

Panasonic Group

'eco ideas' Report 2009



Panasonic
ideas for life

Company Name: Panasonic Corporation

Head office Location:

1006 Kadoma, Kadoma City, Osaka 571-8501, Japan

Tel: +81-6-6908-1121

Date of incorporation: December 15, 1935

Date of foundation: March 7, 1918

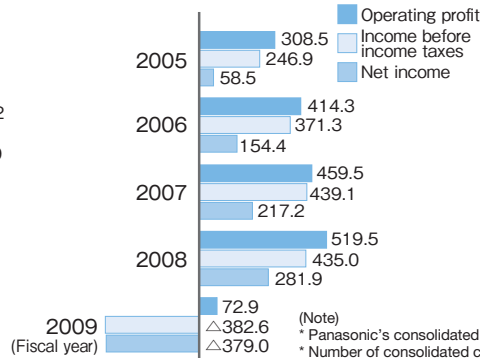
Representative: Fumio Ohtsubo, President

Capital: JPY 258.7 billion

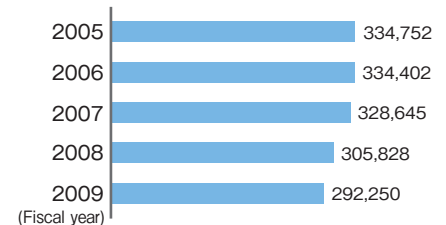
Sales (billions of yen)



Profit (Loss) (billions of yen)

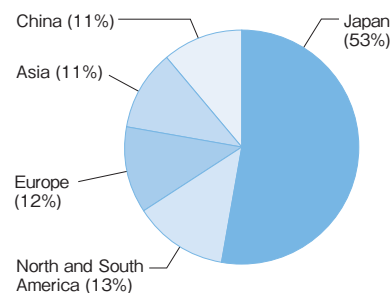


Number of employees (persons)

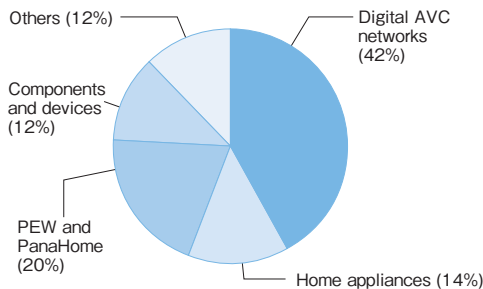


(Note)
 * Panasonic's consolidated accounting conforms to U.S. accounting standards.
 * Number of consolidated companies: 540 (parent companies and consolidated subsidiaries)
 * Number of associated companies: 182
 * A sign, "△" shows a loss.

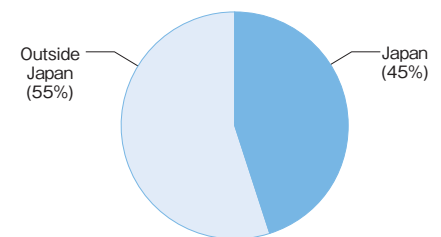
Sales by region (fiscal 2009)



Sales by business segment (fiscal 2009)



Rate of employees by region (at the end of fiscal 2009)



Main products and services

As of March 31, 2009

Digital AVC networks

Visual Products and Display Devices Business: Plasma TVs, LCD TVs, Blu-ray disc recorders, DVD recorders, Digital video cameras, digital cameras, personal and home audio equipment, SD Memory Cards and other recordable media, optical pickup and other electro-optic devices, Network Business: PCs, Optical disc drives, copiers, telephones, mobile phones, facsimile equipment, broadcast- and business-use AV equipment, communications network related equipment, traffic-related systems, car AVC equipment, healthcare equipment, etc.

Home appliances

Refrigerators, room air conditioners, washing machines, clothes dryers, vacuum cleaners, electric irons, microwave ovens, rice cookers, other cooking appliances, dish washer/dryers, electric fans, air purifiers, electric and gas heating equipment, electric and gas hot water supply equipment, sanitary equipment, health-care equipment, electric lamps, ventilation and air-conditioning equipment, car air conditioners, compressors, vending machines, medical equipment, etc.

Components and devices

Semiconductors, general components (capacitors, tuners, circuit boards, power suppliers, circuit components, electromechanical components, speakers, etc.), electric motors, batteries, etc.

PEW and PanaHome

Lighting fixtures, wiring devices, personal-care products, health enhancing products, water-related products, modular kitchen systems, interior furnishing materials, exterior finishing materials, electronic and plastic materials, automation controls, detached housing, rental apartment housing, medical and nursing care facilities, home remodeling, residential real estate, etc.

Others

Electronic-components-mounting machines, industrial robots, welding equipment, bicycles, imported materials and components, etc.

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Publication objective and editorial policy

- Panasonic started publishing Environmental Data Book in fiscal year 2006 to supplement information disclosed in the Panasonic Report for Sustainability. This year, in consideration of the increasing importance of the environmental sustainability management, Panasonic changed the name of the report to the 'eco ideas' Report and report our annual environmental activities
- This report is composed of three 'eco ideas' based on our group-wide 'eco ideas' Strategy and initiatives at frontlines are introduced in the beginnings of each 'eco ideas' page.
- Data reported in this report refers to a global result and a name of the country or region is indicated when disclosing data specific to a particular country or region. More detailed data such as those by region is disclosed in the Data File on our website (P.50).

Scope of information

- Reporting period: Fiscal Year 2009 (April 1, 2008 – March 31, 2009)
- Organization covered: Panasonic Corporation and consolidated subsidiaries
- Data covered: All manufacturing sites (285 sites) that have established Panasonic Environmental Management Systems
- * When companies included in a scope of organizations are changed, data is corrected in a retrospective manner.
- * Data without any indications of fiscal years or regions refers to global result in fiscal year 2009.

Reference guidelines

- Environmental Reporting Guidelines 2007 by the Ministry of the Environment, Japan
- Sustainability Reporting Guidelines 2006 by the Global Reporting Initiative (GRI)



Fumio Ohtsubo
President of Panasonic Corporation

F. Ohtsubo

In 2008, we underwent drastic changes triggered by the global financial crisis, in which almost all the markets across the world showed a sharp economic downturn. In the face of this unprecedented economic crisis, I feel that new perceptions of value are spreading at an accelerating rate all over the world. When the economy recovers in the future, I believe that the global market situation, and with it also the types of products and services demanded by customers will be quite different from the present. There is no doubt that one of the catalysts of this dramatic change is an increase in the importance of global environmental concerns. Against the backdrop of the development in so-called Green New Deal policies and international discussions on global warming prevention, a shift to a low-carbon society will become more evident.

In our effort to contribute more to living in harmony with the global environment as one of our business visions, we have been implementing environmental measures as an essential initiative in our quest for global excellence. In our three-year mid-term management plan, the GP3 Plan, which started in fiscal 2008, we see the reduction of environmental impacts in all business activities as one of our most important issues along with steady growth with profitability, aiming for strengthened environmental management. In our 'eco ideas' Strategy, which focuses on accelerated anti-global warming measures and global promotion of environmental management, we are carrying out the following three key initiatives: 'eco ideas' for Products, 'eco ideas' for Manufacturing, and 'eco ideas' for Everybody, Everywhere.

With our 'eco ideas' for Products, we are making an all-

out effort to improve the performance in energy efficiency of our products. As a manufacturer based in Japan, where natural resources and energy are scarce, we have shown superior capabilities in making things smaller, lighter and thinner, and reducing energy consumption. By steadily advancing the energy-saving and resource-saving skills that we have accumulated in Japan, we will enhance the value of our products on a global scale.

As part of our initiatives, we began selling refrigerators and washing machines in Europe in March 2009. These products are highly energy-efficient, thanks to the adoption of our unique environmental technologies. They have been classified as belonging to the high-ranking class in terms of energy efficiency under the EU energy labeling system.¹ Also, for plasma TVs, we have launched new models in global markets which consume 46%² less power than conventional ones by introducing a new panel technology.

With regard to 'eco ideas' for Manufacturing, we are reducing the CO₂ emissions along the whole manufacturing process, including product planning, design, production, marketing and recycling. In particular, we are committed to reducing our total CO₂ emissions from production activities by 300,000 tons from the fiscal 2007 level by fiscal 2010 as one of our targets, while increasing production.

In fiscal 2009, we were able to steadily reduce our CO₂ emissions by implementing a variety of measures at our factories earlier than planned, including the identification of feasible reduction measures, updating of production equipment, and more careful operational management. With the decrease in production due to the shrinking demand, we eventually reduced CO₂ emissions by 510,000

tons from the fiscal 2007 level and achieved the target for fiscal 2010 ahead of schedule. Hereafter, we will further improve our energy-saving manufacturing capabilities to efficiently produce with minimum energy by using power meters introduced at a majority of our factories.

Looking at 'eco ideas' for Everybody, Everywhere, we are committed to spreading environmental activities in the global community. In fiscal 2009, we launched the Panasonic Eco Relay campaign and encouraged employees, their families and other people in their local communities to participate in this environmental initiative. Specifically, we implemented a variety of environmental programs at our 342 sites in 39 countries and regions across the world. We will continue to conduct such a campaign to provide participants with an opportunity to become involved with nature and promote exchange between different generations, which will in turn raise environmental awareness.

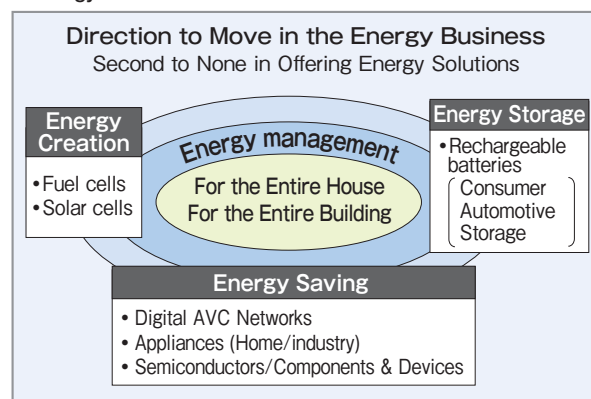
We are strengthening our environmental measures through our business activities all over the world. We made an environmental declaration in Europe in October 2008, which was followed by the announcement of our commitment to become a model company in the environmental field in China in May 2009.

Furthermore, in order to communicate our commitment to the environment in an easy-to-understand manner, we opened 'eco ideas' House on the premises of our showroom in April 2009, which shows more advanced 'eco ideas' for Products initiatives. Aiming to reduce CO₂ emissions from an entire house, the 'eco ideas' House pursues a comfortable and ecological lifestyle with virtually zero CO₂ emissions which can be realized three to five years into the future. The House presents solutions to reduce its CO₂ emissions from a house to virtually zero using a combination of fuel cells, solar power generators and storage batteries as devices to create and store energy, in addition to the introduction of state-of-the-art energy-efficient products. The House has been attracting much attention from a variety of people, including our business partners, guests from overseas and families on holidays. The number of visitors to the House reached

almost 5,000 in one month since its opening day.

As a core part of these initiatives, our energy business will become ever more important. We regard this area as one of our strategic businesses and will foster it across the Group. We will pursue substantial growth of the business to help create a low-carbon society by integrating and combining forces from our energy creation business (fuel cells and solar power generation), energy storage business (rechargeable batteries to be widely applied for consumers and automobiles), energy-efficient products in all the fields, and overall energy management for an entire house and for an entire building.

■Energy business



We changed our company name from Matsushita Electric Industrial Co., Ltd. to Panasonic Corporation in 2008, and the brand names were unified as Panasonic. Under Panasonic, we will work ever harder to implement our management philosophy across the globe, which is to contribute to society through our business operations with the concerted efforts of all our employees. Panasonic has long been committed to this philosophy since its foundation, and we now regard contributing to the solution of global environmental problems as the most important theme in implementing our management philosophy. Integrating proactive measures initiated by each and every employee into our products and services, we aim to constantly propose new 'eco ideas' for customers' lifestyles through our businesses.

We have designed this report to introduce our environmental measures in an easy-to-understand manner. Please kindly read through the report and let us have your frank opinions. Finally, I would like to ask for your kind understanding and continuous support for our activities.



Delivered a speech at the opening ceremony



Sanae Takaichi, Senior Vice Minister of Economy, Trade and Industry also joined the ribbon-cutting ceremony

*1 Panasonic's refrigerator/freezer is rated as "A++" in the frost-free category.

Our drum washer is rated as "A-20%," which means 20% more energy-efficient than the category "A".

*2 Compared with the 2007 model, an amount of power consumption has been reduced by about 40% for the 50V model and by about 46% for the 46V model.



eco ideas HOUSE

エコアイディアハウス

The world is currently facing a series of serious issues, such as a continuous increase of world population, uncertainties in water and food supplies, depletion of natural resources and an urgent need to address global warming. We are approaching a global turning corner and it would not be an exaggeration to call it the “Environmental Industrial Revolution.” Based on this recognition, Panasonic has built ‘eco ideas’ House on the premise of our showroom, Panasonic Center Tokyo in April 2009 in order to help create a carbon-free society and reduce CO₂ emissions from a household sector.

With the help of traditional Japanese wisdom to utilize the blessings of nature in the four seasons and cutting-edge environmental technologies to be developed in three to five years into the future, the House realizes a lifestyle with virtually zero CO₂ emissions in an entire house. This section introduces an advanced ecological lifestyle.

Concepts

1 Virtually zero CO₂ emissions in an entire house envisaged in three to five years into the future

Proposing a lifestyle realized in three to five years into the future to reduce CO₂ emissions to virtually zero by saving, creating and storing energy.

2 Synergy of technology and nature

Realizing a highly comfortable and ecological lifestyle by effectively using the natural blessings, such as coolness, warmth and brightness and controlling energy consumption.



'eco ideas' House



Living room



Dining room

Conditions for calculation to realize a lifestyle with virtually zero CO₂ emissions (Model family)

Family and house



A four-member, three-generation household comprising a grandmother aged 70, a father aged 40, a mother aged 37 and a daughter aged 6 living in a two-story house, which has four rooms plus a Japanese-style room with a total floor area of 136.9 squared meter (national average of Japan).

Products comprising the House

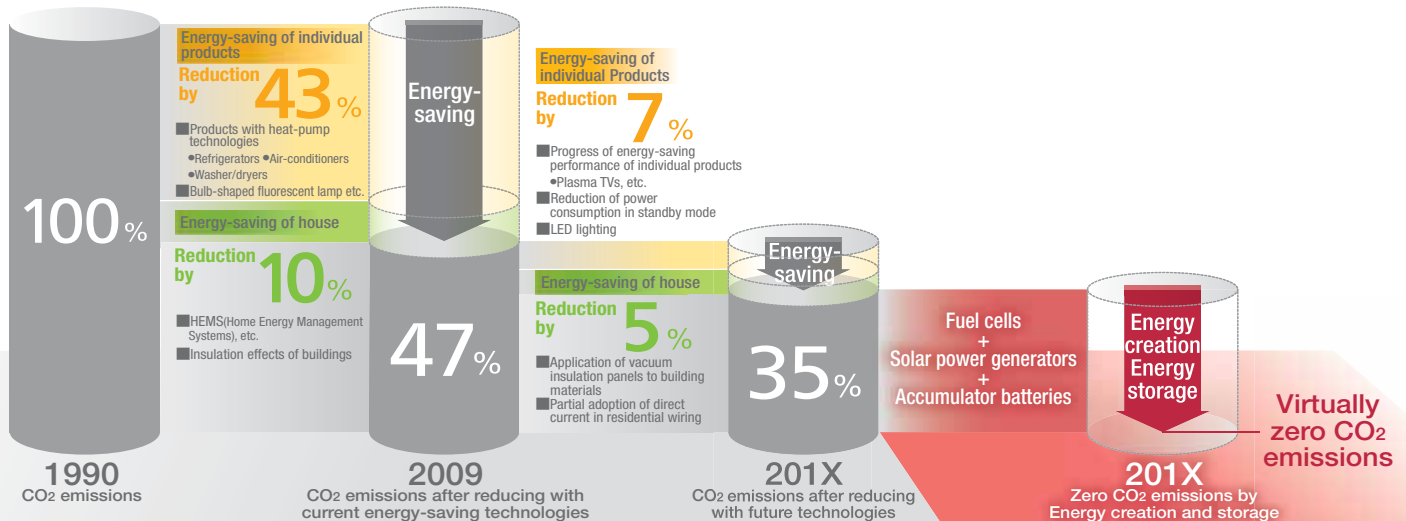
The Year of 1990:
Latest models produced and marketed at that time in consideration of the rate of diffusion to general households at 10%.

Three to five years from 2009:
Latest products selected by Panasonic in consideration of the rate of diffusion to general households at 10% and changes in lifestyles, such as an increase in the number and size of the products used in a house

1 Virtually zero CO₂ emissions*¹ in an entire house envisaged in three to five years into the future

By saving, creating and storing energy – In an energy-saving category, we reduce CO₂ emissions by 65% compared to the year of 1990 level in three to five years into the future by enhancing energy-saving performance of individual products and promoting energy-saving of the house with Home Energy Management Systems (HEMS) and insulation of buildings. In creating and storing energy, the remaining energy equivalent to 35% of CO₂ emissions, which is required after thoroughly reducing energy consumption, is supplied by a combination of fuel cells, solar power generators and accumulator batteries. By integrating energy saving, creation and storage, we realize a lifestyle with virtually zero CO₂ emissions.

*1 Covering CO₂ emissions from a product use only.



Progress of energy-saving

●Energy-saving performance of individual products

When promoting energy-saving at houses, enhancement of individual products' energy-efficiency plays a fundamental role. Major products which account for a large part of household power consumption are air-conditioners, lighting equipment, refrigerators and TVs. We drastically reduce an amount of power consumption by an inverter technology for air-conditioners, a vacuum insulation technology for refrigerators, and a newly-developed energy saving panel for TVs, as well as LED lighting for lighting equipment. Combining with other equipment with higher energy-saving performance, we reduce an amount of CO₂ emissions by 50% compared to 1990 level in three to five years into the future.

●Energy-saving of house

To thoroughly promote energy-saving, raising insulation performance of building itself is indispensable. We are accelerating CO₂ reduction with multi-layered glasses and airtight building structures as well as application of vacuum insulation panels to buildings.

It is also effective to visualize an amount of energy consumption at home. HEMS connects products and equipment in a house via networks, and a status of power consumption and an amount of energy supplied by energy creating and storing devices are displayed on a TV screen in a living room anytime. In addition, since this system enables to control connected products to maintain optimum use conditions, CO₂ emissions are reduced more than pursuing energy-saving of individual products separately. This energy-saving initiative of the house reduces 15% of CO₂ emissions.

Energy creation and storage

●Energy-creating devices

Fuel cells are new energy-creating devices which generate electricity and hot water at the same time with chemical reaction between hydrogen extracted from methane in city gas and oxygen in the air. While CO₂ is emitted during operation because city gas is used, this system can stably generate electricity regardless of seasons, weather and time. In May 2009, we became the first company in the world to have started selling this system to general households. Panasonic will actively expand this field of business as a future energy device.

A solar power generation system generates electricity by converting sunlight into electricity. This system does not emit any CO₂ when generating electricity while the operation is affected by seasons, weather and time because it utilizes sunlight.

●Energy-storing devices

Household lithium ion accumulator batteries store energy created by fuel cells and solar power generators. Usually, energy-creating devices supply electricity, but that stored in accumulator batteries are used when electricity runs short in peak times such as morning and evening time, as well as in rainy days.

Accumulator batteries play a key role to stably supply electricity as well as to maximize features of fuel cells and solar power generators.



Household fuel cell cogeneration system (1.0kW)



Solar power generation system (Output: 5,040W)



Household lithium ion accumulator battery (5kWh)
<Concept model>

2 Synergy of technology and nature

By taking in the natural blessings such as warmth, coolness and brightness and not over-relying on home appliances, 'eco ideas' House proposes a comfortable and ecological lifestyle. The House introduces a range of products which incorporates traditional Japanese wisdom to effectively utilize air, light, heat and water in the nature into their functions.

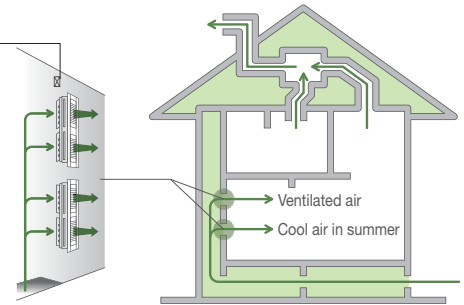


●The Wind Passage Tower S

A ventilation system called the Wind Passage Tower S utilizes a characteristic that the air beneath the floor is cool in summer and warm in winter. By taking in the air beneath a floor adjusted at a moderate temperature throughout a year, we reduce load of air-conditioners and an amount of energy consumption. By taking in the air outside, this tower realizes air-conditioning without a big difference of temperatures unlike air-conditioners.



The Wind Passage Tower S



Mechanism to take in the air beneath a floor



●Lighting design

The 'eco ideas' House presents concepts of optimum lighting for optimum places and optimum lighting for optimum time. By placing lighting equipment at right places, it enables to lighten up necessary places only, not a whole room. In addition to this, the House reduces a frequency of the use of lighting equipment by taking in sunlight outside. Both of these contribute to the reduction of power consumption.

In addition, by controlling a rate of lighting equipment used as brightness outside changes from the daytime to evening, we can reduce energy consumption in the House.



Dining room taking in sunlight outside



Dining room with LED lighting turned on while blocking light outside

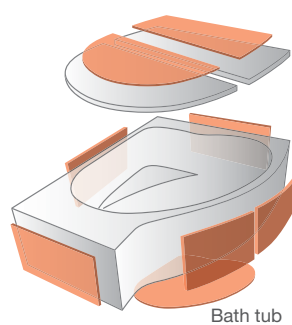


●Vacuum insulation panels

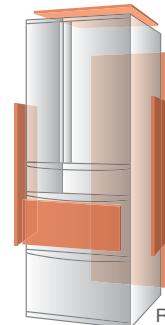
In a vacuum insulation panel, U-Vacua, glass fibers of core materials are covered by laminated films and inside of the panel is maintained vacuum.

Regardless of its thinness, the panel has very high insulation performance as vacuum bottles. The 'eco ideas' House applies this vacuum insulation panels to equipment and building materials, which generates energy-saving effects.

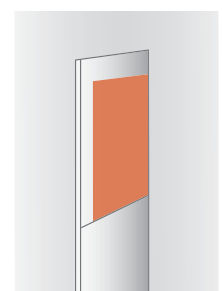
A vacuum insulation panel, U-Vacua used in 'eco ideas' House



Bath tub



Refrigerator



Building material



●Equipment with higher water-saving performance

To reduce CO₂ emissions from houses, water-saving also plays an important role. High water-saving performance of heat pump tilted drum washer/dryers, shower systems, water-saving type toilets greatly contributes to energy-saving.



Heat pump tilted drum washer/dryer



Bath unit and shower systems

Home networking technology supporting 'eco ideas' House

We here introduce a future technology of Home Energy Management Systems (HEMS) installed in 'eco ideas' House. Currently, a network widely used in a residential home is an AV equipment network represented by a personal computer network and VIERA Link. HEMS in the future connects almost all products and devices from home appliances such as air-conditioners and refrigerators to energy creating and storing devices. The system contributes to the reduction of CO₂ emissions by controlling energy consumption and supply.

Energy-saving by linking

Home Energy Management Systems (HEMS)

Lifinity ECO Management System is a home energy management system Panasonic has commercialized. Equipment connected to this system is controlled by a distributor and a controlling system, which enables to turn on and off the connected equipment, measure an amount of power consumption and display a status of energy use. In the future, power supply from fuel cells and solar power generators and a link with accumulator batteries are controlled by HEMS, which minimizes an amount of CO₂ emissions in an entire house. By visualizing hard-to-see information on a TV screen in a living room, anyone can easily check it out.

■ A controller of ECO Management Systems



Enabling to turn on and off out-of-reach equipment

■ A distributor for a residential building

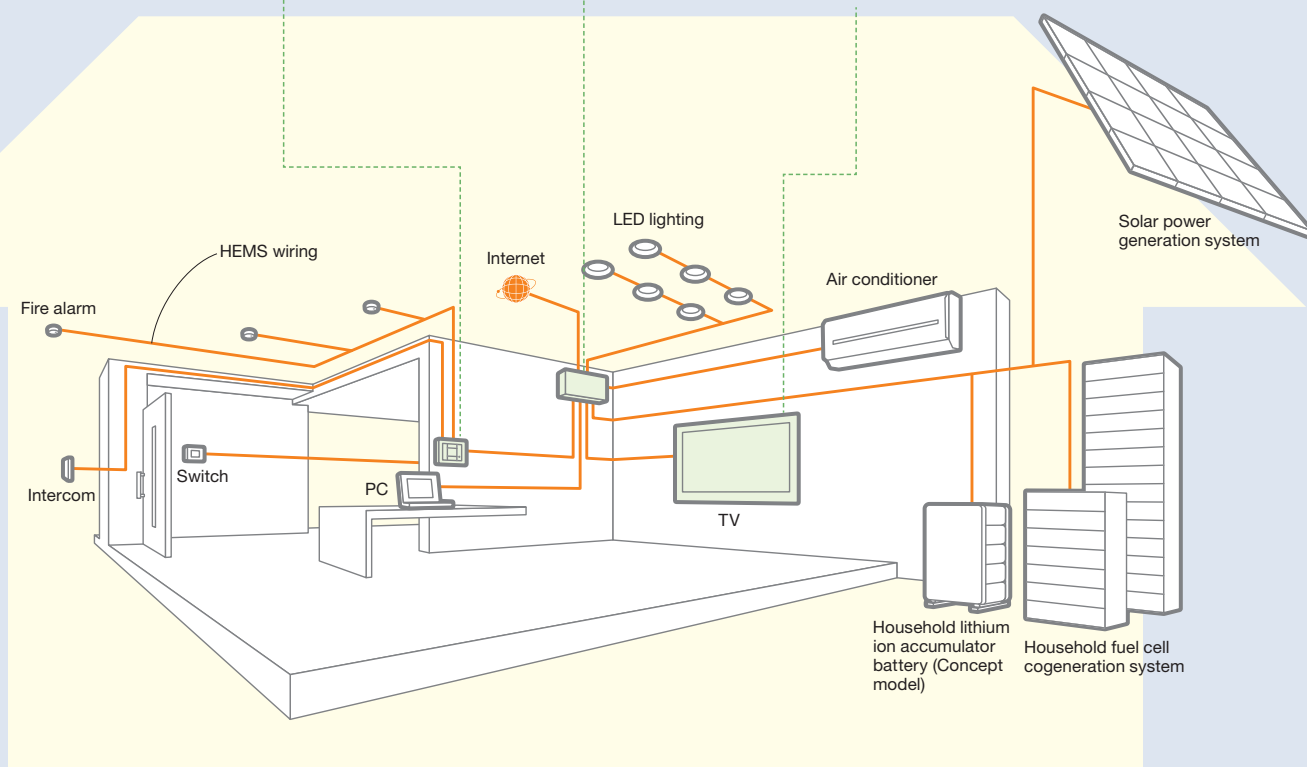


Enabling to measure power consumption for each circuit with a current sensor

■ A display on a TV



Displaying an amount of power supply by energy-creating devices in addition to that of electricity, city gas and water use.



Energy-saving of buildings

Residential AC/DC hybrid wiring system

Electricity transmitted from power stations to each home and used via outlets is generally alternating current (AC). Although AC has various merits, such as reduction of loss in transmission and safety in construction, on the other hand, some of electricity is lost when converting AC into direct current (DC) with which TVs, PCs and lighting equipment operate. Aiming at a fact that fuel cells, solar power generators and accumulator batteries generate and store electricity in an AC form, Panasonic has been developing a residential AC/DC hybrid wiring system, which promotes the utilization of DC power in addition to conventional alternating current. In 'eco ideas' House, Panasonic presents this future technology which adopts DC wiring for LED lighting.



Participants in the dialogue meeting

Dialogue Meeting on ‘eco ideas’ House

Technology times sensibility makes a comfortable lifestyle
with virtually zero CO₂ emissions



■ Outline of the dialogue meeting

Date: Wednesday, April 16, 2009

Place: Panasonic Center Tokyo

Participants:

Yoko Aoki, Founder of cafeglobe.com

Takashi Izumi, Reporter of Editorial Department, Keizaikai Co., Ltd.

Katsuyuki Ohkawara, Journalist

Yumi Kawabata, Automotive and environmental journalist

Momoko Kyukawa, Editor of Nikkei Ecology and Producer of ecomom, Nikkei Business Publications, Inc.

Shizuka Komahashi, Industrial journalist

Ryuji Suzuki, Freelance editor

Nagisa Tatsumi, Representative of Kajijuku

Sei Togashi, First Editorial Division of STYLE max, Takarajimasha Inc.

Coordinator:

Satoko Ekberg, Director of E-Square Inc.

Panasonic Corporation:

Akira Nakamura and Katsumi Tomita, Corporate Environmental Affairs Division

Masako Yamada, Panasonic Center Tokyo

The next day after the opening ceremony of ‘eco ideas’ House, we held a dialogue meeting on a lifestyle with virtually zero CO₂ emissions in an entire house, inviting nine journalists. After taking a tour of the House, the invitees gave their precious opinions on the House from various viewpoints.

► Impression of the ‘eco ideas’ House

Major opinions:

- Visitors can experience eco-conscious lives
- Neo-futuristic environmental measures are taken
- Shows the true meaning of eco-consciousness
- Visiting families can make an eco-tour
- Shows both leading-edge and user-friendly technologies

Participants deepened their understanding of Panasonic’s concept of virtually zero CO₂ emissions and how environmental technologies can be combined with natural blessings to promote more environmentally-conscious lifestyles. Some, however, pointed out, “It would be better if the House has a lived-in feel” and “I want to see ‘eco ideas’ condominium, too.”

► Good points

Major opinions:

- The concept of “virtually zero CO₂ emissions” is easy to understand.
- I can sympathize with their Panasonic’s commitment to developing technologies that make use of natural blessings.

- Changes in power consumption are “visualized” on real time, which would motivate residents to become more eco-conscious.
- The “eco-friendly breeze” from below the floor was quite pleasant.
- With regard to color adjustment using LED chips, I was surprised to know that sensible temperatures vary depending upon the colors of light. It is great to see how technologies can positively influence human sensitivity.
- It is wonderful that the House is equipped with a function to switch off a TV and its peripheral devices all together, and standby power for the microwave oven is reduced to zero. These measures will help households reduce their environmental impacts.
- I was able to understand the importance of changing people’s lifestyles. For example, working at home will contribute to the reduction in CO₂ emissions.

Participants highly appreciated the use of LED chips for optimal lighting for optimal places and air conditioning using the natural breeze. Also, they showed great interest in the in-house power generation systems, such as fuel cells, solar power generators and accumulator batteries.

►Points to be improved

Major opinions:

- Specific environmental improvement data (and prices, if possible) should also be shown for each of the devices.
- More pleasant ideas should be introduced to change a general concept that it is rather tiresome to lead an environmentally-conscious life.
- Since the House is built incorporating the universal design (UD) concept, more explanations need to be made regarding this point as well.
- Children should be able to have more specific environmental experiences in their daily lives. I agree to the idea that too much reliance on equipments should be avoided. I want to see this idea concretized into specific measures.
- As for promising technologies such as the heat pump system, new applications should be further developed.
- The House can be a tool for environmental education. To this end, displays and explanations need to be further improved so that even children can understand them.

Participants thus pointed out the importance of visualizing energy consumption, insisting that technologies should be regarded as something that supports people in conducting environmental activities. Also, we received a proposal on how to present to children.*

At the dialogue meeting, participants agreed to the concept of the ‘eco ideas’ House and made proposals on the creation of new technologies in consideration of human sensitivity and on measures to make effective use of such technologies. We will incorporate their opinions in the development of new products, as well as in improving the ‘eco ideas’ House.

* To encourage children to experience a lifestyle with virtually zero CO₂ emissions in an entire house, we hold a stamp rally campaign called Eco Challenge on weekends.



Checking total energy consumption on the TV screen in the living room on the first floor



Participants entering the house with their writing boards



Ideas jotted down on docketts



Participants giving their opinions on future technologies at the display space on the second floor



Dialogue meeting where we received many ideas and opinions from participants



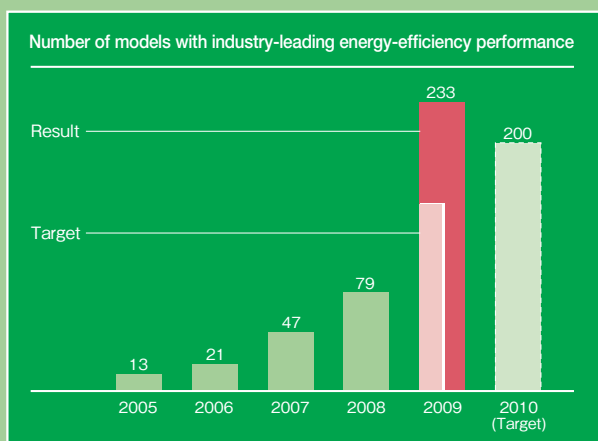
'eco ideas' for Products

We will produce energy-efficient products.

Panasonic has been globally committed to developing environmentally-conscious products from the following three aspects: prevention of global warming, effective utilization of resources, and management of chemical substances. In particular, we are striving to deliver products with industry-leading energy-efficiency in order to contribute to global warming prevention measures at households and in society. The number of such models has been steadily increasing and in fiscal 2009, we developed and marketed 233 models, far exceeding our target. In fiscal 2010, we aim to deliver at least 200 industry-leading energy-efficient models, although the number of models to be developed shrinks in the face of the economic downturn.

