	7.36	0.00
Substance C1	Styrene monomer	63	245.09	95.91	0.00	0.00	137.01	3.87	8.30	0.00	0.00
Substance C1	Hydrogen chloride (excluding hydrochloric acid)	15	371.16	2.40	0.02	0.00	0.68	365.74	2.31	0.00	0.00
Substance C1	Fluorine hydrogen	94	108.56	0.49	11.10	0.00	17.33	16.57	0.00	63.07	0.00
Substance C1	Cyanide compounds	37	1.77	0.05	0.00	0.00	0.00	1.30	0.43	0.00	0.00
Substance C1	Fluorine compounds (inorganic)	96	3.34	0.04	0.01	0.00	0.02	2.30	0.97	0.00	0.00
Substance C1	Fluorine	95	2.54	0.02	0.00	0.00	0.60	1.92	0.00	0.00	0.00
Substance C1	Chlorine	18	3.96	0.01	0.00	0.00	0.28	3.54	0.13	0.00	0.00
Substance C1	Zinc compounds	1	74.46	0.00	0.03	0.00	55.00	0.00	18.18	1.16	0.09
Substance C1	Antimony and compounds	8	34.01	0.00	0.00	0.00	26.38	3.52	3.56	0.02	0.53
Substance C1	Copper compounds	68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substance C1	Lead compounds	80	61.97	0.00	0.01	0.00	53.66	0.00	0.15	8.15	0.00
Substance C1	Diethyle hexyle phthalic acid	93	3.03	0.00	0.00	0.00	0.00	0.00	3.03	0.00	0.00
Substance C1	Boron and compounds	104	2.93	0.00	0.13	0.00	2.38	0.04	0.00	0.37	0.00
Substance C1	Cobalt and compounds	34	0.65	0.00	0.00	0.00	0.08	0.00	0.57	0.00	0.00
Substance C1	N,N-dimethyl formamide	58	17.13	0.00	0.00	0.00	0.00	0.00	16.91	0.22	0.00
Substance C1	Hydrazine	88	0.27	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00
Substance C1	Diphenylmethane diisocyanate	55	742.02	0.00	0.00	0.00	741.28	0.00	0.74	0.00	0.00
Substance C1	Caprolactam	20	0.69	0.00	0.00	0.00	0.69	0.00	0.00	0.00	0.00
Substance C1	Barium and compounds	86	6.87	0.00	0.44	0.00	5.02	0.73	0.36	0.32	0.00
Substance C1	Benzopyrene	101	0.21	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00
Substance C2	Ethylbenzene	123	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substance C2	Cellosolve	124	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Substance C2	Aluminum compounds (dissolved crystal)	118	35.63	0.00	0.04	0.00	9.39	26.20	0.00	0.00	0.00
Substance C2	Mono-ethanolamine	121	104.62	0.00	0.00	0.00	0.00	0.20	104.42	0.00	0.00
Substance C2	Dibutyl phthalic acid	160	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
		Total	2578.45	558.07	12.02	0.00	1113.80	478.39	220.10	195.45	0.64

* Due to rounding of the third decimal point, handled quantities less than 0.005 (t/yr) are indicated as 0.00.

Efforts Related to Ground Water Issues

Acknowledging the seriousness of the problem of ground water contaminated with organic chloride compounds, in July 1998, Mitsubishi Electric responded to a Ministry of International Trade and Industry request to the electrical and electronics industry to conduct individual surveys of ground water contamination levels. As a result, we confirmed that out of 29 company sites, underground water was contaminated with organic chloride compounds at 9 sites (Gunma, Sagami, Kyoto, Kita-Itami, Amagasaki, Himeji, Wakayama, Fukuoka and Nagasaki). At each of these sites, we immediately reported the contamination to governing bodies, and with their guidance, proceeded with clean-up procedures. In addition, by the end of fiscal 1999, we eliminated the use of the organic chloride compounds that cause ground water contamination at all company sites.
Further, as part of our clean-up efforts, we employed a special device that uses ozone to decompose and render organic chloride compounds harmless to the environment. For more information on this device, please see the next section, "Meeting the Challenge Onsite."

Meeting the Challenge Onsite

Equipment to Decompose / Render Harmless Organic Chloride Compounds

Energy & Industrial Systems Center/Advanced Technology R&D Center

The most commonly used method to purify ground water contaminated with substances such as trichloroethylene is aeration, a method in which the contaminated water is pumped up and forced into contact with air (which transfers the contaminating substance into the atmosphere), where the contaminant is adsorbed by activated carbon. However, with this method, the contaminant is not broken down, and post-procedure treatment is necessary to process the material further, such as incinerating the activated carbon after it has reached the saturation point.
Mitsubishi Electric has developed and systemized technology that instantaneously and completely decomposes organic chloride compounds into water, carbon dioxide and by-products through an oxidation process that utilizes ozone and hydrogen peroxide. With this system, no post-procedure treatment is necessary and there is no fear of secondary contamination. The system also realizes low-cost operation. In addition, in comparison with the aeration method, the strong points of the new system include extremely quiet operation and the compact-size of the necessary equipment.

Elimination of Trichloroethylene

Kamakura Works

At the Kamakura Works, in order to achieve both high quality and reliability in the paint coatings of the microwave transmission waveguides (length 3m, diameter 50mm) and the metal plating of component parts manufactured for the space and communications industries, the factory previously utilized cleansers with trichloroethylene before substituting hydrocarbon-based cleansers. In general, cleansing devices using hydrocarbon-based solvents use a total of three tanks: the first to remove surface activators, preservatives, etc., the second to remove moisture, and the third to remove oils. During the shift to hydrocarbon-based cleansing, Mitsubishi Electric developed and utilized a proprietary cleansing method. Because the oil in this revolutionary processing device can be used with and without the presence of moisture, the entire cleansing process can be completed in one tank. As the cleansing tank developed is compact, the entire device could be built into a 5 × 2.5 × 3m hermetically sealed tank, thus allowing complete protection against solvent leakage. In addition, by utilizing a vacuum drying method, this device also compensates for the long drying times associated with hydrocarbon-based solvents. Mitsubishi Electric and Sansha Electric Manufacturing Co., Ltd. have filed a joint patent application for this device.

Elimination of Trichloroethylene

Transmission & Distribution, Transportation Systems Center

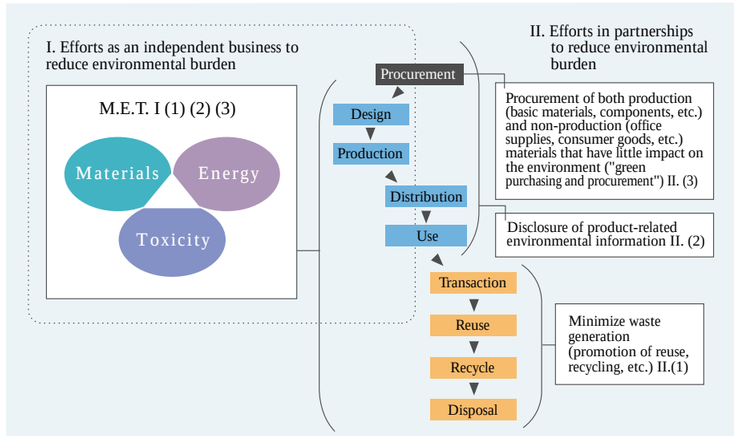
Although the Transmission & Distribution, Transportation Systems Center used to use trichloroethylene to clean the tanks in which insulation materials are mixed during the production process of insulator parts, the facility has shifted to hydrocarbon-based cleansers. Because the cleansing device is equipped with a distillation/reclamation apparatus and recovers and reuses the solvent, it was possible for us to reduce the amount of solvent used by 30% compared to systems without this recycling feature. In addition, along with the use of this device, automated production equipment and improvements in the work environment have also been introduced. These reforms have realized a comfortable working environment and a production line that is environmentally friendly and efficient.

Actions to Reduce the Negative Environmental Impact of Products

In order to respond to rapid changes in product-related environmental policy (such as the Home Appliances Recycling Law to be enacted April 1, 2001), Mitsubishi Electric confirmed its commitment to the core philosophy of Design for the Environment (DFE) by establishing DFE as a set of internal company regulations in fiscal 1999. The formalization of this core philosophy solidifies the company's commitment to action as an independent business and as a participant in partnerships with other companies. We shall make effective use of resources throughout the product lifecycle following the five Rs and give due consideration to the potential effects of using both energy and substances known to pose risks to the environment. All of our activities are based on this core philosophy. For the future, we are hastening efforts to realize the tenets of this philosophy by educating our engineers and making efforts with regard to concrete environmental policies for each product.

Core Philosophy Regarding Design for the Environment

In accordance with the company's Core Environmental Philosophy and Environmental Action Plan, Mitsubishi Electric is working to reduce the impact its activities have on the environment through Design for the Environment-considering, both as an independent business and as a member of partnerships, the impact of products and their operation throughout the product lifecycle. We think of all of these activities as part of DFE.



I. Efforts as an Independent Business Reducing environmental burden (of business activities, products)

In order to contribute to the realization of a "sustainable society," Mitsubishi Electric's responsibility to reduce the environmental burden of its activities and products is a large one. For this purpose, over the product and activity lifecycles that span from procurement, production and distribution to customer use and disposal, Mitsubishi Electric is pursuing environmental activities with special regard to "M.E.T." issues as follows:

(1) Make effective use of resources (Material)
(2) Make efficient use of energy (Energy)
(3) Prevent contamination by substances posing risks to the environment (Toxicity)

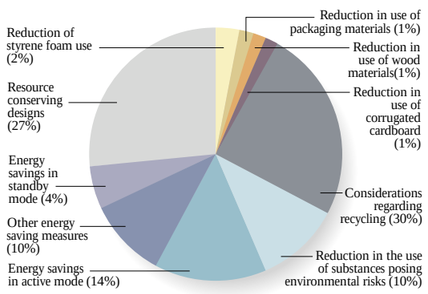
II. Efforts in Partnerships Reducing environmental burden

(1) Reduce environmental impact of product disposal (facilitate recycling/reuse and minimize product waste generation).
(2) Reduce environmental impact through active communication regarding environmental issues (contribute to the spread of DFE products through the active disclosure of product-related environmental information).
(3) Reduce environmental impact by actively utilizing products, components and materials that have less impact on the environment (promote "green purchasing and procurement").

Efforts as An Independent Business to Reduce Environmental Burden

At Mitsubishi Electric, in order to prepare product-specific environmental policies, we consider M.E.T. issues over a product's entire lifecycle and set voluntary targets for each product. In fiscal 1999, we saw results in 323 products.

Fiscal 1999 M.E.T. Issues Over Full Lifecycle



Effective Use of Resources

Regarding a theme that Mitsubishi Electric has been involved with for some time, reducing product weight and volume, we saw reductions of 84% in our 2.5Gbps fiber-optic transmitter and 82% in our HDTV codec. In addition, from the viewpoint of ease of disassembly and recycling, we set targets and saw results in the following: reduction of component parts, shortening of disassembly time, reduction in connections, use of insert forms that make wood materials easier to recycle, and the elimination of items attached to resins. We reduced the number of component parts in our new 7.2kV switchgear by 50% and also reduced the disassembly time of the OP-1K flat-type multi-tiered ozonizer and 400V activation amp by 30 and 20%, respectively. In addition, we cut the number of items attached to resin materials in our 7-channel Personal Handyphone System (PHS) by 50%. Finally, we eliminated the use of metal insert forms with resins in our RX1 robots.

Efficient Use of Energy

In the product areas designated "top runner" by the Energy Conservation Law, we are accelerating our efforts to offer energy-saving products. Even in areas not covered by the law, we have made steady progress including further activities targeting the reduction of active power consumption (69% reduction achieved in 2.5Gbps fiber-optic transmitter, etc.), reductions in standby power consumption (20% reduction in car-mounted devices for use with non-stop automated toll collection systems, etc.), and improvements in the energy use efficiency of products through a special index (COP)*.

