

# ENVIRONMENTAL MANAGEMENT

Mazda is establishing an environmental management system throughout its value chain, including Group companies, suppliers, dealerships, and others.

## Establishing Environmental Management Systems

Mazda is promoting the establishment of environmental management systems (EMS) across its entire supply chain and in all Group companies. The purpose of the EMS is to carry out more environmentally conscious business activities in a more effective manner, based on ISO 14001 and other standards.

### Progress Status

- 14 Mazda and Group manufacturing companies in Japan and overseas have now acquired ISO 14001 certification.
- Mazda is expanding ISO 14001 certification scope to all domestic sites following the revision of ISO 14001:2015. The expansion of certification scope and examination of transfer to ISO 14001:2015 were completed in September 2016.
- Mazda is progressively certifying all dealerships in Japan under EcoAction 21 (EA21)\*1, an environmental management system (As of March 2017, 36 dealerships of the Mazda/Mazda Enfini sales channel, 143 dealerships of the Mazda Autozam sales channel, and Mazda Chuhan, a used car sales company, have been certified).
- Mazda has completed introduction of an exclusive Mazda EMS to two Mazda Group vehicle parts companies in Japan.
- Mazda Powertrain Manufacturing (Thailand) was ISO14001:2015 certified in November 2016.

## Promoting Green Purchasing

With the aim of reducing the environmental burden throughout its entire supply chain, Mazda established the "Mazda Green Purchasing Guidelines" (revised in March 2017) and engages in operation activities accordingly.

These guidelines require all of its suppliers worldwide to undertake measures to reduce their burden on the environment, at all stages from product development to manufacturing and delivery. The guidelines also make it clear that Mazda will give preference in purchasing to suppliers who implement such environmental measures.

Mazda also requires its suppliers of parts, materials, and industrial equipment and tools to obtain and maintain ISO 14001 certification, and to reduce the amount of greenhouse gas emissions generated through their corporate activities by 1% annually. In addition, the Company promotes environmental activities in collaboration with its suppliers by providing them with information and other assistance.

Presently, all major suppliers involved in Mazda vehicle development and manufacturing have acquired ISO 14001 certification.



## EMPLOYEE'S VOICE

### Contributing to Establish Environmental Management System for the Entire Mazda Group

I am in charge of ISO14001 promotion at Mazda Powertrain Manufacturing (Thailand) Co., Ltd. (MPMT), which is the powertrain plant in Thailand. Since it began production in 2015, MPMT has strived to establish an environmental management system based on ISO14001. In November 2016, MPMT was able to obtain ISO14001 certification as planned. Although we were aware that it was very difficult to gain the certification, all employees made a concerted effort to achieve this goal. As a result, MPMT became the first overseas Mazda Group company to gain the ISO14001:2015 certification (most recently revised version). Capitalizing on the knowledge we have acquired through this experience, we will further promote the environmental initiatives of our company, while contributing to establish environmental management system for the entire Mazda Group, by sharing information with other Group companies.

**Kinpikul Pranida**

Person in Charge of the Environment & ISO  
Mazda Powertrain Manufacturing (Thailand) Co., Ltd.

### a List of ISO 14001 Certified Production and Business Sites

#### Domestic production/business sites

Hiroshima district	Hiroshima Plant	June 2000
	Miyoshi Plant	
Hofu Plant	Nishinoura district	September 1998
	Nakanoseki district (extended certification)	September 1999

#### Overseas production site

AutoAlliance (Thailand) Co., Ltd.*1	May 2000
Changan Mazda Automobile Co., Ltd.*1	December 2008
Changan Ford Mazda Engine Co., Ltd.*1	February 2009
Mazda de Mexico Vehicle Operation*2	December 2014
Mazda Powertrain Manufacturing (Thailand) Co., Ltd.*2	November 2016

\*1 Equity-method group company

\*2 Consolidated group company

#### Four Domestic Consolidated Group Companies (excluding sales companies)

Mazda E & T Co., Ltd.*3	June 2000
Mazda Ace Co., Ltd.*3	June 2000
Mazda Logistics Co., Ltd.*3	June 2000
Kurashiki Kako CO., LTD.	December 2001

\*3 Some or all of the organizations at each of the companies above acquired ISO 14001 certification in the certification scope of Mazda.

#### Four Domestic Equity-Method Group Companies

Toyo Advanced Technologies Co., Ltd.*4	June 2000
Japan Climate Systems Corporation	May 2000
Yoshiwa Kogyo Co., Ltd.	April 2002
MCM Energy Service Co., Ltd.*5	June 2008

\*4 The company was ISO 14001 certified in the certification scope of Mazda. As a separate business facility, the company individually acquired the certification in March 2016. As a separate company, however, the company acquired re-certification in April 2017, resulting in the exclusion of the company from the certification scope of Mazda.

