

Global Environmental Initiatives

The Yazaki Global Environment Charter established by the Yazaki Group in 1997 clearly declares the Group's commitment to protect the environment and enrich society in the Environmental Policy and the Action Guidelines.

We contribute to the realization of a sustainable society through our corporate activities as well as through the actions of individual employees.

Yazaki Group Corporate Policy

A Corporation in Step with the World
A Corporation Needed by Society

Fundamental Management Policy

Contribute to a prosperous future society through business focused on the environment and security.

(Article of No. 3)

Yazaki Global Environment Charter

(Adopted in 1997; revised in 2002, 2006, and 2012)

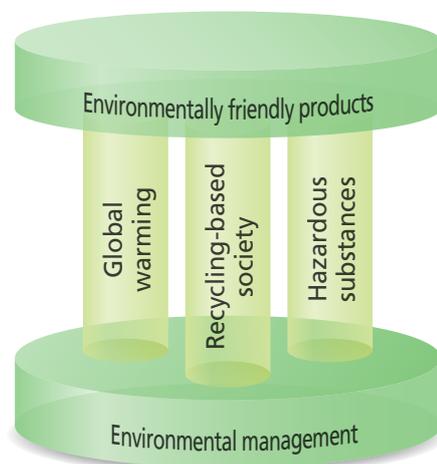
Environmental Policy

The Yazaki Group recognizes that the preservation of the global environment and its resources is a serious concern shared by all mankind. In line with our Fundamental Management Policy, we will strive to make the world a better place and work to enrich our society through environmentally sound business activities and employee volunteerism.

Action Guidelines

- 1. Enhance environmental management**
Raise environmental awareness among all employees and empower them as individuals to take responsible actions for environmental preservation.
- 2. Take action to prevent global warming**
Reduce greenhouse gas emissions at the production process and by contribution of energy-saving products.
- 3. Promote the efficient use of resources towards the formation of a recycling-based society**
Utilize resources by promoting waste recycling and reduce discharges.
- 4. Manage and reduce environmentally hazardous substance**
Improve the management of environmentally hazardous substances in the products and the production process.
- 5. Develop environmentally friendly products**
Consider global warming, recycling, and environmentally hazardous substances when developing products.

Organization of the Action Guidelines





Environmental Management

The Yazaki Group as a whole promotes environmental conservation activities while sharing issues globally.

Yazaki Environmental Activity Plan (Evaluation of the results of FY 2015 and targets for 2016)

Evaluation standard: ●: 100% achieved, ▲: more than 90% and less than 100% achieved, ✕: less than 90% achieved

Item	Target state or value	Target achievement year	Results of FY 2015	Evaluation	Target for FY 2016
Manage and reduce environmentally hazardous substances					
Compliance with the EU ELV Directive	Strict compliance with ANNEX II of the EU ELV Directive	2017	Identified products to be switched	●	Implement measures according to the revision of ANNEX II
Response to the REACH regulation and substances requiring authorization	Ensure compliance with revised REACH regulations and respond to customer requests	—	Switched specific phthalate ester in response to customer requests	●	Continue ongoing efforts to comply with laws and regulations and meet customer requests
Compliance with the EU RoHS Directive	Strict compliance with the EU RoHS Directive	2018	Set internal deadline and identified products to be switched	●	Promote the switching of specific phthalate ester
Response to regulations on VOCs in Chinese vehicle cabins	Customer requests for VOCs in vehicle cabins are accurately grasped and Yazaki's response to them is clearly defined	2015	Identified customer requests and summarized Yazaki's efforts to reduce VOCs	●	Strengthen an evaluation structure for components with high VOC volatility
Response to the EU Biocidal Product Regulation	A structure to comply with the EU Biocidal Product Regulation has been built and put into operation in each development department	2016	Built a structure to check compatibility of newly developed products	●	Confirm the operating status of the structure
Reduction of VOC (sites)	Reduce VOC emissions by 30% from FY 2000 at JAPIA*target factories	2015	Reduced total VOC emissions by 49.3% from FY 2000	●	Reduce total VOC emissions by 30% from FY 2000
Take action to prevent global warming					
Reduction of CO ₂ emission	Reduce CO ₂ emissions per unit by 20% from FY 2010 globally	2020	Reduced CO ₂ emissions per unit by 27.0% from FY 2010 globally	●	1) Reduce CO ₂ emissions per unit by 16% from FY 2010 globally 2) Set targets for 2020 and beyond
Promote the efficient use of resources toward the formation of a recycling-based society					
Reduction of Waste	1) Promote reduction of waste globally 2) Reduce waste by 10% from FY 2010 at all sites in Japan	2020	1) Achieved targets for each region 2) Reduced waste by 17.3% from FY 2010 at all sites in Japan	●	1) Achieve the target in each region 2) Reduce waste by 17.3% from FY 2010 at all sites in Japan (Maintain performance achieved in FY 2015)
Develop environmentally friendly products					
Promotion of environmentally friendly design	Ensure that the company is capable of developing and designing products that are environmentally sound throughout their lifecycle	—	Implemented environmentally friendly design based on the Environmentally Friendly Products Certification Criteria	●	Continue practicing environmentally friendly design based on the Environmentally Friendly Products Certification Criteria
Enhance environmental management					
Environmental Communication	Ensure that each factory holds stakeholder meetings and continuously reflects feedback from the meetings in their operations	—	Published site reports and held stakeholder meetings at production sites in Japan	●	Continue to publish site reports and hold stakeholder meetings
Environmental Education	Ensure that environmental training is conducted according to the plan	—	Conducted technical training at each site/division in Japan	●	Continue technical training
Environmental Compliance	Ensure that a system is in place to identify and assure compliance with laws and regulations applicable to each site and that periodic compliance audits are conducted	—	Globally conducted audits at 71 sites	●	Conduct audits on a regular basis in each region
	Ensure that a structure is in place to meet the legal requirements of each country and customer requests regarding chemical substances contained in products	—	Checked the management status based on IMDS/SOC measurement data	●	Check the management status and review the structure in a consistent continuous manner
Response to the revisions to ISO14001 standard	Ensure that the structure is reviewed in light of the ISO 14001:2015 standard	2017	Checked the shift plan to the new standard at each site in each region	●	Promote the shift plan to the new standard at each site in each region