In the Japanese market, we are aiming to increase a rate of No.1 energy-efficient products in the industry and thoroughly reduce that of products with lower energy-efficiency performance based on a result of the Energy Conservation Performance Catalog* as a yardstick to check our progress.

* Published twice a year (in summer and winter) by the Energy Conservation Center, Japan.



[Japan] Breakdown of energy-efficient models (nine products covered by the Energy Conservation Performance Catalog) (%)

	Summer 2007	Summer 2008	2009 (Target)
No.1	16	17	30
High ranked	36	37	40
Middle ranked	35	36	30
Low ranked	13	10	

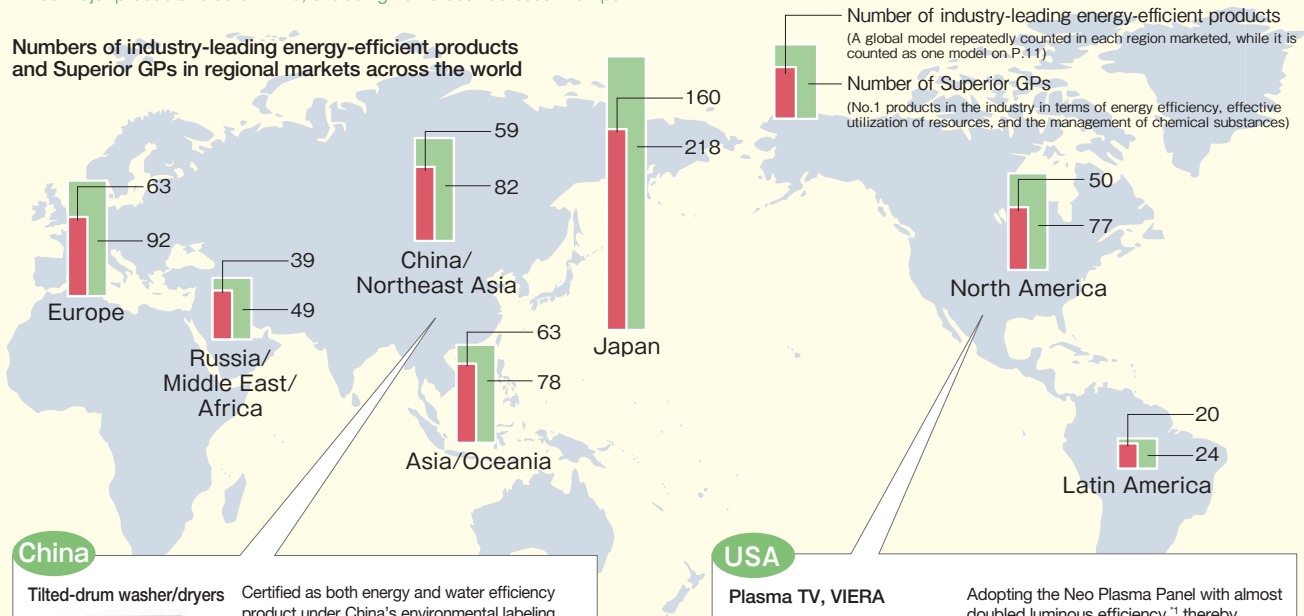
Targeted products: air conditioners, TVs (LCD and plasma), DVD recorders (for terrestrial digital broadcasting), refrigerator/freezers, rice cookers, microwave ovens, fluorescent lamps, heated toilet seats with warm water sprays
High and low ranked: Top and bottom 30% in each category in terms of total number of models (excluding No.1 ranked products from high ranked 30%)

Global Development of Industry-leading Energy-efficient Products

In fiscal 2009, Panasonic delivered a total of approx. 54 million products^{*1} to customers throughout the world. We have been committed to develop No.1 energy-efficient products, endeavoring to attain industry-leading energy-efficient performance in all of our products. As a result, many of our products have received certifications of environmental labels and commendations across the world. We are aiming to spread our energy-saving technologies in line with the environmental policies implemented in each region.

^{*1} 30 major products listed on P.45, excluding home-use fluorescent lamps

Numbers of industry-leading energy-efficient products and Superior GPs in regional markets across the world



China

Tilted-drum washer/dryers



XQG52-V52XS

Certified as both energy and water efficiency product under China's environmental labeling system, as a result of reducing water use by the adoption of the tilted drum and decreasing motor load by the use of the bubble washing technology



Water Conservation Certification label



Energy Conservation Certification label

USA

Plasma TV, VIERA



TC-P42G10

Adopting the Neo Plasma Panel with almost doubled luminous efficiency,^{*1} thereby achieving higher energy efficiency. Also, realized a lead-free plasma display panel for the first time in the world in fiscal 2007

^{*1} Compared with Panasonic 2007 model (TH-PZ750SK), a 46% reduction for the 46V type



Energy Star Label (Ver. 3.0 Tier 1)

Commendation for high energy efficiency by third-party organizations

Panasonic has been globally obtaining certifications for its highly energy-efficient products under the environmental labeling systems implemented in each region and country. We also received a range of commendations from third-party organizations. For example in the United States, Panasonic's cordless phone^{*2} and Blu-ray disk player^{*3} won the eco design awards at the CES Innovation Awards 2009 held by the Consumer Electronics Association. Also in Japan, at the 19th Energy Conservation Grand Prize for excellent energy conservation equipment held by the Energy Conservation Center, Japan (ECCJ), Panasonic's natural coolant heat pump hot water supplier^{*4} and ceiling mounted ventilation fan^{*5} won awards from the Director-General of the Agency for Natural Resources and Energy. In addition, our room air conditioner^{*6} received the Chairman Prize of ECCJ.

^{*2} KX-TG9333T ^{*3} DMP-BD35 ^{*4} HE-KU37BXS, HE-KU46BXS

^{*5} Four models including the FY-24JDK7 ^{*6} Six models including the CS-X229A

Displaying leadership to foster the use of energy-efficient equipment

Panasonic has been proactively participating in the Asia-Pacific Partnership on Clean Development and Climate (APP), which comprises seven major CO₂ emitter countries

in the world, in order to foster the use of energy-saving equipment in each country's market. Particularly, in the Market Transformation project, Japan leads other countries in sharing examples of energy efficiency standards and improvement measures, represented by the Top Runner System in Japan. Further, at a number of international symposiums, we are endeavoring to provide information and enhance the public's understanding on the importance of introducing energy-efficient equipment for global warming prevention and relevant measures by the Japanese government, as well as Panasonic's environmental sustainability management.



Third-party opinion by the Natural Step (extract)

- It is excellent that Panasonic endeavors to receive certification for the environmental performance of its products from third parties. The company could also take on the challenge of meeting the very strict environmental criteria implemented in Nordic countries.
- The Natural Step hopes that Panasonic moves forward to urge the government to implement policies for the expanded use of energy-efficient products, and provides more services to help consumers improve the energy efficiency of their houses.



Special Issue: Development of Industry-leading Energy-efficient Products

Providing refrigerators with industry-leading energy-efficiency to customers in Europe

In March 2009, Panasonic released two models of refrigerator/freezers to the European market and started selling them in seven countries, including the United Kingdom and Germany. The models are characterized by their environment-consciousness, universal design, and advanced technology. In particular, we have used our unique environmental technologies to make the models industry-leading energy-efficient products, which are rated as A++ (highest grade) under the EU energy labeling system.

* The NR-B30FX1 is rated as A++ in the frost-free refrigerator/freezer category.

In October 2007, the Home Appliances Company established a special project team to release white goods to the European market. The project team members embarked on product development, encouraged by the

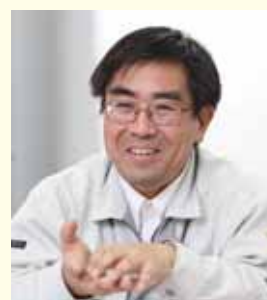
words of the manager in charge, saying, "You have been delivering many products to customers in Japan, China and Asia. Please work on this project with the skills you have acquired so far and strong self-confidence."



Tsutomu Matsumoto

Product Planning Group, Refrigerator Business Unit, Home Appliances Company

"I work as a producer in the product planning process. Giving consideration to market trends and economy, I support and give suggestions to the development team. I regard it as my role to support the development work from the very beginning to the very end."



Keiichi Takase

Engineering Group, Refrigerator Business Unit, Home Appliances Company

"We need to design our products in a future-oriented manner so that we can continuously meet the European standards that are set to become even stricter. To this end, we need to accumulate sufficient technologies and skills."

Product planning focusing on the European market

Since Panasonic had never sold refrigerators in Europe before, the project team began their work by examining how to make Panasonic refrigerators a strong brand in the European market. Based on the shared recognition that it is essential to understand the needs of the potential users of the products as a basis for manufacturing, the project team members visited Europe repeatedly to investigate and understand the local lifestyles, food culture, and the functionality that local people seek in their refrigerators, with support from local distributors. In Europe, purchasers of refrigerators can choose right-hand or left-hand doors after they buy one and so the door handles must be easily repositioned. For our refrigerators to be sold in Europe, we designed a simple and user-friendly handle based on the universal design concept and the handle can of course be repositioned. The displays on the front part of the refrigerator are designed in consideration of people with visual and hearing impairment.

In Europe, consumers often refer to magazines that make comparisons among products of different companies. Mr. Matsumoto of the Product Planning Group thought, "Panasonic's refrigerators can compete with the traditional European brands by demonstrating their high energy efficiency as the strength. To this end, our refrigerators should be rated at the highest grade in the EU energy labeling system by achieving the highest energy efficiency in the industry." The members of the Product Planning Group therefore decided to develop a refrigerator that would become the first refrigerator to be rated as A++ in the frost-free refrigerator/freezer category in Europe.

Technological development toward A++ rating

The technological staff, consulted by the Product Planning Group, on the other hand, first thought it should be too difficult to develop such an energy-efficient refrigerator, although it might be possible to develop one to be rated as A+, according to Mr. Takase of the Engineering Group. The staff, however, decided to take on the challenge of developing a refrigerator to be rated at the highest level in terms of energy efficiency by using the environmental technologies accumulated by Panasonic. In order to improve the energy efficiency of a refrigerator, it is essential to insulate heat. Therefore, the Engineering Group placed more vacuum insulation materials, U-Vacua[®] on which Panasonic has been independently conducting R&D for more than 25 years, and successfully developed a refrigerator similar to a thermos bottle. Further, the Group improved the energy efficiency of the refrigerator by utilizing an inverter technology, which controls the compressor that generates cold air. As a result, the refrigerator passed the tests of the product evaluation organization and became the first refrigerator to be rated as A++ in the frost-free refrigerator/freezer category.

Mr. Matsumoto and Mr. Takase agreed, "It is difficult to improve both basic functions and environmental performance of a product. There are a lot of hurdles to overcome, but it is the very challenge we must always tackle." Panasonic aims to further improve its core environmental technologies to advance the energy efficiency of all its products.



Panasonic refrigerator at Media Markt, a mass retailer in Germany

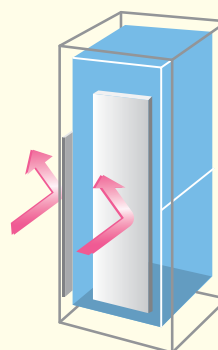


Certification mark attached to Panasonic's refrigerator

Product specification

Product name	Refrigerator/freezer
Model No.	NR-B30FX1
Volume	309 L
Cooling system	Frost free, indirect and direct cooling method
Energy label	A++
Annual power consumption	228 kWh/year
Noise	36 dB

Effects of U-Vacua



*2 Core materials, such as glass fiber, are wrapped with a metal laminated film to make the inside vacuum and insulate it from external heat.



Vacuum insulation panel, U-Vacua



Matsumoto explains key points of energy efficiency

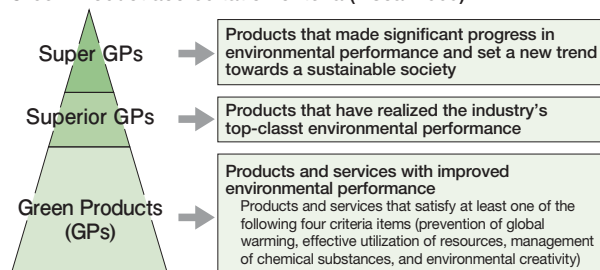
Initiatives for Green Products

Green Product accreditation criteria and assessment system

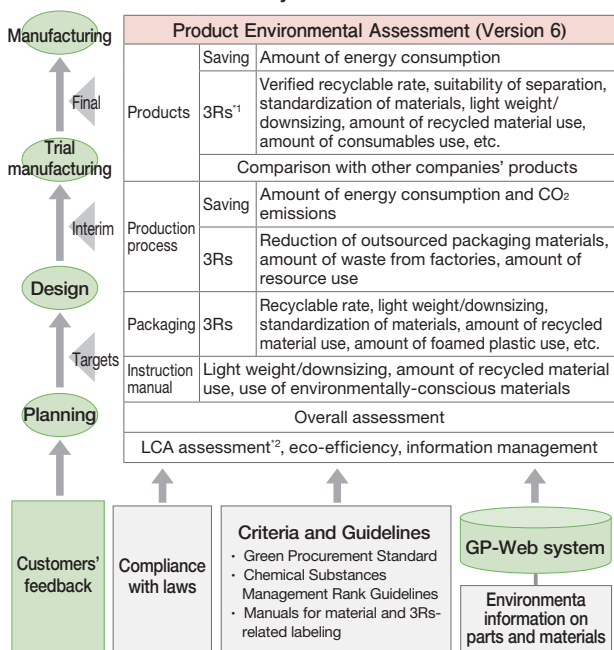
Panasonic has been utilizing an environmental assessment system for its products, under which we assess an environmental impact of our products right from their planning and design stages. Based on the assessment results, we accredit products and services with higher environmental performance as Green Products (GPs). Furthermore, we accredit products that have achieved top environmental performance in the industry as Superior GPs and trend-setting products toward achieving a sustainable society as Super GPs.

In the Green Product Accreditation System, we assess the environmental performance in terms of the prevention of global warming and the effective utilization of resources by making comparisons not only among our own products but also with the products of other companies. In addition, we are endeavoring to appropriately manage chemical substances that might adversely affect the environment.

Green Product accreditation criteria (Fiscal 2009)



Green Product assessment system



^{*1}. Reduce, Reuse, and Recycle

^{*2}. A method of quantitatively assessing the environmental impact of products at each life cycle stage

Assessment of environmental impact in an entire house

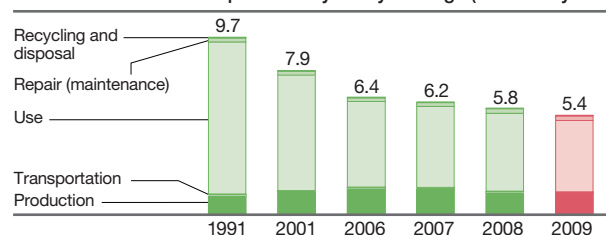
It is concerned that environmental impact from households will grow due to an increase in the number and size of home appliances while environmental performance of each individual product has been improving. Panasonic has been assessing how much the improvement of individual products' performance contributes to the reduction of overall environmental impact in an entire house.

Specifically, assuming a sample household comprising four members living in a detached house, we are visualizing overall GHG emissions throughout a life cycle of products including housing equipment and house structure, in addition to home appliances selected in consideration of the rate of diffusion to general households. As a result, we have been gradually reducing GHG emissions in an entire house since 1990, and endeavoring, in particular, to reduce an amount of GHG emissions in a use stage in terms of product's life cycle and that of air-conditioners, hot water suppliers and refrigerators from a by-product point of view.

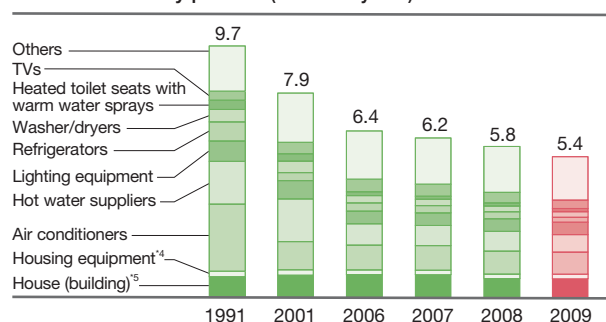
In the 'eco ideas' House (P.5) opened in April 2009, the calculation is focusing on CO₂ emissions in the use stage based on this initiative.

In recognition of our contribution to the promotion of LCA thinking and proactive approach to consumers on this matter, we received the Ministry of Economy, Trade and Industry Industrial Science and Technology Policy and Environment Bureau Award at the fifth Life Cycle Assessment Society of Japan Award.

GHG emissions from our products by life cycle stage (tons-CO₂/year^{*3})



GHG emissions by product (tons-CO₂/year^{*3})



^{*3}. Converted global warming influence of greenhouse gases to that of CO₂.

^{*4}. Kitchen and bath equipment, bathroom vanity, and storage spaces

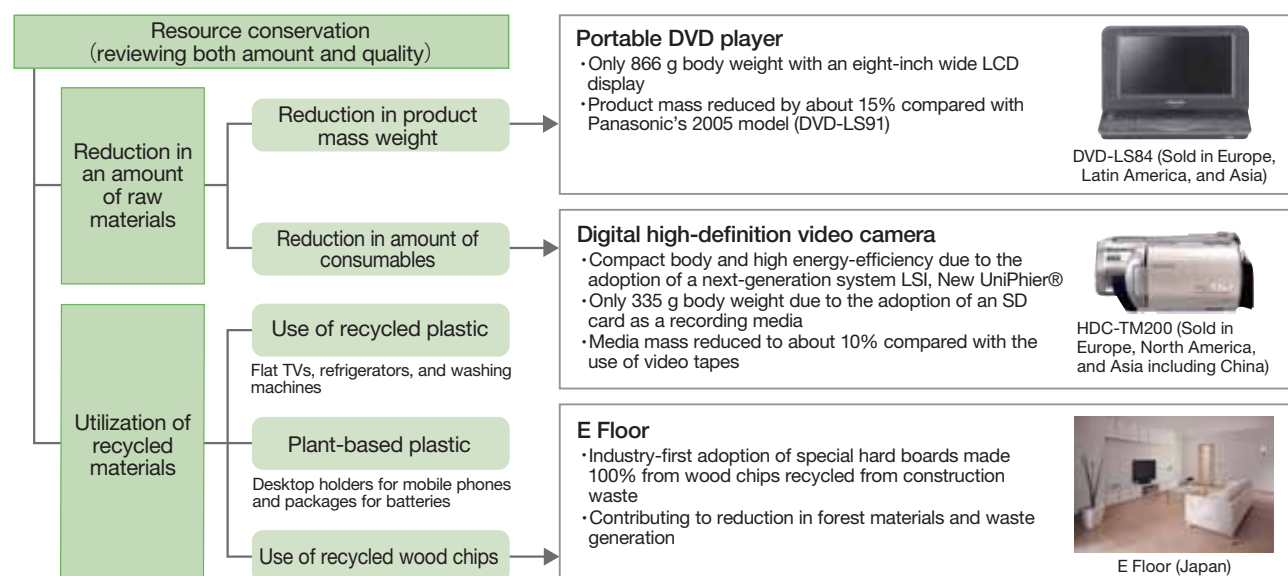
^{*5}. Light and steel-frame large panel structures; and the basic parts, body, exterior and interior finish of an industrialized (prefabricated) house

Resource Conservation in Products

Initiatives for promoting effective utilization of resources

We are taking two-pronged approach to promote the effective utilization of resources in our products: (1) reduction in an amount of raw materials with the reduction in product weights and consumables by product users, and (2) utilization of recycled materials. In fiscal 2009, we developed 129 models of Superior GPs in terms of effective

utilization of resources, 126% rise from fiscal 2008 level and increased the use of recycled plastic to about 3,000 tons and the use of plant-based resin to 150 tons. Furthermore, in order to promote recycling-oriented design, product designers themselves dismantle various products to deepen their understanding of recyclability and suitability for the sorting of waste.



Initiatives for Packaging Materials

Measures for optimal packaging

In recent years, the use of packaging materials has been increasing due to an increase in the number of large products. Panasonic has been implementing measures to reduce the environmental impact of packaging materials without compromising the safety of the products to be transported. Specifically, we are reducing the use of cardboard and foamed polystyrene materials, reusing packaging materials for transportation between our factories, and improving load efficiency in transportation. Moreover, we are making efforts to curb the increased use of packaging materials. For example, we are improving product strength and selecting and designing appropriate buffer materials for each product item, by repeating tests.

New blister packs for dry cells (Japan)

We have reduced the use of plastic materials for our dry cells by about 90% with adoption of a simple packaging method in which the cells are shrink-wrapped^{*1} and covered by a single sheet of laminated paper.



New blister packs for dry cells

'eco ideas' packages (Japan)

We have developed environmentally-conscious packages by reducing the use of inks through monochrome printing and also by reducing the packaging materials themselves. Packages that meet our criteria^{*2} are labeled as 'eco ideas' packages. For the plasma TV, we reduced about 40%^{*3} use of packaging materials by improving the strength of the product and optimizing the package design.



*1. A method of packaging using PET films. Products are wrapped using PET films and then heat is applied to make the films shrink tightly over the products they cover.
 *2. 20% or more reduction in the printing space, 15% or more reduction in an amount of packaging material use, 15% or more reduction in an amount of expanded polystyrene use, no use of expanded polystyrene, etc.
 *3. Reduced the material by 4.74 kg in TH-42PX80 (2008 model) compared to the TH-42PX70 (2007 model).

Energy Conservation

Approaches to improve the energy efficiency Performance

In order to improve the energy efficiency of our products, we have been striving to reduce an amount of power consumption of the products both in use and a standby mode, as well as to devise a way of product use with control and visualization of

Energy conservation in the use phase

Improvement of efficiency

TVs, Blu-ray disk recorders, air conditioners with inverters, washing machines, etc.

Plasma TV, VIERA

By adopting the Neo Plasma Panel, with almost doubled luminous efficiency^{*1} and through circuit integration, we nearly halved^{*2} the annual power consumption compared with Panasonic's conventional products.^{*3}

^{*1}. Compared with conventional models in 2007 (PZ750SK, etc.)

^{*2}. Compared with our PZ800/B5/80 series and V series.

^{*3}. Reduced by about 40% for the 50V type and by about 46% for the 46V type. (No conventional models comparable to the 54V type)



TH-P50Z1 (Japan)

Introduction of a new system

Heat-pump type washer/dryers, heat-pump type hot water suppliers, LED lighting, etc.

Natural coolant (CO₂) heat pump hot water supplier, Eco Cute

By adopting a heat pump system, which uses heat in the air collected in the natural coolant, we have tripled the energy efficiency compared with the use of an electric system. The hot water supplier boasts an annual hot water supply efficiency of APF 3.6,^{*6} which is the top level in the industry.

^{*6}. Based on the JRA4050:2007R test method, we measured the efficiency when the machine was in the energy conservation mode. The actual measurement results may vary depending upon where and how the product is used.



HE-KU37BXS (Japan)

Changes of materials and devices

Batteries, ventilation fans, hybrid bicycles, etc.

Lithium-ion battery

We have improved capacity by adopting a positive active material with high capacity and reduced the number of parts to cut down a weight of the battery. We successfully realized to increase a capacity of the battery for AV products from 1.5 Ah to 2.0 Ah while reducing mass weights from 34g to 33.5g.



NCR18500 (Global)

Blu-ray disk recorder

We reduced stand-by power consumption to 0.1 W,^{*4} down up to about 70%^{*5} compared with our conventional models,^{*5} by power conservation circuit technologies, such as improvement of power supply efficiency. The product was accredited as a Super GP in fiscal 2009.

^{*4}. Under the following conditions: Quick start "off," time display "off," terrestrial digital attenuator "on," BS and 110-degree CS digital antenna power "off," and BS and 110-degree CS digital antenna output "off"

^{*5}. Compared with conventional models in 2008 (DMR-BW930/830/730/BR500)



DMR-BW950 (Japan)

Product accredited as Super GPs in fiscal 2009

LED downlight

We achieved brightness equivalent to 100-watt incandescent lamps for the 13.8-watt downlight, by replacing the conventional metal halide lamps with more energy-efficient LED lamps, which enables to develop high energy-efficiency power supply with less than 10% energy loss. The light boasts the industry's highest efficiency in the class (77 lm/w).



NNN21930LE1 and other models (Japan)

Hybrid bicycle for business use

By adopting lithium-ion batteries, we have achieved the industry's top efficiency of 8.0 Ah, and the bicycle runs for about 76 km once charged. The weight of the motor unit is about 30% lighter and the frame is also about 40% lighter than conventional models, which in turn improves the energy efficiency of the product.



BE-EPB632 (Japan)

* Regions in parentheses: Regions where the product is sold

in Products

power consumption through connecting products and equipment via networks. We introduce here our major approaches and model products. (See P.11 for the results in fiscal 2009.)

Energy conservation in a standby mode

Energy conservation by devising a way of use

Operation control by sensors

Air conditioners (human detection sensor)
TVs (brightness sensor)
Vacuum cleaners (dust sensor), etc.

Air conditioner

In the comfortable automation mode, a temperature, humidity, and human motions are all monitored by a sensor and a operation mode (heating, cooling, dehumidification, and cooling and dehumidification), room temperature, wind volume, and wind direction are all automatically controlled. We have improved the energy efficiency in heating by up to about 65%.^{*7}

^{*7}. Energy efficiency may vary depending upon where and how the product is used.



CS-X229A (Japan)

Vacuum cleaner

We have reduced an amount of power consumption by about 45%^{*8} compared with Panasonic's models without a sensor control function,^{*9} by adopting a four-level power control function using our own developed house dust detection sensor.

^{*8}. Annual power consumption (automation mode): About 19 kWh/year

^{*9}. Annual power consumption of the MC-S7A without the sensor control function (in the power mode): About 37 kWh/year if operated for six minutes on average per day



MC-JC10WX (Japan)

High-efficiency power circuit

Phones, BD/DVD recorders, etc.

Digital cordless phone

We have improved a power conversion efficiency by adopting a switching type AC adaptor, and have reduced power consumption in a standby mode to 0.7 W, down by 67% from a conventional model.^{*10}

^{*10}. Power consumption of the KX-TG7301 series in a standby mode: 2.1 W



KX-TG6411 (Europe)

Improvement in heat insulation

Refrigerators, thermos bottles, etc.

Vacuum insulation panel

Our vacuum insulation panel has achieved the world's highest level heat insulation performance,^{*11} which is about 38 times greater than glass wool and about 20 times greater than hard urethane foam. This panel can be applied to refrigerators, automatic vending machines, thermos bottles, and construction materials to improve their energy efficiency.

^{*11}. Heat thermal conductivity: 0.0012 W/mK (24°C)
(Measured by Panasonic; see P.14)



U-Vacua (Ver. IV) (Japan)

Switching control

VIERA Link (power control) and TV (automatic power-off), etc.

VIERA Link (interlocking operation control)

When a TV^{*12} is switched off by using a remote controller, all the other devices connected to the TV, such as a BD recorder or home theater system are also switched off. Also, standby power of the devices is controlled according to the use status of the TV to give even higher energy efficiency.

^{*12}. The VIERA ZV/G/X/C series



TH-P42V1 (TV) and other models (Japan)

Visualization of power consumption

HEMS (Home Energy Management System), etc.

Lifinity ECO Management System

This system manages energy use in an entire house, which displays power consumption, waste of energy and energy-saving effect.



BQEL36242S, other models and equipment (Japan)

Management of Chemical

Concept of the management of chemical substances

Panasonic has been manufacturing products in line with its basic policy, which is to minimize the use of chemical substances that might adversely affect human health and the environment throughout their life cycles.

In 1999, we published our Chemical Substances Management Rank Guidelines (Ver.1) and have thoroughly managed chemical substance use since then. Specifically, we classify substances use of which is prohibited by law and regulation in specific regions as Prohibition Level 1 substances, and globally prohibit their use in our products immediately. Also, for chemical substances use of which is not yet to be prohibited by law, we classify those that might damage the environment as Management Level substances. In addition to these, we classify substances in Management level with particularly high environmental concerns as Prohibition Level 2 substances and partially prohibit the use of them in our products.

Formulating new guidelines with the aim of precautionary approach

As represented by the REACH regulation in the EU, the world is moving toward the achievement of the goal agreed at the World Summit on Sustainable Development (WSSD) held in 2002. Specifically, the goal aims to produce and use all chemical substances in a manner that minimizes their impact on human health and the environment by 2020.

In support of the precautionary approach proposed in the Rio Declaration made at the Earth Summit in 1992, Panasonic has been revising its Chemical Substances Management Rank Guidelines and published the sixth version in March 2009, in order to further improve its management of chemical substances. Specifically, based

on the newly revised guidelines, we will (1) identify the use of chemical substances in our products; (2) assess their environmental impact; and (3) reduce or discontinue the use of substances of high concern in our products based on the assessment results.

Chemical Substances Management Rank Guidelines Ver. 6 (for Products)

Rank		Definition
Prohibited substances	Level 1	<ul style="list-style-type: none"> Substances whose use in products is prohibited by laws and regulations Substances whose use in products will be prohibited by laws and regulations within one year Substances whose use in products is prohibited within Panasonic
	Level 2	<ul style="list-style-type: none"> Substances whose use in products will be prohibited by treaties or laws on and after specified date Substances whose use in products is voluntarily restricted by Panasonic
Managed substances		<ul style="list-style-type: none"> Substances whose actual use status must be further researched and whose impact on health and safety as well as appropriate treatment must be considered Substances whose use or non-use and the amount of use must be further researched

List of laws and regulations for prohibited and managed substances

(Japan)	Chemical substances specified as Class I Specified Chemical Substances under the Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
(Japan)	Substances the manufacture of which is prohibited under the Industrial Safety and Health Act
(Japan)	Poisonous substances specified under the Poisonous and Deleterious Substances Control Law
(EU)	RoHS and ELV Directives
(EU)	CMR-Cat. 1,2, Annex I, Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances
(EU)	Substances restricted under REACH regulation (Annex XVII)
(EU)	Substances of very high concern (SVHC) under the REACH regulation
(EU)	Substances that meet the criteria for PBT, vPvB, POPs under the European Chemical Substances Information System
(Industry)	Joint Industry Guideline JIG-101 A: Level B substances
(Industry)	Global Automotive Declarable Substances List (GADSL)

List of prohibited substance groups

Level 1	
Polychlorinated biphenyls (PCBs)	Cadmium and its compounds
Asbestos	Lead and its compounds
Specified organic tin compounds	Hexavalent chromium compounds
Short-chained chlorinated paraffin (C10-13)	Mercury and its compounds
Specified brominated flame retardants (PBB and PBDE)	Ozone-depleting substances (excluding HCFC)
Azo dyes and pigments forming specified amines	Formaldehyde
Polychloronaphthalene (number of chlorine is three or more)	
Perfluorooctane sulfonate acid and its salts	Specified benzotriazole
Level 2	
Polyvinyl chloride (PVC) and its compounds, and vinyl chloride copolymer	

Panasonic's initiatives to reduce chemical substances with environmental impact

Social trends	1989: The Montreal Protocol entered into force	1992: Earth Summit in Rio de Janeiro—Agenda 21	1996: Discontinuance of the use of specified chlorofluorocarbons by developed countries	2002: WSSD in Johannesburg	2006: The RoHS Directive entered into force	2007: The REACH restriction entered into force
Panasonic	1990	1995	2000	2005	2010	
All products		1992: Discontinued use of PVC resin in packaging materials		March 2003: Discontinued use of lead in solders globally	October 2005: Discontinued use of six RoHS substances globally	March 2009: Discontinued use of PVC in an internal wiring of new products to be sold in Japan
Individual products	1991: Released mercury-free manganese dry cells	1992: Released mercury-free alkali dry cells	1995: Discontinued use of CFC refrigerant in refrigerators globally	2002: Discontinued use of HCFC refrigerant in air conditioners (Japan)	2004: Refrigerators in Japan market became fluorocarbon-free (Japan)	2007: Released lead-free plasma display panels
Chemical Substances Management Rank Guidelines			1999 Ver. 1	2000 Ver. 2	2003 Ver. 3 for Products	2006 Ver. 4 for Products
					2008 Ver. 5 for Products	2009 Ver. 6 for Products

Substances in Products

(1) Identifying chemical substances in products by participating in cross-industrial initiatives

Our electrical and electronic products are supported by a long supply chain ranging from raw material manufacturers to numerous components and parts manufacturers. In order to contribute to the achievement of the global goal agreed upon at the WSSD, it is important for us to disclose and communicate information about the chemical substances used in our products across the supply chain, for which we must promote cross-industrial initiatives to establish and spread a necessary system. Panasonic has participated in the Joint Article Management Promotion-consortium (JAMP) jointly with approx. 300 major companies from various industries such as chemical, component and equipment manufacturers. Panasonic is proactively formulating, utilizing, and disseminating chemical substance management standards and systems through this organization.

► Joint Article Management Promotion-consortium

 www.jamp-info.com/english/

(1) Identifying chemical substances in products by cooperating with suppliers

We have been utilizing our GP-Web chemical substance management system since fiscal 2005, to which component and parts manufacturers have been providing information about the use of chemical substances in their products supplied to Panasonic. In July 2009, in order to ensure efficient actions to the REACH regulation, we will revise the system referring to proposals made at the JAMP and will start information communication based on common standards, such as communication formats across the supply chain, including upstream materials manufacturers and our customers.

In addition, we have opened an e-learning system in Japanese, English, and Chinese on the management of chemical substances for the purpose of efficiently requesting upstream suppliers, including both those who directly deal with us and those who do not, to provide us with necessary information. In the future, we will further promote the appropriate management of chemical substances across the supply chain.