\*5 Although the company was inside the certification scope of Mazda, it acquired the certification on its own in March 2013.

\*1 Simplified EMS established by the Ministry of the Environment, for application at companies of various scales, such as small to medium-sized companies.

## Status of Establishment of Environmental Management Systems (EMS) at Suppliers

- All major suppliers in Japan and abroad with which the Company has ongoing business relationships (around 400 companies), including new suppliers, have maintained certification as of the end of March 2017.
- Under the Mazda Green Purchasing Guidelines, Mazda requires, through primary suppliers, secondary suppliers to establish EMS.

## Status of Implementation of Environmental Audits

To confirm that environmental management systems, such as ISO14001 and EcoAction 21, are operating effectively, both internal audit and environmental management system audit (EMS audit) are carried out annually at Mazda and all of its Group companies, both in Japan and overseas, that have obtained certification. The FY March 2017 EMS audit revealed no serious compliance issues.

The results of the internal audit and EMS audits were reported to senior management. Any problems were swiftly and appropriately rectified.

## Eliminating Sensory Pollution

Sensory pollution comprises noise, vibration, and odors that have a sensory or psychological impact on people.

Mazda recognizes that clearing legal regulations may not be enough to prevent noise, vibration, and odors from annoying neighborhood residents. For this reason, Mazda is systematically stepping up measures to alleviate the causes of such pollution, as well as measures to improve noise insulation and odor removal.

## Specific Initiatives in Environmental Risk Management

### Environmental Monitoring

- Regular training is conducted at each plant and office to prepare for response in the event of accidents that adversely affect the natural environment.
- Environmental monitoring, including monitoring of air and water pollution, is conducted regularly.

### Legal Violations

In FY March 2017, Mazda received no guidance from government authorities under laws and ordinances.

### Complaints

In FY March 2017, Mazda received complaints concerning four cases, and is taking appropriate actions to address them in good faith.

## b EMS Audit Results on ISO 14001

### Mazda Motor Corporation

	FY March 2013	FY March 2014	FY March 2015	FY March 2016	FY March 2017
Serious noncompliance issues	0	0	0	0	0
Minor noncompliance issues	0	1	2	2	6
Observation issues	10	18	8	16	10

### Group Companies

	FY March 2017		
	Japan	Overseas	
ISO14001	Serious noncompliance issues	0	0
	Minor noncompliance issues	7	9
	Observation issues	27	45
EA21	Noncompliance issues	0	-
	Observation issues	3	-

## c Environmental Monitoring

Environmental monitoring item	Target of monitoring	Items monitored	Monitoring frequency
Air quality	Boilers, melting furnaces, heating furnaces, drying furnaces, etc.	5 items: sulfur oxides, nitrogen oxides, soot, volatile organic compounds, hydrogen chloride	Around 400 times per year
Water quality	Treated wastewater	43 items: cadmium, cyanide, organic phosphorus, lead, hexavalent chromium, etc.	Around 1,600 times per year
Noise and Vibration	Site boundaries	1 item: noise level	12 times per year
Odor	Site boundaries	1 item: odor index	12 times per year
Waste products	Slag, sludge, scrap metal, etc.	25 items: scrap metal, etc., cadmium, cyanide, organic phosphorus, lead, hexavalent chromium, etc.	Around 100 times per year

## d Legal Violations and Complaints

(FY March 2017)

	Number of incidents	Response	
Guidance from local government	0	-	
Complaints	Odor	2	Mitigated odor or removed odor sources, and implemented other measures, such as implementing through operation control
	Noise	2	Installed fences to enhance the efficiency of sound insulation

## Environmental Education/Education Program Structure

As part of its EMS, Mazda conducts regular environmental education for all employees twice a year, as well as education for EMS leaders twice a year, and encourages employees to obtain environment-related public qualifications such as those listed. In addition, Mazda offers support for employees working toward these qualifications, including financial support through the Mazda Flex Benefit program (see p. 95). **e f**

### Routine Environmental Activities

#### Reducing Paper Use

Mazda continually makes bold efforts to considerably reduce the amount of paper used for office work through the digitization of documents, ledger sheets, and other forms, as well as through the use of projectors and monitors at meetings, etc. As part of its recycling efforts, the Company also reuses waste paper (shredder dust) as packaging material for shipping parts, and is increasing efforts to separate the collection of waste paper by type during disposal.