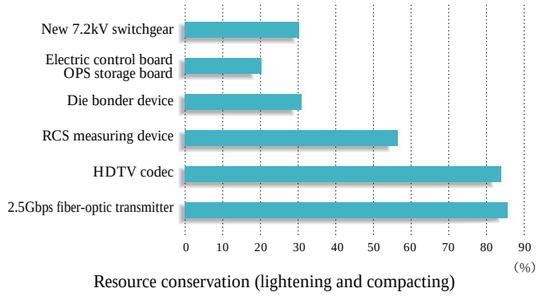
*COP: Coefficient of performance (energy efficiency)

Prevention of Contamination by Substances Posing Risk to the Environment

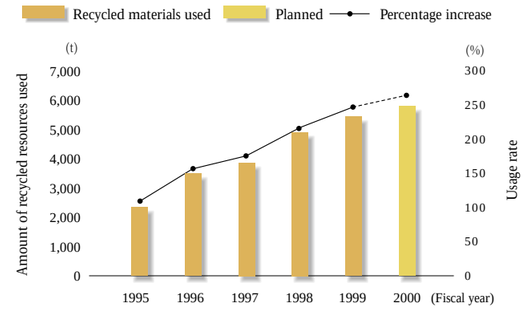
Regarding substances that pose risks to the environment such as vinyl chloride, heavy metals (lead, cadmium, mercury, etc), asbestos and polybrominated biphenyl (PBB) flame retardant, we are moving forward with efforts of reduction, substitution and elimination. We have eliminated vinyl chloride resins from all parts of our MELSEC-Qn sequencers (except wiring), nickel-cadmium batteries from our client and notebook personal comptuters, and asbestos packing from our freezers and air-conditioners.

Work on Lead-free Solder Mounting Technology

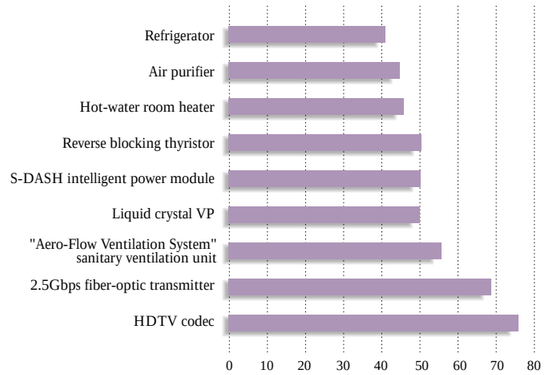
Taking into account the impact of the release of heavy metals into the environment, we have developed a basic lead-free solder technology for some of our product areas. For the future, we are working towards developing lead-fee solder mounting technology that is suitable for a wider range of standard product groups and are moving forward with reductions in the amount of lead included in printed circuit board soldering. This lead-free mounting technology, which must be both heat-resistant and reliable, is completely different from conventional connector technology. In fiscal 1999, we established an internal test facility and are now in the process of collecting and storing necessary data. We are presently targeting fiscal 2001 for the wide-ranging introduction of lead-free solder mounting technology.



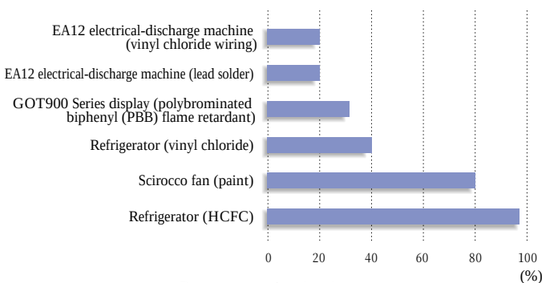
Resource conservation (lightening and compacting)



Change in the level of recycled material usage



Percentage reduction in power consumption



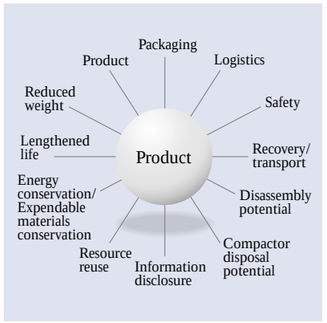
Percentage reduction in use of substances posing risk to the environment

From Concepts to Reality...

In the 3rd Environmental Plan, to realize the idea of Design for the Environment, we give further consideration to full lifecycle M.E.T. and add new objectives such as verification using the LCA method and reduced use of substances that could damage the environment through "green" procurement. Starting in fiscal 2000, we are accelerating our voluntary efforts with product-specific environmental policies.

Using the Design for the Environment Handbook

In fiscal 1999, the Design for the Environment Subcommittee of the Environmental Technologies Committee drafted the "Design for the Environment Handbook," a collection of environmental policy know-how. In order to produce positive results in the efforts to reduce the environmental impact of our products, the handbook outlines quantitative evaluative methods that set 12 large and 45 medium evaluation categories and covers the entire lifecycle of a product. We are planning to apply this method at all of our operational sites, raising the level of our product assessment activities.

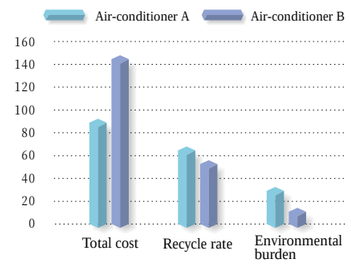


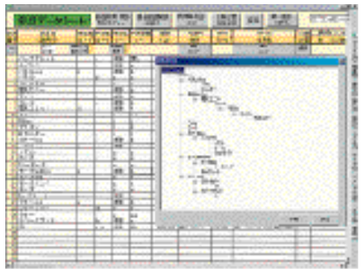
◎ Development of "cDFE"* Design Support System

At the Industrial Electronics & Systems Laboratory, we are developing the "cDFE" design support system in order to be able to make efficient assessments while in the process of designing a product. "cDFE," in addition to conducting conventional environmental impact evaluation (LCA estimates), also calculates integrated end-of-life costs such as the recycling rate potential for each material, product disassembly potential, disposal and recycling costs, and sales profit. The database is composed of actual survey data from the Higashi-hama Recycling Center, allowing designers to consider improvements regarding the configuration, materials and connection methods to be utilized in new products. We are currently improving the system for internal use in the future.

*cDFE: Compact DFE

Product Comparison Graph

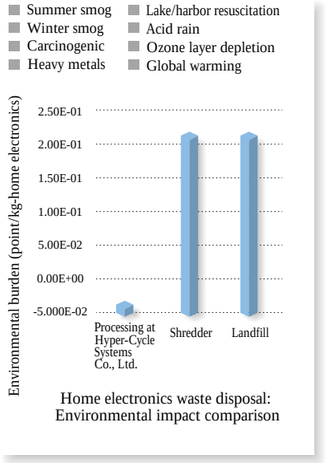




"cDFE" entry screen

◎ Efforts in Lifecycle Assessment (LCA)

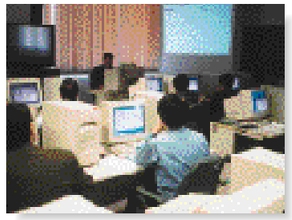
As demand has increased for the disclosure of environmental information relating to products, LCA has received much attention, and further demands have called for unified standards that enable comparisons between companies and products. For this purpose, the Japan LCA Forum was established, and the development of the necessary infrastructure (such as the build up of inventory data) to implement LCA is progressing as a national project. At Mitsubishi Electric's Advanced Technology R&D Center, researchers are accumulating know-how and data for LCA, verification of the effects of product improvements and the collection, analysis and storage of data regarding the environmental impact of waste disposal provided for by the Higashi-hama Recycling Center. In addition, through participation in the Japan LCA Forum, we are deepening our understanding of LCA. In this way, as part of the 3rd Environmental Plan, we will be applying LCA to verify the effects of product-related environmental policies.



Home electronics waste disposal: Environmental impact comparison

◎ Mitsubishi Electric Technology Seminar Course (Design for the Environment)

Mitsubishi Electric has established an internal course designed to improve our engineers' capabilities. The course, which takes place over three days, covers trends such as new laws and regulations, a tour of Higashi-hama Recycle Center, and lecture and training sessions in which experts from Higashi-hama are invited to present the latest recycling technology and issues. In the training section of the course, members actually disassemble products, and seminars are conducted on themes such as comparison (measurement/calculation) of disassembly times based on different procedures, potential recycling rates, recycling costs, etc. In this way, the engineers consider methods to reduce the environmental impact of products and bring together their ideas in proposals recommending improvements. These proposals are provided as feedback to our product design division, which considers their implementation. The number of employees that have taken this course now totals 300.



Efforts in Partnerships to Reduce Environmental Burden

◎ Disclosure of Product-related Environmental Information

At Mitsubishi Electric, as the popularity of DFE products spreads, we are moving forward with active efforts to disclose product-related environmental information. In fiscal 1999, we set and began the implementation of internal guidelines regarding the criteria and procedures for this disclosure. We are working to disclose information based on the quantitative data available for the 12 large categories covered by our "Design for the Environment Handbook." For example, we are disclosing the following type of information regarding two products, the High Efficiency Oil-immersed Transformer and Super-high Efficiency Oil-immersed Transformer, which have enabled large energy savings through reductions in energy loss during operation.

Guideline for Disclosure of Product-related Environmental Information

- ◎ Ensures compliance with relevant laws and regulations
- ◎ Ensures conformance with ISO standards and voluntary industry controls
- ◎ Provides data based on reproducible scientific grounds
- ◎ Sets principles for the display of quantitative data (absolute value)
- ◎ Eliminates vague terminology
- ◎ Ensures accurate verification is possible
- ◎ Targets the general consumer
- ◎ Considers the product lifecycle

Common Key Disclosure Items for the High Efficiency Oil-immersed and Super-High Efficiency Oil-immersed Transformers

	Main item	Displayed content
Global warming (energy conservation)	Active mode power consumption	Operation loss rating at three phase 1000 kV: 10.2 kW (6.3 kW) Operation loss rating of commonly used equivalent: 13.8 kW
	Standby mode power consumption	NA
	Total loss	Total loss reduction of approximately 25% at a 60% load factor (Total loss reduction of approximately 60%)
Resource exhaustion/ circulation (product body)	Body mass Breakdown by mass of key component materials Iron and iron alloys (including stainless steel) Copper and copper alloys Aluminum Plastics Glass Other	2,800kg (4,150kg) The mass of component materials marked with a "star" = 10% of total weight ☆☆☆☆☆ ☆☆ ☆☆
	Recycled plastic	None
	Operation manual, etc.	Paper spprox. 50g (100% recycled paper) Other (FD, CD-ROM, videotape, etc.) none
	Battery type	None
Resource exhaustion/ resource circulation (packaging material)	Breakdown of key component materials	Product body wrapping plastic bag Product secured in wooden palette
	Recycled materials used	None
Impact on air, water, and soil quality	Lead, vinyl chloride, specified flame retardant	None
ISO 14001 certification		Received November 1997
Other	Noise level	Approx. 45dB (standard noise level of commonly used equivalent: 62dB)
	Ease/Potential of Disassembly	Same as commonly used equivalent
	Greenhouse gases (HFC, PFC, SF6)	None
	Long product life considerations	Same as commonly used equivalent

Figures in ( ) are for the Super-high Efficiency Oil-immersed Transformer

◎ Efforts towards Green Procurement

Although we have promoted the procurement of products with low environmental impact in the past, mainly in areas such as office supplies, we have come to realize that, in addition to reducing the environmental impact of our own products, it is essential to lower the environmental impact of the products we use. At Mitsubishi Electric, we are furthering green procurement through partnerships with our suppliers. In accordance with the 3rd Environmental Plan, we are conducting an assessment of the environmental consciousness at 1,500 suppliers (covering approximately 90% of the company's total transaction value) and the chemical substances present in procured items.

Recycling Used Home Appliances

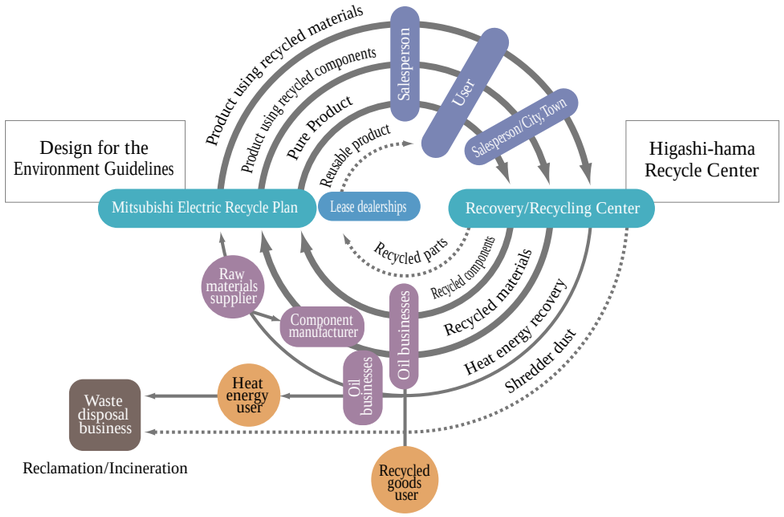
In response to the Home Appliances Recycling Law, which goes into effect in fiscal 2001, Mitsubishi Electric began full-scale operations in May of last year at the Higashi-hama Recycle Center in Ichikawa City, Chiba Prefecture, Japan, a facility that recycles used home appliances and office equipment. This recovery and recycling center represents the realization of the basic concepts of the Mitsubishi Scroll Recycle System (MISRES).