*JAPIA: Japan Auto Parts Industries Association



Environmental Management

Global Environmental Management

Environmental Management Promotion System

In an effort to fulfill global stakeholders' expectations and requests regarding environmental conservation efforts, the Yazaki Group has established and has been operating a global environment management system.

Each year in May, the Yazaki Environmental Committee, a deliberation and decision-making body for environmental management chaired by President Yazaki, is held to deliberate on domestic and overseas issues. The agenda of the Yazaki Environmental Committee are shared with persons responsible for environmental affairs and those in charge of environmental practice in each region at the Global Committee of Environment to align our efforts to solve the issues. Moreover, we have divided our global network of sites into five regions—the Americas, Europe and Africa, China, Asia and Oceania, and Japan—and built a management system tailored to the laws, culture, and customs of each region. In Japan, we examine regional issues and action policies on how to deal with them in the Environment Product Design Assessment Committee and the Production Environment Committee, while company-wide efforts are examined in the Environmental Information Committee to ensure collaboration among all related departments.

Regional Environmental Committees



Factory tour by the Americas Environmental Committee participants

To accomplish global challenges

In an effort to promote environmental conservation activities while encouraging inter-regional collaboration, key issues to be addressed globally, such as the mitigation of climate change and the management of chemical substances, and their measures are shared and discussed in the Global Committee of Environment. In 2015, the committee was held under the theme of the Yazaki Environmental Activity Plan and the enrichment of the Yazaki Environmental Assurance System, where views were exchanged to ensure a shared understanding and specific activities were examined.

FY 2015 Meeting Dates of Regional Environmental Committees

Region	Dates
Americas	July 14-15, 2015
Europe & Africa	May 31 - June 2, 2016
China	January 26-27, 2016
Asia & Oceania	First meeting: November 24, 2015 Second meeting: May 31, 2016
Japan	May 12, 2015
Global Committee of Environment	First meeting: July 20-21, 2015 Second meeting: March 18, 2016

Global Environmental Audit

Domestic and overseas sites of the Yazaki Group have established and operate an ISO 14001 compliant environmental management system. As of June 2016, 241 sites centering on production sites are certified to ISO 14001.

Moreover, an environmental audit is conducted on a regular basis at domestic production sites, branches, and offices and overseas production sites. In 2015, an environmental audit was carried out at 17 sites in the Americas region, 17 sites in the Europe and Africa region, 2 sites in the Asia and Oceania region, 5 sites in the China region, and 30 sites in Japan.

In the China region, in particular, the management of chemical substances was checked and a statutory environmental audit was conducted at two production sites. The audit was focused on the GEMBA (on-site) check of the production process and the confirmation of details of contracts concluded with suppliers. These sites investigated the cause and are improving the points indicated by the audit.