#### Reducing Energy Use

Through regular initiatives, including purchasing of low power-consumption office equipment and furniture, and turning off lights and computers when they are not in use, Mazda makes continual efforts to reduce energy use. Furthermore, Mazda implements a "Cool Biz" program during the summer season every year, setting internal room temperatures at 28°C (82.4°F) on a standard basis. During the winter season when electricity consumption is particularly high, energy-saving measures are implemented through adjustment of air conditioning systems (heating set at 20°C, or 68°F), lighting, office automation equipment, etc.

### Use of Renewable Energy

Mazda uses renewable energy sources\*<sup>1</sup> as follows.

- At the Hofu Plant, solar-powered units have been introduced in some corridor lighting.
- A solar power system is installed on the roof of the radio wave experiment building of the Miyoshi Office. The amount of electricity generated by the system in FY March 2017 was 12.9 MWh. Electricity generated by this system is used to provide power and lighting for the building, thereby continuously contributing to the reduction of CO<sub>2</sub> emissions.
- Mazda de Mexico Vehicle Operation (MMVO) in Mexico installed outdoor solar lighting, thereby promoting effective use of renewable energy\*<sup>1</sup> using solar power and LEDs. In FY March 2017, MMVO installed 32 units. The total number of units reached 367, generating 61.9 MWh of power for lighting.

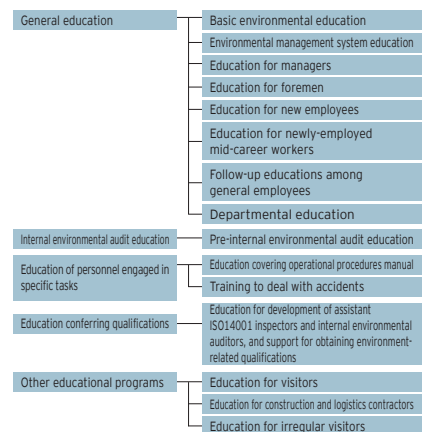
### Environment-Related Accident Emergency Drill and Prevention Campaign

- Emergency Drill to Prevent Marine Pollution**  
An emergency drill was carried out in November 2016 based on an assumed simulation in which hydraulic oil had leaked from a container truck into the sea. In the simulation drill, about 65 employees from Mazda Motor Corporation, Mazda Ace, and Mazda Logistics were engaged in operations of preventing the spread of oil (extending an oil boom), removing oil spillage, and communicating through an emergency contact network. These operations were confirmed effective. Launched in FY March 2015, this drill marked the third such event. **g**  
In the drill to be conducted in FY March 2018, Mazda will assume disaster damage that will be even closer to the reality, and check the effectiveness of its emergency response manuals and emergency contact network.
- Campaign for Oil Spill Prevention and Traffic Safety**  
Mazda Motor Corporation, Mazda Logistics and several truckload transportation companies are raising the awareness of delivery truck drivers and others by directly asking them or distributing leaflets asking them to contribute to improving traffic safety and preventing oil spills on roads. The campaign has been conducted every year since FY March 2011, and twice a year since FY March 2014, in spring and fall. **h**  
The campaign helps to raise such drivers' awareness of the environment and safety, and ensures early detection of and response to oil spills from vehicles.

#### e Qualifications that Employees Are Encouraged to Obtain:

- Energy attorney
- Head supervisor of pollution control
- Supervisor of air and water pollution control (Class 1 to 4)
- Supervisor of noise- and vibration-related pollution control
- Supervisor of dust and particulate pollution control (Specified, General)
- Supervisor of dioxide pollution control
- Special managing supervisor in charge of industrial waste disposal
- Environmental Society Test (=Eco Test)
- CEAR approved EMS inspector
- Internal environment auditor
- Environment measurer
- Construction environment hygiene control engineer

#### f Environmental Education Structure



#### Number of Employees Receiving Environmental Education

(Non-consolidated Unit: person(s))

	FY March 2013	FY March 2014	FY March 2015	FY March 2016	FY March 2017
Managers	52	70	75	81	83
Section managers	137	163	161	174	190
Foremen	87	86	86	76	60
New employees	701	386	282	755	538

\* In addition to the above, environmental education is provided to general employees in each department

#### g Emergency Drill to Prevent Marine Pollution (Extending an oil boom)



#### h Campaign for Oil Spill Prevention and Traffic Safety



\*1 Refers to natural energy sources that can be used continuously without being depleted, such as electricity generation using solar, wind, geothermal, hydroelectric or biomass power, or direct solar heating. These types of energy generate zero or negligible CO<sub>2</sub> emissions.

## Environmental Accounting

Mazda is carefully assessing the costs and benefits of its environmental activities and is working constantly to improve their efficiency.

**Data collection period:** April 2016 through March 2017

**Basis of data collection:** Calculated according to Mazda's own guidelines in line with Environmental Accounting Guidelines. The amounts do not include depreciation expenses.