Hyper-Cycle Systems*1, which recycles home appliances such as refrigerators, air conditioners, washing machines and televisions, has a processing capacity of about 300,000 units per year, and there are plans to double this in 2001. In addition, Green Cycle Systems*2, which recycles office equipment such as copiers, personal computers and printers, has a processing capacity of approximately 400,000 units per year. At the Higashi-hama facility, we are utilizing an environmentally friendly recycling method that involves neither burning nor cleansing processes. In addition, we have technology in place that will allow us to easily exceed government-mandated recycling rates.

*1) Hyper-Cycle Systems Co., Ltd., Paid-in Capital: 490 million yen
(Ichikawa Environmental Engineering Co., Ltd. 20%, Mitsubishi Electric 80%)

*2) Green-Cycle Systems Co., Ltd., Paid-in Capital: 110 million yen
(Nisshin Sanshou, Co., Ltd. 45%, Ricoh Co., Ltd. 9%, Mitsubishi Electric 46%)

Mitsubishi Scroll Recycle System (MISRES)



Improving Recycling Rates through Manual Disassembly Experiments

Because home appliances and office equipment are composed of complicated and varied components, in the first stage, components that can be reused or cannot be crushed easily in a compactor are removed by manual disassembly and sold. The remaining components are then sent on to the crushing stage to be compacted and broken down.

Television	During manual disassembly of a television, the power cord is cut and the cathode ray tube, deflection yoke, printed circuit board, wiring bundles, etc. are removed. A specialty contractor then crushes the glass panel of the removed cathode ray tube, which a glass manufacturer can then reuse as glass for new products.
Washing Machine	Workers cut the power cord and remove the motor and large condenser. In addition, as about 1-liter of saltwater is used in the liquid balancer located in the upper portion of the washing tub of a fully automatic washing machine. This is also removed in order to avoid the danger of rusting crushing and separating devices.
Refrigerator	Workers cut the power cord and remove the door gaskets and internal glass parts. Using a special device, workers open a hole in the bottom of the compressor and recover the refrigerant and freezer oil, and then remove the compressor with a cutter. The insulating cholorfluorocarbon is recovered by absorption into activated carbon first, after which it is heated and liquefied.
Air Conditioner	Workers cut the power cord and then, after recovering the refrigerant and freezer oil in the same way as described for refrigerators above, use a cutter to cut lose the compressor and remove the motor.

Classification/Separation of Crushed Materials

Once manual disassembly is complete, the remaining components are crushed and the resultant materials are classified into four size categories during the classification stage. In the segregation stage, workers recover high-quality metals such as iron, stainless steel, copper and aluminum. In the past, since copper and vinyl chloride remained present among residual plastics in the form of coated copper wiring, it was difficult to reuse this material as blast furnace reduction material or refuse-derived fuel (RDF). However, in fiscal 1999 at the Higashi-hama Recycle Center, we developed a high-grade separation system that made possible the removal of metals and vinyl chloride from residual plastics, which up until that time had been unrecoverable. This enables the reuse of recovered plastic as blast furnace reduction material. Moreover, with regard to the recycling of separated plastics, by working together with intermediate processors and basic materials manufacturers, we are expanding the applications of recycled material and making further improvements in our separation technology. Through these efforts, we are working to achieve high recycling rates. We are also striving to further improve the recycling potential of our products by providing the know-how gained through the above efforts as feedback to our designers, who are now concentrating on the development of products that are easy to recycle.

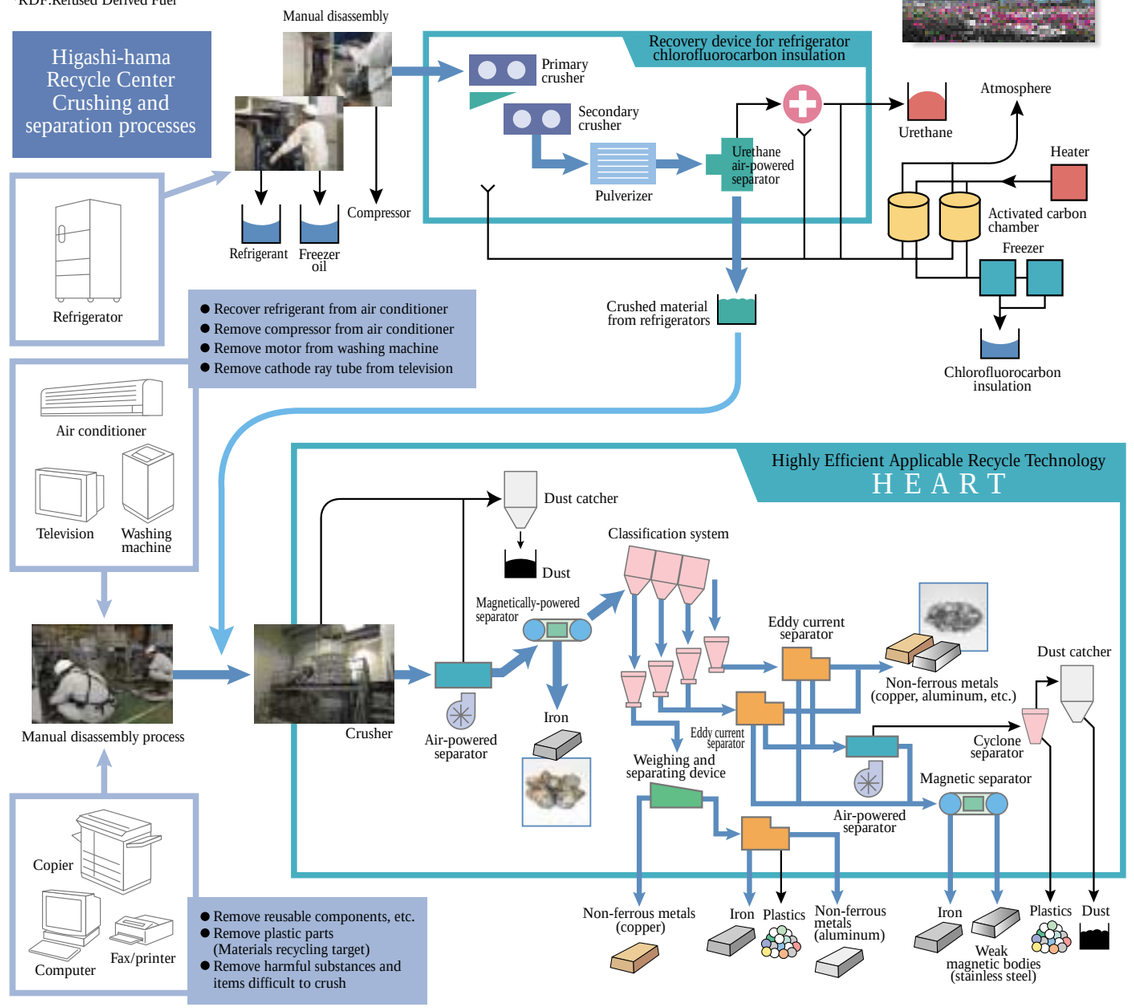
*RDF:Refused Derived Fuel

Future Plans for Recycling Operations

Independently establishing recycling facilities throughout the country both increases total investment and reduces the processing amounts at each facility (thus raising the average recycling cost per unit). For these reasons, Mitsubishi Electric has decided to make the Higashi-hama Recycle Center its only self-operated recycling facility, while applying strict criteria to select contractors who meet the legal standards for recycling in other regions. Our goal is to establish a network of facilities whose number and location reduce the cost burden on the disposing party, including cost of collection.

For more information

Living Environment Systems Group
Home Appliances Recycling Business Development Office
81-3-3218-9186



Addressing Products Specified in the Home Appliances Recycling Law

Air Conditioners

Energy conservation

●Developed comfortable, healthy and energy-saving heaters and air conditioners that, in addition to conventional room temperature detection, also detect other factors that determine the effective temperature, such as thermal radiation (temperature of walls and floor) and humidity.

●Confirmed that all product classes clear the cooling/heating average COP *1 standards for 2004 set by the Energy Conservation Law.

●Surpassed the average cooling/heating COP standard by 23% (MSZ-SFX28G 5.10 compared to 4.15 of COP).

●Achieved top-class low-power consumption of 963kWh (less than half of the power consumption of our products ten years ago).

Product Recycling

●Enabled recycling of the painted front panel (main material: polystyrene) through the use of an industry-first "co-soluble" paint.*2

●Achieved an 80% recycling rate, far exceeding the percentage required by the Home Appliances Recycling Law (recycling rate of 60%), by increasing our use of easily recyclable metals.

●Reduced disassembly time by developing a structure that is easy to take apart.

●Reduced the number of parts and soldering by 45% through dense integration of electronics in the circuit board of the outdoor unit.

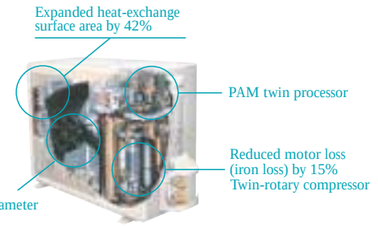
Packaging

●Reduced the amount of packaging materials used for leading products by 10%.

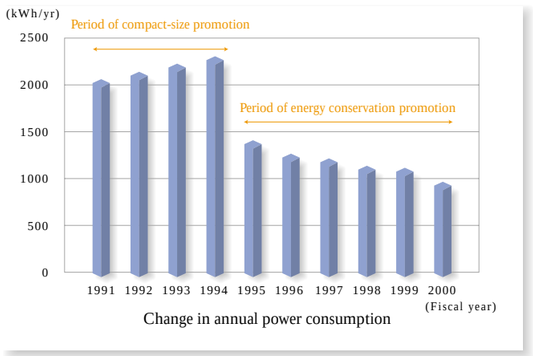
●Eliminated the use of wood materials.

*1) COP : Coefficient of Performance (energy efficiency)
*2) In the past, because conventional acrylic paints do not mix with plastic during melting, it was impossible to reuse the painted front panel.

Outdoor Unit



Indoor Unit



Change in annual power consumption

Washing Machines

Energy conservation

●Realized large energy savings through the company's "Mist Gravity Washing System," which makes maximum use of the gravity and water power generated by the high-speed revolutions of the unit and mist jetting from a twin-jet nozzle.

●Reduced power consumption by 60% from 219 to 88Wh (compared with a Mitsubishi unit from 7 years ago).

●Reduced standby power consumption to zero.

●Reduced washing time by 58% from 69min to an industry-leading 29min (compared with a Mitsubishi unit from 7 years ago).

Product Recycling

●Unified disassembly direction.

●Included content labels on plastic parts (provides information on more than 95% of plastics by weight).

●Unified use of plastic materials (to polyolefin-based plastics, which now represent over 85% of plastics by weight).

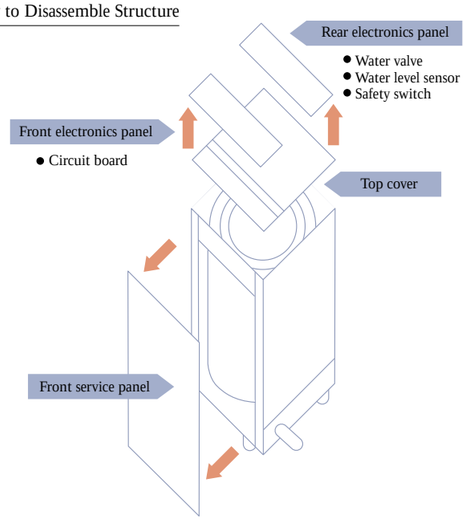
●Introduced use of recycled plastics.

Packaging

●Used 100% recycled paper for operation manuals.

●Reduced weight-based packaging per unit by 30% through the introduction of simplified packaging for non-bulky products.

Easy to Disassemble Structure



Color Television

Energy conservation

●Realized energy savings through improvements in micro-controllers and power circuits.

	Fiscal 1997	Fiscal 1999	28-in. TV
Active use power consumption	137W	110W	19.7% reduction
Standby power consumption	6.0W	0.1W	98.3% reduction
Annual power consumption	200kWh/yr	131kWh/yr	34.5% reduction

Product Recycling

●Included content labels on plastic parts (provides information on more than 95% of plastics by weight).