GEMBA check

Biodiversity Conservation Efforts

There is nature, such as forests, mountains, rivers, and seas, on Earth where a variety of living creatures live. They have their own role and live while connecting with and supporting one another. Our business activities and livelihood are also supported by the benefits that nature offers to us. Today, however, the natural environment is deteriorating and living creatures are disappearing rapidly, and companies are required to devise solutions and make efforts to promote biodiversity-friendly business and create a new symbiotic relationship with nature.

The Yazaki Group aims to continue its biodiversity conservation activities by promoting and sharing such activities globally while giving due consideration to the culture and customs of each location or region.

Environmental Management in Japan

Environmental Education

In an effort to develop people who can think and carry out environmental efforts on their own, we conduct company-wide training and specialized environmental training based on the training system of the Yazaki Group.

Company-wide training geared to new employees, including newly appointed general managers and persons assigned to overseas sites, is conducted to deepen their understanding of the significance of environmental conservation and share the Yazaki Group's environmental efforts with them.

We also conduct specialized environmental training targeting persons supervising and those in charge of specialized work with the aim of acquiring professional skills required for carrying out environment-related specialized work.

Number of employees who underwent environmental training (FY 2015)

Category	Target	Participants
Company-wide education training	New employees	109
	New leaders	100
	Environmental training for newly appointed general managers	32
	Employees assigned overseas	161
	Sub-total	402
Specialized environmental training	Chemical substance management staff	6,076
	Environmental legislation administrators and staff	5,877
	ISO14001:2015 Standards training	153
	Sub-total	12,106
Total		12,508



Training

Topics

Volunteer Forest Development event in Yusuhara Town, Kochi:

In collaboration with Yusuhara Town, Kochi, and the Yusuhara Forest Cooperative, we have been promoting the Woody Biomass Regional Circulation Model Project since 2005.

Moreover, we jointly maintain the Kujukumagari Pass in Yusuhara Town as the Yazaki Forest. Each year on April 29 (holiday in Japan), we conduct the Volunteer Forest Development event.

In 2015, about 120 employees from the Yazaki Group participated in a thinning operation, where they worked hard despite the unfamiliarity of the task. The participants commented that the thinning operation allowed sunlight to stream into the forest, making it a much brighter place. They also enhanced their awareness of the significance of

Biodiversity conservation effort

environmental conservation as they strolled on Therapy Road to the Yazaki Forest. Many of the participants experienced an overnight farm stay and deepened their friendships with the residents of Yusuhara Town.



Participants



Tree thinning



Management of chemicals

We promote the appropriate management of environmentally hazardous substances to fully comply with laws and regulations and meet the customer requests.

Management of chemicals

Management of chemical substances in the products

The Yazaki Group has established and has been operating systems worldwide to ensure compliance with the laws and regulations related to chemical substances in each country and meet customer requests for the control of chemical substances.

For legal requirements in each country, we collect revision and enforcement information and make advance preparations for chemical substances expected to be regulated in near future to ensure prompt response.

In 2015, as a continued activity since last year, we reinforced systems for country-specific ELV and RoHS regulations to be enforced in each country. Moreover, in an effort to appropriately respond to ever changing environmental laws and regulations, we built a system that facilitates the sharing of information regarding their impact on us and a concept of action with all departments involved.

Appropriate PCB Waste Disposal

The Yazaki Group in Japan promotes the appropriate storage, management, and detoxification of PCB waste in accordance with the Act on Special Measures concerning the Promotion of Proper Treatment of Polychlorinated Biphenyl (PCB)* Waste. Moreover, we seek to prevent any loss, breakage, or leakage of PCB waste by appointing a specially controlled industrial waste manager at each storage site and enduring that the locking of storage areas, regular inspections, and seismic countermeasures are implemented.

In 2015, we outsourced the detoxification of four units, including transformers and condensers, and confirmed that the treatment was completed. In the future, we will continue the detoxification of PCB waste in a planned and consistent manner.

* **Polychlorinated biphenyl:** It used to be used for various purposes, such as insulating oil for electric equipment, including transformers and condensers. However, its production is prohibited today as it was found harmful.

Reducing VOC emissions

For volatile organic compounds (VOC) that generate sources of air pollution, such as suspended particulate matters and photochemical oxidants, the domestic Yazaki Group promotes reductions in VOC emissions via process improvement and design change toward the achievement of the target voluntarily set by the industry group to which the Group belongs.

Kan Kogyo Co., Ltd., a printing company in Makinohara City, Shizuoka, uses VOC containing paint in the printing process of tachograph charts. The company successfully reduced coating quantity per chart by 2.5% by making coating thickness as thin as possible. Through these efforts, the total VOC emissions in the domestic Yazaki Group were reduced to 159.2 tons, - 54.8% from 2000.