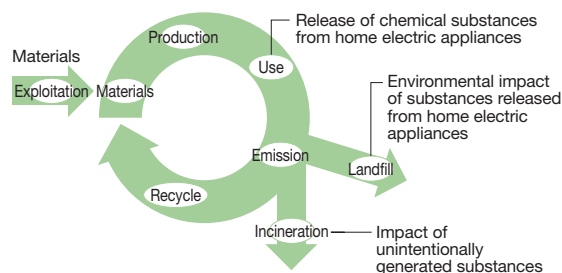
e-learning system

(2) Assessing the environmental impact of chemical substances

In order to develop products with low environmental impacts, it is essential to scientifically understand the

impacts that chemical substances used in products might have on human health and the environment. To this end, Panasonic initiated measurement of chemical substances released into the environment from home appliances to assess the environmental impact of such substances, in cooperation with the Itsubo LCA Laboratory, Tokyo City University (former Musashi Institute of Technology). In fiscal 2009, we collected basic data required for the assessment, and in fiscal 2010, we will actually assess the environmental impacts of flame retardants and plasticizers.

Environmental assessment of chemical substances used in products

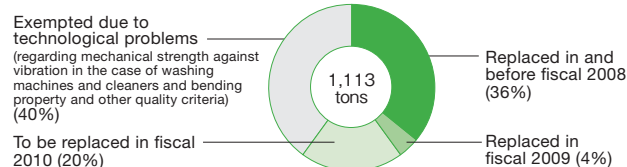


(3) Reducing and partially discontinuing the use of PVC resin

With regard to polyvinyl chloride (PVC) resin, there are concerns about the generation of hazardous substances through the inappropriate disposal of waste resin and the harmful effects of an additive (phthalate ester) used to soften the resin. Panasonic has decided to discontinue the use of PVC resin in internal wirings in its products newly released in Japan from April 2009, and on a global basis from April 2011, respectively, in consideration of the difficulty to separate PVC resin used in the internal wirings in disposing.

In fiscal 2009, we replaced 40 tons of PVC resin used in the internal wiring of products to be sold in Japan with a substitute. Furthermore, as a result of promoting product design in those to be sold in Japan in and after April 2009, we completed preparations to replace all PVC resin used in the internal wiring of 189 model series with an appropriate substitute. Also, for the use of PVC resin in parts other than internal wirings, we replaced 344 tons used in the power and connection codes for AVC network products.

Replacement of PVC resin used in the internal wiring of products newly released in Japan

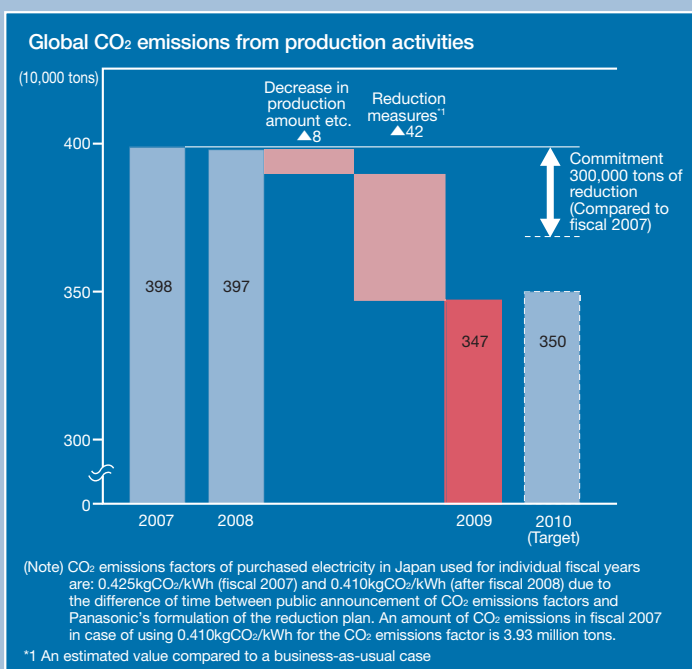




Measurement and management of energy consumption in a molding process at Panasonic Home Appliances Washing Machine (Hangzhou) Co., Ltd.

'eco ideas' for Manufacturing

We will reduce CO₂ emissions across all our manufacturing sites.



Panasonic is striving to reduce CO₂ emissions in all of its business activities. In particular, aiming to reduce emissions from its production activities in an absolute term, we have set a goal of reducing our global CO₂ emissions by 300,000 tons during the current three-year mid-term management plan. In fiscal 2009, we have reduced 510,000 tons^{*2} of CO₂ emissions and achieved the target one year ahead of the plan. This achievement was largely realized by group-wide CO₂ reduction initiatives that have taken firm root while part of it was derived from a decrease in production due to the economic downturn. In fiscal 2010, we are targeting to reduce 480,000 tons^{*2} of CO₂ emissions while increasing production.

^{*2} Compared with fiscal 2007 levels

Special Issue:

Global Promotion of the CO₂ Reduction

Challenging the Reduction of CO₂ Emissions and Strengthening Manufacturing Structure at Factories with Collective Wisdom

The target of reducing CO₂ emissions by 300,000 tons, Panasonic publicly promised in October 2007 overturned common sense of production frontlines. Through the announcement of this commitment, the President of Panasonic send messages to factories that “CO₂ emissions must be reduced while increasing the production amount,” and “Improvement of productivity leads to CO₂ emissions reduction.” In the following, we introduce two factories that actively took on the challenge and made fruitful outcomes.

Panasonic Home Appliances Washing Machine (Hangzhou) Co., Ltd.

Panasonic Home Appliances Washing Machine (Hangzhou) Co., Ltd. (PHAWMH) based in Hanzhou, the capital city of Zhejiang Province in China annually manufactures 2.4 million washing machines, many of which have obtained public environmental product labels in China. The company has also passed the Clean Production audit conducted by the Chinese government. To accelerate CO₂ reduction initiatives in response to the announcement of the group-wide target, employees of the company have been joining up to promote energy-saving activities with collective wisdom.

Turning on lights only when and where necessary

Staff members in charge of energy conservation at the Home Appliance Company globally make energy conservation diagnoses at factories to propose specific CO₂ reduction measures. In April 2008, the staff undertook a diagnosis on PHAWMH and pointed out to the factory the need of raising employees' awareness and of implementing CO₂ reduction measures more thoroughly. In response, “Above all, it was necessary to raise the environmental awareness of employees,” says Mr. Li, Manager of the Manufacturing Department. Accordingly, the factory established a committee to promote environmental protection and energy conservation, and invited lecturers to provide training to employees. As the first step, all employees were encouraged to turn off unnecessary lights, which gave them an opportunity to think about a waste of energy. In daily operations, all employees practiced this activity and as a result, the factory became more energy conscious

over several months, with unnecessary lights turned off on corridors and in rooms while lights were turned on at the places only where employees were actually working.

Significantly saving energy in a molding process

By making steady efforts, PHAWMH gradually raised the environmental awareness of employees and stepped up its efforts to the improvement of the energy-saving performance of its production equipment. According to the results of the energy conservation diagnosis, it was found out that a molding process accounted for about half of the energy consumption of the whole factory. In response, the factory installed power meters to all its molding machines to visualize energy use, thereby optimizing power management and equipment operation. Mr. Xu, Manager of the Equipment Maintenance Section says, “Through the introduction of power meters, manufacturing staffs can now identify CO₂ emissions from their equipment and also reductions achieved through their own efforts. This greatly contributes to awareness raising among employees.”

Also, the factory reviewed its equipment and replaced hydraulic molding machines with inverter controlling type, thereby reducing CO₂ emissions by more than 400 tons annually. Furthermore, productivity was improved by reducing a length of time required to replace molds used in manufacturing various products by about 22%. Mr. Li says, “We had been conducting environmental activities, but in fiscal 2009, we made a substantial improvement in our energy conservation activity by focusing on CO₂ emission reduction.”



Mr. Li Chang Gen,
Manager, Manufacturing Department,
PHAWMH



Mr. Xu Youkang,
Assistant Manager, Equipment
Maintenance Section, Manufacturing
Department



Mr. Yang Hao,
Assistant Manager, Fire Prevention
Group, Human Resources Department



Ms. Zheng Xiao Li,
Assistant Manager, Administration
Section, Manufacturing Department



Checking the progress at the monthly CO₂ meeting and discussing the next reduction measures

Conducting thorough activities with the participation of all employees

Using the know-how obtained in measures taken for the molding process, PHAWMH has been fostering the visualization of CO₂ emissions for all of its manufacturing processes. In a power distribution room, where the power consumption by each equipment is centrally controlled, all the power meters are checked and the data is recorded six times a day. The information thus obtained is promptly shared among employees, and changes in power consumption are analyzed to identify any unnecessary use of power.

Also, all relevant managers gather together at a monthly meeting held to check the progress of CO₂ reduction, where they discuss measures to solve specific problems in manufacturing processes. The meeting provides participants with an opportunity to share their knowledge to help save energy in each of the manufacturing processes.

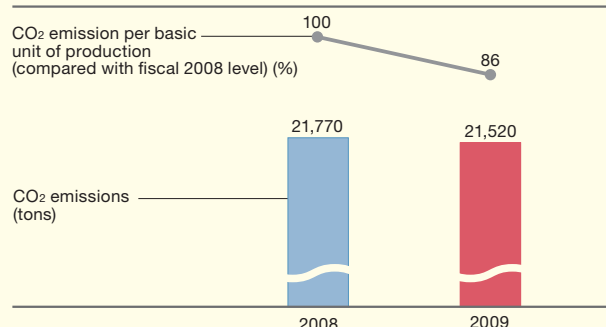
Reducing CO₂ emissions by 17% more than a plan

In fiscal 2009, after one year from the start of the aforementioned measures, the plant reduced its CO₂ emissions by 250 tons compared to the previous year, despite a 15% increase in production amount. The plant



Visualizing total power consumption at the factory using 270 power meters managed in the power distribution room

CO₂ emissions and CO₂ emission per basic unit at PHAWMH



thus achieved a reduction that was by 17% more than the predefined target. Mr. Li says, "All of our measures led to the reduction of CO₂ emissions, including capital investment to improve the energy-saving performance of the molding machines and smaller efforts made by each employee." PHAWMH will continue to reduce CO₂ emissions by the collective efforts of employees as an integral part of its production activities.



Measuring the energy consumed by equipment using a WH monitor made by Panasonic Electric Works

Wakayama Plant of the Energy Company

A lithium-ion secondary battery is regarded as a prospective product as a power supply of mobile devices and next-generation eco-friendly cars. The Wakayama Plant of the Energy Company is an important production base in the manufacture of the battery. The plant is implementing measures to reduce its CO₂ emissions through the use of Panasonic's unique cutting-edge production technologies while increasing its production amount year by year.

Implementing a project in cooperation with the Corporate Manufacturing Innovation Division

Staff members at production frontlines of the Wakayama Plant have been strongly committed to making business growth compatible with the reduction of CO₂ emissions. To fulfill this commitment, they requested the Production Engineering Laboratory of the Corporate Manufacturing Innovation Division, which are positioned to help factories strengthen their manufacturing capabilities, for its support, and launched a project to promote energy conservation

at the plant. The Environmental Production Technology Development Group of the Laboratory visited and researched the Plant and the Wakayama Plant provided all available information about its manufacturing processes. Mr. Tsuruta says, "We could not have shared such detailed information with an external organization and would not have been able to implement any drastic measures."

Surely innovating the manufacturing processes using a simulation technology for product quality

As a result of analyzing the manufacturing processes, it was revealed that much energy was used in a drying process. Since this process had been previously depending upon the experience and know-how of skilled workers, it was difficult to predict and evaluate the effects that changes in the production conditions would give on a drying quality. To solve this problem, the group introduced a simulation technology to estimate temperature changes and air flow inside the furnace, which were invisible from the outside, thereby accurately predicting the impact on the drying quality. This has led to a

substantial improvement in drying and final quality, in addition to a reduction in CO₂ emissions. Mr. Naka of the Production Engineering Laboratory says, "We were not allowed to fail. We, however, were also unable to suspend the production line for long hours. Therefore, we made necessary checks through minimum testing with the actual production lines, which led to a great result in a short period of time."

Reducing CO₂ by making effective use of expensive dry air

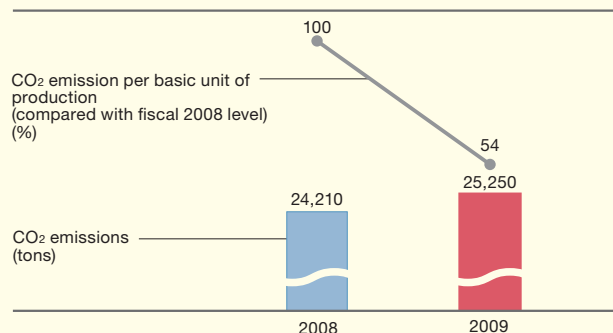
The performance of lithium-ion batteries greatly varies depending upon the atmospheric moisture content in a plant. Therefore, a dew-point temperature is strictly controlled and ultra-low moisture air called "dry air" is supplied. Since at the Wakayama Plant, about one-quarter of the total amount of energy was used to produce the dry air, a countermeasure for this energy consumption was urgently required.

To deal with this issue, the plant drastically reviewed the use of dry air and installed an on-demand local exhaustion system, which allows workers to discharge dry air only when necessary to prevent unnecessary exhaustion. As a result, the frequency of replacing dry air was reduced and the supply volume of the air was down to about half. This greatly contributed to the reduction of CO₂ emissions at the plant.

Pursuing Advanced Manufacturing

In order to reduce CO₂ emissions, it is important for each and every employee to raise their awareness on the energy-saving initiatives. Accordingly, since April 2008, the plant has been holding its Eco meeting every two weeks, where participants discuss and examine measures to promote energy conservation in the manufacturing processes. Participating employees gradually increased their awareness as they repeatedly attended the meeting. Mr. Tsuruta says, "Employees are now conducting their activities to reduce CO₂ emissions in a very steady manner, based

CO₂ emissions and CO₂ emission per basic unit at the Wakayama Plant of the Energy Company



Kunio Tsuruta,
Plant Superintendent, Wakayama
Plant, Energy Company



Hiroyuki Naka,
General Manager, Environmental Production
Technology Development Group, Production
Engineering Laboratory, Corporate
Manufacturing Innovation Division,



Making the drying process more energy-efficient by introducing simulation technology



Opening/closing the upper valve using a chain, thereby reducing the use of dry air

on the recognition that they can really contribute to the management of the company by CO₂ reduction." In fiscal 2009, while a production amount at the plant almost doubled compared with the fiscal 2008 level, the plant curbed an increase in CO₂ emissions to a slight rise and nearly halved its CO₂ emissions per basic unit of production, which was indeed a great achievement. Mr. Tsuruta expressed his commitment by saying, "We will continue to take on the challenge of producing lithium-ion batteries, which help reduce the environmental impact of society at large, at a highly energy-saving plant." By further improving its productivity, the Wakayama Plant accelerate the reduction of CO₂ emissions.



Third-party opinion by the Natural Step (extract)

- Panasonic's target for reducing its CO₂ emissions in an absolute term is proactive and steady and specific measures are being implemented. Moreover, it is to be highly praised that support systems have been established for factories outside Japan.
- On a long-term basis, it is expected that Panasonic invests to renewable energy sources and contributes to the establishment of the scheme for economic incentives, in addition to measures to improve energy efficiency.

Initiatives for Clean Factories

Panasonic is endeavoring to minimize all the input and output of resources, placing an emphasis on prevention of global warming, reduction of total waste generation and reduction of the release and transfer of chemical substances. We believe that we can strengthen our management structure through these efforts and aim to make all our manufacturing sites Clean Factories (CFs).

CF Accreditation System

Panasonic has introduced the CF Accreditation System to evaluate measures implemented by its factories and certify those that have earned certain scores as CFs. Specifically, the factories' achievements are graded by numerical points in terms of the three mandatory performance targets of prevention of global warming, reduction of total waste generation and reduction of release and transfer of chemical substances, as well as in terms of a voluntary target of effective utilization of water.

We have been gradually expanding a scope of this system since we first introduced it in Japan in fiscal 2006, aiming to increase the global CF accreditation rate to at least 90% in fiscal 2011. In fiscal 2009, 246 factories were accredited as CFs, with the CF accreditation rate reaching 92%, far exceeding the target for the year (74%). Also, we globally accredit factories that have implemented top-class environmental activities in each country and have received the highest-level commendations from the national government in recognition of their outstanding environmental activities as Superior CFs. In fiscal 2009, we accredited 17 factories as Superior CFs.

Major evaluation items and indicators for CF accreditation

	Items	Indicators	Definition
Mandatory	Prevention of global warming	Amount of total CO ₂ emissions	Amount of total CO ₂ emissions
	Reduction of total waste generation	Total waste reduction rate	$\frac{\text{Reduction in total waste generation in current fiscal year}}{\text{Amount of waste generation in previous fiscal year}}$
		Recycling rate	$\frac{\text{Amount of resources recycled}}{\text{Amount of resources recycled} + \text{Amount of final disposal}}$
	Reduction of chemical substances release/transfer	Reduction rate of release/transfer of Key Reduction-Target Substances*	$1 - \frac{\text{Amount of released/transferred Key Reduction-Target Substances in current fiscal year}}{\text{Amount of released/transferred Key Reduction-Target Substances in a base year}}$
Voluntary	Effective utilization of water	Reduction rate of water consumption	$\frac{\text{Amount of water consumption reduced in current fiscal year}}{\text{Amount of water consumption in previous fiscal year}}$

* See Definition of Key Reduction-Target Substances (368 substances) (P.27).

Energy

In its medium-term management plan, Panasonic has set out a policy of reducing its total CO₂ emissions even if the production amount increases and is committed to reducing its global CO₂ emissions by 300,000 tons from fiscal 2007 levels in fiscal 2010. While we achieved our target one year earlier than planned in fiscal 2009, we will further accelerate initiatives to strengthen our energy-saving manufacturing structures. (P.21)

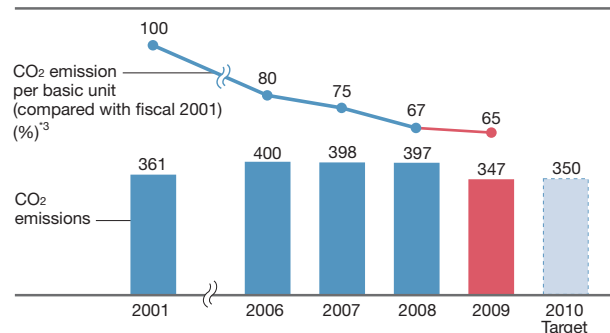
We established the Corporate CO₂ Emissions Reduction Promoting Committee, which manages progress toward the achievement of the target on a monthly basis. Specifically, we are promoting the following measures through this committee: (1) visualization of energy consumption by promoting the METAGEJI² initiative; (2) energy conservation diagnoses by an expert team; (3) innovation of production processes; and (4) group-wide sharing of reduction examples.

*2. Visualizing energy consumption and implementing measurable reduction initiatives by introducing measurement instruments such as meters and gauges

Establishment of the Corporate CO₂ Emissions Reduction Promoting Committee

In April 2008, we established the Corporate CO₂ Emissions Reduction Promoting Committee, which is chaired by the Directors responsible for the environment and comprises those Directors in charge of manufacturing at business domain companies. This committee checks the monthly progress made in the reduction of CO₂ emissions, examines related problems, and ensures the implementation of necessary measures. In addition, each business domain company has a similar committee to share information promptly among their factories across the world and implement the necessary measures.

Global CO₂ emissions and CO₂ emissions intensity



<Methodology for calculating CO₂ emissions>

- The factors related to fuels are based on the Guideline for Calculating Greenhouse Gas Emissions (version 2.2) published by the Ministry of the Environment, Japan.
- The factors for electricity purchased in Japan (kg-CO₂/kWh) are set at 0.376 for fiscal 2001, 0.425 for fiscal 2006 and 2007, and at 0.410 for fiscal 2008 onwards. The total CO₂ emissions are 3.93 million tons (fiscal 2007), 4.12 million tons (fiscal 2008), and 3.62 million tons (fiscal 2009) if the factors for electricity purchased in Japan are set at 0.410 (fiscal 2007), 0.453 (fiscal 2008 and 2009) based on the actual results.
- The GHG protocol's CO₂ emissions factors for each country are used for electricity purchased outside Japan.

*3 CO₂ emission per basic unit = CO₂ emissions/(consolidated sales/Bank of Japan's corporate goods price index [electrical machinery and equipment])

Conservation at Factories/Global Warming Prevention

(1) Promoting the METAGEJI initiative across all the manufacturing sites in the world

In order to ensure the reduction of CO₂ emissions at factories, it is important to visualize an amount of energy consumption by each equipment and reduction effect of each reduction measure.

In fiscal 2009, we promoted the introduction of measurement systems to establish management systems at all our manufacturing sites. In addition, we created a manual for the better use of meters and gauges based on the results of measures implemented at a model factory. In the future, we will identify the waste of energy and enhance measures to reduce such waste at our factories by utilizing these systems.

(2) Identifying necessary measures through energy conservation diagnoses

In order to help each of our manufacturing sites to identify the necessary energy conservation measures, we are promoting energy conservation diagnoses undertaken by internal experts. At our business domain companies, managers and skilled engineers who have expertise in manufacturing processes collaborate together to resolve problems.

Further, we have an expert team to provide technical support to our factories for energy conservation under the Corporate CO₂ Emissions Reduction Promoting committee, and this team is also conducting diagnosis activities to search for themes that can be applied group-widely. In fiscal 2009, the team made 350 proposals to 15 factories across the world, which leads to reduction of CO₂ emissions by 280,000 tons in total.

(3) Accelerating CO₂ emission reduction through process innovation

To achieve the CO₂ reduction targets, we are aggressively pursuing energy-conservation themes that were beyond the reach of conventional methodologies due to technological issues or quality assurance problems. Specifically, an in-house research division, the Production Engineering Laboratory of the Corporate Manufacturing Innovation Division, is developing advanced energy conservation technologies including simulation technology to support business domain companies in production engineering aspects.

These efforts have resulted in a substantial reduction of CO₂ emissions in clean rooms of our semiconductor factories and in the supply of dry air in secondary batteries production processes, both of which consumes a great amount of energy (P.23). We also hold meetings to enable our factories

to share their problems on CO₂ reduction, through which the factories should have an opportunity for human resource development.

(4) Group-widely sharing CO₂ reduction examples

In September 2008, we created a free keyword research system on the intranet with a database of CO₂ reduction examples, known as the BA Chart^{*4}. A total of 1,100 examples are registered in the database (as of June 2009) and we promote to use them across the company.

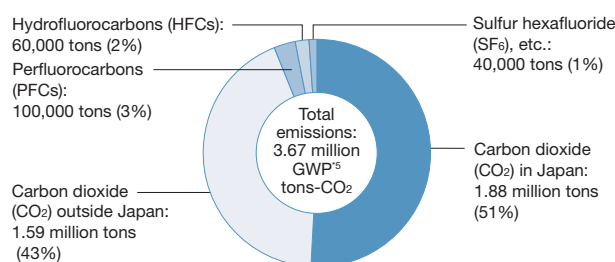
^{*4} A material which describes comparison between before and after CO₂ reduction initiatives.

Reducing greenhouse gas emissions other than CO₂ from energy use

Greenhouse gases Panasonic emits other than CO₂ from energy use are mainly PFC and SF₆ which are mainly used as etching and cleaning gases at its semiconductor factories. In order to reduce emissions of these gases, our semiconductor factories have been implementing the necessary measures, including substitution of the gases with those with low environmental impact and installation of greenhouse gas removal devices to recover the generated gases and render them harmless.

While the World Semiconductor Council aims to reduce greenhouse gas emissions by at least 10% from fiscal 1996 levels by fiscal 2011, Panasonic's semiconductor department achieved an 18% reduction from the fiscal 1996 level in fiscal 2009.

Composition of GHG emissions (tons-CO₂)



^{*5} Global Warming Potential: A factor to convert global warming influence of each greenhouse gas into that of CO₂.

Promoting factory energy conservation as CDM^{*6} projects

Panasonic has been implementing an energy conservation project at its plants in Malaysia since fiscal 2005. And it was approved as a CDM project by the United Nations and became the first CDM project to be implemented by a Japanese company for energy conservation in March 2007. We are now further promoting this project.

^{*6} Clean Development Mechanism: A method authorized by the Kyoto Protocol, whereby industrialized nations undertake initiatives to reduce GHG emissions through rendering financial and technical assistance to developing countries.

Management of Chemical Substances at Factories

Ensuring appropriate management based on the Chemical Substances Management Rank Guidelines

Our initiatives to manage chemical substances at factories started with the Chemical Substances Management Rank Guidelines (for Factories) published in 1999, which aimed to minimize adverse effect on residents and ecosystems in neighbors of our factories and to improve health and safety of employees working at the factories. At present, all our sites across the globe are managing chemical substances in line with the Chemical Substances Management Rank Guidelines Version 3.1.

We select the substances to manage based on the laws and regulations on chemical substances,^{*1} labor health and safety laws, and the results of hazard assessments.^{*2}

For each of the targeted substances, we identify the environmental impact, amount of use and release by Panasonic, and cancer-causing risk. Based on the findings, we classify them into the three ranks.

^{*1} Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. and Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (Japan)

^{*2} Assessments made to classify substances into ranks based on carcinogenicity assessments undertaken by various international organizations, the United States, and Japan

Chemical Substances Management Rank Guidelines Version 3.1 (for Factories)

Rank	Definition	Number of Substances
Prohibition	Prohibiting use	735
Reduction	Reducing an amount released/transferred	747
Management	Managing appropriately	2,136

Reduction initiatives centering on Key Reduction-target Substances

In fiscal 2007, from among the substances covered by the Guidelines, we selected 368 substances that have a substantial impact on the environment as Key Reduction-target Substances. We then promoted the reduction of these substances to achieve our global target of reducing their release and transfer by 10% from fiscal 2006 levels by fiscal 2011. We were able to achieve a 27.8% reduction in fiscal 2009 through the formulation and implementation of the three-year plan at each of our sites and thus attained the target for fiscal 2011. We succeeded in cutting the percentage of Key Reduction-target Substances in the total release and transfer of the targeted substances at 66 sites.

We are also promoting the appropriate management of substances other than the Key Reduction-target Substances in line with the Rank Guidelines.

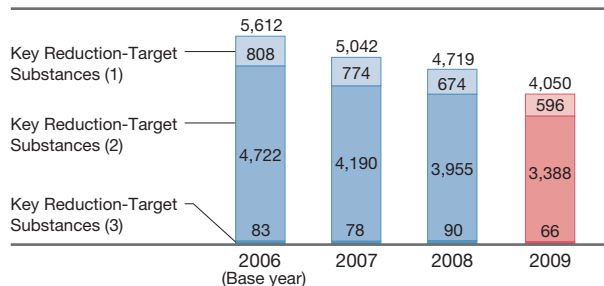
Reducing the use of volatile organic compounds

For volatile organic compounds (VOCs), which are released and transferred in a large amount among the Key Reduction-target Substances, we are sharing effective reduction examples across the company. We are also introducing decontamination and collection equipment, consolidating production lines that use VOCs, replacing VOCs with water-based materials, and switching from solvent coating to powder one, in order to decrease their use and reduce their total release and transfer amount.

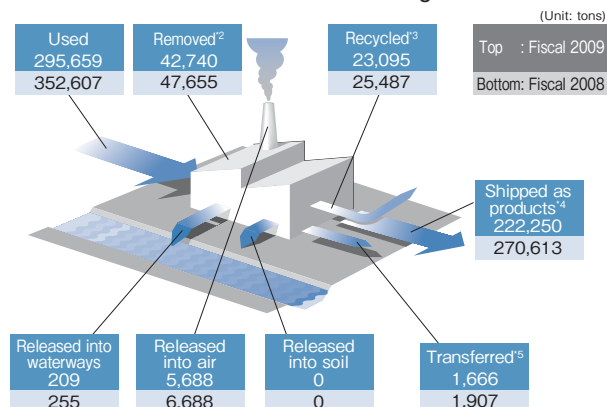
Definition of Key Reduction-target Substances (368 substances)

- (1) Ten groups of substances recording the highest levels of release/transfer in the Pollutant Release and Transfer Register survey (Japan, fiscal 2003)
Ten groups of substances recording the highest levels of release/transfer in the chemical substance survey (fiscal 2005) by Panasonic
- (2) Twenty groups of VOCs recording the highest levels of release in a survey by the electrical and electronics industry
- (3) Five groups of substances specified by the Act on Promotion of Global Warming Countermeasures

Breakdown of release/transfer of Key Reduction-target Substances (tons)



Material balance of substances in the Management Rank^{*1}



^{*1} Based on the Panasonic Chemical Substances Management Rank Guidelines (Version 3.1) and covering all substances listed in the Japanese PRTR Law.

^{*2} An amount of substances converted into other substances through neutralization, decomposition or other chemical treatment.

^{*3} An amount of substances recycled with revenue, as well as those recycled free of charge or with any payment.

^{*4} An amount of substances that have been changed to other substances as a result of chemical reactions, and those that are contained in or accompanying products shipped out of factories.

^{*5} An amount of substances transferred as waste, as well as those discharged into the sewage system. Recycled amount which is free of charge or accompanies treatment cost under the Waste Management Law is included in "Recycled." (Different from a transferred amount reported under the PRTR Law.)

Waste Reduction at Factories

Globally reducing an amount of wastes including revenue-generating waste

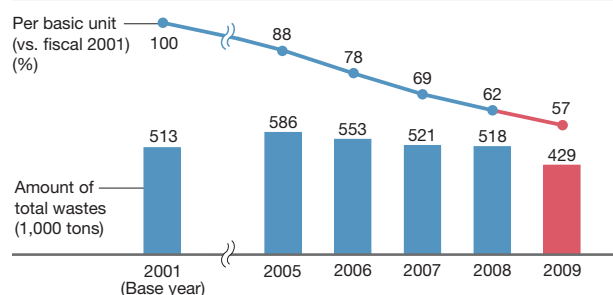
Waste generated from Panasonic's factories is classified into: (1) an amount of recyclable wastes, regardless of any cases that Panasonic can receive revenues by selling, provide for free of charge or take price compensation; (2) an amount of wastes reduced by incineration or dehydration; and (3) an amount of wastes that has to be sent to landfills (final disposal).

We are striving to reduce the generation of all wastes, including not only type (3) but also types (1) and (2). We will further implement measures to achieve zero waste emissions^{*1} in which an amount of final disposal is reduced to close to zero through recycling.

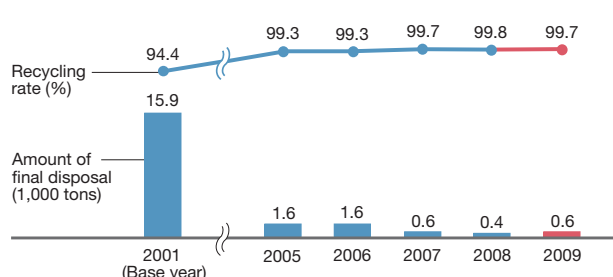
^{*1} Definition: A recycling rate of at least 99%

Recycling rate = Amount of resources recycled / (amount of resources recycled + amount of final disposal)

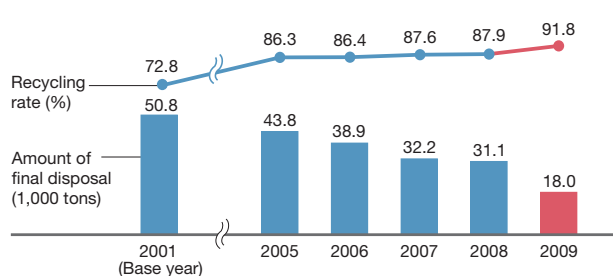
Amount of total wastes including revenue-generating waste and amount of total wastes per basic unit



Amount of final disposal and recycling rate (Japan)



Amount of final disposal and recycling rate (Outside Japan)



Zero waste emissions through the minimization of the mass of final disposal

In fiscal 2009, we achieved a 43% reduction against the target of reducing an amount of wastes including revenue-generating waste per basic unit^{*2} by 16% from the fiscal 2001 level. The total amount of wastes also decreased by 17.1% from the fiscal 2008 level. Because we have already achieved the target for fiscal 2011, a 20% reduction, we have newly set a reduction target per basic unit^{*3} without price adjustment and will pursue a 14% and 16% reduction in fiscal 2010 and 2011, respectively.

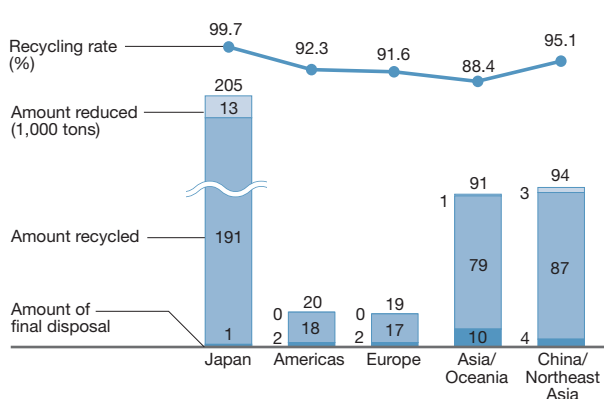
Furthermore, the recycling rate in Japan reached 99.7% in fiscal 2009. In fiscal 2008, all of our 138 manufacturing sites^{*4} in the country achieved zero waste emissions and in fiscal 2009, 134 sites achieved zero waste emissions out of 135 sites. Also, outside Japan, we achieved a 91.8% recycling rate against the target of 90% and we aim to improve it to 95% on average in fiscal 2011.