●Included labels on flame-retardant-grade new plastic parts over 100g.

●Eliminated the use of difficult-to-disassemble compound materials (parts in which metals and resins are combined).

●Improved ease-of-disassembly by reducing the types of connector parts (screws) and related tools utilized.

●Used 100% recycled paper for operation manuals.

●Reduced the number of component parts by 22% (compared with fiscal 1997 levels)

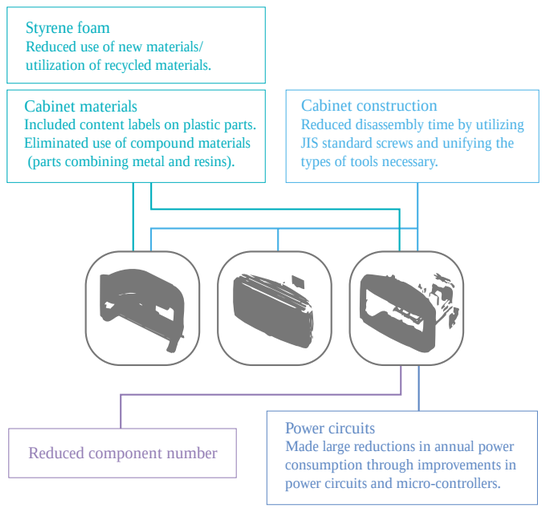
●Switched cabinet label material from paper to the same material as the cabinet in the 28-inch television.

Packaging

●Reduced the use of styrene foam by 25% in the packaging of the 21-inch television (compared with fiscal 1997 levels).

●Promoted the use of recycled styrene foam.

Addressing Color TVs



Refrigerators

Energy conservation

●Realized industry top-class energy savings through the use of the "V2 Inverter" controller.*3

●Increased energy efficiency further by combining the "V2 Inverter" and a compact rotary compressor.

●Increased total energy efficiency 20% by raising the amount of heat exchange 1.5 times (e.g., increased cooler concentration) and expanding the cooling-fan diameter.

●Improved annual power consumption 15% (improvement of 1/3 compared with Mitsubishi unit of nine years ago).

Product Recycling

●Included content labels on plastic parts.

●Used recycled plastic for nine plastic parts outside the unit.

●Used 100% recycled paper for operation manuals.

Packaging

●Reduced use of styrene foam 12% through "Component Concentration Variation,"*4 a new forming method.

●Reduced use of corrugated cardboard 22% by reviewing specifications for outer packaging and simplification of internal packing cardboard (compared with fiscal 1997 levels).

Reduced Use of Chemical Substances

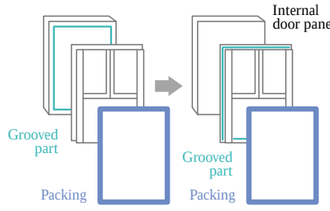
●Reduced use of HCFC141b for insulation foam 94% (compared to fiscal 1995 levels).

●Reduced use of vinyl chloride 40% by building the insert groove (for cushion packing) directly into the door of all 4-door models, thus eliminating the use of vinyl chloride in this part of the unit (compared with fiscal 1995 levels).

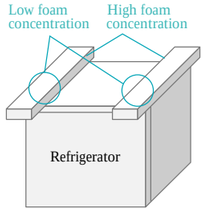
*3) "V2 Inverter" can use two different operating voltages, running at low voltage (140V) and conserving energy during stable operation, and running at high voltage (240V) and high power during rapid cooling operation.

*4) "Component Concentration Variation" is a method that enables weight reductions of 10-20% (compared with conventional products) by using highly concentrated material (high foaming) only in components that need to be particularly strong and using lower concentrations (low foaming) of material in all other parts. Mitsubishi Electric has filed a patent application for this technology.

Elimination of hard vinyl chloride



Component Concentration Variation

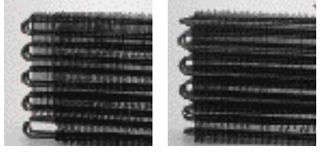


High-density cooler

Increased heat exchange by approximately 10%

Conventional cooler
Refrigerant pipe : 2x10=20

New development :
Highly integrated cooler
Refrigerant pipe : 3x10=30



Larger cooling fan

Increased cooling efficiency by approximately 10%.

Efforts to Improve the Environmental Efficiency of Other Products

Mitsubishi Electric is moving forward with environmental policies not just for products specified by the Home Appliances Recycling Law, but also for other products.

"ELEPAQ" (elevator without a machine room)

Our new standard in elevator technology, the Mitsubishi Electric ELEPAQ, allows freedom in architectural design by housing all related devices within an elevator shaft that itself has streamlined dimensions. The following environmental policies are incorporated in the ELEPAQ.

Resource Conservation

Enables builders not only to conserve resources (since erecting a machine room is unnecessary), but also to reduce construction costs. The ELEPAQ is also useful in dealing with regulations related to blocking sunlight and interfering with neighboring structures.

Energy Conservation

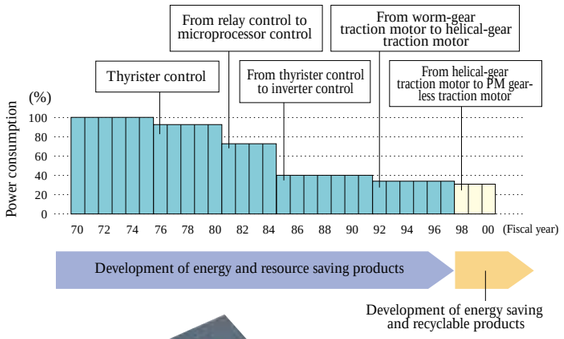
Large reductions have been achieved in power consumption through the use of a highly efficient gear-less, permanent magnet-equipped traction motor and a transformer-less, thin control board (10% reduction compared with rope models, 65% compared with hydraulic models). Reductions were also made in standby (nighttime, etc.) power consumption (35% reduction compared with rope models).

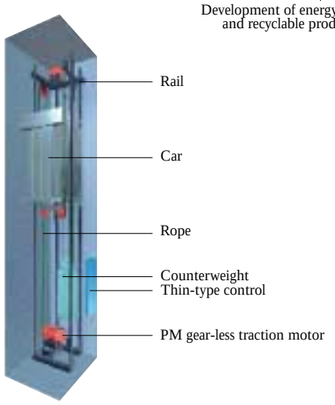
Space Savings

Reduced necessary surface area by approximately 35% compared with our hydraulic models.

The graph below shows the changes in the power consumption of Mitsubishi Electric standard rope-type elevators over time. Compared to our 1970 model, we have reduced power consumption in today's elevator by 35% and are still planning further energy conservation measures.

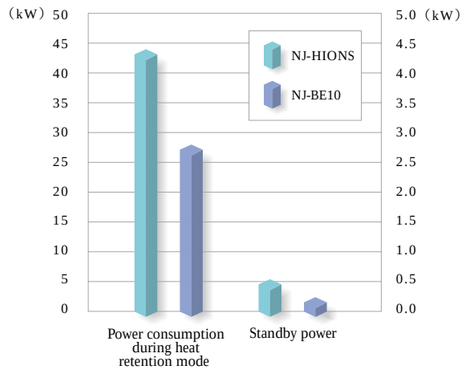
Change in power consumption of standard rope-type elevators





Induction Heat (IH) Rice Cooker

Mitsubishi Electric's IH rice cooker has a "strong boil" function that always cooks great rice, maintains a continuous boil owing to the industry's most powerful thermal power and catches boil-over with a new internally fitted steam release opening. In addition, we achieved energy-saving heat retention through the use of a three-layered structure for the pot body in which an aluminum layer is sandwiched between two layers of high-grade stainless steel (40% reduction in power consumption, 70% reduction in standby power). We also reduced the use of plastic material, and thus improved ease-of-recycling by utilizing stainless steel in both the upper lid and body of the cooker.



Low-power Triac Array

Low-power triacs are used in many electronic devices such as washing machines (water bulb, drainage motor, automatic power-off relay, water pump, etc.) and fans (speed control, swivel neck solenoid switch, etc.). Mitsubishi Electric has developed a triac array that is the functional equivalent of 3-4 triac chips in a standard IC package. By concentrating the equivalent of 3-4 conventional elements in one element, our aim is to achieve greater resource conservation.
We have been able to realize the following through the application of triac arrays.

◎ Space savings in products that utilize the element. (Reduction of 24% by volume compared with 3-element standard package and 43% compared with 4-element packages.)
◎ Reduced number of parts.
◎ Low height mounting (mounting height is about 5mm less than mounting height of standard elements).
◎ Reduced application of urethane resin in the circuit board of washing machines, etc. (20-30% reduction).
◎ Improved work efficiency and reduced number of parts when used with 16PA standard semiconductor package (30-75% improvement).


New element


Conventional element

Jet Towel

With our new mini- and high-power type models, we have improved drying performance and realized further reductions in power consumption compared with earlier models. In addition, we have also realized resource conservation by creating a new compact body, reducing the number of parts, and making improvements in packaging.

Comparison with Previous Models	Mini-type	High-power type
Energy savings	1,380Wx15sec -> 980Wx9sec	1,960Wx6sec -> 1460Wx4sec
Weight	6kg -> 5kg	18kg -> 13kg
Cardboard packaging	1.5kg -> 1.2kg	2.2kg -> 1.8kg

*Energy savings: power consumption per use comparison (power consumption x time)


Mini-type


High-power type

Aero Flow Ventilation System - Sanitary Ventilation Unit

The Aero Flow Ventilation System is able to maintain proper room environmental conditions through a unique airflow control system that enables the 24-hour ventilation demanded by today's airtight, well-insulated homes. The system incorporates the following environmental polices.

Energy Conservation

- Reduced load on heating and air conditioning units by regulating airflow. Compared with conventional ventilation fans that lack airflow adjustment functions, the Aero Flow system lowers the annual load on heating and air conditioning units from 1,340 to 1,008kWh, a 25% reduction.
- Reduced power consumption owing to a "brushless" DC motor. The system, by reducing power consumption during normal ventilation mode for a standard apartment complex from 18 to 8W, reduces annual power consumption from 158 to 70kWh, a 56% reduction. This results in an annual savings of 2,024 yen.

Resource Conservation

- Reduced the weight of the V-180SZ3 body from 7.4 to 6.6kg and packaging weight from 2.54 to 2.18kg (reductions of 11 and 14%, respectively, compared with conventional models).
- Contributed to resource recycling by using 320g of recycled polypropylene resin (13% of total resin used) for internal areas where outward appearance is not important.

Air Purifier

Although we had received a positive response for marketing the first-ever domestic air purifier with a plasma deodorant, at the time of our model change last year, we attempted further improvements by launching a renovated design that features a large reduction in power consumption. By incorporating a brushless DC motor as the fan motor of our leading product (MA-F452HS), both reduced power consumption and an increase in processed airflow were realized compared with the previous year's model. While increasing the standard processed airflow from 4.0 to 4.5m^3/min, the new model also bests last year's model by lowering power consumption from 83 to 46W, a 45% reduction.

Car Navigation System

Mitsubishi Electric has developed a car navigation system that incorporates a 6-CD changer. Compared with conventional units, which can only hold one CD at a time, this innovation eliminates the inconvenience of changing CD-ROMs. In addition, because, as with conventional models, the new unit is able to play music CDs, if the music CDs have already been loaded into the unit, the unit can change them automatically. Furthermore, when compared to the case in which the car navigation unit and CD changer are separate units, this new model represents both a 76% reduction in the number of sub-unit parts (circuit boards with mounted parts and the main body of the units) and large reductions in size and weight (92% by weight, 84% by volume). The new model also achieves considerable energy savings, operating at only 86% the power consumption level of conventional models.

Logistics Activities

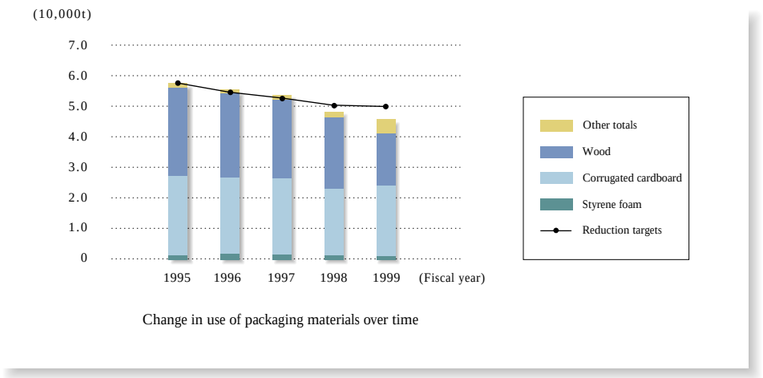
With the need to comply with the Container and Packaging Recycling Law, which went into effect on April 1, 2000, as well as the desire to apply new packaging forms that address environmental concerns (such as the reduction of packaging material), new strategic efforts to develop packaging forms that do not generate waste are in demand. In addition, there are also calls in the distribution sector for measures to prevent the low load percentages caused by the shipping of small lots and to reduce the exhaust emissions (NOx, CO_2) caused by traffic congestion. Mitsubishi Electric is hard at work developing logistical solutions that are in step with these environmental concerns.