VOC emissions



Release and transfer amounts of PRTR (Pollutant Release and Transfer Register)-listed chemicals

For chemical substances designated by the PRTR law, the Yazaki Group in Japan submits an annual report as required by law.

In 2015, among domestic production sites, six sites* were subject to the PRTR law. The total release amount of designated chemical substances was 9,240 kg and the amount of transfer was 3,510 kg.

* **Business sites required to submit a report:** Susono Factory, Ohama Factory, Shimada Factory, Numazu Factory, Fuji Factory, and Tenryu Factory (subsidiaries excluded)

Release and transfer amounts of PRTR-listed chemicals (kg)

Substance	Amount released					Amount transferred			Total
	Air	Water Zone	Soil	Landfill	Release Total	Sewer	Waste	Transfer Total	
1,2,4- trimethylbenzene	1,960	0	0	0	1,960	0	1,770	1,770	3,730
Antimony and antimony compounds	0	0	0	0	0	0	0	0	0
Xylene	3,300	0	0	0	3,300	0	560	560	3,860
Toluene	3,980	0	0	0	3,980	0	760	760	4,740
Nickel	0	0	0	0	0	0	0	0	0
Nickel compounds	0	0	0	0	0	0	420	420	420
Bis(1-methyl-1-phenylethyl) peroxide	0	0	0	0	0	0	0	0	0
Bis(2-ethylhexyl) phthalate	0	0	0	0	0	0	0	0	0
Lead	0	0	0	0	0	0	0	0	0
Total	9,240	0	0	0	9,240	0	3,510	3,510	12,750



Prevention of Global Warming

We are striving to devise various measures to reduce CO₂ emissions during production, transportation, and other operations to achieve our reduction targets.

Prevention of Global Warming

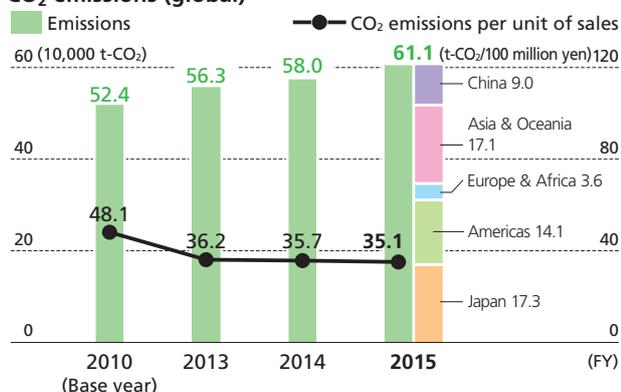
Energy saving activities at production sites and offices

The Yazaki Group promotes energy saving activities toward the target of reducing the CO₂ emissions per unit globally by 20% from the 2010 level by 2020.

To that end, the Production Department reviewed the operating hours of equipment and introduced LED lights. Each site in Europe promoted the shift to green power. Offices aim to have energy saving take root among employees through practice, such as turning off the light during a lunch break and introducing eco mode into and promoting its use on personal computers. In 2015, CO₂ emission reduction measures were implemented globally, which resulted in a reduction of about 8,700 tons.

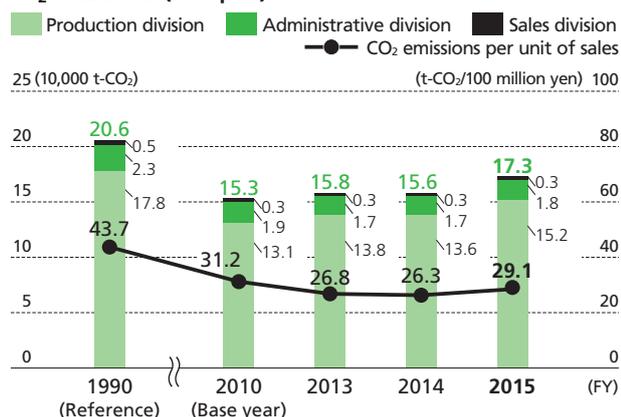
The amount of CO₂ emissions per unit of sales was 35.1 ton-CO₂/100 million yen, -27.0% from the 2010 level. For the domestic Yazaki Group, the amount of CO₂ emissions per unit of sales in 2015 was 29.1 ton-CO₂/100 million yen, -6.8% from the 2010 level.

CO₂ emissions (global)



* The amount of CO₂ emission per unit of sales for 2014 was changed due to a change in consolidated sales for 2014 that resulted from a change in our accounting policy.
 * As a result of a thorough review of data, the figures for the base year were changed.