^{*2} Amount of total wastes / (consolidated sales / Bank of Japan's corporate goods price index [electrical machinery and equipment])

^{*3} Amount of total wastes / consolidated sales (result for fiscal 2009 calculated using this formula: 12% reduction from fiscal 2001 level)

^{*4} All sites of the business domain companies

Breakdown of amount of wastes by region



Breakdown of amount of wastes by category

(Unit: tons)

Items	Amounts generated	Amounts recycled	Amount of final disposal
Metal	164,678	164,179	372
Paper	54,010	52,496	856
Plastics	51,984	44,359	4,701
Acids	32,655	27,665	148
Sludge	25,185	19,821	3,307
Wood	21,874	20,781	877
Glass/ceramics	19,973	19,093	863
Oil	10,501	9,222	483
Alkalies	7,541	4,512	299
Others	40,844	29,518	6,638
Total	429,245	391,645	18,544

Effective Use of Water Resources at Factories

Reducing water consumption by accelerating initiatives in China

Panasonic is globally committed to reducing its water consumption in response to serious water shortages across the world. In fiscal 2009, we achieved a 48% reduction against the target of an 8% reduction in water consumption per basic unit^{*1} from the fiscal 2001 level. Globally, we reduced our water consumption by 12% from the fiscal 2008 level. Because we have thus achieved a reduction far beyond the target for fiscal 2011, we have newly set a target per basic unit^{*2} without price adjustment. We will strive to achieve 22% and 24% reduction in fiscal 2010 and fiscal 2011, respectively.

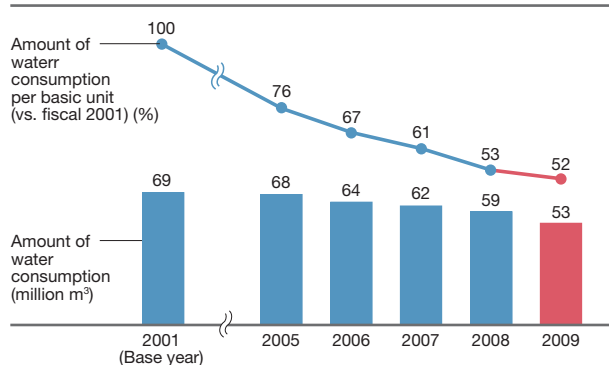
In particular for China, where people are facing serious water shortages, we have added effective use of water resources to the criteria of the CF Accreditation System, thereby steadily reducing our water consumption in the country. At our factories where measures were implemented under the China Eco Project (P.38), water consumption per unit of production^{*3} in fiscal 2009 decreased by 5.1% on average from the fiscal 2008 level, while our global reduction rate was 2.7%. We set a reduction target designed to regional characteristics and continuously reduce an amount of water consumption.

*1. Water consumption/consolidated sales/Bank of Japan's corporate goods price index [electrical machinery and equipment])

*2. Water consumption/consolidated sales (result for fiscal 2009 calculated using this formula: 20% reduction from the fiscal 2001 level)

*3. Water consumption/unit of production

Amount of water consumption and amount of water consumption per basic unit



Water consumption by region

Region	Municipal water/ industrial water	Rivers/lakes	Groundwater	Total
Japan	1,212	21	2,541	3,774
Americas	68	0	21	89
Europe	14	0	29	43
Asia/Oceania	480	0	48	528
China/Northeast Asia	815	0	4	819
Total	2,589	21	2,643	5,253

Management of Soil and Groundwater

Taking remedial measures and preventing the spread of contamination

Since fiscal 1992, we have been promoting step-by-step investigation and countermeasures against soil and groundwater contamination within our premises, while making efforts to totally discontinue the use of chlorinated organic solvents and prevent the recurrence of environmental pollution. In fiscal 2003, in line with our Soil and Groundwater Risk Management Policy, we expanded a scope of targeted substances and requested investigation to our sites that had not yet implemented. Also, we began investigating and taking measures concerning the use of volatile organic compounds (VOCs) and heavy metals.

Specifically, we conduct historical surveys through on-site inspections and interviews, in addition to surveying the use of VOCs and heavy metals at our sites. Furthermore, we conduct surface soil surveys within the premises.

For our sites where contamination was detected beyond pollution levels set by standards, we will conduct detailed borehole surveys to identify boundaries of the contaminated areas and take appropriate remedial measures. Based on the surveys and measures conducted in fiscal 2003, we were able to place all soil and groundwater risks under management supervision at our manufacturing and non-manufacturing sites targeted for soil and groundwater investigation within fiscal 2004.

On a global scale, we are promoting thorough legal compliance in individual countries. In countries where such legal systems are not established, we are implementing voluntary measures based on our Soil and Groundwater Risk Management Policy.

Soil and Groundwater Risk Management Policy

Policy

To place all soil and groundwater risks under management supervision with the aim of securing the safety and peace of mind of local residents (by the end of fiscal 2004 in Japan, and by the end of fiscal 2006 outside Japan)

* "Placing under management supervision" means to meet all the following requirements:

1. Completing surveys
2. Initiating remedial measures
3. Digging inspection wells
4. Implementing leakage preventive measures
5. Promoting thorough operational management

Soil and groundwater pollution surveys and remedial measures

	Number of sites targeted for investigation	Number of sites completing remedial measures	Number of sites currently taking remedial measures
Japan	194	43	47
Outside Japan	172	3	7
Total	366	46	54

Compliance Management at Factories

Legal compliance based on the environmental management system

Panasonic ensures legal compliance at its factories as a prerequisite for its operations, and regularly measures a level of environmental impacts including gas emissions, water discharge, noise, odor levels at factories. For cases that could have resulted in a serious violation of the laws, we share relevant information across all our manufacturing sites to prevent the recurrence of similar problems.

In fiscal 2009, there were three cases in which pollutant levels exceeded legal standards at our sites in Japan, and also one such case outside Japan. In response, we made the necessary notifications to the local governments concerned and implemented countermeasures against causes of the incidents. Also, with regard to the generation of waste related to the change of our company name and the unification of our brand names as Panasonic, we implemented thorough risk management measures.

Cases in which pollutant levels exceeded legal standards

Region	Air	Water quality	Noise	Odor	Waste	Total
Japan	0	1	2	0	0	3
Outside Japan	1	0	0	0	0	1
Total	1	1	2	0	0	4

Initiatives for PCB Pollution

Facilitating the proper management of PCB waste and full-scale measures for soil remediation

Panasonic discontinued the production of equipment containing polychlorinated biphenyls (PCBs) in 1972 and has since been strictly managing its PCB wastes. As for the PCB-containing capacitors buried at five of our factories, which we voluntarily made public in January 2003, we completed the excavation at the end of March 2009. We also began treatment of the contaminated soil on a full scale in September 2007, commissioning its treatment to Geosteam Corporation, which has PCB contaminated soil purification facilities in Kitakyushu, Japan. By the end of March 2009, about 1,640 tons of the contaminated soil was transported to and treated at the facilities.

Numbers of PCB-containing items registered with JESCO^{*1} and those already decontaminated (as of March 31, 2009)

Type of wastes	Registered with JESCO	Already decontaminated
Transformers, capacitors, etc.	2,023 devices ^{*2}	824 devices
PCB and PCB-containing oil	About 4,700 kg	—

^{*1} Japan Environmental Safety Corporation (company engaged in PCB waste treatment).
^{*2} In and after 2008, a total of four devices were founded to be outside the scope.

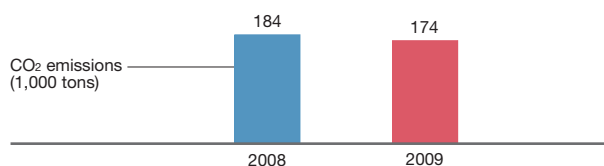
Energy Conservation in Offices

CO₂ emission reduction at non-manufacturing sites

Along with acceleration of CO₂ emission reduction initiatives at its manufacturing sites, Panasonic began strengthening CO₂ emission reduction measures at its non-manufacturing sites in fiscal 2009. Specifically, we set a total CO₂ emission reduction target for self-owned office buildings in Japan, and formulated a three-year CO₂ reduction plan for our 15 major non-manufacturing sites. We are implementing measures to visualize waste energy at offices, including energy conservation tuning^{*3} and diagnoses of office buildings. As a result, we reduced CO₂ emissions from our non-manufacturing sites in Japan by about 5% from fiscal 2008 levels and achieved our target of an average 2% reduction per year.

^{*3} A measure to adjust the settings of air conditioners, lighting equipment, and other devices and systems according to changes in the usage of office buildings, thereby reducing energy consumption.

CO₂ emissions from non-manufacturing sites (Japan)



(Note) Scope of the data: Non-manufacturing sites with 100 or more employees
CO₂ emission coefficient for electricity purchased: 0.410 kg CO₂ /kWh

Initiatives for Green IT

Panasonic has been promoting Green IT initiatives to reduce its environmental impact through the use of IT technologies.

As for Green of IT, which aims to improve the energy-saving performance and operation of IT devices, we are encouraging employees to switch off their PCs and reduce an amount of power consumption by their IT devices in a standby mode. As for Green by IT to promote energy conservation in society at large through the use of IT, we will reduce CO₂ emissions through increasing a use of the web conference systems in which employees can participate without actually attending in person in addition to the e-work system, which enables employees to work at home or in their business trips. In a Green Data Center initiative, we strive to reduce CO₂ emissions by consolidating our servers.

Results in fiscal 2009 and targets for fiscal 2010

Activity	CO ₂ emissions reduction in fiscal 2009	CO ₂ emissions reduction target for fiscal 2010
Green of IT	1,077 tons	2,750 tons
Green by IT	132 tons	156 tons
Green Data Center	2,051 tons	33 %

(All values in this table are compared with fiscal 2007)

Green Logistics

Reducing CO₂ emissions in logistics

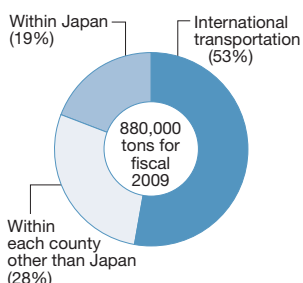
In order to promote Green Logistics on a global scale, Panasonic has set a target of reducing its CO₂ emission per basic unit^{*1} by at least 1% every year by fiscal 2011 compared to a previous fiscal year, targeting international and domestic transportation.

In fiscal 2009, we globally emitted 880,000 tons of CO₂ from logistics activities of which international transportation accounted for 53% and domestic transportation for 19%. And 96.6% CO₂ emissions from the domestic transportation was emitted from truck transportation. For both international and domestic transportation, global CO₂ emission per basic unit decreased by 9.6% from fiscal 2008 levels, mainly due to an increase in the rate of transportation by ship.

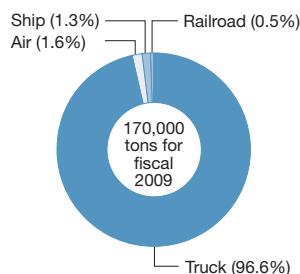
In fiscal 2010, we will start an initiative to group-widely share the best example of our transportation partner companies and internal divisions in order to boost a level of our activities.

*1 CO₂ emissions/transportation weight

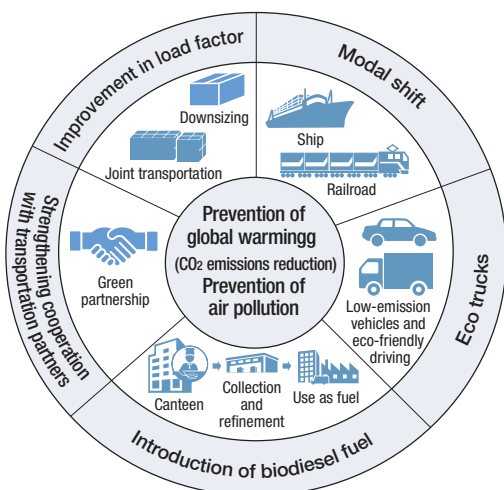
CO₂ emissions from logistics



CO₂ emissions from logistics (Japan)



Major initiatives in Green Logistics



Modal shift (Japan)

Our railroad freight transportation in fiscal 2009 totaled 12,900 five-ton containers. As a result of improving the efficiency of domestic transportation, including the landing of products transported to Japan at ports nearest to main markets, the result fell below a fiscal 2008 result. A amount of CO₂ emissions arising from the modal shift initiatives reached 7,042 tons. In addition, since December 2008, we have been promoting joint transportation using two proprietary containers with Sumitomo Electric Industries, Ltd.



Through joint transportation, two companies reduced 400 tons of CO₂ emissions

Use of biodiesel fuel (Japan)

Panasonic is promoting the use of biodiesel fuel^{*2} made from waste cooking oil for vehicles including buses. In fiscal 2009, we increased the use of 100% biodiesel-fueled trucks in the western part of Japan. We also conducted investigations into the type of vehicles most suitable for biodiesel and the impact of the biodiesel use on engine oil.

*2 Fuel made from plant-based materials

Promoting eco-driving and strengthening cooperation with transportation partners (Japan)

We aim to increase a rate of transportation partner companies which have obtained public environmental management certification to 100% by fiscal 2011, from 68% in fiscal 2009. In addition, in fiscal 2009, Panasonic Logistics Co., Ltd. conducted demonstration tests on eco-friendly tires using its own vehicles and found that the use of the tires could help improve fuel efficiency by 4.9% on average. Accordingly, the company is now promoting the replacement of tires with eco-friendly ones. In fiscal 2010, we will further cooperate with our transportation partners to improve our transportation efficiency while reducing the environmental impact.

Measures for international transportation

Since air transportation accounts for 71% of CO₂ emissions from international transportation, reduction measures in this area play a key role in Green Logistics. By promoting a modal shift from air freight to a combination of high-speed ship and railroad for products transported to Japan, we will simultaneously reduce CO₂ emissions and transportation costs with the same lead time.

Product Recycling

Concept of product recycling

With the objective of effectively utilizing natural resources and preventing environmental pollution, a growing number of laws concerning recycling have been enacted in various countries in the world. The Law for Recycling of Specified Kinds of Home Appliances and the Law for the Promotion of Effective Utilization of Resources in Japan, The WEEE Directive in the EU and recycling laws in certain states in the U.S. were enacted and took effect. A similar law was also enacted in China in February 2009. Panasonic believes it is essential to comply with the recycling-related laws in each country. Not limited to that, we will contribute by planning and developing systems to collect and recycle waste electronic products in consideration of the reality of recycling infrastructures in each country, which must be environmentally and economically optimal and should, of course, be feasible and sustainable.

[Results in fiscal 2009]

In Japan:
Recycled approx. 78,000 tons of the four home appliance products^{*1}
In Europe:
Collected approx. 37,000 tons^{*2} of waste electronic devices
In the United States:
Collected approx. 1,600 tons^{*3} of waste electronic devices

^{*1} Air conditioners, TVs, refrigerators, and washing machines

^{*2} Calculated by multiplying sum of weight of collected products by collection system by Panasonic share (in collection system) of product weight put on the market.

^{*3} Weight collected according to state laws and through voluntary measures.

Globally promoting the product recycling

●Japan

In response to the Home Appliances Recycling Law, which came into effect in 2001, Panasonic has built a geographically dispersed recycling network through the effective use of existing recycling facilities nationwide. Ecology Net Co., Ltd, established mainly by Panasonic, totally manages and operates this recycling scheme, including 190 designated collection sites and 35 recycling facilities, on behalf of participating manufacturers in the Group A (24 companies, including Panasonic). In April 2009, we began implementing measures to handle equipment newly added and covered by the law (flat-screen TVs and dryers for clothes).

●Europe

In April 2005, we established a recycling management company, ENE Ecology Net Europe GmbH (ENE) in Germany. In fiscal 2009, Panasonic collected approximately 37,000 tons^{*2} of products covered by the WEEE Directive.



ENE manager discussing how to improve the quality of collected materials at a partner company

●United States

Following the enforcement of the state recycling law in Minnesota in July 2007, Panasonic established Electronic Manufacturers Recycling Management Company, LLC (MRM) jointly with Toshiba Corp. and Sharp Corp. in September of the same year, and started the recycling of TVs, PCs, and other products. Subsequently, we also launched recycling operations in other states where similar laws were enacted, and in November 2008, began implementing voluntary recycling programs across the country through MRM.

●China

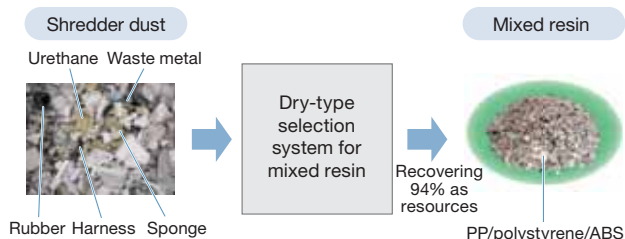
Looking towards the enforcement of the recycling regulation in January 2011, Panasonic, as a member of the Executive Committee of Foreign Investment Companies, has been proactively cooperating with the Chinese government in establishing the necessary system.

Developing a recycling system for shredder dust from disposed refrigerators (Japan)

In fiscal 2009, Panasonic Eco Technology Center Co., Ltd. (PETEC), which serves as a recycling facility for Panasonic, recycled approximately 750,000 units which belong to the four home appliance categories.

As for PETEC, shredder dust from discarded refrigerators, which accounted for as much as 15% of the total weight of refrigerators (for fiscal 2008), represented a big challenge in resource recovery. In response, the company developed a technology to recycle shredder dust (limited to mixed resin in which the content of PVC and metal is 1.0% or less and 0.5% or less, respectively) into artificial wood and other construction materials.

Recycling system for shredder dust



Through the combined use of existing separation technologies, PETEC can now treat 1,200 kg of mixed resin per hour by the dry method without using water, and can recycle 94% of shredder dust (mixed resin of PP, polystyrene, and ABS) as resources. For this technology, PETEC received "the Chief's Award of the Ministry of Economy, Trade and Industry" from Clean Japan Center Foundation.



Mangrove tree planting, as a part of the Panasonic Eco Relay campaign in Thailand, in October 2008

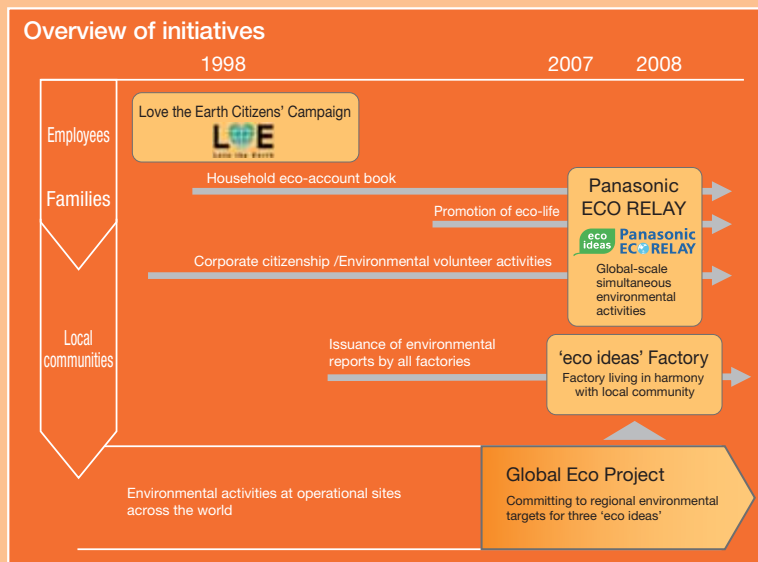
‘eco ideas’ for Everybody, Everywhere

We will encourage the spread of environmental activities throughout the world.

To help resolve the global environmental problems, it is essential to pursue environmental efforts, not only by corporations but also together with stakeholders, including national and local governments around the world, educational institutes, citizen groups, individual residents, and children who support the future of this planet.

Panasonic has been promoting the Love the Earth Citizens’ Campaign (LE Campaign) since 1998 aiming at raising

environmental awareness and changing in lifestyles of our employees and families. The campaign reached its 12th year in fiscal 2010. Based on the LE Campaign, ‘eco ideas’ for Everybody, Everywhere further expands environmental activities to the global scale. We also launched Global Eco Projects, in which ‘eco ideas’ declarations are made for each region, with one project commencing in China in fiscal 2008, and another in Europe in fiscal 2009. In addition, we launched a campaign called Panasonic Eco Relay, which aims at conducting environmental activities simultaneously across the world. Through these projects, we continue to work on our environmental activities, in cooperation with stakeholders.



Special Issue: Panasonic Eco Relay

Eco activities connect Panasonic people altogether to move society

From 4 October 2008, Panasonic conducted a 13-day environmental conservation campaign called Panasonic Eco Relay, across the world. This campaign started from a single employee's suggestion, "Bring Panasonic together through environmental activities." A huge number of employees responded positively to this message regardless of their culture or nationality, and eventually 342 offices and factories in 39 countries and regions undertook a range of environmental activities. Around 520 unique and diverse activities were held, including tree planting by employees and their families, environmental education in local primary schools, and environmental conservation activities in collaboration with ecological organizations. Staff in each area planned activities best suited to the community and brought people together to put the eco programs into practice.

Interview with a proposer

The Panasonic Eco Relay campaign originated in an idea that won the 'eco ideas' Contest held in October 2007 that called for 25,000 ideas from Panasonic employees across the world. Here, we would like to introduce the winner's voice.

Q Where did the idea of Eco Relay come from?

A The Panasonic Eco Relay was named after my favorite poem called, "Asa no Relay (Morning Relay)," by a Japanese poet, Shuntaro Tanigawa. The poem relates that when one country on the Earth goes to sleep, another country wakes up, and people are linked by the flow of time in this wide world, passing a baton from one to another. Thus, we protect the world and build the future... This is how I see Eco Relay. Panasonic operates a global-scale business and employees across the world get together to link their thoughts about the environment... I wanted to set out such an idea with our batons.



Q What do you expect of the Eco Relay in the future?

A To be honest, I did not expect that my suggestion would expand to this level. I really feel that we have achieved a wonderful world-wide environmental activity. It was a great experience to see our colleagues with different cultures, languages, and viewpoints linked together and realized the common goal. I would like to disseminate this activity not only in our company but also throughout our communities. I hope that Panasonic will continue to be a pioneering leader in the future.

Kenichiro Dobashi

Based in Germany, Panasonic Welding Systems Co., Ltd.
(Responsible for sales of welding machines and robots in Europe)



Thailand

Growing eco mind like a growing green forest Planting mangroves in the marshes on the outskirts of Bangkok

Mangroves form a sea forest, protecting a land from the sea wind and waves, and nurture coastal fish, helping to prevent pollution of the shoreline waters. Due to the recent year's decrease in forest areas, rehabilitation of mangrove forests is an urgent issue in Thailand. Eight group companies in Thailand and their 70 staff members started mangrove planting in 2006, and the scale has grown larger with each succeeding planting. According to our own research, mangrove forests absorb 30% more CO₂ than ordinary forests. Since we, human beings, are responsible for global warming, the recovery of this mangrove forest is necessary.

Twenty group companies participated in the recent extended fourth planting, where the marsh in Samutprakarn Province, on the outskirts of Bangkok was chosen. The planting event, named Panasonic Mangrove Reforestation was held on 12 October 2008, and 500 volunteers including Panasonic's employees, their families, and local residents participated. Everybody got really muddy under the blue sky and we planted 2,500 mangroves. This makes a total of 15,000 trees in the last three years. Participants expressed their enthusiasm: "This is a very meaningful event. I would like to participate again." Panasonic will continue to contribute to CO₂ reduction by growing

mangrove forests— even where there is no greenery at this moment."



Participants get muddy when planting mangroves in marsh

Sirirat Yongcharoenchai Panasonic (Thailand) Co., Ltd





UK

Children's smiles make us happy

Support for an outside curriculum, "eco garden" with the City of Cardiff

Hollies School is in the city of Cardiff in Wales, United Kingdom, where children with autism and disabilities study. This school has an eco garden, where the students learn the importance of living in harmony with nature by actually spending time among the greenery. Panasonic Manufacturing UK Ltd. located right next to Hollies School, has been supporting



Participating in the eco garden curriculum as friends of the students

tree planting activities in the garden

since 2007 together with the City of Cardiff. The children of this school are very sensitive. Therefore hate to engage with unfamiliar people and dislike changes changes in their daily routines. We have gradually overcome these barriers by inviting them on visits to our site and to our Christmas parties, and now we feel that they have really come to accept us. In this Eco Relay campaign, we planted 2,500 trees with the children, hoping that they also grow like trees of various kinds, and eventually forming a forest in harmony together. We even started making the first Japanese garden in the school. We hope that this garden will become a place where people can spend a peaceful and relaxed time.



Pelham Morgan

Panasonic Manufacturing UK Ltd.



Thailand

Growing eco mind is like growing a green forest

Planting mangroves in the marshes on the outskirts of Bangkok

➡ See P.34



Approx. 500 participants, including Panasonic employees, their families, and local residents, planted 2,500 trees



Tanzania

Planting physic nut saplings in and around our factory



Approx. 100 participants, including Panasonic employees, their families, and local elementary school students, planted 200 trees

Physic nut saplings are receiving attention as a bio-diesel fuel



China

Employees and their families volunteered for beach cleaning in Xiamen



Approximately 350 people joined in, gathering up nearly 400 kg of rubbish waste

Even small children gave us a hand in cleaning up the beach





USA

Safe home for tree swallows to return

Promoting river ecosystem conservation with a local environmental group

Tree swallows are familiar birds to people living in northern New Jersey. The swallows migrate to the south during the winter and come back to this area in the spring to nest. Although the basin of the river that runs near Panasonic Corporation of North America is an important nesting site for the tree swallows, over-development and pollution has greatly diminished the natural habitat for these birds.



Participants took on the unaccustomed challenge of making nesting boxes

We have been working to protect and enrich the river's surrounding environment for wild birds and fish for the past six years, collecting trash along the river either on foot or using canoes. Building on this activity, we decided to make nesting boxes for the tree swallows. This was a new experience for most of us. With the support of the New Jersey Meadowlands Commission, colleagues with carpentry skills took the lead from procuring materials, cutting the wood, and then varnishing it. On the day we built the nesting boxes, our volunteers struggled with their carpentry skills but duly assembled the nesting boxes. Twenty-five boxes were placed at river inlets and three were placed on our own premises. The volunteers said that they were please to be involved in such practical environmental activities. Our participants including me, are looking forward to a new generation of tree swallows.



David A. Thompson
Panasonic Corporation of North America



Brazil

Inviting employees' children to enjoy environmental education



30 employees' children were invited to the factory to see their parents' work place

Based on the practice in the factory, the children also engaged in practical activities for the environment by separating different types of garbage



Japan

Community event held under the theme of "Panasonic leads the way...with the community"



Approx. 6,000 people participated in Panasonic Eco Festival 2008 jointly organized by five group companies in the Yokohama area.

Many families enjoyed creating original eco bags and made eco declarations



Third-party opinion by the Natural Step (extract)

- The fact that the global-scale Love the Earth Citizens' Campaign (P. 41) has further developed into a grassroots movement is to be valued. This campaign fosters a sense of togetherness among employees through environmental issues, which are now of international concern.
- We hope that Panasonic will continue to help raise public awareness of anti-global warming utilizing their international network of employees and the company's energy-saving expertise.

Three key initiatives are expanded across the globe through eco projects in each region.

Products : 'eco ideas' for Products **Manufacturing** : 'eco ideas' for Manufacturing **Everybody, Everywhere** : 'eco ideas' for Everybody, Everywhere

Europe

'eco ideas' Declaration in Europe

In order to reinforce environmental efforts in Europe, Panasonic Europe Ltd. lead the European Eco Project in April 2008, and announced the 'eco ideas' Declaration that sets concrete mid-to-long term targets for environmental sustainability management.



Declaration made in Bracknell, UK

Targets for Europe

- 'eco ideas' for Products: 20 Superior Green Products to be launched by fiscal 2010
- 'eco ideas' for Manufacturing: 6,000 tons (or over 10%) reduction of CO₂ emissions from production activities in Europe by fiscal 2010 compared to fiscal 2007 levels
- 'eco ideas' for Everybody, Everywhere: Engage in local eco activities jointly with stakeholders such as NGOs

Active introduction of products with high environmental performance

Products

Superior Green Products (P.15) will be actively introduced into the European market. We are committed to increase the number of such products in Europe to 20 models by the end of fiscal 2010. Our 'eco ideas' label and environmental features of those products are clearly indicated in order to enable consumers to easily identify such industry-leading products.

A controller IC for low power consumption and other technologies achieved the industry-leading length of talk time and standby time. Stand-by power consumption was also significantly reduced.



Cordless Phone (KXTG6411)



Drum Washer (NA-16VX1)

Inverter controller and tilted drum deliver the industry's top level energy and water conservation.

'eco ideas' Factory Pilsen

Manufacturing

Panasonic AVC Networks Czech S.R.O. (PAVCCZ) located in Pilsen, Czech Republic, a major flat TV production site, has been promoting environmental initiatives as 'eco ideas' Factory that aims to live in harmony with its local community. The factory has already received internal Superior Clean Factory Accreditation (P.25) by reducing environmental impacts from production processes. It is also engaging in local community activities, including environmental education, working together with nearby schools, NGOs, and the city of Pilsen.



PAVCCZ Factory in Pilsen, Czech Republic

Germany: Tree planting with an NGO

Everybody, Everywhere

In November 2008, 92 employees at Panasonic Deutschland planted 1,200 trees with an environmental NGO, Landkreis Hamburg. This was an attempt to conserve biodiversity by improving ground water provision for the Hamburg area and to increase the number of deciduous trees in the Luneburger Heide.



Ninety-two employees participated in planting trees

Italy: Supporting an NGO in marine ecosystem research

Everybody, Everywhere

Panasonic Italia S.p.A. supported the environmental NGO, Legambiente, with digital cameras and technical devices to examine the marine ecosystem along the Italian coasts.



Scene from the joint press conference with an NGO

Furthermore Panasonic Italia S.p.A. conducted a photo contest to alert and involve end consumers. Apart from that Panasonic Italia S.p.A. employees participated in a tree planting project and planted 3,000 trees in November 2008.

Participating in the International Environmental Conference in Europe

Everybody, Everywhere

In September 2008, Panasonic sponsored the Electronics Goes Green (EGG) 2008. EGG is an international environmental conference that takes place once every four years.



Panel discussion with European experts

Panasonic presented its environmental efforts. In addition to the presentations, there has been panel discussions with environments experts, such as NGOs, government agencies, and media organizations.

Promoting product recycling

Manufacturing

In April 2005, Panasonic established the Ecology Net Europe GmbH (ENE) and built up a recycling management system in Germany compliant with the European recycling regulation, the Waste Electrical and Electronic Equipment Directive. Apart from that Panasonic also joins in recycling schemes in other countries promoting the collection and recycling of used products. ENE continues to manage efficient recycling by further strengthening their relationship with other recyclers.



Strengthening relationship with recyclers

China

Aiming for becoming an Environmentally Contributing Company in China

Panasonic announced a Declaration of Becoming an Environmentally Contributing Company in China in September 2007, aiming to contribute to Chinese society by taking the lead in putting environmental sustainability management into practice.

Declaration of Becoming an Environmentally Contributing Company in China

- Panasonic will make all its products certified Green Products.
- Panasonic will transform all its factories into Clean Factories.
- The employees at all of our Chinese Panasonic Group companies will participate in environmental activities.

Obtaining China's Environmental Label

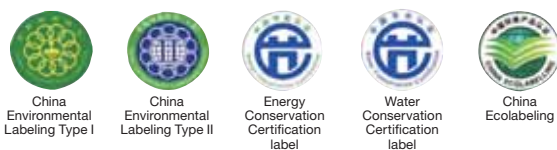
Products

In order to improve our products' environmental performance and enable our customers to understand and evaluate the features, we are promoting initiatives to obtain public labeling certification^{*1} in China. We are intending to obtain China Environmental Labeling and Conservation Certification labels promoted by the Chinese government for all of our target products^{*2} according to the product's types and features. Particularly for the Energy Conservation Certification label that indicates the product's energy conservation performance in five degrees, we aim at attaining the highest level of energy efficiency.

^{*1} China Environmental Labeling, Energy Conservation Certification label, Water Conservation Certification label, and China Ecolabeling.

^{*2} Target products are: TVs, DVD players, LCD projectors, washing machines, air conditioners, refrigerators, microwave ovens, rice cookers, multifunction office equipment, printers, facsimiles, and lamps.

Chinese Environmental Labels



Aiming to pass the factory environmental audit

Manufacturing

By replacing major environmental targets set in the Chinese government's 11th Five-Year National Economic and Social Development Plan, with our internal environmental indicators, Panasonic aims to accomplish these goals in

Targets and Results in China Eco Project

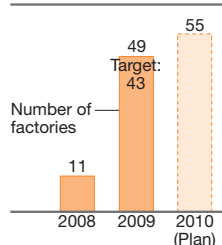
Category	Indicator	FY 2009 (Compared to FY 2006)	
		Target	Result
Energy	CO ₂ emissions ^{*1}	850,000 tons	738,000 tons
Waste	Amount of total wastes including revenue-generating wastes per basic unit of production	22.5% reduction	41.7% reduction
	Recycling rate ^{*2}	90% or more	95%
Chemical substances	Release and transfer of key reduction-target substances ^{*3}	7.5% reduction	27.9% reduction
Water	Water consumption per basic unit of production	22.5% reduction	36.2% reduction

^{*1} Absolute amount in a single year

^{*2} See P.28

^{*3} See P.27

Number of factories approved by clean production audit (Cumulative total)



fiscal 2010. At the same time, we are aiming at having all of our manufacturing sites in China pass the Clean Production Audit, which is a third-party audit system assessing the environmental impact of factories.