Complying with the Container and Packaging Recycling Law

The packaging materials targeted by the Container and Packaging Recycling Law are "Other Plastic Containers/Packaging," which include styrene foam, and "Other Paper Containers/Packaging." Mitsubishi Electric calculates the amount recycled by the company using a voluntary calculation formula. We have contracted with the Japan Container and Packaging Recycling Association to recycle this required amount. Our intention to comply with the law is a given factor, but we are also striving to reduce the total environmental impact / cost by introducing and developing environmentally friendly packaging that matches the product lifecycle through such measures as the use of lighter materials, returnable materials and materials substitution, among others.

Efforts to Reduce Packaging Materials

As mentioned in the 1st Environmental Plan, we have been working on a company-wide basis to reduce the amount of packaging materials we use since fiscal 1993. In the 2nd Environmental Plan, we announced the goal of reducing our use of packaging materials 20% by fiscal 2000 (compared with fiscal 1995 levels). In fiscal 1999, we cleared this goal, using only 47,000t of packaging materials (20% less than in fiscal 1995). We have been working, not only to increase our use of recycled styrene foam and reduce the volume and thickness of the corrugated cardboard we use, but also to simplify our packaging. In addition, we reduced our use of wood materials by approximately 4,000t through conversion to steel and corrugated cardboard packaging.
With the 3rd Environmental Plan, we are turning our efforts to the goal of reducing packaging materials 10% by fiscal 2002 (compared to fiscal 1998 levels). However, we are not only actively working to reduce the total amount of packaging materials used, but also the amount of packaging per product. We are also putting special efforts into developing environmentally friendly packaging.



Change in use of packaging materials over time

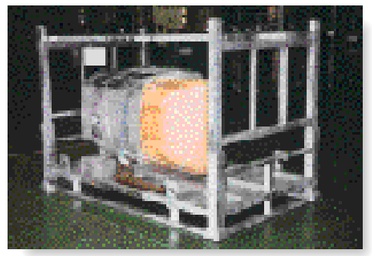
Use of Returnable Containers for Car Audio Equipment

We were able to reduce our use of corrugated cardboard by switching from cardboard packaging to a collapsible, returnable container and have also eliminated the use of styrene foam as a cushioning material. In addition, we also reduced the number of boxes used by increasing the number of units stored in each box from four to five.

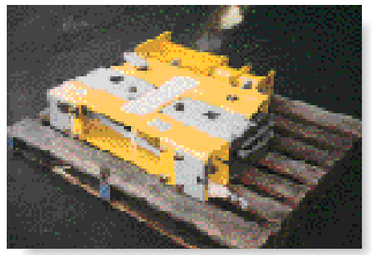
Introduction of Reusable Container for Elevator Components Delivered in Japan - Wood-less, Semi-open Packaging Designed to Hold Particular Products

In the past, we packed elevators primarily in wooden boxes, but the plan is to reduce the use of one-way packaging materials for products shipped domestically and internationally. Beginning with the simplification of packaging materials, we are promoting the use of packaging that can be collected and reused on routes in Japan and the use of steel materials and concentrated shipments on international routes. Introduced here are packaging improvements for domestic elevator components. Rather than using conventional open wooden boxes, we are now minimizing the use of wood through the introduction of semi-open packaging. A reusable container is also being developed.

Traction motor packaging



Emergency stop counterweight packaging



Reduction of Environmental Pollution (NOx, CO_2) through Modal Shifts

In order to reduce the pollution-causing exhaust gases (NOx, CO_2) associated with truck shipping, we are shifting transport modes from trucking to shipment by freight train containers. In a related move, we are working to improve our load efficiency. In addition, we are actively involved in the promotion of efforts to form joint shipping arrangements with other companies in both related and unrelated industries. We are also striving to make efficient use of shipping organizations (such as trucking associations, etc.).

Loading of a 10t truck

Loading of a 5t freight train container

Future Efforts

We will continue the following activities to reduce negative environmental impact through logistics-related efforts.

Packaging

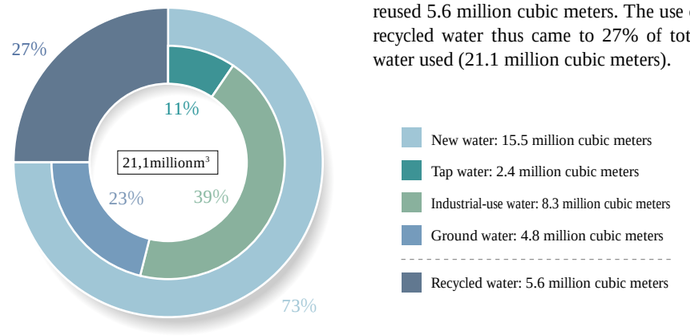
- Develop packaging forms (light packaging, materials substitution) in compliance with the Container and Packaging Recycling Law
- Develop environmentally friendly packaging
- Expand the use of returnable packaging

Shipping

- Continue expansion of modal shifts
- Reduce number of shipments through improvements in load efficiency
- Introduce "joint shipping" with companies in both related and unrelated industries

Water Protection

Water Use (Fiscal 1999)



In fiscal 1999, Mitsubishi Electric used 15.5 million cubic meters of new water resources and effectively recycled and reused 5.6 million cubic meters. The use of recycled water thus came to 27% of total water used (21.1 million cubic meters).

- New water: 15.5 million cubic meters
- Tap water: 2.4 million cubic meters
- Industrial-use water: 8.3 million cubic meters
- Ground water: 4.8 million cubic meters
- Recycled water: 5.6 million cubic meters

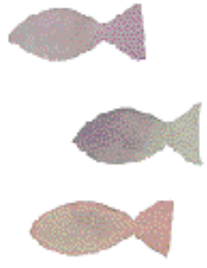
"Biotope" Natural Habitat* ("Dragonfly Pond")
Transmission & Distribution, Transportation Systems Center

We have completed a biotope natural habitat (70m^2) within the premises of the Transmission & Distribution, Transportation Systems Center. At the water's edge, we planted azasa, cattails, water lilies, irises, reeds, and bulrushes. Next to the air compressor tank, we even painted a picture of a tree. We are aiming to create a paradise that can be enjoyed by people and birds alike: Killifish swim in the pond, one can hear the warbling of songbirds, and butterflies and dragonflies dance about, an environment comforting to all.

Already, within the grounds, along the street from the main gate, various plants are flourishing including azaleas and eucalyptus and Japanese cherry trees. We are actively involved in creating a more comfortable urban environment, in which living creatures native to the area can grow spontaneously in a perpetually protected natural environment.

Biotope (Dragonfly Pond)

*Biotope: A natural condition, this term refers to the smallest environmental unit inhabited by certain flora and fauna. In Japan, activities to protect and restore biotopes are becoming more prevalent.



Mitsubishi Medaka / Fukuoka Works

Killifish (known as "medaka" in Japanese) live in a waterway (formerly known as the Matsumoto River) that crosses the Fukuoka Works complex. This is possible because we are protecting the ancient form of this small river, which is not the product of trilateral drainage. The water flowing into this waterway is derived from rainwater runoff and the water expelled from the factory. However, the expelled water is processed so thoroughly that the waterway maintains a purity sufficient to support the medaka. These fish are called the "Mitsubishi Medaka" and are adored as the seed medaka for the zoological / botanical gardens and schools in Fukuoka City. In addition, we are now preparing to breed fireflies using a marsh snail that also lives in the waterway.

Waterway inhabited by the Mitsubishi Medaka

Greenery Protection

Mitsubishi Electric is involved in efforts to reduce its use of paper by utilizing alternatives such as e-mail and intranet/internet services. We are using high-percentage recycled paper for photocopying, catalogs, pamphlets and toilet paper. In fiscal 1999, our efforts resulted in the preservation of the equivalent of approximately 230,000 trees.*

* One ton of used paper is equivalent to 20 logs (14cm in diameter, 8m long) as per the Green Procurement Network Guidelines.

Excellence in Reforestation of Industrial Areas / Kumamoto Factory

In fiscal 1999, the Kumamoto Factory (area: 73,763m^2) received the Kyushu Bureau of International Trade and Industry Section Chief's Prize for Excellence in Reforestation of Industrial Areas. In September 1994, the factory also received the Japan Greenery Research and Development Center Chairman's Prize for the same category. After receiving this first award, the personnel of the factory further expanded the greenery zone by 3,000m^2, bringing a total of 19,029m^2 into the zone and improving the percentage of greenway to 25.7% from 22%. This facility is a "park-type factory" that makes effective use of natural forestation. The site features bamboo and 80 trees over 40 years old. In addition, trees have been positioned along the boundary of the premises to preserve harmony with the surrounding area. The most recent award acknowledges these new efforts. In the future, we will continue to work to maintain the lush greenery and "park-type" atmosphere of this facility.

Percentage breakdown of greenway by type: Natural forestation/trees, 76% (14,462m^2); garden-type forestation/trees, 14% (2,664m^2); planted vegetation, 4% (761m^2); grass, 6% (1,142m^2).

Committee for the Cherry Trees of Zugaike Park / Kita-Itami Administration Center

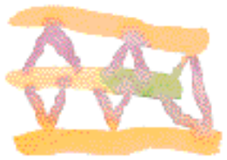
As part of our efforts to protect and expand the greenery of Itami City, since 1986, we have maintained (cleaning/weeding) approximately 700 Japanese cheery trees in Zugaike Park.

Committee for the Cherry Trees of Mizumizu Ike Park

Collection of Used Cards and Stamps / Fukuoka Administration Center

At the Fukuoka Administration Center, used cards and stamps are collected and donated to the Green Earth Protection Fund, an organization that provides assistance for tree-planting in overseas areas suffering from severe deforestation as well as research aid for domestic nature preservation groups. Tree-planting operations are taking place in China, Thailand, Vietnam, Tanzania, Nepal and Belize. It is our sincere desire to cooperate with efforts to increase forestation, even if just one tree, in order to stave off the growth of desert areas and promote the protection and restoration of tropical forests and other greenery.

Education and Awareness



Education About the Environment

Company-wide efforts	Efforts at production sites
Technology subcommittees	Development of managerial staff responsible for anti-pollution and energy issues
Technology seminars	Education of internal auditors
Lectures via satellite broadcast (outside of work hours and during work hours)	Separate training classes
Group study sessions	For new employees and group leaders
Mitsubishi Business Seminar (MBS) courses	Training for new managers, new supervisors
Sales courses	Training for newlyappointed department heads, new section managers, and new group leaders

Mitsubishi Electric Technology Seminars

The company holds a variety of technical seminars ranging from lectures for trainees by guest speakers at training facilities to in-house satellite broadcasting of lectures company-wide. In addition to themes like ISO 14001, among others, seminars focusing on DFE began in fiscal 1997 (see page 30 for details).

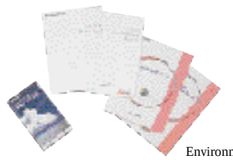
Lectures via Satellite Broadcast

Utilizing a satellite communications system has increased the effectiveness of giving lectures by enabling us to reach an increasingly larger number of employees. Communication links connecting many locations allow interactive, informative discussions between lecturers and trainees.

Mitsubishi Business Seminar (MBS) courses

On Environment Day (June 5th) every year, a program entitled "Mitsubishi Electric's Concept for the Environment-A Challenge for the Future (Commemorating Environment Day)," is broadcast throughout company sites in Japan via an internal satellite communication network.

Communication Activities



Environmental Report

Publication of Annual Environmental Report

We produce an annual Environmental Report in both Japanese and English. The report, concentrating on our Environmental Plan, also introduces corporate activities and various efforts related to the environment.

Distribution of Information via the Internet

It is possible to find environmental reports and other information regarding company efforts with the environment by accessing the Mitsubishi Electric homepage at:
http://www.melco.co.jp/kankyo/index/htm

Participation in Trade Shows: Eco-Products 1999

A trade show, Eco Products 1999,*1 was held last December in an effort to raise the environmental awareness of manufacturers and consumers and promote the spread of eco-products (products/services that have minimal impact on the environment). In addition to exhibiting items such as energy-saving equipment, photo-voltaic and wind power-generation equipment, energy-saving lighting, etc., Mitsubishi Electric also introduced its efforts in recycling home appliances.