CO₂ emissions (in Japan)



Contributing to a reduction in CO₂ emissions via our products

Solar equipment and wood pellet-fueled cooling and heating equipment contribute to reducing CO₂ emissions. Wood pellet-fired Bio Aroace is a wood pellet-fueled chiller/heater, the first of its kind in the world, which was developed based on the carbon-neutral* concept. By reducing fossil fuel consumption, it reduces about 30 tons of CO₂ emissions per unit per year.

The amount of CO₂ emissions reduced in 2015 via these products amounted to 72,000 tons. Consequently, the cumulative amount of CO₂ emissions since 2011 became 209,000 tons.

* Carbon neutral: A state where the amount of CO₂ emitted from combustion and the decomposition of soil organic matter is equal to the amount of CO₂ absorbed by forests and plants in nature.

Promotion of green logistics

With the aim of reducing energy consumption per unit of transportation by 1% over the previous year based on the government guidelines, the domestic Yazaki Group actively promotes the improvement of transportation efficiency.

In 2015, CO₂ emissions from domestic logistics were 19,000 tons, -3.7% over the previous year. CO₂ emissions per transport amount (ton kilometer) were 136.2 g-CO₂/ton-kilometer, -4.7% over the previous year. These results were achieved by improving transportation efficiency by shortening transportation distances through a change in collection centers and reviewing transportation routes. In the future, we will continue our ongoing efforts to save energy and reduce CO₂ emissions in close collaboration with related divisions.

Topics Installation of a solar power system

Hangzhou City in China has set energy saving targets geared to companies. In summer when power consumption reaches a peak, restrictions are placed on power supply, requiring companies to secure emergency power on their own for their stable operation.

In December 2015, HZY in Hangzhou, China decided to install a solar power system with the total area of 933 m² on the roof of its factory. The system went into operation in March 2016 and has since produced 59,400 kWh power per year, contributing to a reduction of 43.6 tons of CO₂ emissions per year. The introduction of this system has enabled the early achievement of the energy saving target set by Hangzhou City and the stable power supply during the period when power supply restrictions are placed. It has also contributed to environmental conservation by using renewable energy.





Recycling of Resources

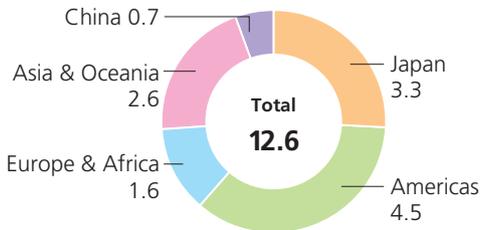
Contributing to helping create a recycling-based society by promoting zero landfill.

Promotion of the effective use of resources

Reduction of waste

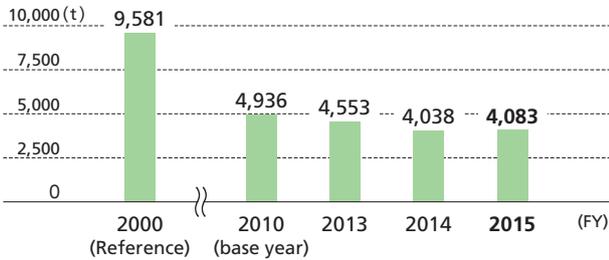
The total global waste for 2015 were 126,000 tons. In the future, we will further promote activities to reduce waste while giving due consideration to the characteristics of each region. The total amount of waste in the domestic Yazaki Group was 4,083 tons, -17.3% from the 2010 level. The reduction in waste was achieved by converting waste to valuables via thorough trash separation and recycling of used furniture and fixtures.

Waste volume by region (10,000 tons)



* The figures of regional waste do not necessarily amount to the total value as they are rounded off to one decimal place.

Volume of waste in Japan

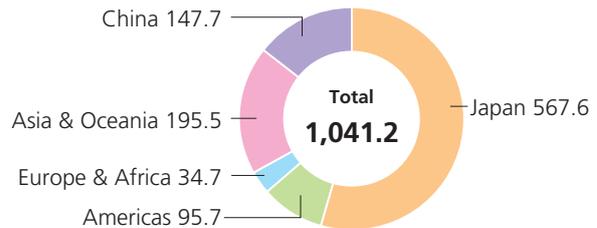


Reduction of water consumption

Since 2003, the Yazaki Group has been promoting activities to reduce water consumption. Specifically, production sites promoted the use of rainwater and the cyclic use of cooling water. In offices, we continue low profile, yet steady efforts, such as reducing water consumption in staff kitchens and bathrooms.