Promoting environmental activities by all employees

Everybody, Everywhere

In fiscal 2009, we conducted the Household eco-account Book campaign and the Changing to Greener Lighting campaign (changing from incandescent bulbs to fluorescent bulbs). Further, Panasonic Center Beijing offers an education program for local pupils called "Eco Academy – Make Yourself an Environmental Protector," and 1,300 students in total enjoyed the program by the end of fiscal 2009. Our efforts were awarded the 2009 Beijing Science and Technology Promotion Base by the city of Beijing.



Environmental education in Panasonic Center Beijing.

Panasonic wins the China Green Company Award

Panasonic was recognized as an environmentally-conscious company in China by receiving an award at the Second Annual China Green Company Conference. Our environmental technology and efforts in China Eco Project led us to this recognition.



Panasonic representative delivering speech at the award ceremony

Hosting the Panasonic China Environmental Forum 2009

In May 2009, the Panasonic China Environmental Forum 2009 was held in Beijing, in collaboration with the Japan-China Friendship Association, attended by 248 participants from governments, NGOs, and the media. At the forum, Panasonic announced its aim to become a corporate role model for environmental contributions in China. This demonstrated Panasonic's intention to fully mobilize its environmental technologies, expertise, and activities across Chinese society. These efforts include: accelerating the development of energy-saving products; cultivating human resources in environmental management in local Chinese corporations; and the expansion of environment-related activities, such as environmental education for children and tree-planting.



Scene from the Panasonic China Environmental Forum hall

USA

Kick-off Event secures employees Eco Declaration

In March 2008, Panasonic Corporation of North America (PNA) held a US Eco Project Kick-off event in Secaucus, NJ. The event was attended by 590 employees who expressed their solid determination to engage in environmental activities both at home and in the office by signing an eco activities declaration card.



Employees making their declaration

Panasonic wins Eco-design Awards

Products

In January 2009, Panasonic's cordless phone and Blu-ray disc player won the eco-design awards at the International Consumer Electronics Show held in Las Vegas.



Cordless phone (KX-TG9333T)

Only 0.62 W stand-by power consumption, which is reduced by 41% compared to previous model and recycled materials used in packageings.



Blu-ray disk player (DMP-DB35)

Reducing a weight of the product and packaging by approx. 45% and 26%, respectively compared to the previous model.

Launching a Voluntary Collection and Recycling initiatives

Manufacturing

Panasonic had been developing a compliance program for those states with collection mandates. In order to accelerate product recycling, PNA launched a voluntary

collection and recycling initiative covering TVs and other electronic products across the US in November 2008. We aim to increase our collection sites to 800 by 2011.



Recycler collecting a waste home appliance

Hosting an environment-themed science technology contest

Everybody. Everywhere

PNA holds the Panasonic Creative Design Challenge (CDC) every year together with the New Jersey Institute of Technology. The 2008 challenge was a "Beach Sweep," and 47 groups of high school students from NJ participated in this event. Their task was to design and build a robot, using primarily recycled household materials, to clean the beach and help recover its wildlife habitat.



Winning students in New Jersey

Hackensack River cleanup

Everybody. Everywhere

Together with an environmental NGO, the Hackensack Riverkeeper, PNA has cleaned the Hackensack River in NJ on Earth Day (April 22) every year.



Hackensack river cleanup by Panasonic employees

Latin America

Mexico: Holding CO₂ reduction seminar

Manufacturing

In October 2008, Panasonic de Mexico S.A de C.V. held a seminar concerning CO₂ emissions reduction. After introducing an excellent example such as covering a molding machine with a heat insulator, participants had discussion on future initiatives to further reduce CO₂ emissions.



Exchanging opinions with a CO₂ reduction expert dispatched from Japan

Brazil: Certification awarded by the Instituto Brasileiro de Defesa da Natureza

Everybody. Everywhere

Manaus Factory of Panasonic do Brasil Limitada has been providing environmental education for employees'



Scene from the award ceremony

children, planting tree in Manaus city, and donating tree seedlings for the protection of the Atlantic Forest. In April 2009, its educational programs for kids were highly praised and received certification from the Instituto Brasileiro de Defesa da Natureza.

Panama: Local environmental education facility established

Everybody. Everywhere

Panasonic Sales Latin America has been collaborated with ANCON, an environmental NGO in Panama. As well as clean-up activities in Ancon Hill in June, we opened an environmental education facility in July 2008. More than 1,500 people have enjoyed participating to date.



Children learning in the classroom using the latest equipment

Asia

Raising environmental awareness among consumers

In an attempt to raise customer's environmental awareness through pursuing increased environmental performance in our products, Panasonic Asia Pacific Pte Ltd has developed an eco promotion kit, which consists of eco lecture, eco study, and eco stand, and utilizes this kit in environmental exhibitions and events in Asian countries. Through this kit, people can learn about the importance of environmental issues in an easy and entertaining manner using interactive computer games. In a year of 2009, the kit is being used in exhibitions in Malaysia, Indonesia, and the Philippines.



Eco stand at an Indonesian exhibition



Children enjoying the Eco Lecture corner

Superior GPs in Asia

Built-in inverter achieved the industry's top-class energy efficiency (Level 5 in Thailand's energy conservation labeling).



Air conditioner (CS-S12JKT)



Refrigerator (NR-B41MV4)

Hydrofluorocarbon (HFC)-free refrigerator with a compressor-controlling inverter realized the industry's top-class energy efficiency (Level 5 in Thailand's energy conservation labeling).

Products

Horizontal expansion of CO₂ Reduction model cases

Since Panasonic has 48 manufacturing sites across seven countries in South-East Asia, CO₂ emissions reduction in

Manufacturing

this area is of prime importance. Against this background, we have put our efforts into training to share our expertise across the group companies. In fiscal 2009, internal exhibitions under the theme of Manufacturing Innovation and CO₂ Emissions Reduction, were organized. Also, training sessions called Monozukuri-Dojo were held to share CO₂ emissions reduction measures in practice.



Active discussion in Manufacturing School

Malaysia: Protecting the Coral Reef in Perhentian Island

Everybody, Everywhere

Panasonic Malaysia has been working on a coral growing project as a part of their environmental protection voluntary work since 2005. Collaborating with a local university and organization, the employees themselves dive into the sea to lay the artificial reef. Observation of the coral growth over a long period should support the protection of the entire marine ecosystem in Malaysia.



Research on coral reef

Singapore: Tree Planting by Employees

Everybody, Everywhere

Panasonic has been holding a tree planting event together with local residents since 2002. The 2008 event was attended by Prime Minister Lee Hsien Loong and over 500 participants, including employees and their families, and tree planting was conducted in a Singapore national park.



Tree planting by employees and families

Russia & Middle East

Russia: Developing environmentally-conscious minds among employees

Everybody, Everywhere

Panasonic CIS Oy. Moscow Representative Office started the separated collection of PET and aluminum bottles and passing them on to a recycler in October 2008. Separated collection of garbage is still not common in Russia, so we explained the importance of this activity to help develop environmentally-conscious minds among employees, and improve their awareness by awards to departments and individuals who actively conducted this activities.



Employees started separated collection of garbage

UAE: Environmental communication through an exhibition

Everybody, Everywhere

In October 2008, Panasonic participated in the Gulf Information & Technology Exhibition (GITEX) 2008, the biggest information, telecommunication and audio & visual equipment exhibition in the Middle East. We set up a section to introduce our green products, environmental technologies, and a variety of environmental efforts across the world to many visitors.



Visitors could select the images to introduce our environmental efforts using a touch panel

Japan

'eco ideas' Factory Biwako

Everybody.
Everywhere

In June 2008, the Home Appliances Company published an Environmental Statement naming its Kusatsu Factory in Shiga Prefecture as 'eco ideas' Factory Biwako that lives in harmony with local communities. The factory offered a tour to introduce refrigerator production lines and environmental education opportunities to learn about a mechanism of global warming, as well as an energy-saving technology. These events were attended by around 3,200 people in fiscal 2009. The turfed factory ground called the Eco Communication Ground, is now open to local residents.



Environmental education using vacuum insulation material produced in the factory



Boys rugby football game on the Eco Communication Ground

Started shipment of household fuel cells, ENE・FARM

Products

The 'eco ideas' Factory Biwako is a production site of household fuel cells. In April 2008 we developed the fuel cell cogeneration system with improved power generation efficiency and durability.^{*1} In June 2008, we commenced commercial production, delivering 235 systems for a large-scale field test. The ceremony for the first shipment of the household fuel cell, ENE・FARM, in July, was attended by guests from the Ministry of Economy, Trade and Industry, Japan and gas companies in addition to 200 people, including Panasonic executives and the media. These products go on the market in 2009 through gas companies, and a subsidy system has now been started. We intend to continue and further expand this important energy creation business.

^{*1} Realized highest power-generating efficiency of up to 39% (LHV) and 38% or higher in the practical use range of 500W to 1kW and durability with longer than 10 years of predicted lifetime.



The first fuel cell to be shipped



President Otsubo at the ceremony

"A fuel cell is a product that can offer one solution to the common environmental problems we face throughout the world. We would like to distribute the product not only in Japan but also to many other countries. The challenge has just began and we step out into the world from Biwako with a strong faith in our product."



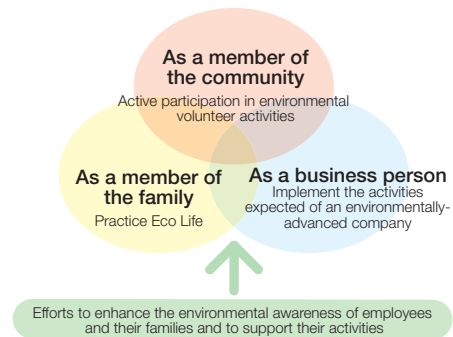
Ryozo Kuribayashi
FC Project Leader
Home Appliances Company

Love the Earth Citizens' Campaign (LE Campaign)

Everybody.
Everywhere

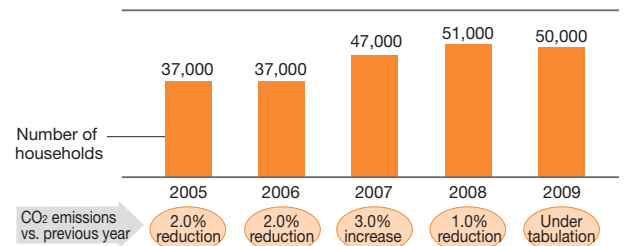
In order to encourage employees and their families to actively engage in environmental activities at home and in their local communities, in addition to their engagement in business operations, Panasonic has been promoting Love the Earth Citizen's Campaign (LE Campaign) in Japan since 1998, believing that only truly green-minded employees can manufacture truly green products.

Aims of Love the Earth Citizens' Campaign



The status of the LE Campaign in fiscal 2009 is as follows: 50,000 households practice the Household eco-account book; 6,100 households use eco bags for shopping, and 31,100 individuals participate in environmental activities (all numbers are approximate). This represents approx. 75% of employee households in Japan.

Number of households keeping Household eco-account books and CO₂ reduction results



Since fiscal 2007, we have been accrediting employees who actively and continuously implement an eco life and encourage people to participate in environmental activities as an LE Expert. So far 17 employees have been accredited and we will further continue and promote the LE Campaign.

"I have long been participating in environmental activities with local NPOs and local administrative bodies, such as river and road clean-up and extermination of foreign aquatic plants for biodiversity protection. I want to continue bridging Panasonic employees and local community with environmental activities."



LE Expert
Susumu Yamaguchi
AVC Networks Company

Biodiversity Protection

Partnership with Various Stakeholders

Partnership with the World Wide Fund for Nature (WWF) to protect the marine



Panasonic supports WWF's work in the Arctic.

The Arctic Program

In October 2008, Panasonic signed up to become one of the first corporate sponsors of WWF's work on the Arctic. The Arctic, a global temperature regulator, faces challenges from both climate change and increased human use.

Aiming to conserve and maintain the ecosystems of the Arctic, WWF is promoting initiatives to understand and manage the Arctic through raising awareness of the area's importance, as well as researching and monitoring activities.

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Signing ceremony in Bracknell, UK



Research activities of Catlin Arctic Survey supported by WWF and Panasonic

The Yellow Sea Ecoregion Support Project

Since September 2007, Panasonic has been promoting the Yellow Sea Ecoregion Support Project to help conserve the health of marine ecosystem of the Yellow Sea, a part of the East China Sea, in collaboration with WWF Japan. This seven-year project aims to secure the effective management of the area and conserve the rich nature and ecosystem cultivated by the world's largest continental shelves. In fiscal 2009, we sponsored eight organizations (five from China and three from Korea), which were selected from open applications, to raise the awareness of the biodiversity in the Yellow Sea. We will sponsor another eight organizations in fiscal 2010 and support their activities.

As a part of such awareness-raising activities, we held a series of collaborative photographic exhibitions, "The Yellow Sea: Sparklings of Diversified Lives," at the Panasonic Center Tokyo and Beijing.



Photo exhibition in Panasonic Center Beijing



Environmental education by the Qinhuangdao Entrepreneur Association

Purchasing paper produced from sustainable forests

Panasonic has introduced the Green Purchasing Guidelines for paper used in the company since fiscal 2008. This is our contribution to protect the forestry ecosystem through responsible paper purchasing. Based on discussions with WWF, we decided to use FSC-certified paper, which is made of trees from appropriately managed forests since September 2008. We plan to use this type of paper mainly for corporate publications, such as company brochures, and gradually increase the usage to around 100 tons by 2010.

Comments from WWF Japan

The natural forest areas of the world are decreasing significantly, and many such areas are also losing their biodiversity. Usage of FSC-certified paper helps conserve biodiversity, including the forest ecosystems, and pays consideration to the local community and human rights. This is an excellent model for making forest utilization compatible with economic activities. The attitude of Panasonic, making public commitments with quantitative targets and timelines, represents a model approach to environmental and social consideration.



FSC-certified mark

The FSC-certified mark indicates that the wood used in the printed materials are grown, harvested, and manufactured to standards set by the Forest Stewardship Council

Tree planting with customers in eco schools across the world

We have been hosting the Eco Campaign since 2003 to increase greenery together with our customers. This campaign communicates the environmental performance of Panasonic products through the Internet, advertising, and storefronts, so that our customers can understand the importance of using the environmentally-conscious products and join our tree planting activities.

In fiscal 2009, we conducted the 'eco ideas' Campaign in which one tree is planted when one product is purchased, and this enabled us to plant some 700,000 trees (now totaling 1.2 million trees). These trees will be planted in 32 kindergartens and elementary schools—making a total of 743 Eco Schools in 31 countries—through collaboration with the Foundation for Environmental Education (FEE), an International environmental NGO. We will continue to provide products with advanced energy conservation performance and engage in tree planting activities jointly with our customers.



LEAF (outdoor forest education program)/ Kirkekretsen, a Norwegian eco school.



Eco schools are the environmental education programs by the international NGO, FEE (Foundation for Environmental Education)

Environmental Policy

Environmental Statement

Fully aware that humankind has a responsibility to respect and preserve the delicate balance of nature, we at Panasonic acknowledge our obligation to maintain and nurture the ecology of this planet. Accordingly, we pledge ourselves to the prudent, sustainable use of the earth's resources and the protection of the natural environment, while we strive to fulfill our corporate missions of contributing to enhanced prosperity for all.

Environmental Vision

Panasonic will realize the truly bright future through corporate activities respecting the global environment.

● 'eco ideas' for Products

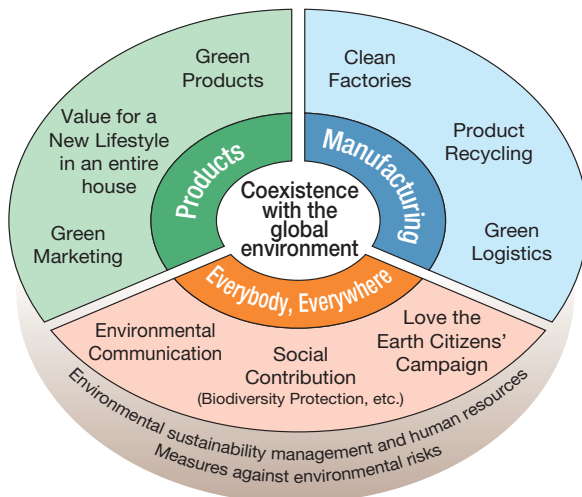
We will produce energy-efficient products.

● 'eco ideas' for Manufacturing

We will reduce CO₂ emissions across all our manufacturing sites.

● 'eco ideas' for Everybody, Everywhere

We will encourage the spread of environmental activities throughout the world.



'eco ideas' for Products

Items	Indicators
Green Products (GP)	Number of models accredited as Superior GPs ^{*1}
	Number of models with industry-leading energy-

'eco ideas' for Manufacturing

Items		Indicators	
Prevention of global warming	Production	Reduction of CO ₂ emissions (compared to fiscal 2007)	
	Logistics	CO ₂ emissions per basic unit ^{*2}	
Reduction in chemical substance use		Release and transfer of the Key Reduction-target substances (compared to fiscal 2006)	
Resource circulation	Wastes (including revenue-generating wastes)	Wastes per basic unit (compared to fiscal 2001)	
		Recycling rate ^{*5}	Japan
	Water circulation		Outside Japan
Clean Factories(CF)		Water consumption per basic unit (compared to fiscal 2001)	
		CF accreditation rate ^{*8}	
Product recycling		<ul style="list-style-type: none"> Promotion of advanced technologies to select and reuse materials Implementation of recycling measures localized for each region in the world 	

'eco ideas' for Everybody, Everywhere

Items	Activity
Love the Earth Citizens' Campaign (LE Campaign)	<ul style="list-style-type: none"> [In Japan] Rate of employees' households Global promotion of environmental volunteer
Global Eco Projects	Global promotion of eco projects
Social Contribution (Biodiversity protection, etc.)	Promotion of partnership with World Wide

Environmental Management

Items	Activity
Development of promotion system and human resources	Enhancement of environmental management development of human resources, etc.
Environmental risk management	Measures against contamination by PCBs,

^{*1} Products with the industry's No.1 environmental performance in at least 1 of the following items: sales/Bank of Japan's corporate goods price index [electricmachinery & equipment]] ^{*4} Waste disposal amount(In Japan, the target value is mandatory for each site; outside Japan, the target is set (Result in fiscal year 2009 based on this calculation was 20% reduction compared to fiscal year 2001)

Environmental Action Plan: Green Plan 2010

	Targets for fiscal 2009	Results in fiscal 2009	Self-assessment and summary	Targets for fiscal 2010	Targets for fiscal 2011
	150	296	Achieved both targets by far. In particular, greatly increased the number of models for markets outside Japan	200	250
efficiency	150	233		200	—

	Targets for fiscal 2009	Results in fiscal 2009	Self-assessment and summary	Targets for fiscal 2010	Targets for fiscal 2011
	110,000tons	510,000tons	Achieved 300,000 tons reduction target one year ahead of the plan due to thorough reduction initiatives and a decrease in production	480,000tons	Fiscal year 2001 level
	1% reduction compared to a previous year	9.6% reduction	Achieved the target by promoting modal shift to ships and railroads	1% reduction compared to a previous year	
	6% reduction	27.8% reduction	Achieved the target by far due to reduction of volatile organic compounds (VOC) use and a decrease in production	8% reduction	10% reduction
	16% reduction ^{*3}	43% reduction ^{*3}	<ul style="list-style-type: none"> Achieved the fiscal 2011 target by far Set new per-basic-unit targets without using corporate goods price indexes for fiscal 2010 and 2011 	14 % reduction ^{*4}	16 % reduction ^{*4}
	99.0% at each site	One site failed to achieve	134 out of 135 manufacturing sites achieved the target	99.5%	
	90% as an average	92%	Achieved the target	92.5%	95%
	8% reduction ^{*5}	48% reduction ^{*5}	<ul style="list-style-type: none"> Achieved the target by accelerating measures in China Set new per-basic-unit targets without using corporate goods price indexes for fiscal 2010 and 2011 	22% reduction ^{*7}	24% reduction ^{*7}
	74%	92%	Achieved the target	82%	At least 90%
		Achieved the target	<ul style="list-style-type: none"> Developed a recycling technology to decompose organic matter and a recycling system to recover shredded dust Promoted initiatives in Japan, Europe, USA and China 	<ul style="list-style-type: none"> Promotion of advanced technologies to select and reuse materials Implementation of recycling measures localized for each region in the world Promotion of circulation of recycled materials 	

targets	Results in fiscal 2009	Activities in fiscal 2010
accredited as LE families:At least 80% in fiscal 2011 activities	<ul style="list-style-type: none"> 75% of employees' households in Japan accredited as LE families Globally implemented Panasonic Eco Relay 	Further promoting LE campaign globally to take firm root
	<ul style="list-style-type: none"> China: Continuously promoted China Eco Project Europe: Announced 'eco ideas' Declaration in Europe 	<ul style="list-style-type: none"> Expanding targeted areas and strengthening initiatives in China and Europe Focusing on the promotion in Asia Pacific
Fund for Nature (WWF)	Strengthening the partnership with WWF	Formulating Biodiversity Protection Promotion Plan

targets	Results in fiscal 2009	Activities in fiscal 2010
systems and environmental IT systems, active	Newly established a division in charge of research and analysis of environmental strategies	Formulating and implementing measures against key issues
VOCs and heavy metals	Following the plans, promoting management and treatment of polluted soil and PCB wastes	Thoroughly implementing environmental risk management

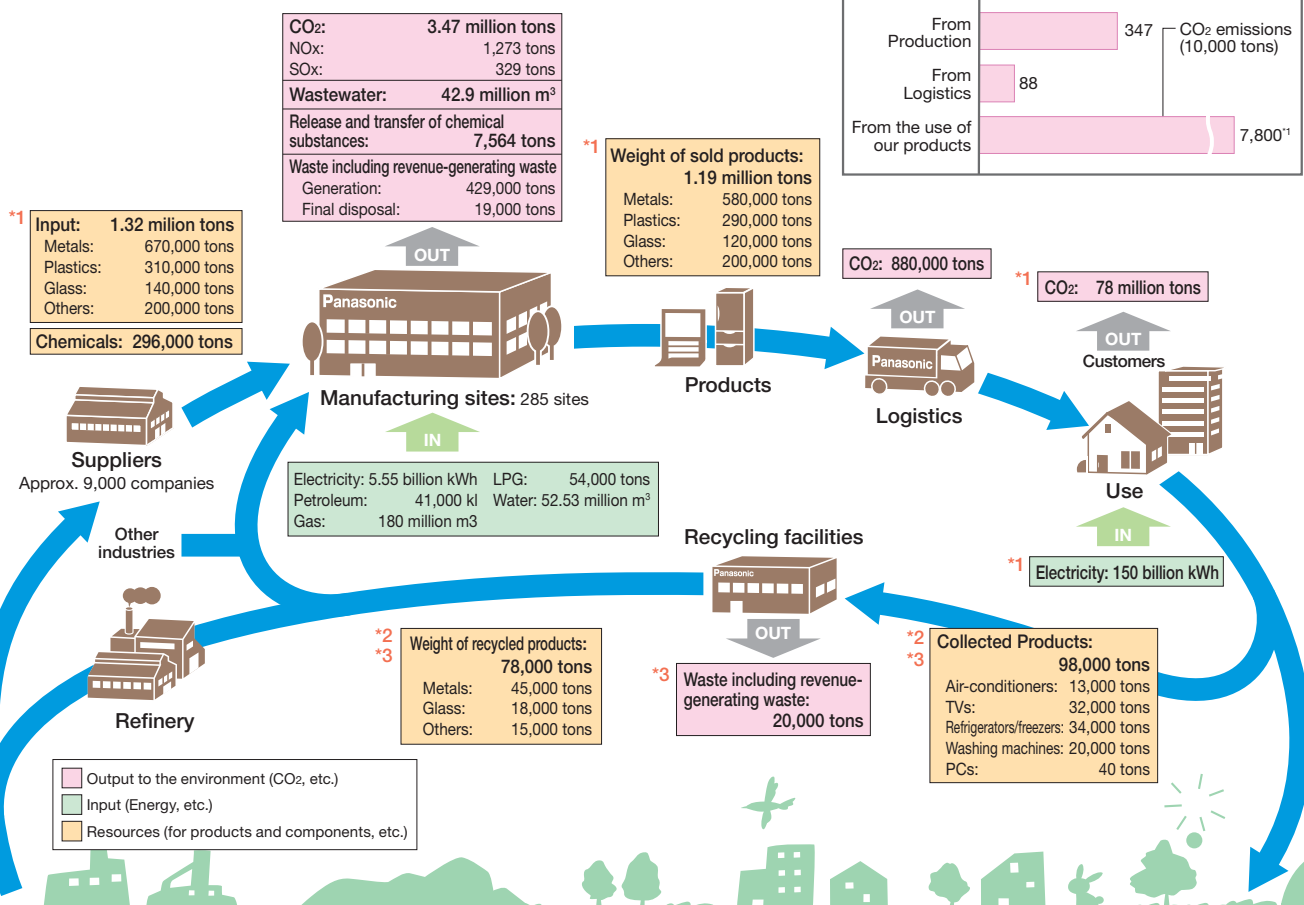
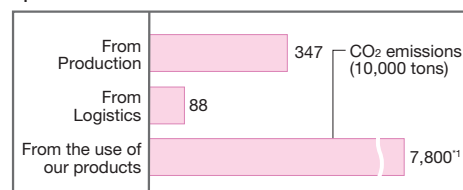
prevention of global warming, effective utilization of resources and chemical substances management ^{*2} CO₂ emissions / weight of products (components) transported ^{*3} Waste generation / (Consolidated generation / Consolidated sales (Result in fiscal year 2009 based on this calculation was 12% reduction compared to fiscal year 2001) ^{*5} Recycling rate = Amount recycled / (Amount recycled + final for an average value of all sites.) ^{*6} Water consumption / (Consolidated sales/Bank of Japan's corporate goods price index [electric machinery & equipment]) ^{*7} Water consumption / Consolidated sales ^{*8} Rate of factories achieving an internal baseline score of environmental impact reduction in a total number of factories

Overview of Environmental Impact from Business Operation (Global)

In order to mainly manufacture and market electrical and electronic products, Panasonic consumes petroleum and electricity as energy sources and resources as raw materials of parts and components. As a result, we emit CO₂ and wastes to the environment. This diagram maps the

environmental impact from our business operation from a post-procurement stage to recycling activities. We expanded a target area of data collection to a global scale this year.

Major impacts to global warming from our business operation in fiscal 2009



● Calculation model

<Area Covered> Global

<Scope>

Procurement and Production: 285 manufacturing sites

Logistics: Logistics stage of procurement, production, marketing and waste by partner companies and Panasonic

Product use: Lifetime CO₂ emissions associated with lifetime power consumption of covered products. Lifetime power consumption estimated based on the number of products sold, rated lifetime, and usage time (Length of years in which Panasonic defines replacement parts are available). Following CO₂ emission coefficients of purchased electricity (unit: kg-CO₂/kWh) for each region used; 0.39 (Japan); 0.518 (Europe); 0.579 (North America); 0.74 (China); 0.581 (North East Asia); 0.532 (Asia Pacific); and 0.581 (other regions).

Recycling: Weight of recycled products is a weight of components and materials that can be either sold or provided free of charge to other companies

Input: An amount of purchased electricity from power utilities, a volume of heavy oil and kerosene, and a volume of water, industrial water and underground water

Output: CO₂ emissions associated with the use of electricity, gas, LPG and petroleum, NOx and SOx emissions from business sites governed by legal regulations and ordinances, and water discharge to sewage and public water districts.

^{*1} 30 major products with large amounts of energy and resource use

^{*2} Air-conditioners, TVs, refrigerators, washing machines and PCs

^{*3} Covering Japan only

<Definitions of the 30 major products>

New fiscal 2009 models of:

Plasma TVs, LCD TVs, CRT TVs, DVD recorders, SD stereo systems, fax machines, refrigerators, air conditioners, microwave ovens, IH cooking heaters, washer/dryers, fully-automatic washing machines, laundry dryers, rice cookers, dish washer/dryers, natural coolant (CO₂) heat pump water heaters, electric thermos pots, electric carpets, vacuum cleaners, heated toilet seats with warm water sprays, electric irons, dehumidifiers, humidifiers, ventilators, air purifiers, bathroom ventilators & dryers, range hoods, home-use fluorescent lamps/silica bulbs (silica bulbs are newly added in fiscal 2009), home-use lighting equipment (evaluated resources only because an amount of power consumption is included in fluorescent lamps), and hair dryers.

Environmental Governance

Panasonic defines “corporate activities aiming for realizing a sustainable society in which environmental conservation goes with economic development” as environmental sustainability management, and promote activities to put our Environmental Statement (P.43) into practice.

Promotion of the environmental sustainability management based on PDCA cycle

As a PDCA cycle at a corporate level, an annual environmental action plan is formulated based on a corporate management policy and the Green Plan 2010. Subsequently, the Environmental Working Committee is held to group-widely communicate detailed plans set in the action plan to employees. To review the progress and results of each operational site, major environmental performance data is collected monthly and additional measures are introduced if necessary. Aiming to steadily improve our environmental sustainability management, we disclose annual environmental performance data after the review by the third party and incorporate comments and remarks from stakeholders. Since an amount of CO₂ emission was added to key management indicators, such as sales and operating profits in fiscal 2009, it is linked to business performance evaluation of business domain companies.

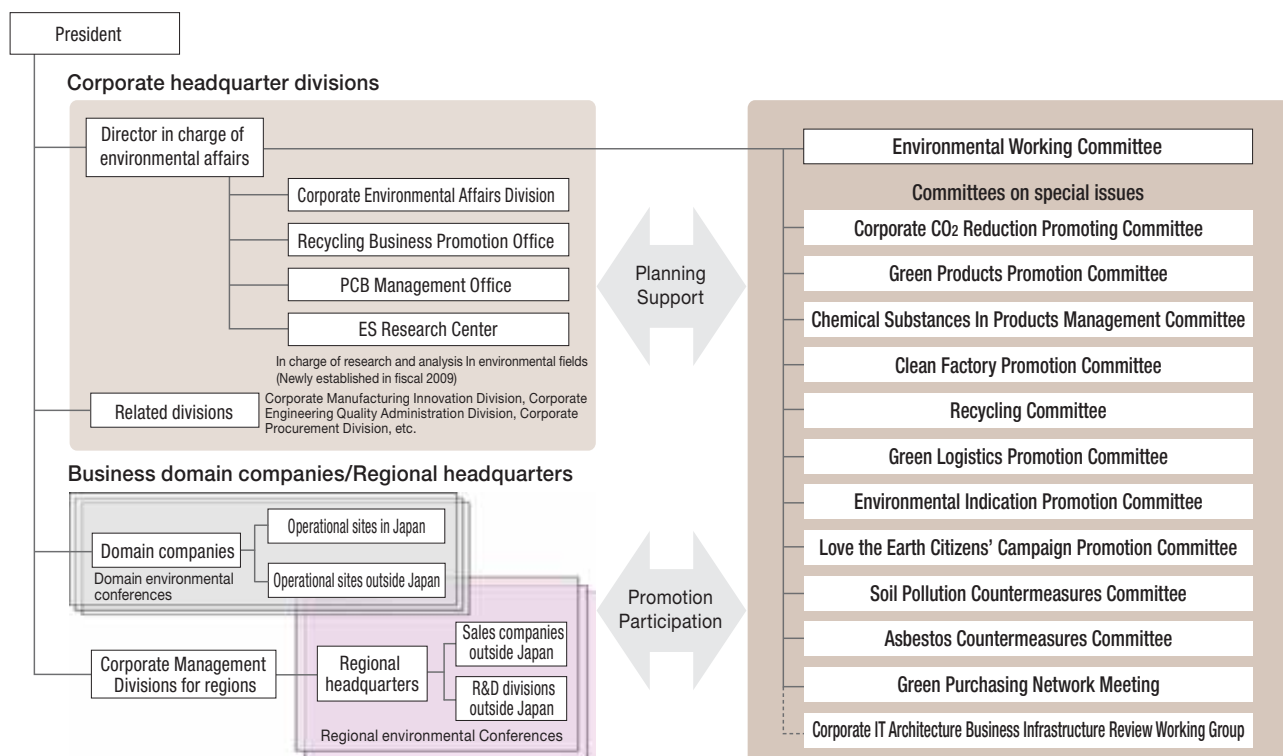
Business domain companies and affiliated business units incorporate items of environmental management into their annual business plans and promote initiatives based on environmental management systems (P.47). Furthermore, as a voluntary initiative, we conduct performance evaluation of environmental management to measure achievement made against targets, which is utilized as part of business performance evaluation of divisions affiliated with business domain companies.

Promotion system of environmental sustainability management

We establish the Environmental Working Committee, in which a corporate environmental division requests domain companies to put a corporate policy and measure into practice. Presided by a Director in charge of environmental affairs, this committee, which is consisted of environmental compliance administrators of business domain companies and regional headquarters, was held three times in 2008.

To address specific problems involving all group-wide companies, various environmental committees, subcommittees, and working groups have been setting up. Further strengthening cooperation with relevant divisions, we reinforce a foundation to support acceleration of environmental sustainability management.

Promotion system of environmental sustainability management



Environmental Management Systems

Environmental Management Systems

Panasonic is operating environmental management systems between a corporate headquarter division which governs group-wide environmental management and business domain companies. Except for manufacturing companies newly established within the last three years, all our manufacturing sites have built their own environmental management systems and acquired ISO 14001 certification. At present, we are fostering the establishment of environmental management systems at our non-manufacturing sites, in order to reinforce environmental sustainability management across the Group.

Obtaining ISO 14001 certification

By the end of 1998, all of our manufacturing sites worldwide obtained ISO 14001 certification. Due to business integration, consolidation of business bases, and promotion of multi-site certification, the number of ISO-certified sites varies every year.