Exhibition at "Green Purchasing Fair"

Yet another trade show, the "Green Purchasing Fair,"*2 was held in March 2000 for the purpose of promoting the spread of "green procurement" (prioritized procurement of products that protect the environment) at the national level. In addition to the exhibition of products that have a minimal impact on the environment, various types of seminars on green procurement as well as plan exhibits were featured at the fair. Mitsubishi Electric introduced its efforts in recycling home appliances and an air conditioner that achieves an 80% recycling rate. (The air conditioner was exhibited in the fair's model corner.)

*1) : Sponsored by Japan Environmental Management Association for Industry and Nihon Keizai Shimbun, Inc.
*2) : Sponsored by the Environmental Agency; the governments of Hokkaido, Sapporo, Osaka, Fukuoka, Northern Kyushu; and the Japan Environment Association

Social Activities

Participation in the Shizuoka Prefecture Environmental Fair '99

The Shizuoka Prefecture Environmental Fair '99 was held over three days from September 23-25, 1999. During these three days, the fair became a place where colorful and appealing activities entertained, educated and offered suggestions to visitors regarding environmental issues. In addition to introducing the Shizuoka Works' environmental efforts, energy-saving products, environmental plan and environmental reforms, three Mitsubishi Electric Group companies, Mitsubishi Electric Lighting Co., Ltd., Mitsubishi Electric Engineering Co., Ltd., and Mitsubishi Electric Building Techno-Service Co., Ltd., also cooperated and offered exhibits.

WWF-Japan
Cooperation in the "Global Warming Prevention Business Forum"

Headquartered in Switzerland, the World Wildlife Foundation (WWF) is the world's largest non-governmental wildlife conservation organization. In order to help prevent global warming, the WWF-Japan chapter has started a business forum in which it calls on members from industrial sectors to participate. At the forum, participants discuss and exchange information through such methods as the presentation of case studies.

Shonan Energy Conservation Networking

Shonan Energy Conservation Networking is a volunteer environmental group that takes part in voluntary energy conservation activities at the civic level. With devices to measure energy consumption set up in the homes of participants, who try to practice smart living through energy conservation, the group promotes activities to exchange information gleaned from this experiment. Twenty-four citizens of the Shonan region of Kanagawa Prefecture are actively participating in these activities. Among these participants, nine are from either the Mitsubishi Electric head office or our operations in the Kamakura area. The group conducts lively activities including holding a public presentation of their personal efforts at energy conservation and gathering successful examples in a collection entitled "Ideas for Conserving Energy through Intelligence and Innovation." These activities have been recognized, and in February 2000, the group received the Award for Excellence (for work supporting regional energy conservation promotional activities) from the Energy Conservation Center.

Support of Energy Conservation Technology in Developing Nations

The Nagoya and Fukuyama works have both been deemed "Energy Conservation Model Factories" for the considerable results they have achieved in actively promoting energy conservation and practicing "energy conservation by control," the key first step in energy-saving programs. As part of the Japan International Cooperation Agency's (JICA) efforts to support the spread of energy conservation technology in developing countries, these facilities accepted to welcome and train researchers from Argentina and Bulgaria. The researchers received lectures and actual hands-on practice in energy conservation topics such as how to conserve energy by using inverters in rotating machinery, the new structure of measuring systems, how to attach measuring devices to existing equipment, how to take spot measurements and more. We hope that the participants will make the most of what they learned from our experience, knowledge and advanced technology through energy conservation activities in their home countries.

Actions of Affiliated Companies

We are promoting the environmental efforts of our affiliated companies as a single consolidated entity, the Mitsubishi Electric Group.

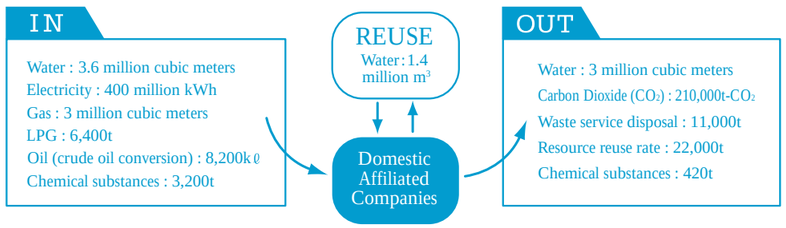
ISO 14001 Certification

In fiscal 1999, 18 sites belonging to 17 domestic affiliated companies and 3 sites belonging to 3 overseas affiliated companies received ISO 14001 certification.

Country	Company name	Certification	Date Certifying Body
Japan	Mitsubishi Precision Co., Ltd. Kamakura area	Apr. 21, 1999	JACO*1
〃	Mitsubishi Electric Building Techno-Service Co., Ltd.	May 21, 1999	JQA*2
〃	Mitsubishi Electric Nagano Semiconductor Corporation	Jun. 30, 1999	JACO
〃	Tada Electric Co., Ltd. Okayama Factory	Aug. 25, 1999	JACO
〃	Mitsubishi Electric System & Service Co., Ltd. Chubu Branch	Sep. 29, 1999	JACO
〃	Ryoei Technica Co., Ltd.	Oct. 27, 1999	JACO
〃	Nihon Injector Co., Ltd.	Nov. 12, 1999	JQA
〃	Ryosai Technica Co., Ltd.	Nov. 12, 1999	JQA
〃	Mitsubishi Electric Logistics Support Co., Ltd. Mita Administrative Office	Nov. 12, 1999	JQA
〃	Mitsubishi Electric Elevator Products Co., Ltd.	Dec. 2, 1999	JACO
〃	Ryoden Kasei Co., Ltd. Head Office/Factory	Dec. 24, 1999	JQA
〃	Ryoden Elevator Equipment Co., Ltd. Nagoya Factory	Dec. 28, 1999	JACO
〃	Ryoden-Asahi Technica Co., Ltd.	Dec. 28, 1999	JACO
〃	Toyo Takasago Dry Battery Battery Division Yaita Administrative Office	Feb. 4, 2000	JQA
〃	SPC Electronics Corporation Tokyo area	Mar. 15, 2000	JACO
〃	Mitsubishi Electric Lighting Co., Ltd. Head Office/Shizuoka Factory	Mar. 15, 2000	JACO
〃	Mitsubishi Electric Logistics Support Co., Ltd. Head Office Shonan Administrative Office/Hokkaido Factory Kamakura Administrative Office Space Group	Mar. 17, 2000	JQA
〃	Toyo Denki Co., Ltd.	Mar. 24, 2000	JQA
USA	Mitsubishi Electric Automotive America, Inc.	Jun. 24, 1999	Bureau Veritas Quality International
China	Mitsubishi Electric (Guangzhou) Compressor Co., Ltd.	Sep. 10, 1999	AJA-EQS Limited
United Kingdom	Mitsubishi Electric Air-Conditioning Systems Europe Ltd.	Jan. 21, 2000	British Standards Institution (BSI)

*1) JACO : Japan Audit and Certification Organization for Environment and Quality *2) JQA: Japan Product Quality Assurance Organization

Resource Input & Output to the Environment



Awards

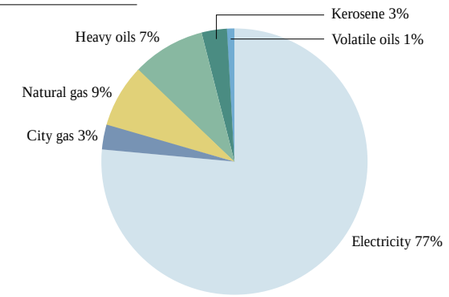
Mitsubishi Electric's affiliated companies received the following awards recognizing their environmental activities in fiscal 1999.

	Award	Site	Awarding Organization	In recognition of
Manufacturing Process	Letter of Appreciation from the Head of the Tokyo Sanitation Department (for efforts to reduce and properly dispose of waste at a large-scale office)	Mitsubishi Electric Building Techno-Service Co., Ltd.	Tokyo Sanitation Department	Promotion of waste reduction/ proper disposal methods at a large-scale office
	Chukgoku Region Electric Power Rationalization Committee Chairman's Prize for Excellence in Energy Control at a Production Facility (Electricity Category)	Miyoshi Electronics Corporation	The Energy Conservation Center	Concentration of cold-water system, efforts to reduce power use, etc.
	Tohoku Bureau of International Trade and Industry Section Chief's Prize for Excellence in Energy Control at a Production Facility (Electricity Category)	Mitsubishi Electric METECS Co., Ltd. Joetsu Factory	The Energy Conservation Center	Efficient use of equipment, energy conservation measures, etc.
	Kanto Bureau of International Trade and Industry Section Chief's Prize for Excellence in Energy Control at a Production Facility (Thermal Category)	OSRAM-MELCO Co., Ltd. Kakegawa Factory	The Energy Conservation Center	Recovery of thermal exhaust, energy measurement and control, etc.
	Award for Cooperation in Greenery Expansion Efforts (Workplace)	Kodensha (Kita) Co., Ltd.	Sapporo City	Efforts to promote greenery at head office building

Prevention of Global Warming

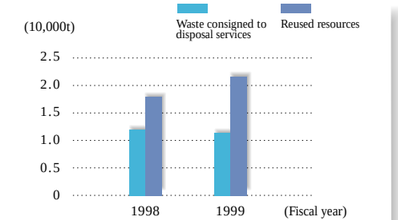
In fiscal 1999, the total carbon dioxide emissions of our affiliated companies was 210,000t-CO_2. Broken down by energy type, 77%, the largest percentage, was from electricity, followed by 12% from gas (LPG, etc.) and 11% from oil-related sources (heavy oil, etc.). In the future, we will continue to promote the conversion to energy sources that have minimal negative impact on the environment.

Breakdown of Energy Use



Promotion of Recycling / Waste Reduction

The amount of waste from our affiliated companies consigned to disposal services came to 11,400t. This is a 3.6% reduction on a year-on-year basis. We are now working toward a 16% reduction for fiscal 2000. In addition, we reused approximately 21,600t of resources in fiscal 1999, a 23% increase over the previous year. We are aiming to improve on this further in fiscal 2000.



Changes in total waste/resource reuse rates

Control of Chemical Substances

In fiscal 1999, our affiliated companies used a total of 3,200t of chemical substances, with a breakdown of 52 chemical substances categorized into 49 groups. Although Mitsubishi Electric has already eliminated the use of organic chloride compounds, our affiliated companies are moving forward with efforts to eliminate the use of these compounds by the end of fiscal 2000.

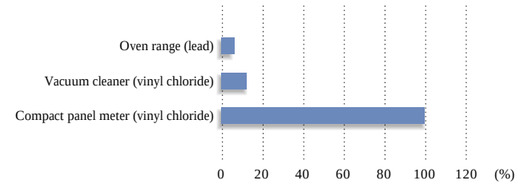
Release of Chemical Substances into the Environment: Domestic Affiliated Companies

Chemical Substance Name	Amount Released (unit: t/year)
Toluene	470
Hydrogen chloride	89
Dichloromethane	53
Xylene group substances	51
Chloroform	41

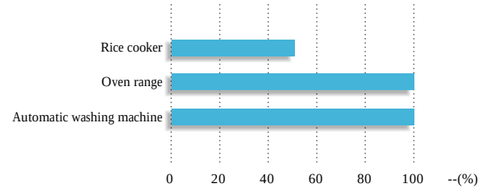
Product-related Efforts

Our affiliated companies have begun to make concrete strides towards DFE and to implement M.E.T. planning that takes into account the product lifecycle, particularly in the case of home appliances. The main results are listed below. In the future, our affiliated companies will accelerate their efforts as part of the Mitsubishi Electric Group.