The global water consumption in 2015 was 10,410,000 m³, +3.3% over the previous year. This increase arose from an increase in production volume. Water consumption per unit of sales was 600 m³/100 million yen, -3.5% over the previous year. In the future, we plan to incorporate these water saving efforts into the Yazaki Environmental Activity Plan and actively promote them globally.

Water consumption by region (10,000 m³)



Topics

Enhancing employees' awareness of environmental issues by practicing recycling

Garbage composting initiative

In Indonesia, efforts to compost garbage are actively promoted. JAI (Indonesia) participated in the creation of biopori holes on April 27, 2016. Biopori holes help enrich soil by creating compost out of garbage buried in the holes. Since it also enhances the water absorption capability of soil, it is expected to prevent flooding during the rainy season.



Participants



Biopori holes

Promotion of the recycling of drainage

EMI (Philippines) actively addresses the recycling of drainage by building its own effluent treatment facility. Water treated at the facility is stored in water tanks. However, since the capacity of the water tank was only 2 m³, a large amount of recyclable drainage used to be discharged. EMI, therefore, constructed a treatment tank with the capacity of 20 m³, enabling the reuse of treated water for watering plants and flushing toilets in the site. Through this activity, EMI successfully reduced annual water consumption by 840 m³.



Effluent treatment facility



Protecting the global environment through sites around the world

At the 45 global sites of the Yazaki Group, employees join forces to conduct a variety of environmental conservation activities.

Below is the introduction of efforts by our global sites:

Efforts by TJY (China): Environmental Conservation Activities geared to the Entire Local Community

Tianjin Yazaki Automotive Parts Co., Ltd., (TJY) engages in the manufacture and sales of wire harnesses and the design of dies. The company was established in 1988. Currently, 7,000 employees conduct environmental conservation activities geared to the entire local community.

Collective efforts by employees

TJY obtained ISO 14001 certification in 2001 as an environmental management tool. Moreover, in an effort to reduce the discharge of toxic pollutants, they monitor wastewater from the factory around the clock. The monitoring system is connected with Tianjin City via network and sets off the alarm in the event of emergency. In 2015, the factory fell below the discharge standard on all items.

For waste reduction, TJY promotes the 5Rs and actively conducts awareness raising activities, such as creating and posting posters. Moreover, TJY employees join forces to

promote environmental conservation efforts, such as the implementation of the activity to clean the area surrounding the site.

Issuance of a site report

In China, the Corporate Environmental Information Disclosure Law (ordinance) is enforced and businesses that discharge a massive amount of pollutants are required to disclose their environmental information. While it is not legally obliged to do so, TJY has been issuing a TJY Environmental Report annually since 2014 in an effort to deepen the stakeholders' trust in the company. TJY will continue issuing the report as part of an effort to fulfill social responsibilities of the Yazaki Group.



TJY Environmental Report

Efforts by TAP (Thailand): Energy Saving Activities and Employee Training

Thai Arrow Products Co., Ltd., (TAP) was established in 1967. Currently, it is one of major production sites in the Asia and Oceania region of the Yazaki Group, where about 12,000 employees work. For environmental conservation activities, in addition to the promotion of energy saving activities, TAP actively conducts training programs and audits recently to ensure that the company thoroughly complies with regulations for the environmentally hazardous substances contained in products.

Promotion of the energy saving activity

At the Chachoengsao Factory of TAP, about 4,400 employees engage in the manufacture of various products, such as wire harnesses, wires, injection-molded parts, and vinyl tapes. The factory consumes a huge amount of

electricity for the manufacture of these products, and TAP accounts for about 1/4 of total CO₂ emitted by the Yazaki Group in the Asia and Oceania region.

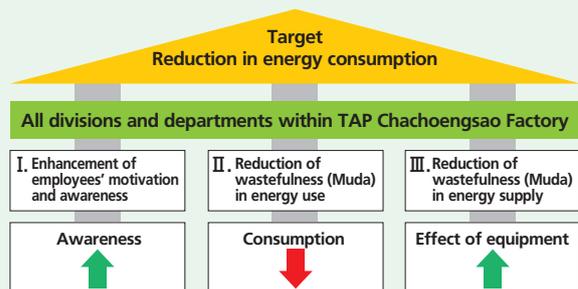
In 2015, therefore, the factory has been promoting the energy saving activity from both aspects of energy use and energy supply. This activity involves the implementation of "Obeya" operations targeting all departments within the factory monthly in an effort to enhance employees' capabilities to manage the energy saving activity and skills to improve energy saving.