**Boundary of data collection:** Mazda Motor Corporation; 20 domestic & 10 overseas consolidated Group companies; six domestic & five overseas equity-method Group companies

### Environmental Protection Costs

(Unit: million yen)

Category	Major activities	Mazda unconsolidated			Mazda Group								
		Investment	Cost	Total	Investment	Cost	Total						
Business area	Preventing pollution	Conforming to legal limits for air and water pollution, odor abatement, etc.						2,327	2,672	4,999	3,324	3,398	6,722
	Protecting the global environment	Preventing global warming, conserving energy, preventing destruction of the ozone layer, and other environmental protection activities						912	1,016	1,928	1,046	1,155	2,201
	Recycling resources	Effective resource use, recycling waste, processing and disposing of waste						307	1,371	1,678	308	3,349	3,657
Upstream/downstream	Container recovery, recovery of end-of-life vehicle bumpers						0	159	159	0	161	161	
Management activity	Employee environmental education, creating and operating environmental management systems, monitoring and measurement of environmental impact, other activities						20	1,004	1,024	20	1,454	1,474	
Research and development	R&D for products, production methods and distribution, to contribute to reduced environmental impact						3,139	41,113	44,252	3,351	42,591	45,942	
Social activities	Greening, beautification, and environmental improvement; support of community residents and organizations; information disclosure; and other activities						0	54	54	0	64	64	
Environmental Damage	-						0	0	0	0	4	4	
Total		6,705	47,389	54,094	8,049	52,176	60,225						

### Overall Environmental Protection Effects

Category		Mazda unconsolidated			Mazda Group	
		Environmental protective effect		Economic effect (million yen)	Economic effect (million yen)	
Protecting the global environment	Global warming prevention	Production	CO <sub>2</sub> emissions volume (on unit sales basis)	20.1 t-CO <sub>2</sub> /100 million yen	-	-
		Distribution	Annual shipping volume	508,560 thousand (ton-km/year)	-	-
Recycling resources	Effective use of resources, recycling	Shell sand		16,007 t (year)	47	2,065
		Steel scrap		37,077 t (year)	2,018	
Upstream/downstream	Product recycling	Number of discarded bumpers collected		61,796 (bumpers/year)	-	35
Other	Sale of items with commercial value	Metals		101,299 t (year)	1,865	1,908
		Paint thinner, effluent		848 t (year)		
		Empty drums, wheels, discarded tires		20,621 (units/year)	43	
		Recovered sand, plastics, cardboard scraps		5,494 t (year)		
		Wooden pallets		427 t (year)		
Total					3,973	4,008

#### Boundary of data collection

##### Mazda Motor Corporation

##### Consolidated Group companies

**20 domestic companies:** Manufacturing companies: Mazda Ace Co., Ltd., Mazda Logistics Co., Ltd., KURASHIKI KAKO Co., Ltd., Mazda Engineering & Technology Co., Ltd., Sales companies: Mazda Chuhan Co., Ltd., Hakodate Mazda Co., Ltd., Tohoku Mazda Co., Ltd., Fukushima Mazda Co., Ltd., Koushin Mazda Co., Ltd., Kanto Mazda Co., Ltd., Shizuoka Mazda Co., Ltd., Tokai Mazda Sales Co., Ltd., Hokuriku Mazda Co., Ltd., Keiji Mazda Co., Ltd., Kansai Mazda Co., Ltd., Nishi-Shikoku Mazda Co., Ltd., Kyushu Mazda Co., Ltd., Minami Kyushu Mazda Co., Ltd., Okinawa Mazda Sales Co., Ltd., Parts sales company: Mazda Parts Sales Co., Ltd.

**10 overseas companies:** Mazda Canada Inc., Mazda Motor Manufacturing de Mexico, S.A. de C.V., Mazda Motors UK Ltd., Mazda Motor Russia.000, Mazda Australia Pty Ltd., Mazda Motors of New Zealand Ltd., Mazda Powertrain Manufacturing (Thailand) Co., Ltd., Mazda Southern Africa (Pty) Ltd., Mazda Motor Taiwan Co., Ltd., Mazda de Colombia S.A.S.

##### Equity-method Group companies

**6 domestic companies:** Toyo Advanced Technologies Co., Ltd., Japan Climate Systems Corporation, Yoshiwa Kogyo Co., Ltd., Mazda Processing Chugoku Co., Ltd., MCM Energy Service Co., Ltd., Mazda Parts Hiroshima Sales Co., Ltd.,

**5 overseas companies:** Mazda Sollers Manufacturing Rus LLC, AutoAlliance (Thailand) Co., Ltd., Changan Mazda Automobile Co., Ltd., Changan Ford Mazda Engines Co., Ltd., FAW Mazda Motor Sales Co., Ltd.