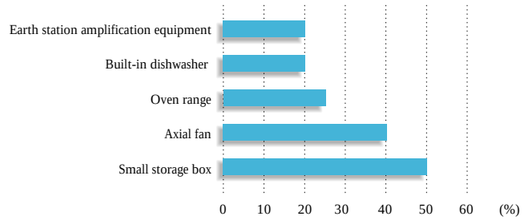
Percentage Reduction in Use of Substances Posing a Risk to the Environment



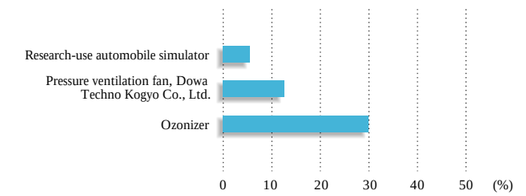
Percentage Reduction in Standby Power Consumption



Percentage Reduction in Power Consumption (active use)



Miniaturization (resource conservation)



Actions of Affiliated Companies

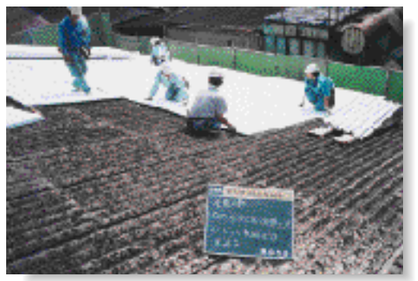
Prevention of Global Warming

Reduced Air-conditioning Burden by Insulating the Roof & Walls
Nodaichi Denshi Kashima Factory,
Mitsubishi Electric Kumamoto Semiconductor Group

In fiscal 1999, the Mitsubishi Electric Kumamoto Semiconductor (MKS) Group, which manufactures semiconductor integrated circuits, passed both the first surveillance inspection for ISO 14001 and the renewal inspection for ISO 9001. In fiscal 2000, we are working under the guidance of the System LSI Division of the Mitsubishi Electric Semiconductor Group to gain QS 9000 certification. As a corporate group, MKS is involved in environmental activities with a focus on energy and resource conservation. The group had previously set a goal for fiscal 2001 to reduce power consumption per productive unit by 9% of the fiscal 1996 levels. However, in fiscal 1999, we already exceeded this target by achieving a 23% reduction. Due to the declining quality of the slate roofing and wall surfaces of the MKS building, and the blackening effect of escaping dust particles from the adjacent factory, the structure began absorbing the sun's heat more readily, partially countering the cooling of the building's air-conditioning system. Turning our attention to this point, we instituted improvements by painting and introducing a dual-structured roof that increased building insulation. As a result, we have been able to conserve 500,000kWh per year. The MKS group has revised upward its fiscal 2000 target for power conservation per productive unit, calling for a reduction of 24%, and is currently working towards this high goal.

Temperature Reduction Effects

	After Renovations (July 1999)	Before Renovations (June 1999)	Temperature Difference
Outside air temperature	34.5℃	35.0℃	+0.5℃
Interior roof temperature	44.0℃	36.0℃	−8.0℃
Factory floor temperature	28.0℃	27.0℃	−1.0℃



Roof insulation work

Waste Reduction

Concentrated Processing through Introduction
of a Crusher for Used Fluorescent Lights
East Japan Distribution Center,
Mitsubishi Electric Building Techno-Service Co.,Ltd.

Mitsubishi Electric Building Techno-Service introduced a specialized crusher for processing its used fluorescent lights at the East Japan Distribution Center in July 1999. With this device, it is possible to process used fluorescent lights safely at a rapid rate (300 units/hr). The machine is environmentally friendly and removes all mercury from the clean air it releases. Through the separation process, the device is able to smoothly remove the metals and impurities that obstruct recycling efforts. In addition, we have contracted for the recycling of the crushed fluorescent lights, which includes recovering 100% of the mercury and reusing the glass as glass fiber. Although the company could only process 22,000units/yr handled by the Mitsubishi Electric Kanetsu branch sales office in the past, beginning from the end of April 2000 with the launch of a Tokyo area delivery system, the recovery and processing of all used fluorescent lights at the East Japan Distribution Center was made possible.

Control of Chemical Substances

Review & Rationalization of Cleansing Agents
Mitsubishi Electric Systems Service Co., Ltd.

Mitsubishi Electric Systems Service is in the process of preparing for ISO 14001 certification. A review of the cleansing agents used in repair and maintenance activities revealed that as many as 156 different types were being used. Based on these results, we made efforts to unify our use of certain cleaners and also to switch to cleaners that have a low percentage of surface activators. For example, we had been using a cleaner with a surface activator content of more than a 5% for light cleaning jobs, but we switched to a cleaner with zero surface activators and also rationalized 25 other types of cleaners. In addition, for tough cleaning jobs, we switched to a cleaner that has only 1/100 of the surface activators of our previous brand and rationalized 10 other types. We also substituted six types of volatile cleansers and chemical types with isopropyl alcohol (IPA) and absolute ethanol. Not only are we shifting to cleaning substances that pose little risk to the environment, we are also introducing rationalization efforts to reduce the number of cleaners in use.

Product-related Efforts

Expanding the Use of Recyclable Materials /Reusable Spools
Toyo Takasago Dry Battery Co., Ltd.

Toyo Takasago Dry Battery received ISO 14001 certification in November 1998 and is constantly striving in all of its business activities and employee actions to protect the environment. Elevator components (rollers, handrails) are manufactured at the Chemical Products Division. Although the step rollers used to be manufactured using a substance that was difficult to recycle, we switched to recyclable thermoplastic urethane (TPU). The TPU production rate was only about 2% in fiscal 1997 and 25% in the first half of fiscal 1998, however we improved it to 47% in the first half of fiscal 1999. In addition, we are reusing the spools (cores) that are by-products from the manufacture of TUP rollers. In April 1999, we introduced recycling equipment (to pulverize and mix used spools) and are actively working to develop products that use this material. By the end of fiscal 2000, we will achieve volume production of hanger rollers that use 100% recycled spools and plan to reuse 600kg/yr of material that was discarded as waste in the past.

Overseas Efforts

Mitsubishi Electric (Malaysia)Sdn.Bhd (Malaysia VCR Factory)

Moving forward with efforts to develop an environmental management system since fiscal 1998, the Mitsubishi Electric VCR factory in Malaysia received ISO 14001 certification on March 18, 1999. Having initiated a wide variety of environmental activities along with its environmental plan, the factory has just completed a surveillance inspection by SIRIM QAS.

Reduction in Office Paper Use

The factory reduced its use of copier paper by 17% in fiscal 1998 and by a further 21% in fiscal 1999 (compared with fiscal 1997 levels). This was a result of the active use of e-mail and double-sided copying.

Promotion of Energy Conservation

Through efforts such as measuring and monitoring, the factory reduced power consumption by 9% in fiscal 1998 compared to the fiscal 1997 level. We improved our energy use through measures such as the use of digital thermostat control and air-conditioning timer control, the introduction of lighting that automatically dims in response to sunlight, and a review of our use of a cleaning tower. As a result, in fiscal 1999, we achieved an 11% reduction in power consumption. We have revised our target upward for fiscal 2000 and are now aiming for a 13% reduction.

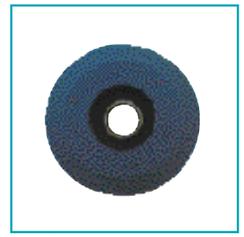
Control of Chemical Substances & Waste

In fiscal 1999, although we had targeted a 10% reduction in dross (oxidized soldering waste), we were actually able to achieve a 21% reduction. We reduced dross from our car audio production line by applying antioxidants and a nitrogen flow to all soldering waste. In the future, we will introduce the nitrogen flow process to other production lines as well. We are also working to reduce our use of lead by introducing lead-free soldering.
In fiscal 1999, although our target for reducing waste solutions was 10%, we were able to reduce them by 29%. The reuse of waste solutions is a new topic for our activities in fiscal 2000. In order to control the use of chemical substances, we have set procedures to govern the purchase of new chemical substances.

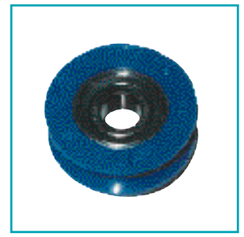
Promotion of Recycling & Waste Reduction

Our employees are actively taking part in the recovery and separation of waste materials. We are selling separated plastics, metals, corrugated cardboard and other items of value to recycling companies. In addition, we are also making efforts to reduce packaging materials. In fiscal 1998, we received the cooperation of 12 businesses with which we work on a regular basis and reused the carton boxes utilized in transactions with them. In fiscal 1999, we were able to increase this network by 41.6%, to 17 companies.

Step roller (conventional type)



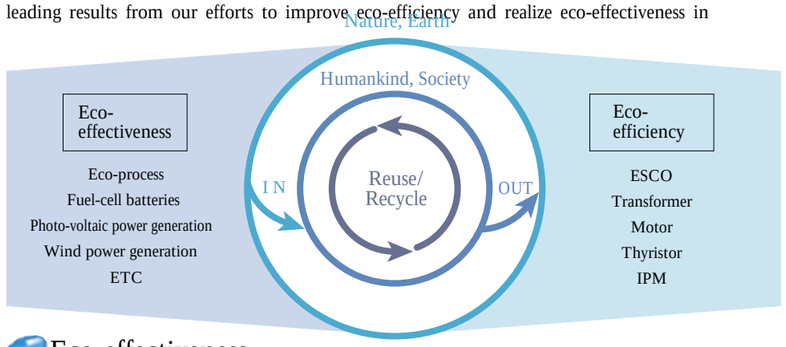
Step roller (thermoplastic urethane)



Hanger roller (thermoplastic urethane)

Environment Related Business and Development

Mitsubishi Electric is making various efforts to offer its customers products and systems that use less resources and energy while providing higher functionality; in other words, products and systems that are highly "eco-efficient." In addition to resolving the negative aspects of environmental problems, we are seizing these challenges as opportunities and actively striving to develop new technologies that will aid in the formation of a sustainable society; in other words, "eco-effective" creation. The following reports the leading results from our efforts to improve eco-efficiency and realize eco-effectiveness in



Eco-effectiveness

Eco-process

Large amounts of strongly acidic and alkaline chemicals are used in the process of manufacturing semiconductors and electronic devices as well as in the cleansing of precision instrument parts. In particular, in the cleaning of semiconductor silicon wafers, a process known as "RCA cleaning" is widely used. RCA cleaning involves two processes, a 5-stage cleaning process that includes treatment with four types of chemicals (combinations of hydrogen peroxide with sulfuric acid, ammonia and hydrochloric acid) and diluted fluorine liquid oxygen as well as a 7-step rinse process using ultra-demineralized water. These processes consume large amounts of chemicals, and the environmental impact is high as some of the chemicals are emitted in steam during high-temperature treatments. This makes the reduction of their use (and of demineralized water) extremely desirable from the viewpoint of environmental protection and the general maintenance of clean conditions. In the same way, demands are mounting to reduce the use of expensive chemical treatments during the resist removal process, which is used in the fields of semiconductors and liquid-crystal displays and requires large amounts of organic solvents and sulfuric acid. Ozone, an environmentally friendly substance that, while having strong oxidizing capabilities, also returns to the environment in a harmless post-reaction form of oxygen, carbon dioxide and water, is being looked to as a substitute for chemical baths. In particular, it is possible to realize an eco-friendly process that satisfies the speed requirements of actual processing through the use of highly concentrated ozone, which raises its reaction speed with the processed substance. Moreover, by reducing the use of chemicals, the process also realizes economical benefits. A true "eco-process" is a combination of being eco-friendly and economical in cost. We are developing a clean ozone water-manufacturing system that uses high ozone concentrations and contains no

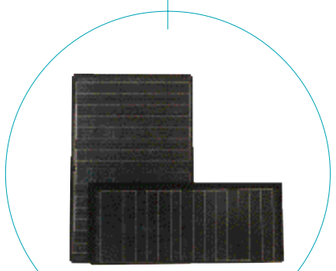
Fuel-cell Power Generation Systems

Fuel cells are a form of co-generation system that react the hydrocarbons of city gas with oxygen to produce electricity and heat. This is a very clean form of electricity generation, producing less than 10ppm of NOx and a miniscule amount of SOx. Fuel cells also cause very little noise (below 60dB) and vibration. The efficiency of electricity generation is 40%; however, the addition of heat utility (steam and hot water) raises total efficiency to 80%. One beer-brewing factory, which maintained a specific boiler to utilize the methane gas resulting from its wastewater treatment facilities in the past, was able to construct an efficient energy system by diverting the gas as the fuel for a fuel-cell power generation system. Mitsubishi Electric supplied the Tochigi Factory of the Kirin Brewing Company with a 200kW fuel-cell power generation system* that is capable of making effective use of the methane gas (digestive gas) produced as a by-product of the brewery's water treatment system (anaerobic process). The system supplies power to the factory compound and utilizes thermal exhaust to preheat the boiler water supply.
In addition, in a joint project with Nisshin Seiyu Corporation, we brought to market a fuel-cell power generation system (operating on city gas) that combines the direct steam utilization of our fuel-cell systems with the thermal exhaust utilization of gas turbine air cooling. In June 1999, a 200kW system (city gas, 13A standard unit) was delivered to the Isogo Factory of Nisshin Oil Mills Ltd. and is now providing power for the facility. By utilizing the thermal exhaust of the fuel-cell system for the air cooling of an existing gas