Acquisition of ISO 14001 certification (As of end of March 2009)

Region	Number of certified sites*		Total
	Manufacturing	Non-manufacturing	
Japan	45	15	60
Americas	16	2	18
Europe	13	1	14
Asia/Oceania	46	11	57
China/Northeast Asia	59	2	61
Total	179	31	210

* Including multi-site certification

Measures against environmental risks

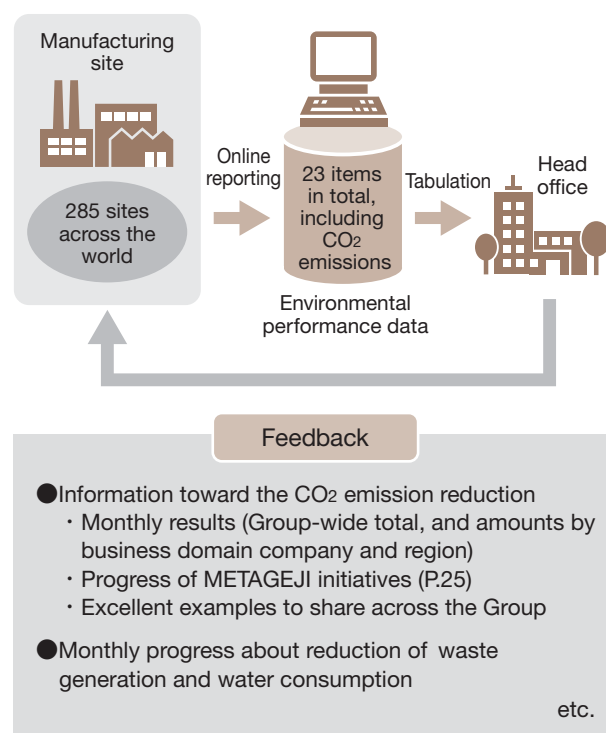
Panasonic defines risks as “factors that might hinder the achievement of business goals.” Our Global and Group Risk Management Committee, which is a cross-divisional group-wide committee, regards stricter environmental regulations as one of the most serious risks for our group and takes measures to ensure compliance with such regulations, particularly those on chemical substances enforced in Europe. In the event that such a risk is identified at one of our business sites, a parental business domain company reports the fact to the Committees on specific issues (P.46), which then examines appropriate countermeasures. In the case of a serious risk, we hold the Emergency Countermeasures Meetings in order to minimize an impact of such risks and make a prompt response to resolve it.

Environmental performance system

In order to implement the PDCA cycle for environmental sustainability management, it is essential to collect a significant amount of environmental performance data on energy use, waste generation, and water use of each business site in a prompt and accurate manner. To this end, Panasonic has developed and introduced an environmental performance system as a means of globally collecting and managing environmental data of all manufacturing sites.

In fiscal 2008, we started monthly collection of major environmental performance data from all our manufacturing sites (285 sites in fiscal 2009) around the world. This environmental performance system allows us to give timely feedback to each site regarding their progress and results of analysis on their problems, which in turn helps us further reduce environmental impact in a well-planned manner. Toward the achievement of the CO₂ reduction target, this data collection system plays a vital role in checking the monthly progress, identifying obstacles and promoting initiatives group-widely. With this system, we thoroughly accelerate our activities.

Operation of the environmental performance system



Development of Human Resources

Strengthening skills of environmental specialists

In view of the increasing importance of environmental sustainability management, we are cultivating and registering in-house environmental specialists who play a central role for supporting and promoting environmental activities. We set up guidelines to clarify skills that they must acquire, and identify a role and position in the Company and policies for their training.

Environmental education

In fiscal 2004, Panasonic introduced an online e-Learning system in Japan to provide a education program on our environmental management activities and general environmental issues. In fiscal 2009, approx. 30,000 employees took the program via internet.

We are providing professional environmental education based on our guidelines set for the development of our in-house environmental specialists. The guidelines define requirements for environmental specialists and duties to be undertaken by them, as well as skills to be acquired and enhanced. In fiscal 2009, a total of 302 employees participated in 11 training seminars in Japan, in which they learned about energy management, energy conservation diagnosis skills, and energy conservation tuning to attain the most important goal in our environmental sustainability management, which is CO₂ emission reduction. Many employees also participated in seminars held to help reduce CO₂ emissions at our global sites, including those in China and other Asian countries.

Environmental education system

	New employees	Employees	Management
General	Introductory course	General environmental education (e-Learning/group education)	
		Seminars for employees to be dispatched outside Japan	
		Seminars for promoted employees	Seminars for Promoted employees
Professional		Seminars for new environmental staff (non-managers)	Seminars for new environmental staff (managers)
		Environmental sustainability management seminars	
		Seminars for environmental auditors	
Environment		Seminars for in-house environmental auditors	
		Basic seminars on environmental regulations	
		Seminars on environmental regulations for products	
		Basic seminars on Green Products	
		Seminars on chemical substance management	
		Seminars on waste management	
Procurement		Seminars on factory energy conservation	
		CSR seminars	
Engineering Quality management		Techno School on specified chemical substances	
		3R design seminars	

Environmental Accounting

Environmental accounting supporting environmental sustainability management

Panasonic globally collects data on its environmental conservation costs and economic benefits obtained through its environmental activities in relation to generated controlled environmental impact. The data are internally utilized as basic information for our environmental sustainability management. In order to show our environmental sustainability management in line with our 'eco ideas' Strategy, we disclose environmental conservation costs and economic benefits for each of our three 'eco ideas' categories.

Environmental accounting

Accounting period: From April 2008 to March 2009

Companies covered: Panasonic Corporation and its affiliated companies inside and outside Japan
(units: Million yens)

	Classification by the Ministry of the Environment of Japan	Investments ¹	Expenses ^{1,2}	Economic benefit
For Products	R&D cost	1,198	12,356	—
For Manufacturing	Global environmental conservation costs	8,590	3,798	7,841
	Pollution prevention costs	4,569	5,584	—
	Resource circulation costs	880	5,215	18,999
	Upstream and downstream costs	1,130	6,522	2,706
	Administration costs	97	9,453	—
For Everybody, Everywhere	Environmental remediation costs	335	4,002	—
	Social activity costs	—	215	—
Total		16,799	47,146	29,546

Environmental conservation benefits (in physical terms)

	Categories	Emission reduction	Reference indicator: environmental impact	
		Fiscal 2009	Fiscal 2008	Fiscal 2009
For Products	CO ₂ emissions	—	—	78.00 million tons
For Manufacturing	CO ₂ emissions from production activities	500,000 tons	3.97 million tons	3.47 million tons
	GHG emissions (other than CO ₂) ³	100,000 tons	300,000 tons	200,000 tons
	Release and transfer of Key Reduction-target Chemical Substances	700 tons	4,700 tons	4,100 tons
	Final disposal of waste	12,900 tons	31,500 tons	18,600 tons
	Water consumption	6 million m ³	59 million m ³	53 million m ³
	CO ₂ emissions from transportation activities	170,000 tons	1.05 million tons	880,000 tons

¹ When an entire amount of investment and expenses cannot be regarded as environmental conservation costs alone, the difference or appropriate portions (divided proportionally) are calculated.

² Expenses include a cost of capital investment depreciation.

³ GWP ton-CO₂ (GWP: Global Warming Potential).

Independent Review Report by KPMG AZSA Sustainability Co., Ltd.



Independent Review Report on "eco ideas" Report 2009"

To the President of Panasonic Corporation

1. Purpose and Scope of our Review

We have reviewed "eco ideas" Report 2009" (the "Report") of Panasonic Corporation (the "Company") for the year ended March 31, 2009. Our engagement was designed to report to the Company, based on the results of our review, the credibility of the indicators for the period from April 1, 2008 to March 31, 2009 described in "Green Plan 2010" (the "Indicators") included in the Report.

The Report, including the identification of material issues, is the responsibility of the Company's management. Our responsibility is to independently report the results of our procedures performed on the Indicators.

2. The Standards and the Criteria used in our Review

We conducted our review referring to the "International Standard on Assurance Engagements 3000" (December 2003) issued by International Federation of Accountants (IFAC), and in accordance with the "Practice Guidelines for Assurance Engagements on Sustainability Information" (revised February 2008) issued by the Japanese Association of Assurance Organizations for Sustainability Information, with the criteria which are the standards the Company formulated (the "Company's Standards") and are shown in the Company's website (http://panasonic.net/eco/env_data/back_number/pdf/review2009e.pdf) as well as the code of the Japanese Association of Assurance Organizations for Sustainability Information.

3. Procedures Performed

We have performed the following review procedures:

- (1) With respect to the Company's policies for compilation of the Report, interviewed the Company's responsible personnel.
- (2) Assessed the Company's Standards used for collecting, compiling and reporting the Indicators.
- (3) With respect to the way of collecting the Indicators and the process flow of calculating them, interviewed the Company's responsible personnel and reviewed the systems and processes used to generate the values of the Indicators.
- (4) Compared the Indicators on a sample basis with the supporting evidences to test the conformity in collection, compilation and reporting of the Indicators to the Company's Standards.
- (5) Made on-site inspections of the Company's facilities domestic and overseas.
- (6) Assessed the completeness of the Report in accordance with the applicable provisions of the code of the Japanese Association of Assurance Organizations for Sustainability Information.
- (7) Evaluated the overall statement in which the Indicators are expressed.

4. Results of the Procedures Performed

We believe that our review procedures provide a reasonable basis for our conclusion.

Based on our review, nothing has come to our attention that causes us to believe that the Indicators are not collected, compiled and reported, in all material respects, rationally and in accordance with the Company's Standards.

Our firm and engagement members have no interest in the Company which would have to be disclosed pursuant to the provisions of the Assurance Standard for Environmental Reports (pilot version) issued by the Ministry of the Environment of Japan.

KPMG AZSA Sustainability Co., Ltd.

KPMG AZSA Sustainability Co., Ltd.

Osaka, Japan
July 14th, 2009

Outline of on-site review

Period: From February to April in 2009

Sites: Eight manufacturing sites



On-site review at PT. Panasonic Shikoku Electronics Indonesia



On-site review at PT. Panasonic Electronic Devices Batam



This J-SUS imprint indicates that the environmental information contained in the 'eco ideas' Report satisfies the applicable provision of the code of the Japanese Association of Assurance Organizations for Sustainability Information.

www.j-sus.org

Partnership with the Natural Step

Panasonic has been building a partnership with the Natural Step since 2001. The Natural Step has identified key requirements for a sustainable society in consensus with scientists, and many environmentally-advanced countries and corporations refer to these conditions in determining their sustainable strategies.

In fiscal 2009, we requested the Natural Step to analyze our three 'eco ideas,' which are key initiatives in 'eco ideas' Strategy. Excerpts of the organization's opinions are introduced on pages 12, 24, and 36 of this report. We take the opinions voiced by the Natural Step into account in order to make a steady progress in our environmental sustainability management.



www.naturalstep.org



Sachiko Takami
Chief Executive of the Natural Step Japan

External Evaluation

Panasonic has been consecutively listed in the world's leading SRI fund indexes, such as Dow Jones Sustainability Index, Carbon Disclosure Leadership Index, and FTSE4Good. We were also listed in the Global 100 Most Sustainable Corporations in the World announced at the World Economic Forum in January 2009.



Environmental Activities: Introducing Panasonic's environmental activities. Panasonic.net/eco

■Reports Back Number

http://panasonic.net/eco/env_data/back_number/

Disclosing more detailed environmental performance data in Data File

■Domain and Site Report

http://panasonic.net/eco/env_data/

Disclosing environmental performance data and activities by each business domain company and manufacturing site.



■Special Sites



<http://panasonic.net/eco/ecoideas/index.html>

eco ideas

Introducing three 'eco ideas' in an easy-to-understand manner



Panasonic ECO RELAY

Introducing environmental activities implemented by Panasonic employees in October 2008.

<http://panasonic.net/eco/ecorelay/#/en/>



Panasonic Eco Technology Center

Introducing Panasonic's home appliance recycling plant in Japan

<http://panasonic.net/eco/petec/>

■Showrooms



<http://panasonic.co.jp/ecohouse/en/>

The 'eco ideas' House

Introducing the 'eco ideas' House, which proposes a lifestyle with virtually zero CO₂ emissions in an entire house realized in three to five years into the future.

Panasonic Global Home

<http://panasonic.net/>

IR Information

<http://panasonic.net/ir/>

Corporate Social Responsibility (CSR)

<http://panasonic.net/csr/>

Corporate Citizenship

<http://panasonic.net/citizenship/>

Global Network

http://panasonic.net/corporate/global_network/



Introducing Panasonic's products and services produced and marketed in each country/region

Contact

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Environmentally-conscious Printing in the 'eco ideas' Report

- Based on Panasonic's Green Purchasing Guidelines for Paper and Printed Matter, this Report is printed in an environmentally-conscious manner by implementing verification of raw materials, using recyclable materials and harmful-substance-free ink, and adopting waterless printing with no toxic runoff.
- This report is made from FSC certified paper, which comes from forests that are managed appropriately from environmental, social and economic aspects.

Panasonic

ideas for life



'eco ideas' Report 2009 Data File

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■ History of Environmental Activities

■ Standards for Calculating Environmental Performance Indicators

Scope of information

Reporting period: Fiscal Year 2009 (April 1, 2008 - March 31, 2009)

Organization covered: Panasonic Corporation and consolidated subsidiaries

Data covered: All manufacturing sites (285 sites) that have established Panasonic Environmental Management Systems

* When companies included in a scope of organizations are changed, data is corrected in a retrospective manner.

* Data without any indications of fiscal years or regions refers to global result in fiscal year 2009.

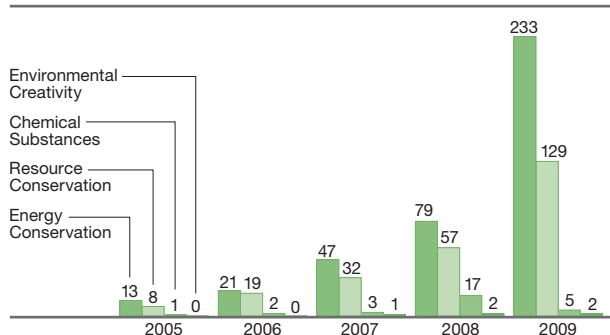
Related Page in
'eco ideas' Report 2009 \ P.00 : Page number of related articles

'eco ideas' for Products

Initiatives for Green Products

Related Page in
'eco ideas' Report 2009 **P15**

Breakdown of Superior GPs



Energy Conservation in Products

Related Page in
'eco ideas' Report 2009 **P17-18**

Reduction of annual power consumption

Products	2000 models	2008 Models	Reduction (as compared with 2000 models)
Blu-ray disk recorder	DMR-E10	DMR-BR550	82%
Heated toilet seat with warm water sprays	DL-ST30	DL-WA50	70%
Heat pump hot water supplier	HE-30T1XAS	HE-KU37BXS	67%
Tilted-drum washer/dryer	NA-SK600	NA-VR3500L	64%
Plasma TV (42 inches)	TH-42PM30/S	TH-42PX80	59%

Reduction of power consumption in standby mode

Products	2000 models	2008 Models	Reduction (as compared with 2000 models)
Blu-ray disk recorder	DMR-E10	DMR-BR550	98%
Plasma TV (42 inches)	TH-42PM30/S	TH-42PX80	96%
IH jar rice cooker (1.8L)	SR-HG18A	SR-SW182	95%
Mobile phone	P2101V	P-01A	83%
Air conditioner (2.8 kW)	CS-E280A	CS-X289A	75%

Environmental Labels

Related Page in
'eco ideas' Report 2009 **P12**

List of Type I Ecomark products in Japan

Items	Number of models	
	Fiscal 2009 results	Total number of models*
Electrostatic copiers	14	17
Wiring floor	3	3
Cooking oil cleaner	3	3
Total	20	23

* Number of models released as of March 31, 2009

List of registered Eco-Leaf Environment Labels (Type III) in Japan

Items	Number of models	
	Fiscal 2009 results	Total number of models*
Network cameras	6	27
Fixed telephones	6	18
Fax machines	8	17
Intercoms	4	17
PLC modems	5	9
PBX systems	2	8
Electronic whiteboards	0	6
Scanners	0	3
Wiring floor	3	3
Business fax machines	0	2
Photo printers	0	2
Electrostatic copiers	0	1
Total	34	113

* Number of models released as of March 31, 2009

Lists of products satisfying the International Energy Star Standard

Items	Number of models	
	Number of models accredited in fiscal 2009	
Computers	30	
Multi-function machines	6	
Scanner	4	
Personal fax machines	3	
Business fax machines	2	
Total	45	

* Products that are registered under the International Energy Star Program of Japan

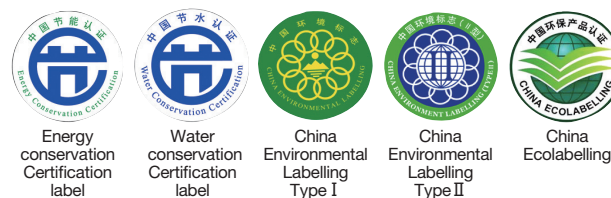
Lists of products that acquired environmental labels (China)

From April 2008 to March 2009

Items	Conservation Labelling		China Environmental Labelling		China Ecolabelling
	Energy conservation	Water conservation	Type I	Type II	
Plasma TVs	—	—	—	11	—
LCD TVs	—	—	—	7	—
LCD projectors	10	—	—	—	10
Washing machines	13	13	—	5	—
Rice cookers	18	—	—	—	—
Air conditioners	60	—	—	5	—
Refrigerators	13	—	—	2	—
Microwave ovens	16	—	—	—	—
Multi-function machines	8	—	5	—	—
Fax machines	5	—	—	—	—
Total	143	13	5	30	10

* Source: Notice of China Certification Center

Environmental labels used in China



‘eco ideas’ for Products

Products Conforming to the Law on Promoting Green Purchasing

Number of product models that conform to the Law on Promoting Green Purchasing
(as of March 31, 2009)

Product name	Number of models
Lighting fixtures	140
Air conditioners	135
Personal computers	98
Lamp bulbs ^{*1}	92
Electric hot water suppliers	81
Fluorescent lamps ^{*2}	65
Primary batteries	55
Refrigerator-freezers	26
Fax machines	24
Recording media	19
Microwave ovens	18

^{*1} Bulb-shaped fluorescent light

^{*2} Straight fluorescent light

Product name	Number of models
Multi-function machines	17
Heated toilet seat with a warm water sprays	17
Electronic whiteboards	12
Television sets	10
Car navigation systems	10
Small-sized rechargeable batteries	10
Scanners	7
Tonner cartridge	5
Disposers (recyclers)	4
Electric Toll Collection (ETC)	2

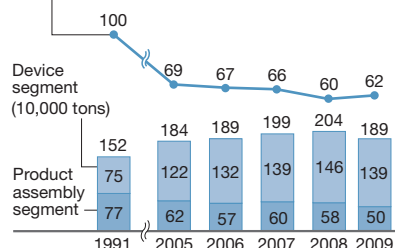
'eco ideas' for Manufacturing

Energy Conservation at Factories/Global Warming Prevention

Related Page in
'eco ideas' Report 2009 **P25-26**

CO₂ emissions and CO₂ emissions intensity (Japan)

CO₂ emissions per unit of actual production, compared to fiscal 1991



<Methodology for calculating CO₂ emissions>

•The factors of fuels are based on the Guidelines for Calculating Greenhouse Gas Emissions (Ver. 2.2) by the Ministry of the Environment, Japan

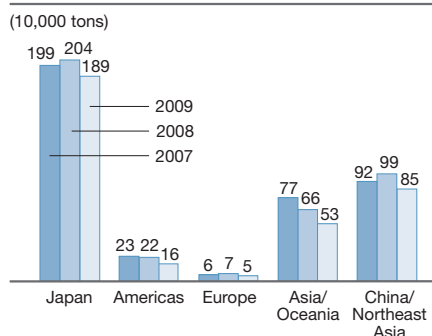
•The factors used for purchased electricity are the average of all types of power at the using end, reported by the Federation of Electric Power Companies of Japan.

•The CO₂ emissions factors (kg-CO₂/kWh) for individual fiscal years are set at 0.417 for fiscal 1991, 0.425 for fiscal 2006 and 2007 and 0.410 for fiscal 2008 and onwards.

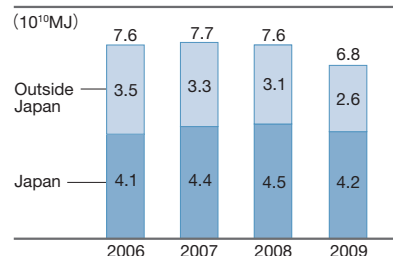
•In CO₂ emissions per basic unit of actual production¹, we reduced by 34% in fiscal 2009 compared to fiscal 1991 level when using 0.453 kg-CO₂/kWh as the newest CO₂ emission factor against a 35% reduction target in fiscal 2011 by four electrical and electronics-related associations in Japan. When using 0.417 kg-CO₂/kWh for a CO₂ emission factor, which is the same as a base year, a reduction rate in fiscal 2009 was 38%.

¹ CO₂ emission per basic unit = CO₂ emissions/(consolidated sales/Bank of Japan's corporate goods price index [electrical machinery and equipment])

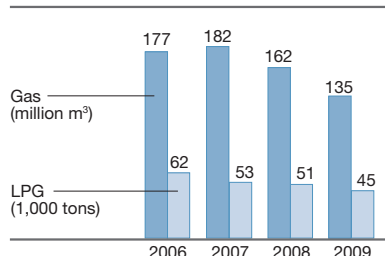
CO₂ emissions



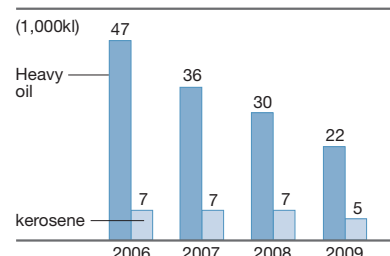
Energy consumption (global)



Gas/LPG consumption (Japan)



Heavy oil/kerosene consumption (Japan)



Renewable energy consumption (Japan)

Fiscal 2009	53,000 kWh
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Chemical Substance Management at Factories

Related Page in
'eco ideas' Report 2009 **P27**

Results of surveys on substances requiring management¹, conducted by Panasonic and its group subsidiaries

(Units: tons)

Chemical substances	PRTR category	Handled	Total amounts released and transferred	Released				Transferred ²	Re-moved ³	Re-cycled ⁴	Shipped as products ⁵
				Released into air	Released into public water-ways	Released into soil	Landfill				
Carbon dioxide		1,966.4	1,966.3	1,966.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Isopropyl alcohol		2,807.5	1,282.5	1,004.7	1.9	0.0	0.0	275.9	156.0	1,056.0	313.6
Ethanol		448.6	313.7	298.6	0.6	0.0	0.0	14.5	39.7	71.5	20.1
Manganese and its compounds	1	33,883.2	307.4	0.6	0.1	0.0	0.0	306.7	1.0	264.4	33,310.4
n-butyl acetate		734.2	295.9	254.8	0.0	0.0	0.0	41.2	261.8	153.8	22.6
2-butanone; methyl ethyl ketone		4,322.5	289.5	253.1	0.0	0.0	0.0	36.5	3,616.4	214.7	201.9
Silica		6,834.5	272.4	15.3	8.2	0.0	0.0	248.8	1.4	151.7	6,409.1
Toluene	1	1,010.6	264.5	257.5	0.1	0.0	0.0	6.8	152.1	346.2	247.8
Acetone		742.3	206.6	185.8	0.4	0.0	0.0	20.5	148.0	361.5	26.2
Methanol Methyl alcohol		5,809.5	174.6	163.0	0.0	0.0	0.0	11.7	4,421.9	532.1	680.9
Propylene glycol monomethyl ether		1,387.2	121.1	108.6	0.0	0.0	0.0	12.5	925.9	334.8	5.4
N,N-Dimethylformamide	1	2,565.0	121.1	111.5	2.1	0.0	0.0	7.6	2,306.2	133.4	4.3
n-butanol		246.3	116.5	115.9	0.0	0.0	0.0	0.6	12.0	39.4	78.4
Calcium hydrate		4,696.3	101.6	0.0	82.1	0.0	0.0	19.5	3,064.2	1,032.1	498.3
Isobutane		181.3	99.4	99.2	0.0	0.0	0.0	0.2	0.0	0.0	81.9
Xylene	1	228.8	94.5	89.8	0.0	0.0	0.0	4.7	78.8	38.3	16.9
Styrene	1	6,115.1	84.0	79.6	0.0	0.0	0.0	3.0	204.5	74.1	5,752.7
Water-soluble compounds of zinc	1	6,114.3	69.0	0.0	0.0	0.0	0.0	68.9	0.4	18.6	6,026.3
2-amino ethanol	1	66.4	60.9	2.1	14.6	0.0	0.0	44.3	2.4	2.9	0.2
Formaldehyde	1	8,175.2	55.5	32.7	0.5	0.0	0.0	22.3	1,770.5	130.6	6,218.6
Other PRTR substances		84,128.8	243.4	131.7	37.8	0.0	0.0	73.9	517.9	3,775.6	79,589.5
Other substance groups		123,194.8	1,023.5	517.4	60.4	0.0	0.0	445.6	25,058.4	14,363.6	82,745.1
Total		295,658.8	7,564.0	5,688.3	208.7	0.0	0.0	1,665.6	42,739.6	23,095.4	222,250.1

¹ Based on Panasonic Chemical Substances Management Rank Guidelines (Version 3.1) and covering all substances listed in the Japanese PRTR Law.

² An amount of substances transferred as waste, as well as those discharged into the sewage system. Recycled amount which is free of charge or accompanied treatment cost under the Waste Management Law is included in "Recycled." (Different from a transferred amount reported under the PRTR Law)

³ An amount of substances converted into other substances through neutralization, decomposition or other chemical treatment.

⁴ An amount of substances recycled with revenue, as well as those recycled free of charge or with any payment.

⁵ An amount of substances that have been changed to other substances as a result of chemical reactions, and those that are contained in or accompanying products shipped out of factories.

Breakdown of release/transfer of Key Reduction-target Substances (2) (VOCs)

(Units: tons)

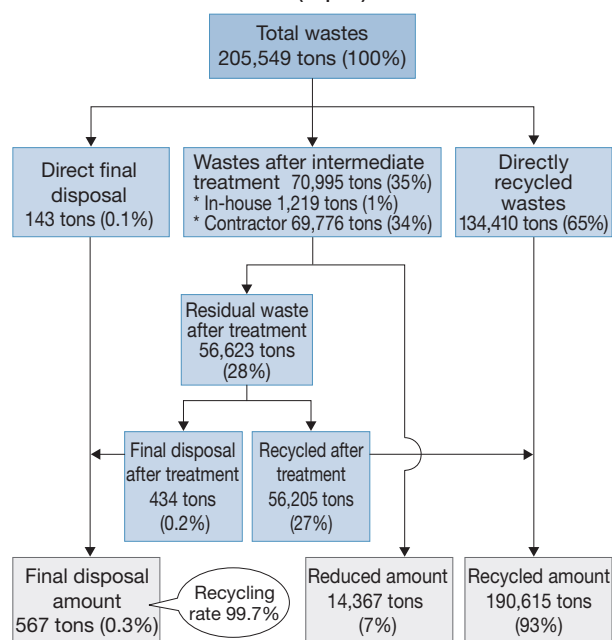
Chemical Substances	Fiscal 2006	Fiscal 2007	Fiscal 2008	Fiscal 2009
Isopropyl alcohol	1326.7	1263.6	1213.9	1282.5
Methyl ethyl ketone	612.1	525.2	483.2	289.5
Toluene	406.0	336.0	304.3	264.5
n-Butyl acetate	395.1	313.6	310.1	295.4
Methyl alcohol	367.8	226.9	207.5	174.6
Ethanol	318.3	336.7	331.8	313.7
Acetone	307.9	319.3	275.0	206.6
Xylene	319.1	232.6	197.3	94.5
Propylene glycol monomethyl ether	150.8	152.1	181.0	121.1
Styrene	146.1	145.0	111.9	84.0
Ethyl acetate	102.3	72.7	71.4	42.8
n-Butanol	98.6	130.0	156.9	116.5
Methyl isobutyl ketone	81.4	68.4	58.3	52.8
Dichloromethane	33.8	8.4	0.7	0.0
Cyclohexanone	28.3	32.2	28.7	26.5
Ethyl benzene	19.2	23.2	19.5	19.7
n-Heptane	5.6	2.5	2.3	2.8
Tetrahydrofuran	2.3	1.5	1.2	0.5
Trichloroethylene	0.2	0.0	0.0	0.0
Chloroform	0.0	0.0	0.1	0.2
Total	4721.7	4189.8	3955.1	3388.3

'eco ideas' for Manufacturing

Waste Reduction at Factories

Related Page in
'eco ideas' Report 2009 **P28**

Flowchart of waste treatment (Japan)



Amount of in-house circulating resources (Japan)

(Units:tons)

Amount of in-house recycling ^{*1}	7,631
Amount of recycling after in-house intermediate treatment ^{*1}	1,320
Amount of in-house heat recovery ^{*2}	0

^{*1} Amount of internally reused resources

^{*2} Amount of internally heat-recovered resources

Breakdown of amount of total wastes (Japan)

(Units:tons)

Items	Amount of waste arisings	Amount of recycled resource	Amount of final disposal
Metal	52,100	51,965	1
Paper	19,868	19,161	64
Plastics	32,093	29,525	117
Acids	29,548	25,906	24
Sludge	18,473	17,075	72
Wood	11,533	11,318	1
Glass/ceramics	10,916	10,880	20
Oil	7,691	6,975	9
Alkalis	5,619	3,152	199
Others	17,708	14,658	60
Total	205,549	190,615	567

Compliance Management at Factories

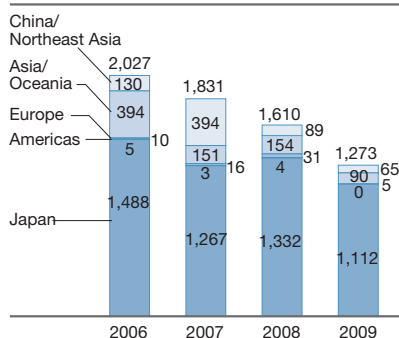
Related Page in
'eco ideas' Report 2009 **P30**

Impact on the air and public waterways (Japan)

* Aggregated data of business sites in countries that have regulations in place

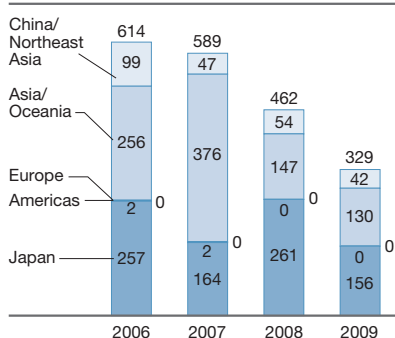
NOx emissions (air)

(Units:tons)



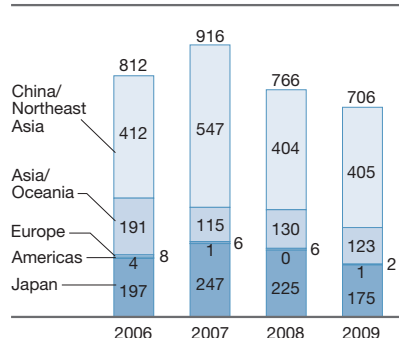
SOx emissions (air)

(Units:tons)



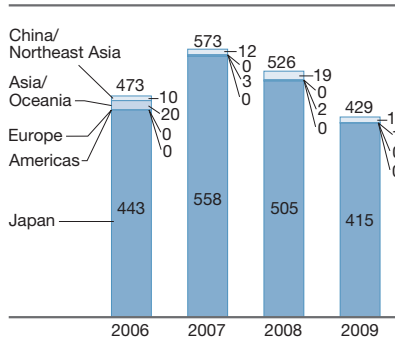
COD pollution (public waterways)

(Units:tons)



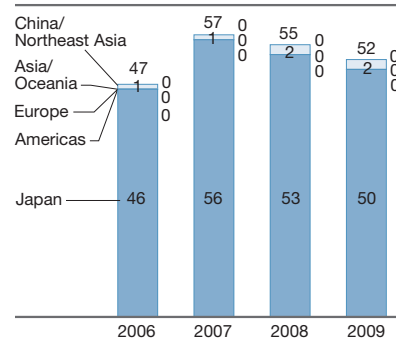
Nitrogen pollution (public waterways)

(Units:tons)



Phosphorus pollution (public waterways)

(Units:tons)



'eco ideas' for Manufacturing

Energy Conservation in Offices

Related Page in
'eco ideas' Report 2009 **P30**

Result of green purchasing (Japan)

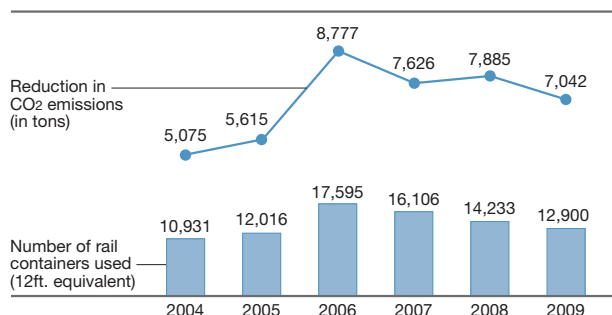
Category	Item	Amount in Green Purchasing items (unit: million yen)	Amount in non-Green Purchasing items (unit: million yen)	Total (unit: million yen)	Green purchasing rate(%)
		fiscal2009 (fiscal2008)			
Paper	Copy paper	216 (102)	0 (0)	216 (102)	100% (100%)
	Printing paper	1,899 (693)	0 (0)	1,899 (1,693)	100% (100%)
Office stationery	Notebooks, writing instruments, files, etc.	205 (242)	48 (79)	253 (320)	81% (76%)
Office automation equipment	Printers	81 (45)	0 (0)	81 (45)	100% (100%)
	PCs	1,032 (2,440)	0 (0)	1,032 (2,440)	100% (100%)

* Actual bulk purchases by the Company

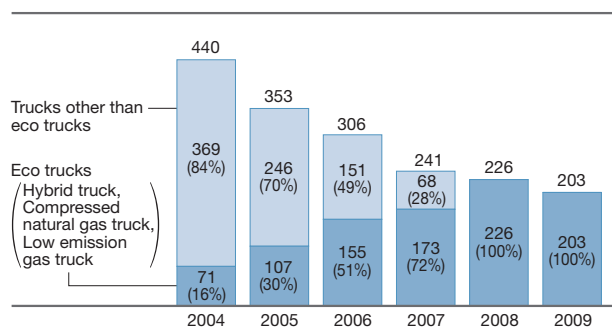
Green Logistics

Related Page in
'eco ideas' Report 2009 **P31**

CO₂ emission reduction effect by railroad transportation (Japan)



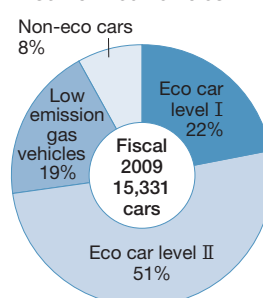
Introduction of self-owned eco trucks (Japan)



* From fiscal 2007, vehicles that will shortly be taken out of service have been excluded from the scope

* Reduced due to the promotion of outsourcing in fiscal 2009. Eco trucks reduced in fiscal 2009 has been utilized by partner companies

Rate of eco car introduction in self-owned vehicles

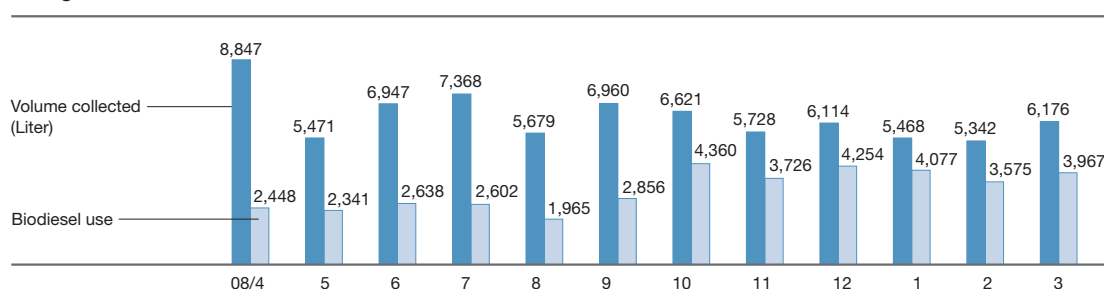


* As of the end of March 2009, excluding trucks

Definition of eco cars

Level 1
<ul style="list-style-type: none"> ● Electric powered vehicles ● Natural gas powered vehicles ● Methanol gas powered vehicles ● Hybrid vehicles ● Fuel cell powered vehicles ● Vehicles that achieve more than 75% reduction against the standard gas emission levels for fiscal 2006 and a fuel efficiency of 5% higher than fiscal 2011 standard levels
Level 2
<ul style="list-style-type: none"> ● Vehicles that achieve more than 75% reduction against the fiscal 2006 standard gas emission levels and 2011 standard fuel efficiency levels ● Vehicles that achieve more than 50% reduction against the standard gas emission levels for fiscal 2006 and fuel efficiency higher than fiscal 2011 levels

Changes in volume of collected waste oil and biodiesel fuel use



'eco ideas' for Manufacturing

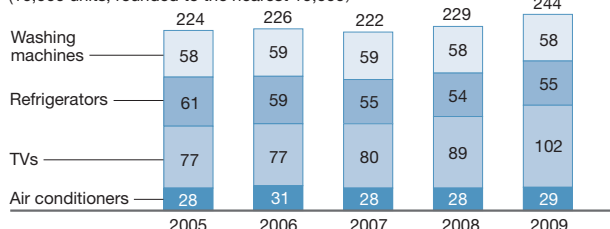
Product Recycling

Related Page in
'eco ideas' Report 2009 **P32**

As a result of our recycling activities in fiscal 2009 (April 1, 2008 to March 31, 2009) based on the Law for Recycling of Specified Kinds of Home Appliances.