This activity can be applied to other activities, such as quality and productivity improvement activities, and is expected to bring numerous benefits in addition to the promotion of energy saving.



Debriefing meeting

Approach to the energy saving activity





Environmentally Friendly Design

We are promoting environmentally friendly design across our R&D division according to our own eco-design criteria.

Promotion of environmentally friendly design

Setting our own environmentally friendly design criteria

The Yazaki Group has been working across the R&D division to reduce environmental impact and add more value to our products as early as the design stage by formulating our own criteria for environmentally friendly design.

In 2015, we certified 47 products as eco-friendly products based on our environmentally friendly design criteria. This section introduces some of the environmentally friendly products developed or released in 2015.

Environmentally friendly products in the Automotive Sector

Downsizing of the ESC unit case

Many automobiles are equipped with an ESC*1 unit, a safety device that controls the basic performance of an automobile, namely, running, turning, and stopping. Since the ESC unit is installed in a limited space in the engine room despite the fact that its safety performance and functions have become increasingly sophisticated, the downsizing of the unit case has been an issue to be solved.

To meet the need for downsizing, we used to use bus bar for some ESC units. However, we proposed a review of the product layout to customers and achieved a unit case, which is smaller by 30% than the conventional one, by changing the form to one where every part can be coupled to the substrate. Moreover, we were also able to improve workability in the customer's production process by changing the substrate coupling structure to the Yazaki-made press-fit type that requires no soldering. This technology is also applied to the ABS*2 unit.

Comparison of ESC unit cases



Comparison of height



*1 Electronic Stability Control
*2 Anti-lock Brake System

Promotion of the downsizing the relay box and facilitation of its recycling

In the engine room of an automobile, a relay box is installed as a switchboard that supplies the necessary amount of high current, which is produced by an alternator (a generator) and a battery, to headlamps, an air conditioner, and meters when needed. In order to lower the hood, expand the driver's view from the seat, and improve the design of the car, it was necessary to review the arrangement and design of relays and terminals and downsize the relay box.

We have downsized the box by about 30% and reduced the weight by 15% compared to the conventional relay box by changing the layout of components and modularizing them. Moreover, by changing the substrate to a circuit board that has insert-molded bus bars, we have reduced the number of required resin material types to one, facilitating the recycling of the boxes when discarded. These improvements have led to a reduction in CO₂ emissions by 14% (on an LCA basis).

Relay box: Comparison between the conventional ones (left and center) and the newly developed one (right)



Environmentally friendly products in the Living Environment Equipment Sector

Development of Earth-In 600V-CV

When installing an air conditioner or an IH cooking heater for home use or when wiring outlets in a factory, some grounding work is required to prevent fire and damage to equipment from an electric shock or a short circuit and ensure safe use.

Earth-In 600V-CV, a product composed of power lines and earth wires, is an electric wire where downsizing and weight saving have been achieved by downsizing earth wires. It has also improved efficiency of grounding work. The earth wire-like green line applied to the surface of the wire helps enhance the visibility of the earth wire and prevent errors in wiring. By thoroughly reviewing the production process of this product, we improved production efficiency by 45% and reduced CO₂ emissions from the production process by 13% compared to the conventional product.



Earth-In 600V-CV

Development of a battery-driven gas alarm

Since a city gas alarm for home use is installed near the ceiling, we have received feedback from customers, such as “The long power cord doesn’t look good” and “The installation of the alarm is not easy as there is no outlet near the place it should be installed.” Therefore, the development of a battery-driven gas alarm has long been desired. The development of such an alarm, however, involved the following issues: it consumes much electricity to keep a gas sensor, which detects gas leakage, at a certain temperature and requires a certain amount of electricity all the time to keep a LED power indicator on.

We finally realized super power saving (one several hundredths compared to the conventional type) by downsizing a gas sensor with the MEMS technology,* technology used in the semiconductor manufacturing process. Moreover, we realized further energy saving by

adopting a liquid crystal display for the power indicator and reducing power consumption during monitoring to one several thousandths of the conventional type. These efforts enabled us to develop a battery-driven gas alarm, which requires no battery exchange before the expiration date. Moreover, we were able to satisfy aesthetic preferences of customers by eliminating the power cord and downsizing the unit.



Conventional alarm

Newly developed alarm

* **MEMS technology:** MEMS is an acronym standing for Micro Electro Mechanical Systems. It is a device that has a microstructure with a set of machine elements, such as a sensor, an actuator, and an electronic circuit, on the silicon substrate, glass substrate, or organic materials of a semiconductor.