*Electricity generation efficiency 39%,(LHV) Heat Utility efficiency 48%(LHV:steam 167 ℃, hot water 60 ℃)

Photo-voltaic Power Generation System

This is a system that supplies electricity by converting the sun's energy into electrical energy. The system supplies power through the conversion of DC power generated by solar cells into AC power. Not only is it an inexhaustible, clean new energy source that is environmentally friendly, when combined with a storage cell it can also function as an emergency power supply during times of natural disasters. We have brought to market various systems, including a system for residential homes, one for use in public buildings such as schools and community centers and also one for use in factories and offices, among others. With these systems, we have improved the basic functionality of the solar cell module and expanded the variations available. These models



[Characteristics of New Model]

PV-MR140 Solar Cell Module

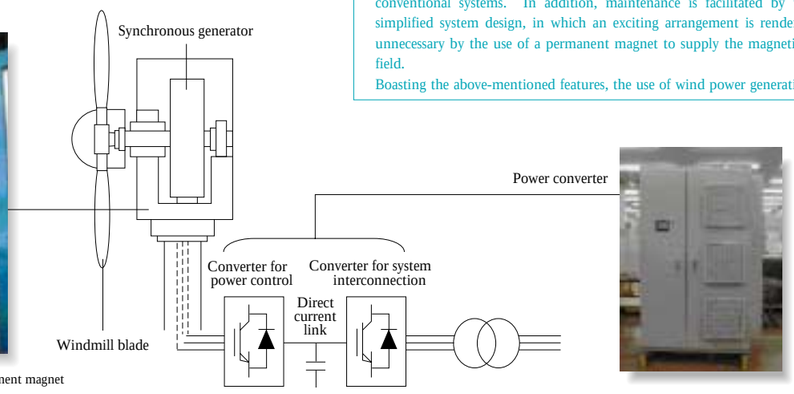
Using polycrystalline photo-voltaic cells, we have achieved an industry-leading* cell conversion factor of 15.5%. This improves the output level by 11% to a high 140W (compared to our previous model with the same surface area). In addition, the cell is combined with a power conditioner (industry-leading maximum power conversion factor of 96%) to form an overall system that achieves the highest conversion factor in the industry. *as of September 1999

PV-MY075 Roofing Material-type Photo-voltaic Battery Module - Blends with Mounting Area

We have realized beautiful designs that blend in with surrounding roofing material so that the photo-voltaic battery modules blend into the roofing on which they are mounted. In addition, with the miniaturization of the module and freedom provided by its versatile positioning method, it is now possible to mount a 4.20 kW rooftop-type system on a roof that could previously only support a 3.02kW

Variable-speed Power Conversion System and Synchronous Generator Equipped with a Permanent Magnet for Wind Power Generation

Wind power generation involves harnessing the natural energy of the winds. For this reason, compared with generating equipment that use fossil fuels, wind power generation produces no carbon dioxide and is thus gaining popularity as a new energy source that is able to contribute to the prevention of global warming. At Mitsubishi Electric, by utilizing a multi-polar synchronous generator fitted with a permanent magnet in place of a conventional induction generator, we have developed a new system, a variable-speed power conversion system and synchronous generator equipped with a windmill/permanent magnet. The new system, shown below, provides improved power quality and generation



Synchronous generator fitted with a permanent magnet

(1) High efficiency operation (generation efficiency 90%)

Because a permanent magnet is used for excitation, it is unnecessary to run current to the rotor and there is no loss due to the magnetic field. The use of a power converter enables a highly efficient system even in regions with low wind speeds.

(2) Reduction of output changes through variable-speed operation

The system reduces output power pulsation by temporarily storing the energy derived from the wind's pulsating power and through the use of torque control provided by the power converter.

(3) Improvements in maintenance

Maintenance of the gears and oil-feeding system has been eliminated since the new system does not have the accelerating gear required by conventional systems. In addition, maintenance is facilitated by the simplified system design, in which an exciting arrangement is rendered unnecessary by the use of a permanent magnet to supply the magnetic field.

Boasting the above-mentioned features, the use of wind power generation

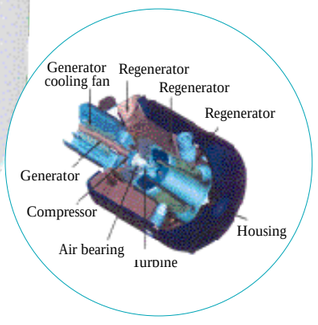
Electronic Toll Collection (ETC: Automated "Non-stop" Highway Toll Collection System)
Development of Roadside System and On-board Units

ETC is a system designed to ease the traffic congestion caused by highway toll collection areas. At present, the system is under test operation, but it is scheduled to be gradually introduced on main routes in Japan that experience heavy traffic and have high maintenance requirements, such as the Tomei and Meishin highways. Because the introduction of ETC shortens passage time through the toll collection area from the present 15sec/car to only 4sec/car, it is calculated that the use of this system will improve traffic congestion to about 1/4 of its current level. Untying traffic jams not only solves problems such as exhaust gas lingering in the toll collection area, fuel loss and time loss for the driver, but also results in improved fuel efficiency and lower emissions of CO_2 and NOx by increasing the average speed of the vehicle. Mitsubishi Electric has developed a 5.8GHz (domestic specifications) active-transmission roadside system and a corresponding on-board unit. In addition, by developing a specialized IC for the on-board unit, we have also realized miniaturization of the device.

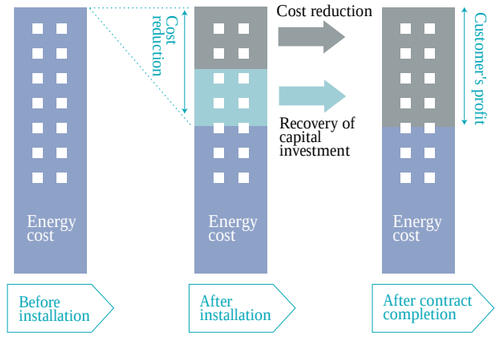
Eco-efficiency

ESCO (Energy Service Company)

Internal structure of a micro-gas turbine
Mitsubishi Electric micro-gas turbine
Co-generation system package
MTG-28 Micro-Eco Turbo



Mitsubishi Electric is also developing an ESCO service in which we realize energy-saving and cost-cutting measures without sacrificing comfort or convenience for customers who wish to move forward with devising energy conservation strategies and making a record of their energy use situation. Making good use of our integrated energy conservation engineering and technology, we guarantee each year's energy savings through a performance clause in our service contract. As the guaranteed amount of energy savings is seen as a return on existing capital investment, there is no need for further investment on the customer's part during the early stages of the service agreement. In addition, customers are freed from bothersome work by outsourcing their energy-saving and cost-cutting planning to a Mitsubishi Electric service that covers them from the initial energy conservation inspection through to follow-up activities. We meet our customer's needs by promoting energy-saving and cost-cutting measures that fuse information technology (IT) with technologies such as highly efficient co-generation systems, miniature micro-gas turbines that may be positioned in a dispersed pattern, and all types of clean energy power generation systems (fuel cell, photo-voltaic, wind power).
In addition, we are building an ESCO validation plant at our Transmission & Distribution, Transportation Systems Center. The plant will begin actual operation in September 2000, serving as a storage facility for all types of related data and know-how.



High Efficiency and Super-high Efficiency Oil-immersed Transformers

Mitsubishi Electric has begun sales of a new series of oil-immersed transformers (High Efficiency and Super-high Efficiency) that respond to today's increasing energy conservation needs, such as those related to the establishment of the JEM standards (characteristic standards for 6kV high efficiency oil-immersed transformers used in power distribution) and the application of the Energy Reform Tax System ("Energy Supply-Demand Structural Reform Investment Promotion Tax System") to oil-immersed transformers. Compared to JIS standards for oil-immersed transformers, these two new models reduce energy loss by 25 and 60%, respectively, and both offer space-saving features as well. With the new High Efficiency/Super-high Efficiency Transformer series, the company has made possible the choice of a transformer that can respond to the various energy conservation needs of factory and office installation environments.

Super-high Efficiency Transformer Characteristics (compared to current leading model)

- Reduces total loss by approximately 60% through the use of a high-quality silicon steel plate and a low-loss design.
- Reduces operation noise to approximately 10dB.
- Reduces annual CO_2 emissions by approximately 11t (three-phase 1000kVA unit with a 60% load factor).

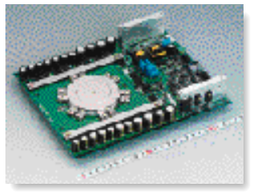
High-performance, Energy-saving Motors
Super Line Eco Series

It is said that about 70% of factory power consumption is attributed to motor use, and thus regulation and standards-setting movements regarding highly efficient motors are advancing in many countries. In addition, in order to obtain large reductions in power consumption, factories are now shifting to the use of such highly efficient motors. In response to this trend in demand, Mitsubishi Electric has developed and begun sales of the "Super Line Eco Series," a new line of highly efficient motors. Listed below are the environmentally friendly characteristics of the new series.

- Recognized as one of the industry's premiere high efficiency, energy-saving motors, satisfying the efficiency standards of the Japan Electronics Association and the US Environmental Protection Agency.
- Operation efficiency improved by an average of 3% and loss reduced by an average of 25% compared with the company's standard-use motors.
- Torque at low speeds improved through the advanced vector control performance of Mitsubishi Electric inverters (enables fixed torque for continuous operation at 6-60Hz).
- Improved inverter drive performance makes it possible to expand applications, enabling greater energy savings for systems equipped with inverters.
- The use of a steel-plate frame and compact, lightweight design have resulted in a reduction in operating noise (3dB(A) quieter than the company's standard motor).
- Improvements to the environment-proofing (humidity and heat resistance) of the winding varnish and bearing service life have increased the service life of the motor.

This product won the 1999 Japan Machinery Federation Chairman's Prize for Superiority in Energy-saving Devices.

High-pressure Resistant Reverse-Blocking GCT*1 Thyristor



Presently, reverse-blocking GTO*2 thyristors or reverse conductive-type GCT thyristors and diodes are primarily used in current-type inverters that use power devices and act as power converters. In order to simplify device design and increase efficiency, the development of a high-pressure resistant reverse-blocking GCT thyristor capable of switching without a snubber circuit*3 has been on the research agenda for some time. Responding to this market demand, Mitsubishi Electric has developed a 6500V/800A GCT thyristor (FGC800A-130DS). The FGC800A-130DS has high turn-off capabilities, rectifies the trade-off between "ON" voltage and switching loss through improved hardware specifications and achieves low loss. When used with a current-type inverter and compared to the conventional set-up of the combination of a reverse conductive-type GCT thyristor with a diode, the use of our new thyristor both simplifies the device by eliminating the need for a diode and realizes high efficiency by reducing loss 5%.*4 In addition, when compared to a voltage-type inverter using a reverse conductive-type GCT thyristor, the new device provides a loss reduction of 25%, an amazing contribution to energy conservation.

*1) GCT : Gate-commutated Turn-off
*2) GTO : Gate Turn Off
*3) A circuit in which the elements are connected in parallel and serve to raise the voltage during switching and control peak values.
*4)Estimated value calculated based on hypothetical operating conditions.

Intelligent Power Modules S-DASH Series

Motor control devices such as standard-use inverters and servomotors and power-supply devices such as uninterruptible power supplies (UPS) utilize semiconductor-based power modules as the power control element. Although Mitsubishi Electric has responded to the demand for high-performance power modules with the release of its 3rd generation IPM*1 S-DASH Series, demands for further loss reductions and the strengthening of EMI*2 response while maintaining compatibility have continued to increase. In response to these demands, Mitsubishi Electric has developed a 4th generation, planar 1-micron IGBT*3 chip that reduces saturation voltage by 15% (from 2.7 to 2.3V, compared at maximum specifications). We began sales of the S-DASH Series IPM utilizing this IGBT, providing a rich lineup of 24 different models. Volume prodution of the series began in late 1999. Since this product is compatible for packaging with both 2nd and 3rd-generation S-DASH Series IPMs, it is possible to simply replace older models with the new chip and obtain further contribution to energy-saving efforts.

*1) IPM : Intelligent power module
*2)EMI : Electromagnetic immunity
*3) IGBT : Insulated-gate bipolar transistor

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Mitsubishi Electric Group Environmental Action Logo

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