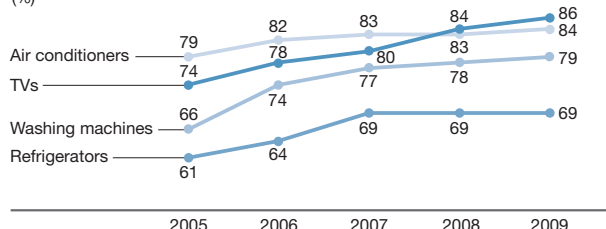
Number of products recycled (Japan)

(10,000 units, rounded to the nearest 10,000)



Recycling rates of waste specified kinds of home appliances (Japan)

(%)



Overview of recycled 4 end-of-life products (Japan)

Numbers after the decimal point are truncated.

	Air conditioner	TV	Refrigerator /Freezer	Washing machine
Collected units at designated collection points [1,000 units] ^{*1}	294	1,047	546	574
Treated units for recycling and others[1,000 units] ^{*1,2}	295	1,017	546	576
Treated amount for recycling and others[tons] ^{*2}	12,748	31,660	33,819	19,760
Weight of recycled units [tons]	10,797	27,414	23,600	15,754
Recycling rate [%]	84	86	69	79

*1 "Collected units at designated collection points" and "Treated units for recycling" do not include units in case the manufacturer responsible for recycling has not been determined due to misentries in manifests and for other reasons.

*2 "Treated units for recycling" and "Treated amount for recycling" refer to the total (volume and weight) of waste electric appliance that have been treated for recycling in fiscal 2009.

Overview of the recycled parts and materials (Japan)

Total weight of the recycled parts and materials transferable for a fee or free of charge.

Numbers after the decimal point are truncated.

	Air conditioner	TV	Refrigerator /Freezer	Washing machine
Iron	4,750	2,522	15,538	9,189
Copper	854	1,009	398	204
Aluminum	797	17	16	216
Mixture including ferrous or non-ferrous materials	3,534	610	3,200	1,943
CRT glass	—	17,560	—	—
Other valuable materials ^{*3}	861	5,694	4,446	4,200
Total weight	10,797	27,414	23,600	15,754

*3 "Other valuable materials" are plastics, etc.

Weights of collected, shipped, and destroyed refrigerant fluorocarbons (Japan)

Unit: kg, decimals truncated.

	Air conditioner	Refrigerator /Freezer
Weight of collected refrigerant fluorocarbons	167,620	57,358
Weight shipped to consigned destroying companies of coolant fluorocarbons	166,746	56,460
Weight of destroyed coolant fluorocarbons	166,133	55,858

Weights of fluorocarbons liquefied and collected from heat insulation shipped and destroyed (Japan)

Unit: kg, decimals truncated.

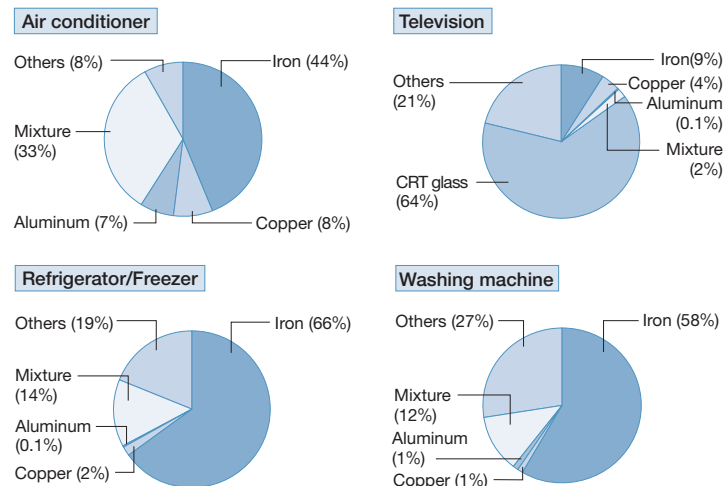
	Air conditioner	Refrigerator /Freezer
Weight of fluorocarbons liquefied and collected from heat insulation	—	123,028
Weight of fluorocarbons shipped to consigned destroying companies after liquefied and collected from heat insulation	—	120,756
Weight of fluorocarbons liquefied and collected from heat insulation, then destroyed	—	116,811

* Difference between weight of collected fluorocarbons and weight of shipped fluorocarbons is backlog

* Weight of shipped fluorocarbons and weight of destroyed fluorocarbons partly include weight of fiscal 2008

* Difference between weight of shipped fluorocarbons and weight of destroyed fluorocarbons is due to time-lag of reporting of destroying.

Breakdown of recycled materials by product family (Japan)



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Environmental Communication

Environmental communication results (handled by the head office of Panasonic Corporation)

Media/activities	Results	Media/activities	Results
Website (in Japanese)	Approx. 1.68 million page views	Lecture meeting	16
Website (in English)	Approx. 490,000 page views	Interview with reporters	10
Stakeholder dialogue	2	News release	28
TV commercial	12	Response to surveys/questionnaires	35
Newspaper advertisement	27	Inquiry/information request	2,490

History of environmental report issuance

Year	Number of copies			Number of pages	Date of issuance
	Japanese	English	Chinese		
Environmental Report					
1997	17,000	8,000	—	24	February 1998
1998	10,000	10,000	—	28	March 1999
1999	18,000	5,000	—	40	September 1999
2000	22,000	5,000	—	56	September 2000
2001	20,000	5,000	—	66	September 2001
2002	25,000	5,000	—	78	June 2002
Environmental Sustainability Report					
2003	35,000	5,000	—	92	June 2003
2004	25,000	8,000	4,000	76	June 2004
The Panasonic Report for Sustainability					
2005	30,000	10,000	4,000	54	June 2005
2006	30,000	10,000	5,000	62	June 2006
2007	20,000	7,000	6,000	42	June 2007
2008	14,000	8,000	5,000	30	June 2008

History of Environmental Data Book issuance

Year	Number of copies			Number of pages	Date of issuance
	Japanese	English	Chinese		
2005	10,000	5,000	5,000	66	August 2005
2006	10,000	5,000	5,000	68	August 2006
2007	13,000	5,000	5,000	66	June 2007
2008	13,000	5,000	3,000	72	June 2008

Participation in major exhibitions (fiscal 2009)

Exhibitions	Venues	Period
'eco ideas' World	Tokyo/Osaka/Fukuoka/Nagoya/Sendai/Hokkaido	April-July 2008
China Beijing International Hi-Tech Expo	Beijing (China)	May 2008
Interop Tokyo2008	Tokyo	June 2008
IFA 2008	Berlin (Germany)	August 2008
Home Care and Rehabilitation Exhibition 2008	Tokyo	September 2008
CEATEC JAPAN	Tokyo	September 2008
GITEX 2008	Dubai(UAE)	October 2008
International Broadcast Equipment Exhibition 2009	Tokyo	November 2008
electronica2008	Munich(Germany)	November 2008
Eco-Products 2008	Tokyo	December 2008
CES2009	Las Vegas (USA)	January 2009
Eco-Products International Fair	Manila(Philippines)	March 2009
SECURITY SHOW 2009	Tokyo	March 2009

On-site environmental communication results (by region)

	Japan	Americas	Europe/Africa	Asia/Oceania	China/North-East Asia
Site tours (visitors)	72,051	581	676	3,919	1,339
Community contribution activities* (frequency)	930	22	13	807	411

* Environmental events involving our participation and cooperation, including briefings to local residents on our environmental activities and other such meetings.

Number of business sites disclosing information in reports, on websites, or through other media (by region)

Japan	Americas	Europe/Africa	Asia/Oceania	China/North-East Asia
133	16	19	45	61

'eco ideas' for Everybody, Everywhere

Environmental Communication

Major awards in the environmental field (fiscal 2009)

Category	Presenter and the awards	Specific prize	Recipient company and details
Environmental sustainability management	China Entrepreneur Magazine, Daonong Center for Enterprise and Guanghua School of Management, Beijing University Second China Green Awards	China Green Company Award	Panasonic Corporation of China
	Nikkei Inc. Fifth Nikkei Manufacturing Awards	Manufacturing Grand Prize	Kusatsu Plant, Home Appliances Company, Panasonic Corporation
	Interop Tokyo 2008 [Best of Show Award]	Grand prix for ecology	Panasonic Group's 'eco ideas' Declaration
Products & Services	Ministry of Economy, Trade and Industry, Japan 19th Energy Conservation Grand Prize for excellent energy conservation equipment,	Director General Prize of Agency of Natural Resources and Energy	Home Appliances Company, Panasonic Corporation Natural refrigerant (CO ₂) heat pump water heater, Eco Cute Panasonic Ecology Systems Co., Ltd. DC motor-type ceiling-mounting ventilation fan, Ceiling-mounted DC
		Chairman Prize of ECCJ (the Energy Conservation Center, Japan)	Home Appliances Company, Panasonic Corporation Single split type room air conditioner, Comfort and Energy-saving Air Conditioner equipped with nanoe AIR ROBO (X series)
	Eco-Products Awards Steering Committee The 5th Eco-Products Awards	Chairperson's Award, Eco-Products Awards Steering Committee in Eco-Products Category	Panasonic Cycle Technology Co., Ltd. Business Eco bike (office-use electrically assisted hybrid bicycle) (BE-EPBS632S, BE-EPBU432S) Panasonic Electric Works Co., Ltd. E Floor series (wooden floor material)
	Life Cycle Assessment Society of Japan Fifth Japan LCA Forum Awards	Prize from the Director-General of the Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry	Panasonic Corporation Reduction of CO ₂ emissions by 60% in an entire house
	Japan Center for Area Development Research (supervised by the Ministry of Land, Infrastructure, Transport and Tourism) House of the Year in Electric 2008	Grand prize	PanaHome Corporation EL SOLANA
Prevention of global warming	Ministry of Economy, Trade and Industry Awarding of Excellent Energy Conservation Factory & Building	Minister Prize of Economy, Trade and Industry	Tonami Plant, Semiconductor Company, Panasonic Corporation Panasonic Semiconductor Opto Devices Co., Ltd.
		Prize from the Director-General of the Kansai Bureau of Economy, Trade and Industry	Panasonic Welding Systems Co., Ltd.
Resource utilization	Ministry of Economy, Trade and Industry First Supply Chain Resource Conservation Model Awards	Grand prize	Panasonic Ecology Systems Co., Ltd.
	Clean Japan Center Foundation Resource Recycling Technology and System Awards	Prize from the Director-General of the Industrial Science and Technology Policy and Environment Bureau, Ministry of Economy, Trade and Industry	Panasonic Eco Technology Center Co., Ltd.
Management of chemical substances	Ministry of the Environment Commendation for person of merit in volatile organic compound (VOC) measures	Prize for person of merit in VOC measures	Fukushima Plant, DSC Business Unit, Network Business Group, AVC Networks Company, Panasonic Corporation
	Center for Environmental Information Science PRTR Awards 2008	Prize for encouragement	Amagasaki Plant, Panasonic Plasma Display Co., Ltd.
Environmental communication	Green Reporting Forum, Toyo Keizai Inc. 12th Green Reporting Award and Sustainability Reporting Award	Prize for excellence in Green Reporting	Panasonic Corporation Environmental Data Book 2008
	NTT Resonant Inc. Environment goo Awards 2008	Prize for excellence in the Kids category	Panasonic Eco Technology Center Co., Ltd. Eco Tech Kids website
	Dentsu Inc. 61st Dentsu Advertising Award	Grand Award in the newspaper advertising category (industry and housing category)	Panasonic Corporation Wall surface greening system, "Wall surface forests, cool cities"
		Dentsu Advertising Award in the radio advertising category	Panasonic Corporation 'eco ideas' "Nakunaru"
	The Nikkan Kogyo Shimbun, Ltd. 43rd Japan Industrial Advertisement Awards	Honorable mention in the first category	Panasonic Corporation Energy saving and creation, "Toyako"
		Ranked first in the second category	Panasonic Corporation Palook Ball, "Festival"
		Ranked third in the first information magazine category	Panasonic Corporation Copper recycling, "Cu again"
	FujiSankei Business i. 47th Business Advertisement Awards	Bronze prize for wide advertisement	Panasonic Corporation Palook Ball, "Lighting waste reduction"
		Gold prize for large-sized advertisement	Panasonic Corporation Semiconductor IPD, "Chorochocho Denki"
		Gold prize for series advertisement run below articles	Panasonic Corporation National eco technologies, "Specters"
	Nikkei Inc. 35th Nikkei Sangyo Shimbun Advertising Award	Silver prize from the Nikko Forum	Panasonic Corporation Bamboo speaker, "Lizard"
		Award for electronics	Panasonic Corporation "Office lighting, W-ECO"

Major honors in the environmental field (fiscal 2009)

Listed in the Dow Jones Sustainability Index, Global 100 Most Sustainable Corporations in the World, FTSE4Good Global 100 Index, and Carbon Disclosure Leadership Index of Carbon Disclosure Project
Ranked 4th among 510 manufacturers in the Nikkei Environmental Management Survey
Graded AA by Tohatsu Evaluation and Certification Organization Co., Ltd.

Environmental Management

Environmental Management System

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ISO 14001 Certification Sites

* As of March 31st, 2009. Date of Registration refers to a date when the first ISO 14001 certification was registered, regardless of changes in certification organizations.

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Japan (Manufacturing)	AVC Networks Company of Panasonic Corporation				
	Multiple-site Certification Group (11 sites)	PDP, PC, DVD, Camera	JACO	EC98J2010	1995 Nov.
	Home Appliances Company of Panasonic Corporation				
	Multiple-site Certification Group (Home Appliances Company, Mana Precision Casting Co., Ltd.)	Air conditioner, Washing machine, Refrigerator, Heat exchanger, Vending machine, Compressor	LRQA	YKA0771754	1997 Feb.
	Multiple-site Certification Group (4 business units)	Hygiene toilet seat, Meter, Electric pot, Microwave oven	JACO	EC97J1124	1997 Nov.
	Cooking Equipment Business Unit	IH rice cooker, Cooking appliance	JET	E98-043	1998 Apr.
	Laundry Business Unit (Kusatsu)	Dish washer & dryer	LRQA	YKA4004116	1998 Jul.
	IH Cooking Heater Business Unit	IH cooking heater	JET	E06-525	1998 Jun.
	Cleaner Business Unit	Vacuum cleaner, Garbage disposer	JACO	EC98J1017	1998 Jun.
	Motor Company of Panasonic Corporation				
	Multiple-site Certification Group (Motor Company, Panasonic Motor Matsuzaka Co., Ltd.)	Home appliance/IT device motor, Industrial compact geared motor	LRQA	YKA0771761	1997 Feb.
	Lighting Company of Panasonic Corporation				
	Multiple-site Certification Group (Lighting Company, Panasonic Lighting Kagawa Co., Ltd., Panasonic Photo & Lighting Co., Ltd.)	Fluorescent lamp, Light bulb, Back light	JACO	EC99J2017	1996 Sep.
	Automotive Systems Company of Panasonic Corporation				
	Matsumoto Site	Car navigation system, Car audio equipment, Car TV, Engine controller	LRQA	YKA771743	1997 Jun.
	Panasonic Mobile Communications Co., Ltd., Panasonic Shikoku Electronics Co., Ltd., System Solutions Company of Panasonic Corporation, Panasonic MCE Co., Ltd., Panasonic MCGS Co., Ltd.				
	Multiple-site Certification Group	Infrastructure System, Communications network system, security, hearing aid	LRQA	YKA0771842	1997 Dec.
	Semiconductor Company of Panasonic Corporation				
	Multiple-site Certification Group (Semiconductor Company, Panasonic Semiconductor Discrete Devices Niigata Co., Ltd.)	Semiconductor, System LSI	JACO	EC97J1114	1997 Nov.
	Multiple-site Certification Group (Panasonic Semiconductor Discrete Devices Co., Ltd., Panasonic Semiconductor Discrete Devices Kumamoto Co., Ltd.)	Semiconductor, Lead frame, Transistor	JACO	EC97J1029	1997 Jun.
	Panasonic Semiconductor Opto Devices Co., Ltd.	LED, Photointerrupter, Photocoupler	JQA	JQA-E-80029	1997 Mar.
	Shirakawa Site	Microphone, Cell phone camera, In-vehicle camera	JACO	EC98J2012	1995 Dec.
	Energy Company of Panasonic Corporation				
	Multiple-site Certification Group (4 sites)	Batteries	LRQA	YKA0771898	1998 Jul.
	Panasonic Electronic Devices Co., Ltd.				
	Multiple-site Certification Group (Panasonic Electronic Devices Co., Ltd., Panasonic Electronic Devices Japan Co., Ltd., Panasonic Electronic Devices Yamanashi Co., Ltd., Panasonic Electronic Devices Nitto Co., Ltd.)	Electronic components	JQA	JQA-EM1015	1996 Oct.
	Panasonic Ecology Systems Co., Ltd.				
	Multiple-site Certification Group (Panasonic Ecology Systems Co., Ltd. (Headquarters), Ventec, Inc., Navec Co., Ltd.)	Dehumidifier, Ventilating fan	JACO	EC99J2042	1996 Dec.
	Multiple-site Certification Group (Panasonic Ecology Systems Osaka Co., Ltd., Panasonic Ecology Systems Kyoei Co., Ltd.)	Filters, Ventilating fan	JACO	EC97J1194	1998 Feb.
	Panasonic Ecology Systems Oyabe Co., Ltd.	Production and sales of fans and motors	JMA	JMAQA-085	1997 Dec.
	Panasonic Communications Co., Ltd.				
	Oita Site	IC lead frame, Magnetic/IC card reader and writer	LRQA	YKA0771777	1998 Mar.
	Kumamoto Site	Optical disc drive, PBX	LRQA	YKA0771785	1998 Mar.
	Saga Site	IP products, Cordless telephone, Scanner, Electric white board	LRQA	YKA0771152	1997 Jul.
	Niigata Site	Fax machine, Digital imaging system	JACO	EC97J1020	1997 May.
	Utsunomiya Site	Digital imaging equipments	JACO	EC97J1223	1998 Mar.
	Panasonic Communications Kyushu Co., Ltd.	Devices	JQA	JQA-E-90082	1997 Dec.
	Panasonic Communications Graphics Co., Ltd.	Press reporting equipment	JACO	EC98J1114	1998 Dec.
	Panasonic Factory Solutions Co., Ltd.				
	Tosu Business Unit	Electronic chip mounting	LRQA	YKA0771759	1997 Aug.
	Kofu Business Unit	Electronic chip mounting	LRQA	YKA4004089	1997 Dec.
	Kitakadoma Business Unit	Micro-electronics mounting system	LRQA	YKA4004176	1998 Mar.
	Panasonic Mobile Communications Co., Ltd.				
	Shizuoka Site	Cell phone	LRQA	YKA0771841	1997 Dec.
	Panasonic Shikoku Electronics Co., Ltd.				

Environmental Management

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Japan (Manufacturing)	Multiple-site Certification Group (4 sites)	Health care business, Device business, Visual business	JACO	EC97J1224	1998 Mar.
	Panasonic Welding Systems Co., Ltd.				
	Multiple-site Certification Group (Panasonic Welding Systems Co., Ltd., Panasonic Welding Systems Kaga Co., Ltd., Panasonic Welding Systems Engineering Co., Ltd, Panasonic System Solutions Facilities Co., Ltd., AMTEC Co., Ltd.)	FA/welding equipment, Observation controlling system equipment, industrial material	JACO	EC97J1213	1998 Mar.
	Panasonic Electric Works Co., Ltd.				
	Multiple-site Certification Group (34 companies)	Lighting, Information system, Housing equipment, Building materials, Control equipment, Electric materials	LRQA	YKA0770279	1996 May.
	Panasonic Electric Works Steel Pipe&Tube Co., Ltd.	Conduit tube	JQA	JQA-EM5124	2006 Jan.
	Multiple-site Certification Group (SUNX Limited, KYUSHU SUNX Limited)	Sensors, LMP products, AIS products	JQA	JQA-EM0528	1999 Sep.
	PanaHome Corporation				
	Multiple-site Certification Group (2 sites)	Production of components for prefabricated housing	JTCCM	RE0206	2000 Oct.
	Panasonic Poly Technology Co., Ltd.	Bicycle tire, Tube, Industrial rubber and resin component	CIJ	CI/1185E	2003 Dec.
	Panasonic Eco Technology Center Co., Ltd.	Recycling for used products	JACO	EC01J0383	2002 Mar.
	Panasonic Cycle Technology Co., Ltd.	Production and sales of bicycles	JACO	EC99J1013	1999 May.
	Shin Nihon Kogyo Co., Ltd.	Print services	JCQA	JCQA-E-0551	2004 Apr.
	Wakayama Precision Company	Compressor	JACO	EC98J1124	1998 Dec.
	Panasonic Eco Technology Kanto Co., Ltd.	Recycling for used products	JACO	EC07J0191	2008 Mar.
	Panasonic Kibi Co., Ltd.	DVC camcorder assembly, DVC LCD unit & lens unit	JACO	EC98J1056	1998 Sep.
	Panasonic Katano Co., Ltd	Micro cassette tape, PDP TV component assembly	JACO	EC98J1142	1999 Jan.
Japan (Non-manufacturing)	Panasonic Corporation				
	Headquarters and other related offices (Kadoma Site, OBP Site, Tokyo Site)		JACO	EC98J1049	1998 Aug.
	Corporate Manufacturing Innovation Division (Minamikadoma, Kitakadoma)		JACO	EC97J1235	1998 Mar.
	R&D group		JACO	EC98J1046	1998 Nov.
	Corporate Industrial Marketing & Sales group		JACO	EC00J0167	2000 Dec.
	Panasonic Communications Co., Ltd.				
	Headquarters		LRQA	YKA0771775	1997 Dec.
	Meguro Site, Panasonic Communications Solutions Co., Ltd. Headquarters		JACO	EC01J0209	2001 Dec.
	Panasonic Mobile Communications Co., Ltd				
	Panasonic Mobile Communications R&D Lab. Co.,Ltd. (3 sites)		LRQA	YKA0773020	2002 Mar.
	Panasonic Factory Solutions Co., Ltd.				
	Panasonic Factory Solutions Co., Ltd. Tokyo Site, Panasonic Factory Solutions Sales & Engineering Japan Co., Ltd.		JQA	JQA-EM1845	2001 Oct.
	Panasonic Ecology Systems Co., Ltd.				
	Panasonic Environmental Systems & Engineering Co., Ltd.		JACO	EC00J0288	2001 Mar.
	Panasonic Electric Works Co., Ltd.				
	Panasonic Electric Works Engineering Co., Ltd. Headquarters		JTCCM	RE0409	2005 Jan.
	Panasonic Electric Works Techno Service Co., Ltd. Headquarters		LRQA	YKA4002692	2003 Dec.
	Panasonic Electric Works Building Management Co., Ltd.		LRQA	YKA0773076	2002 Dec.
	Panasonic Logistics Co., Ltd.		JACO	EC00J0062	2000 Jul.
	Panasonic Health Insurance Organization, Science Center of Industrial Hygiene		JACO	EC99J1234	2000 Mar.
Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Americas (Manufacturing)	Panasonic Disc Manufacturing Corporation of America	Wii game discs, Blu-ray discs	UL	A6976	1999 Apr.
	Panasonic Avionics Corporation	Flight entertainment systems	UL	A9111	2001 Jan.
	Panasonic do Brasil Ltda. (Manaus)	Micro wave oven, TV, Audio, Video	BRTUV	A-169	1998 Aug.
	Panasonic Automotive Systems de Mexico S.A. de C.V.	Car audio equipment	BSI	EMS538591	1997 May.
	Panasonic Peruana S.A.	Dry battery	DNV	4882-2007-AE-BRA-RvA	1998 May.
	Panasonic Home Appliances de Mexico S.A. de C.V.	Vacuum cleaners units, Car seat heater	DNV	02193-2005-AE-HOU-ANAB	1999 Feb.
	Panasonic Electric Works Mexicana S.A. de C.V.	Switching device, Lighting fixture, Home appliance	DNV	CERT-02937-2004-AE-HOU-ANAB	2000 Nov.
	Panasonic Centroamericana S.A.	Dry battery	BVI	202242	1999 Mar.
	Panasonic Energy Corporation of America, Lithium Battery Division	Lithium primary battery	BVI	US08000358	1999 Jan.
	Panasonic Energy Corporation of America, Material Division	Materials for batteries	BVI	US08000291	1999 Jan.

Environmental Management

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Americas (Manufacturing)	Panasonic do Brasil Ltda.	Dry battery	BVC	BR 227200	1999 Mar.
	Panasonic Corporation of North America, Panasonic AVC Networks Company America	TV	BSI	EMS39506	1996 May.
	Panasonic Electronic Devices de Tamaulipas, S.A. de C.V.	Speaker, Switch, Sensor	BSI	EMS53398	2000 Jan.
	Panasonic Electronic Devices Corporation of America	Electrolytic capacitor, Car speaker, Aluminum foil	AWM	00012	1997 Aug.
	Panasonic Corporation of North America, Panasonic Automotive Systems Company of America	Automobile equipment	BSI	EMS62857	1998 Nov.
	Panasonic de Mexico, S.A. de C.V.	Color TV, Stereo	TUV	950 99 0441	1999 Jun.

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Europe (Manufacturing)	Panasonic Energy Poland S.A.	Dry battery	KEMA	99654	1998 Nov.
	Panasonic AVC Networks Czech, s.r.o.	TV	SGS	CH07/0610	1998 Nov.
	Multiple-site Certification Group (Vossloh-Schwabe Deutschland GmbH, Vossloh-Schwabe Italia S.p.A., Elektrobau Oschatz GmbH & Co. KG, Vossloh-Schwabe Optoelectronic GmbH & Co. KG, Vossloh-Schwabe France S.a.r.l., Vossloh-Schwabe Thailand Ltd., Panasonic Electric Works Vossloh-Schwabe GmbH)	Lighting fixture-related device	DQS	DE-000421UM	2006 Jan.
	Panasonic AVC Networks Slovakia s.r.o.	DVD recorder	SKQS	359/06	1997 Dec.
	Panasonic Automotive Systems Czech s.r.o	Car audio	CQS	CQS 56/2009	2003 Feb.
	Panasonic Communications Company (U.K.) Ltd.	Digital PBX, Cordless telephone sett	BSI	34828	1996 Sep.
	Panasonic Manufacturing (U.K.) Ltd.	Microwave oven, Set-top box, PC	BSI	4695997	1997 Jul.
	Panasonic Electric Works Europe AG, German factory	Relay, Switching device	BVC	DE6000326B	1998 Oct.
	Panasonic Electric Works Electronic Materials Europe GmbH	Laminate	OQS	089/0	1999 Oct.
	Panasonic Electric Works Electronic Materials Italia S.p.A	Laminate	CSQ ECO	9191.MATS	2002 Dec.
	Panasonic Electric Works Czech, s.r.o.	Switching device	BVQI	104034	2002 Jan.
	Panasonic Electronic Device Slovakia s.r.o.	Tuner, Power supply, Control drives, Speaker	TUV SUD	12 100/104 28395/02 TMS	2000 Jul.
	Panasonic Energy Belgium N.V.	Dry battery	KEMA	8999	1998 Nov.

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Asia/Oceania (Manufacturing)	PT. Panasonic Gobel Energy Indonesia	Dry battery, Battery application equipment, Lithium battery	ABSQEI	32461	1997 Feb.
	Panasonic AVC Networks Johor Malaysia Sdn. Bhd.	Audio and video products	BVQI	200336	1997 Feb.
	Panasonic Electronic Devices Vietnam Co.,Ltd	Tuner, Volume, Encoder, Speaker	BVC	230775	2008 May.
	Panasonic Communications Vietnam Co.,Ltd	BPX, Optical disk drive	BVC	230776	2008 May.
	Panasonic AVC Networks Vietnam Co., Ltd.	TV, BVQI	BVC	230809	2001 Oct.
	Panasonic Electric Works (Ayuthaya) Co., Ltd.	Molding material, Sealant, Wiring device, lighting fixture	LRQA	BGK403378	1999 Nov.
	Panasonic AVC Networks India Co., Ltd.	CRT TV, LCD TV	TUV NORD	04 104 01 0375-E3	2001 Mar.
	Panasonic Carbon India Co., Ltd.	Dry battery carbon rod	TUV	44 104 000064-E3	1998 Jul.
	Panasonic Home Appliances India Co., Ltd.	Rice cooker	TUVCERT	44 104 980085 - E3	1998 Dec.
	Panasonic Energy India Co., Ltd.	Dry battery	TUV NORD	44104010402-E3	1998 Feb.
	Panasonic Refrigeration Devices Singapore Pte. Ltd.	Compressor	TUV SUD PSB	96-0004	1996 Nov.
	Panasonic Factory Solutions Asia Pacific Pte. Ltd	AI machine, SMT machine	TUV SUD PSB	97-0019	1997 Dec.
	PT. Panasonic Electronic Devices Batam	Speaker, Resistor, Transformer, Coil	AJA	AJA 04/7248	2004 Feb.
	Panasonic Electric Works (Thailand) Co., Ltd.	Relay, Home appliance	AJA	AJA 99/1592	1999 Oct.
	PT. Panasonic Shikoku Electronics Batam	HDD fluid bearing motor, Optical disc drive	AJA	AJA02/5622	1999 Nov.
	Panasonic Semiconductor Singapore	Semiconductor	AJA	AJA97/1118	2000 Jul.
	Panasonic Home Appliances (Thailand) Co.,Ltd	Washing machine, Rice cooker, Refrigerator, Electric thermo pot	AJA	AJA98 /1221	1998 Feb.
	Panasonic Electronic Devices Singapore Pte. Ltd.	Surge Absorber, Resistor, SP-CAP, SAW device	AJA	AJA98/1151	1998 Apr.
	Panasonic Electronic Devices (Thailand) Co., Ltd.	Tuner, Speaker, Automotive switch, Metallized film capacitor	SGS	TH08/1765	1998 Jul.
	Panasonic Refrigeration Devices Malaysia Sdn. BHD.	Heat exchanger, Thermostat	AJA	AJA98/1207	1998 Jul.
	Panasonic Electric Works (Khon Kaen) Co., Ltd.	Relay, connector, Switch	LRQA	BCK0403788	2005 Aug.
	Panasonic Electric Works Steel (Thailand) Co.,Ltd.	Conduit tube	SGS	CH99/2182	1999 Dec.
	PT. Panasonic Electric Works Mitra Indonesia	Wiring material, free access floor	TUV	01 104 000465	2000 Apr.
	Panasonic AVC Networks Kuala Lumpur Malaysia Sdn. Bhd.	TV	SIRIM QAS	ER 0102	1997 Jan.
	Panasonic Semiconductor Discrete Devices (M) Sdn. Bhd.	Semiconductor	SIRIM QAS	P07570001	1998 Dec.
	PT. Panasonic Manufacturing Indonesia	Audio equipment, Refrigerator, Air conditioner, Washing machine, Pump	SGS	GB 98/11900	1998 Jan.
	PT. Panasonic Semiconductor Indonesia	Semiconductor	SGS	GB00/18282	2000 Jul.