Topics

Environmental Contribution via Recycling of Postcard Cutting Wastage:

Gifu Parts Co., Ltd., manufactures the paper cushioning Aroeco, which is produced by powdering postcard cutting wastage, blending it with cornstarch and polypropylene, and foaming it by steam while using Yazaki’s unique technology. Compared to petroleum-based materials, it emits less CO₂ (a reduction by about 70%) during production and does not produce any hazardous substances when incinerated for disposal. Currently, it is used as a packaging material for various products, such as cushioning for industrial and commercial products.

In 2015, these efforts were recognized, and the company received the JEMAI Chairman’s Award in the FY 2015 Awards for Resources Recirculation Technologies and Systems from the Japan Environmental Management Association for Industry (JEMAI). Moreover, the company also received the Environment Prize for Aroeco’s excellent environmental



Application example

Pursuit of environmental friendliness

features at the 16th Outstanding Example Exhibit Meetings held by the Shatai Kyowakai, an association comprising partner companies of Toyota Auto Body Co., Ltd.

Voice

Contributing to environmental conservation via Aroeco



Yazaki Corporation
New Business Division
Aroeco Promotion
Department
Gifu Parts Co., Ltd.
Tsutomu Shouji (second
from left)

Aroeco is an environmentally friendly product, which not only reduces CO₂ emissions (based on LCA), but also contributes to the 3Rs by recycling about 50 tons of used paper a year that used to be disposed of as industrial waste. In the future, we will continue our ongoing efforts to contribute to the conservation of the global environment while entering into new fields and developing new products.



Activities Contributing to Environmental Conservation

We conduct a variety of activities aimed at raising employees' environmental awareness and promote local environmental conservation in each region.

● Activities at sites

Efforts to preserve forest ecosystems

With the aim of protecting ecosystems, YSE (Portugal) has been participating in the forest restoration activity organized by the local forest cooperative in the Lousa Mountains in Portugal since 2011. The activity aims to plant a total of 45,000 trees while controlling alien species and conducting thinning. In 2015, 57 YSE employees participated in the activity.

Through this activity, YSE helps widely communicate and promote public understanding of what is needed to grow sound forests and maintain their ecosystems in a sustainable manner.



Employees participated in the activity

Cleaning activity in the area surrounding a site

With the aim of raising employees' awareness of environmental conservation, HZY (China) conducted a trash-picking activity on the roads and lawns around the company in July 2015.

Participants picked lots of trash, including empty bottles and cigarette butts. At the same time, education on the collection and separation of trash was also conducted.



Trash-picking activity

Cleaning activity in the area surrounding a site

Since 2006, the Ohama Factory of Yazaki Parts Co., Ltd., (Kakegawa City, Shizuoka) has been participating in the Adopt Program, a joint city beautification activity between citizens and the administration. As part of the program, employees of the factory clean up the area surrounding the factory on a regular basis. In 2015, the 10th year since they joined the program, the cleaning activity was conducted four times, where a total of 142 people, including employees and their family members, participated and collected 38 kg of trash. The quantity of collected trash is decreasing each year, demonstrating that the activity has contributed to the beautification of the area. In the future, the company will continue contributing to regional beautification through this activity.



Cleaning activity

Mangrove planting

Since 2006, TYL, TYE, and TMP in Thailand have been planting mangroves once a year during the Environment Month. It is said that mangroves store large amounts of carbon dioxide and nurture diverse ecosystems. In 2015, the mangrove planting activity was conducted in June in Chachoengsao Province, where 270 employees participated and planted about 1,000 mangroves. This activity not only contributes to environmental conservation, but also helps raise employees' environmental awareness.



Employees planting seedlings



Mangrove forest

Efforts in the Environment Month

Since 2009, Tottori Parts Co., Ltd., has cleaned up a national road next to the company once a month according to the Volunteer Road* program. In the Environment Month of June, the employees of the company removed weeds from and planted seedlings in the flowerbeds and cleaned up street gutters and removed weeds in the surrounding area of the factory.

In July 2016, the company received a certificate of appreciation from the Chugoku Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism for its long dedication to the activity.

In the future, the company will continue the activity to raise employees' awareness of environmental conservation and contribute to the local community.

* **Volunteer Road:** A volunteer support program promoted by the Chugoku Regional Development Bureau, Ministry of Land, Infrastructure, Transport and Tourism to maintain clean and comfortable roads through collaboration with local residents and companies.



Volunteer Road cleaning activity



Weeding in a flowerbed



A certificate of appreciation and a table clock as a commemorative gift