Environmental Management

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Asia/Oceania (Manufacturing)	PT. Panasonic Electric Works Gobel Manufacturing Indonesia	Lighting fixtur, Electronic ballast, Wiring device	SGS	GB03/60117	2000 Jun.
	PT. Panasonic Shikoku Electronics Indonesia	Camcorder, PDP power supply	SGS	GB06/70180	1998 Jun.
	PT. Panasonic Lighting Indonesia	Palook ball, Fluorescent lamp	LRQA	JKT 0403244	1999 Dec.
	Panasonic Communications (Malaysia) Sdn. Bhd.	Fax machine	SIRIM QAS	P05720001	1997 Oct.
	Panasonic HA Air-Conditioning (M) Sdn. Bhd.	Air conditioner	SIRIM QAS	P06860001	1997 Jun.
	Panasonic Refrigeration Devices Malaysia Sdn. BHD.	Compressor, Device	SIRIM QAS	P06910001	1998 May.
	Panasonic Foundry Malaysia Sdn. Bhd.	Precision casting component	SIRIM QAS	P06920001	1998 Jun.
	Panasonic Compressor Malaysia Sdn. Bhd.	Compressor	SIRIM QAS	P07150001	1998 Feb.
	Panasonic Manufacturing Malaysia Bhd. Main Plant	Dry cell battery, Rice cooker, Electric iron, Home shower	SIRIM QAS	P07560001	1998 Nov.
	Panasonic Manufacturing Malaysia Bhd. Shah Alam II Plant	Fan, Vacuum cleaner	SIRIM QAS	P07560002	1996 Dec.
	Panasonic Electronic Devices Malaysia Sdn. Bhd. (2 sites)	Electrolyte condenser, chip resistor	SIRIM QAS	P7190002	1998 Oct.
	Panasonic Communications Philippines Corporation	Digital imaging system, Optical disc drive	SGS	PH08/0229	2002 Jul.
	Panasonic AVC Networks Singapore Pte. Ltd.	PDP, Home theater system	BV	SGPSGP001177	1997 Feb.
	Panasonic Energy (Thailand) Co., Ltd.	Dry battery, Storage battery, Battry appliance	SGS	TH07/2045	1998 Jul.
	Panasonic Automotive Systems Asia Pacific Co.,Ltd.	Car audio	SGS	TH08/1766	1998 Jul.
	Panasonic Motor (Thailand) Co., Ltd.	Motor	SGS	TH08/1768	1998 Jul.
	Panasonic AVC Networks (Thailand) Co., Ltd.	CRT TV, LCD TV	SGS	TH08/1769	1998 Jul.
	Panasonic Ecology Systems (Thailand) Co., Ltd.	Ventilating fan for ASEAN	SGS	TH08/1767	1998 Jul.
	Panasonic Manufacturing philippines Corporation	TV, Refrigerator, Air conditioner, Washing machine, Dry battery	SGS	GB05/65922	1998 May.

Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
China/Northeast Asia (Manufacturing)	Panasonic Taiwan Co., Ltd.	TV, Air conditioner, Refrigerator, Washing machine	LRQA	TWN0771708	1997 Apr.
	Panasonic Energy (Shanghai) Co., Ltd.	Dry battery	CQC	00107E20532R0M/3100	1998 Apr.
	Panasonic Semiconductor (Shanghai) Co.,Ltd.	Semiconductor	BVQI	271754	2004 Dec.
	Panasonic Electric Works Electronic Materials (Guangzhou) Co.,Ltd.	Laminate	BVQI	100655	2001 Nov.
	Beijing Matsushita Color CRT Co., Ltd.	Color TV CRT	CQC	0106E20521R1L/1100	1996 Dec.
	Panasonic Photo&Lighting Taiwan	Fluorescent lamp	BVC	TW07019E	2007 Nov.
	Panasonic Putian Mobile Communications Beijing Co., Ltd.	Mobile phone	LRQA	C982002	1998 Nov.
	Panasonic Electronic Devices (Jianmen) Co., Ltd.	Electronic device capacitor	CCCI	02108E10136R3M	1998 Dec.
	Panasonic Communications (Dalian) Co., Ltd.	Cordless phone, Optical disc drive	CQC	00106E20109R0M/2100	2006 Oct.
	Panasonic Energy (Wuxi) Co., Ltd.	Lithium ion battery, Nickel hydride battery	CQC	00106E2234R0L/3200	2006 Jun.
	Suzhou Sunx Ltd.	Photoelectric sensor, Proximity sensor	CQC	0105E10379R0M/3200	2005 Nov.
	Panasonic Electronic Devices (Beijing) Co., Ltd.	Tuner, Speaker	CQC	00104E20900R0L/1100	1998 May.
	Panasonic AVC Networks Xiamen Co., Ltd.	Digital camera, Radio, Cassette player, Personal headphone stereo	CQC	00108E220441R1L/3502	1997 Dec.
	Panasonic Manufacturing (Xiamen) Co., Ltd.	Electronic component, Monitor, Motor, Car audio equipment	CQC	00108E22136R1L/3502	2005 May.
	Panasonic Motor (Hangzhou) Co., Ltd.	Compact motor for home appliance and air conditioner	CCIC	00109E2010R0L/3300	1999 Jan.
	Panasonic Semiconductor Parts(Suzhou)Co., Ltd.	Hermatic seals, Metal parts	SAC	00308E10132R2M	2003 May.
	Panasonic Wanbao Home Appliances Electric Iron (Guangzhou)Co.,Ltd.	Iron	GZCC	00705E20105R1M	1998 Dec.
	Panasonic Home Appliances Refrigerator (Wuxi) Co., Ltd.	Refrigerator	CQC	0105E20066R0M/3200	1998 Oct.
	Panasonic Communications Zhuhai Co., Ltd.	Cordless phone, Door phone, Photo-printer	CQC	0106E20702R0M/4404	2004 Mar.
	Panasonic Electric Works Ikeda (Shanghai) Co., Ltd.	Lighting device, Breaker	CQC	0106E20709R1M/3100	2004 Mar.
	Panasonic Plasma Disply (Shanghai) Co., Ltd.	TV	CQC	0106E20848R1L/3100	2004 Sep.
	Panasonic Electric Works (Suzhou) Co., Ltd.	Copper clad laminate, Printed wiring board	CCEMS	01-1998-071	1998 Dec.
	Panasonic Storage Battery (Shenyang) Co.,Ltd.	Small sealed lead storage battery	CEPREI	01208E10463R3L	1998 Dec.
	Panasonic Electric Works Wanbao (Guangzhou) Co., Ltd.	Home appliance	CEPREI	01205E10646R2M	1999 Oct.
	Panasonic Semiconductor (Suzhou) Co.,Ltd.	Semiconductor	CEPREI	01206E10055R0M	2006 Jan.
	Panasonic Carbon (Anyang) Co., Ltd.	Dry battery carbon rod	BCC	01608E20243R0M	1999 Feb.
	Panasonic Welding Systems (Tangshan) Co., Ltd.	Welding equipment	CCCI	02105E10123R2M	1998 Nov.
	Multiple-site Certification Group (Panasonic Home Appliances (Hangzhou) Co., Ltd., Panasonic Home Appliances (Hangzhou) (Export Processing Zone)Co., Ltd., Panasonic Home Appliances Rice Cooker (Hangzhou) Co., Ltd.)	Air conditioner compressor	CCCI	02107E10081R3L	1998 Dec.
	Panasonic Electric Works Electric Materials (Suzhou) Co., Ltd.	Laminate	CCCI	02107E10302R3M	1998 Dec.
	Panasonic Home Appliances Microwave Oven (Shanghai) Co., Ltd.	Microwave oven	CCCI	02107E10348R3L	1998 Aug.
	Panasonic Electronic Devices (Jianmen) Co., Ltd. (Beijing)	Capacitor	CCCI	U06607E0198R3M	1998 Dec.

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Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
China/Northeast Asia (Manufacturing)	Panasonic Home Appliances Air-Conditioning (Guangzhou) Co., Ltd.	Air conditioner	CCCI	02107E10411R3L	1998 Aug.
	Panasonic Wanbao Compressor (Guangzhou) Co., Ltd.	compressor	CCCI	02107E10415R3L	1998 Aug.
	Panasonic AVC Networks Shandong Co., Ltd.	TV	CCCI	02108E10029R4M	1998 Nov.
	Panasonic Refrigeration Devices (Wuxi) Co., Ltd.	Refrigerator compressor	CCCI	02108E10045R3L	1998 Oct.
	Panasonic Ecology Systems Guangdong Co., Ltd.	Ventilating fan, Kitchen-hood, Ceiling fan	CCCI	02108E10268R3L	1998 Sep.
	Panasonic Energy Taiwan Co., Ltd.	Dry battery carbon rod, Gouging carbon, Exterior case for lithium ion battery	TUV NORD	44 104 082349	1998 Jul.
	Panasonic Magnetron (Shanghai) Co., Ltd.	Magnetron	SQC	04207E20033R2M	1998 Jun.
	Ohms Electronics (Shenzhen) Co., Ltd.	Wiring device, Intercom	SSCC	061-03-E1-0023-R1-M	1998 Dec.
	Panasonic Electric Works (Beijing) Co., Ltd.	Lighting fixture, Wiring device, Home appliance	CEC	05506E10107R2L	2000 Oct.
	Panasonic Electric Works Information Equipment (Shanghai) Co., Ltd.	Switch, Socket, Circuit breaker	LRQA	QAC0002012	2001 Jan.
	Panasonic Electric Works Automation Controls (Beijing) Co., Ltd.	Switching device	CEC	05508E10208R3L	1999 Nov.
	Panasonic Home Appliances Washing Machine (Hangzhou) Co., Ltd.	Washing machine	WIT	15/06E6064R20	2006 Oct.
	Panasonic Ecology Systems Guangdong Co., Ltd. (Beijing)	Air-handing unit, Fan coil unit	CCCI	U06608E0134R3M	1998 Nov.
	Panasonic Electric Works (Electrical Construction Materials) Taiwan Co., Ltd.	Wiring device, Lighting fixture	BSMI	4A6E002-03	1999 May.
	Panasonic System Solutions Suzhou Co., Ltd.	LL system, Security camera	SGS	CH05/0095	1998 Oct.
	Panasonic Electronic Devices (Tianjin) Co., Ltd.	Fixed resistor, Capacitor	SGS	CN08/10207	1999 Jan.
	Panasonic Electric Works (Shanghai) Co., Ltd.	Bath tub, Dressing counter	BSI	EMS69083	2002 Aug.
	Panasonic Automotive Systems Dalian Co., Ltd.	Car audio	CCCI	EJ07-052	1998 Dec.
	Panasonic Motor (Zhuhai) Co., Ltd.	AV/OA motor	SGS	CN08/30318	1998 Oct.
	Panasonic Electric Works Automation Controls (Xiamen) Co., Ltd.	Relay, Socket, Micro switch	CCIC	04005E10387R0M	2005 Feb.
	Panasonic Electric Works Automation Controls (Shanghai) Co., Ltd.	programmable logic controller, Inverter	LRQA	QAC0052015	2001 Jan.
	Panasonic Electric Works Electronic Materials (Shanghai) Co., Ltd.	Laminate	LQRA	QAC0031028/A	2004 Aug.
	Panasonic Factory Solutions Suzhou Co., Ltd.	Electronic component mounting and peripherals	LRQA	QAC0051044	2005 Jun.
	Panasonic Electric Works Electronic Materials Taiwan Co., Ltd.	Copper clad laminate, Prepreg	SGS	ETW00061	1998 Dec.
	Panasonic Electronic Devices (Qingdao) Co., Ltd.	Transparent touch panel, Switch	CCCI	U06606E0068R2L	1997 Dec.
	China Hualu Panasonic Avc Networks Co., Ltd.	DVD equipment, LCD projector, Home theater system, Micro-compo	CCCI	U06607E0188R3L	1998 Jun.
	Panasonic Energy (Zhuhai) Co., Ltd.	Exterior case for lithium ion battery	CCCI	U06608E0166R3L	1998 Sep.
	Panasonic Lighting (Beijing) Co., Ltd.	Fluorescent lamp	CCCI	02108E10285R2M	2002 Aug.
Type	Sites	Major Products, Business Fields	Certification Organizations	Certification Number	Date of Registration
Outside Japan (Non-manufacturing)	Panasonic Corporation of North America	Regional headquarters in North America	UL	A8673	2000 Apr.
	Panasonic Electronic Devices (Hong Kong) Co., Ltd.	Sales of electronic components	UL	A7150	1999 Apr.
	Multiple-site Certification Group (Panasonic Asia Pacific Pte. Ltd., Panasonic Industrial Asia Pte. Ltd., Panasonic Trading (S) Pte. Ltd.)	Regional headquarters in Asia	TUV SUD PSB	99-0057	1999 May.
	Panasonic Australia Pty. Ltd.	Sales of home appliances and system products	SGS	AU04/2019	2004 Apr.
	Panasonic (Thailand) Co., Ltd.	Investment and indirect business support	SGS	TH08/1764	1998 Jul.
	Panasonic Siew Sales (Thailand) Co., Ltd.	Sales of AV, system and other products	AJA	AJA99/1542	1999 Sep.
	Panasonic A.P. Sales (Thailand) Co., Ltd.	Sales of electronic and other products	AJA	AJA99/1543	1999 Sep.
	Panasonic New Zealand Ltd.	Sales of home appliances and system products	TELARC SAI LTD	73	2004 Mar.
	Panasonic Electronic Devices Europe GmbH	Sales of electronic components	TUV SUD	12 100/104 28395 TMS	1999 Jan.
	Panasonic Corporation of North America Home Appliance Group	Designing and development of vacuum cleaners	DNV	02193-2005-AE-HOU-ANAB	1999 Feb.
	Panasonic Singapore Laboratories Pte. Ltd.	Research on AV signal processing	TUV SUD PSB	99-0052	1999 Mar.
	Panasonic HA Air-Conditioning R&D (M) Sdn. Bhd.	Design and development of air conditioners	SIRIM QAS	P06900001	1998 Oct.
	Panasonic Ecology Systems Hong Kong Co., Ltd.	Marketing and IPO for the overseas operation of PES Group	UL	A7069	1999 Mar.
	PT. Panasonic Gobel Indonesia	Sales of home appliances and other products	LRQA	JKT 0500203	2004 May.
	Panasonic Malaysia Sdn. Bhd.	Sales of home appliances and system products	SIRIM QAS	P06400001	2003 Dec.
	Panasonic Vietnam Co., Ltd.	Regional headquarters in Vietnam	BVC	230785	2008 May.

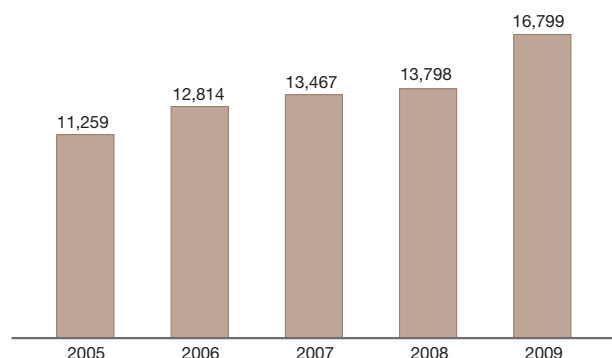
Environmental Management

Environmental Accounting

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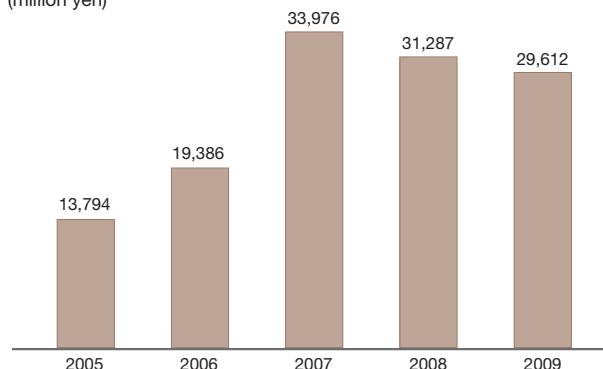
Trend in investment

(million yen)



Trend in economic benefit

(million yen)



Environmental accounting

Accounting period: From April 2008 to March 2009

Companies covered: Panasonic Corporation and its affiliated companies inside and outside Japan

(units: Million yens)

	Classification by the Ministry of the Environment of Japan	Investments ^{*1}	Expenses ^{*1,2}	Economic benefit
For Products	R&D cost	1,198	12,356	—
For Manufacturing	Global environmental conservation costs	8,590	3,798	7,841
	Pollution prevention costs	4,569	5,584	—
	Resource circulation costs	880	5,215	18,999
	Upstream and downstream costs	1,130	6,522	2,706
	Administration costs	97	9,453	—
	Environmental remediation costs	335	4,002	—
For Everybody, Everywhere	Social activity costs	—	215	—
Total		16,799	47,146	29,546

Environmental conservation benefits (in physical terms)

	Categories	Emission reduction	Reference indicator: environmental impact	
		Fiscal 2009	Fiscal 2008	Fiscal 2009
For Products	CO ₂ emissions	—	—	78.00 million tons
For Manufacturing	CO ₂ emissions from production activities	500,000 tons	3.97 million tons	3.47 million tons
	GHG emissions (other than CO ₂) ^{*3}	100,000 tons	300,000 tons	200,000 tons
	Release and transfer of Key Reduction-target Chemical Substances	700 tons	4,700 tons	4,100 tons
	Final disposal of waste	12,900 tons	31,500 tons	18,600 tons
	Water consumption	6 million m ³	59 million m ³	53 million m ³
	CO ₂ emissions from transportation activities	170,000 tons	1.05 million tons	880,000 tons

^{*1} When an entire amount of investment and expenses cannot be regarded as environmental conservation costs alone, the difference or appropriate portions (divided proportionally) are calculated.

^{*2} Expenses include a cost of capital investment depreciation.

^{*3} GWP ton-CO₂ (GWP: Global Warming Potential).

History of Environmental Activities

(As of March 31, 2009)

Era	Panasonic Group	World	Japan
1970s			1967 •Basic Law for Environmental Pollution Control enacted
			1968 •Air Pollution Control Law enacted
	1970 •Pollution Survey Committee established		1970 •Water Pollution Control Law enacted •Waste Disposal and Public Cleansing Law enacted
			1971 •Environment Agency established
	1972 •Environmental Management Office established	1972 •U.N. Conference on Human Environment held in Stockholm (Declaration of Human Environment adopted)	
		1973 •First oil shock occurred	
	1975 •Environmental Management Regulations enacted		
1980s		1979 •Second oil shock occurred	1979 •Energy Conservation Law enacted
		1985 •Vienna Convention for the Protection of the Ozone Layer adopted	
		1987 •Montreal Protocol on Substances that Deplete the Ozone Layer adopted •World Commission on Environment and Development (the Brundtland Commission) advocated the concept of sustainable development	
	1988 •CFC-reduction Committee established		1988 •Ozone Layer Protection Law enacted
	1989 •Environmental Protection Promotion Office established		
1990s	1991 •Matsushita Environmental Charter (Environmental Statement and Code of Conduct) enacted •Matsushita Product Assessment adopted and implemented		1991 •Keidanren Global Environment Charter enacted by Japan Federation of Economic Organizations •Law for Promotion of Effective Utilization of Resources enacted
	1992 •Environmental Policy Committee established	1992 •The Earth Summit held in Rio de Janeiro, Brazil; Agenda21 and Rio Declaration on Environment and Development adopted •United Nations Framework Convention on Climate Change adopted	
	1993 •Matsushita Environmental Voluntary Plan (Year 2000 targets) adopted •Matsushita Group's global environmental internal audits launched		1993 •The Basic Environment Law enacted
	1995 •Acquired Environmental Management System Certification at AV Kadoma Site (first in the Matsushita Group)	1995 •First Conference of Parties to the U.N. Framework Convention on Climate Change (COP1) held in Berlin	1995 •Containers and Packaging Recycling Law enacted
		1996 •ISO 14001 International Standard on Environmental Management Systems launched	
	1997 •Corporate Environmental Affairs Division (CEAD) established •Environmental Conference established (held semi-annually)	1997 •COP3 held in Kyoto and adopted the Kyoto Protocol	1997 •Keidanren Appeal on the Environment announced by Japan Federation of Economic Organization
	1998 •Love the Earth Citizens' Campaign commenced •Recycling Business Promotion Office established •First environmental report (1997) published		1998 •Home Appliance Recycling Law enacted (took effect in 2001) •Law Concerning the Promotion of the Measures to Cope with Global Warming enacted •Energy Conservation Law revised: Top Runner Approach introduced
	1999 •Green Procurement launched •Chemical Substances Management Rank Guidelines established •Acquired ISO14001 Certification in all manufacturing business units		1999 •PRTR (Pollutant Release and Transfer Register) Law enacted
	2000 •Lead-free Solder Project commenced •Held first environmental exhibition for general public in Osaka	2000 •Global Reporting Initiative (GRI) issued The Sustainability Reporting Guidelines	2000 •Basic Law for Establishing the Recycling-based Society enacted •Law for Promotion of Effective Utilization of Resources enacted
	2001 •Environmental Vision and Green Plan 2010 adopted •Held Environmental Forum in Tokyo and Freiburg, Germany •Matsushita Eco Technology Center launched	2001 •Reached final agreement on the actual rules of Kyoto Protocol in COP7 held in Marrakesh	2001 •Reorganized into the Ministry of the Environment •Law Concerning Special Measures against PCBs enacted
2000s	2002 •Panasonic Center Tokyo opened	2002 •Johannesburg Summit (Rio+10) held	2002 •Kyoto Protocol ratified •Vehicle Recycling Law enacted •Law for Countermeasures against Soil Pollution enacted
	2003 •Declared 'Coexistence with the Global Environment' as one of the twin business visions •Factor X advocated as an indicator for Creating Value for a New Lifestyle •Completely introduced lead-free soldering globally •Super GP Accreditation System launched •Achieved zero waste emissions in Japanese manufacturing business sites (ongoing program) •Held Environmental Forum in Tokyo	2003 •EU's WEEE Directive was promulgated	
	2004 •Environmental Vision and Green Plan 2010 revised •PCB Management Office established •Superior GP Accreditation System launched		2004 •Prohibited manufacturing and use of products containing asbestos in principle
	2005 •Participated in Expo 2005 Aichi, Japan as an official sponsor •Green Plan 2010 revised •Continued with the nationwide Lights-out Campaign •3R Eco Project launched •Completed the elimination of specified substances (6 substances)in products •Matsushita Group's Green Logistics Policy established •CF Accreditation System introduced •Eco & Ud HOUSE opened •Installed the first commercial household fuel cell cogeneration system in the new official residence of the Japanese Prime Minister •Won the first place in Nikkei Environmental Management Survey	2005 •Kyoto Protocol entered into force	2005 •Expo 2005 Aichi, Japan held •National campaign against global warming "Team -6%" launched •Marking for the presence of the specified chemical substances for electrical and electronic equipment (J-Moss) established
	2006 •Environmental specialist position established •ET Manifest introduced into all Panasonic's manufacturing sites in Japan •Expanded the scope of CF Accreditation System globally •Realized lead-free plasma display panels and introduced them to the market •Full-fledge introduction of biodiesel fuel in logistics	2006 •Restriction of Hazardous Substances (RoHS) Directive took effect in EU	2006 •Relief Law for Asbestos Victims enacted •Energy Conservation Law revised: new cargo owner obligations, widened product scope of its application, and top runner standard revision
	2007 •Energy conservation activities at our factories in Malaysia approved as CDM project by the U.N. •A new environmental mark introduced •Panasonic Center Beijing opened •Environmentak Forum in China held •"Declaration of Becoming an Environmentally Contributing Company in China" announced •Panasonic 'eco ideas' Strategy announced	2007 •The Fourth Assessment Report of the Intergovernment Panel on Climate Change (IPCC) released •Registration, Evaluation, Authorisation and Restriction of Chemicals entered into force in EU •Framework for CO ₂ reduction agreed at Heiligendamm Summit (G8) •The Bali Road Map for the post Kyoto Protocol agreed at COP13 •Administration on the Control of Pollution Caused by Electronic Information Products (China RoHS) came into effect	
	2008 •Established the Corporate CO ₂ Reduction Promoting Committee •Held environmental exhibitions, 'eco ideas' World at seven venues in 6 cities in Japan •Home Appliances Company announced environmental statement in which named its kusatsu site as 'eco ideas' Factory •Announced 'eco ideas' Declaration in Europe •Implemented Panasonic Eco Relay in 39 countries and regions •Established Environmental Strategy Research Center	2008 •G20 (conference of key countries' environmental and energy ministers) held •G8 Hokkaido Toyako Summit held	2008 •Japan's Voluntary Emission Trading Scheme started
	2009 •Opened 'eco ideas' House	2009 •China WEEE law promulgated	2009 •Energy Conservation Law amended: Covered area expanded from factories to commercial sector facilities

Standards for Calculating Environmental Performance Indicators

■ Reporting period

April 1, 2008 - March 31, 2009

■ Scope of this report

'eco ideas' for Products: All products developed during the reporting period

'eco ideas' for Manufacturing: Global manufacturing sites that have established environmental management systems

'eco ideas' for Everybody, Everywhere: A scope varies depending on each initiative

■ Calculation standard

Item	Indicator	Calculation method
'eco ideas' for Products		
Green Products (GP)	Number of models with No.1 energy-efficiency performance	A No.1 energy-efficiency model is defined as those with industry-leading performance regarding energy-efficiency (an amount of annual power consumption, etc.) as of release dates. The indicator stands for a number of such models. Outside Japan, models which have obtained a top-class label in energy-efficiency labeling systems are regarded as No.1 energy-efficiency models because it is difficult to collect information about competitors' products in some countries and regions.
	Number of Superior GPs	The indicator stands for a number of models with industry-leading environmental performance (Superior GPs). The environmental performance mentioned above mainly covers energy-efficiency performance, resource-saving performance and management of chemical substances, and models with No.1 energy-efficiency are also regarded as Superior GPs in an energy-efficiency category.
	Breakdown of energy-efficient models	The indicator stands for rates of our models which are ranked in No.1, top 30% and bottom 30% (models not covered are categorized in a mid-rank) in each product category, respectively based on The Energy-saving Performance Catalog published by the Energy Conservation Center, Japan.
'eco ideas' for Manufacturing		
Factory Energy Conservation	Emission amount of CO ₂ with the use of fuel	Make calculations in accordance with the Guidelines for Calculating Greenhouse Gas Emissions (Ver.2.2) published by the Ministry of the Environment and Ministry of Economy, Trade and Industry, Japan
	CO ₂ emission coefficient for the purchased electricity	[Japan] CO ₂ emissions per basic unit for power sources at the receiving end, listed in the Environmental Action Plan of the Electric Industry issued by the Federation of Electric Power Companies of Japan. CO ₂ emissions factors of purchased electricity in Japan used for individual fiscal years are: 0.425kgCO ₂ /kWh (fiscal 2007) and 0.410kgCO ₂ /kWh (after fiscal 2008) due to the difference of time between public announcement of CO ₂ emissions factors and Panasonic's formulation of the reduction plan. [Outside Japan] Numerical values for respective countries listed on the Calculation Tools in GHG Protocol website by World Business Council for Sustainable Development (WBCSD) and World Resource Institute (WRI). Levels for 2002 (Electricity-Heat Steam Purchase_tool1.0_final) has been used for all years.
	CO ₂ emissions per basic unit	[Japan] CO ₂ emissions / (nominal production / corporate goods price index *) [Global] CO ₂ emissions / (consolidated sales / corporate goods price index *)
	Emission amount of greenhouse gases other than CO ₂	Convert emission amounts of each gas into CO ₂ emission amount using the Global Warming Potentials listed in the secondary evaluation report (1995) of the Intergovernmental Panel on Climate Change (IPCC).
	Affected chemical substances	Chemical substances specified in Chemical substances management ranking guideline Ver.3.1 (including Type 1 and Type 2 chemical substances specified in the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR [Pollutant Release and Transfer Register] Law)
Chemical Substance Management at Factories	Emission amount	Emission amount includes emissions to the atmosphere, public waters, and soil.
	Transfer amount	An amount of substances transferred as wastes (not including those recycled free of charge or with any payment under the Waste Management Law), as well as those discharged into the sewage system.
	Removal treatment amount	An amount of substances converted into other substances through neutralization, decomposition or other chemical treatment.
	Recycled amount	An amount of substances recycled with revenue, as well as those recycled free of charge or with any payment under the Waste Management Law (Transferred amounts differ from those reported under the PRTR Law).
	Amount consumed	An amount of substances that have been changed to other substances as a result of chemical reactions, and those that are contained in or accompanying products shipped out of factories.
Reducing Waste from Factories	Generated amount	Total amount of industrial waste, general waste and valuable items
	Valuable item	Waste that can be sold to recycling companies or disposal companies for revenues
	Basic unit	Generated amount of waste and valuable item / (consolidated sales / corporate goods price index *)
	Recycling rate	Recycled amount / (recycled amount + final disposal amount) (The recycled amount includes thermal recycling. Incinerated residue is included in the final disposal amount.)
Effective Use of Water Resources	Water usage amount	Total water usage used in production (total usage amount of tap water, industrial water, river and lake water, and groundwater)
	Basic unit	Water usage amount / (consolidated sales / corporate goods price index *)
Management of Factory Environment	NO _x emission amount	Total weight of nitrogen oxide emitted from smoke-generating facilities regulated by the Air Pollution Control Law (similar facilities outside Japan), which is calculated for NO ₂
	SO _x emission amount	Total weight of sulfur oxide emitted from smoke-generating facilities regulated by the Air Pollution Control Law (similar facility outside Japan), which is calculated for SO ₂
	COD pollution load	Total weight of the chemical oxygen demand of waste water discharged from a business unit, which is regulated by law, ordinance or agreement, to public waters
	Nitrogen pollution load	Total weight of nitrogen in nitrogen oxide of waste water discharged from a business unit, which is regulated by law, ordinance or agreement, to public waters
	Phosphorous pollution load	Total weight of phosphorous in phosphorus compound of waste water discharged from a business unit, which is regulated by law, ordinance or agreement, to public waters
Green Logistics	Energy consumption	Energy Conservation Law Guide book for consignors concerning the rational use of energy published by the Agency for Natural Resources and Energy (Scope: transportation during which cargo is owned by the Panasonic Group)
	CO ₂ emissions	Based on the energy consumption and other data calculated in the process specified above, make calculations in accordance with the Guidelines for Calculating Greenhouse Gas Emissions (Ver.2.2) published by the Ministry of the Environment and Ministry of Economy, Trade and Industry, Japan
	CO ₂ emissions per basic unit	CO ₂ emissions / weight of products (components) transported
Product Recycling	Recycling rate	The rate is defined in the Law for Recycling of Specified Kinds of Home Appliances and calculated as follows: Weight of materials and components that can be either sold or provided free of charge / Weight of products collected for recycling
	Amount collected in Europe	Calculated by multiplying sum of weight of collected products by collection system by Panasonic share (in collection system) of product weight put on the market.
	Amount collected in USA	Weight collected according to state laws and through voluntary measures
'eco ideas' for Everybody, Everywhere		
Promotion of the LE Campaign	Ratios of LE families	Number of employees in a scope of organizations who participated in any of the following five key LE initiatives / Total number of employees in a scope of organizations Five key LE initiatives: Household eco-account book initiative, plastic shopping bag reduction campaign, environmental volunteer activities, 'Eco Challenge :Select Energy Efficient Products' and car-free day A scope of organizations: Panasonic Corporation, companies that have similar labor agreements and participate in the LE Campaign, PanaHome and other companies that participate in the Campaign

* Corporate goods price index

Corporate price index adjusted based on the average corporate goods price index (electrical and electronic equipment) published by the Bank of Japan for the period from April 2008 to March 2009. The base years are: 1990 for CO₂ emissions per basic unit in Japan and 2000 for global CO₂ emissions per basic unit, waste and valuable resource generation and water usage per basic unit.