

Resource Recycling Initiatives



Medium- to Long-Term Visions for Material Issues and FY2021 Results

	Risks	Opportunities	Direction of Responses
Long Term	<ul style="list-style-type: none"> ● The cost of procuring raw materials could increase due to resource constraints, such as the depletion of precious metals or other natural resources. ● The Company could face increasingly stringent regulations, such as on the use of recycled materials and recycling, and rising costs to respond to them. ● The corporate image could suffer from a delayed response to resource recycling. 	<ul style="list-style-type: none"> ● We could stabilize procurement costs by reducing our dependence on depleted resources. ● It might be possible to reduce costs by using resources more efficiently and reusing waste. ● We could heighten competitiveness through 3R design and more advanced recycling technologies. ● We could find more opportunities to make use of used batteries. ● The corporate image could be enhanced by appealing to our efforts to contribute toward a recycling-oriented society. 	<ul style="list-style-type: none"> ● We will contribute to a resource-recycling-oriented society by minimizing input resources and maximizing resource efficiency.

	External Environment	Stakeholders' Needs and Expectations	Medium-Term Targets
Medium Term	<ul style="list-style-type: none"> ● An increasing shift toward a circular economy ● The manifestation of waste-related issues in Japan and overseas (such as emerging markets limiting imports) ● The increasingly strict EU Batteries Regulation (calls for disclosure of amounts of reused materials, among other items) ● Plastics causing the marine pollution problem 	<ul style="list-style-type: none"> ● Mounting demands for environmental consideration ● Growing ESG investment (investors promoting changes in corporate activities) 	<ul style="list-style-type: none"> ● Expanding adoption of plastic materials not derived from oil ● Achievement of zero direct landfill waste (less than 0.5%) ● Reuse of batteries used in electrified vehicles

Items	FY2021 Targets and Results	Self-Evaluation
Expanding adoption of plastic materials not derived from oil	Finished assessing products to adopt plastic materials not derived from oil. Achieved FY2021 target in line with roadmap.	○
Achievement of zero direct landfill waste (less than 0.5%) by FY2030	Plants in Japan: Achieved zero direct landfill waste (less than 0.5%) Overseas plants: Have begun managed operations of data on waste using an environmental performance management system	○
Reuse of batteries used in electrified vehicles	Installed equipment for verification testing of BESS*1 at the Okazaki Plant, conducted a VPP*2 verification test, verified the benefits of a cut in peak electricity consumption and established an effective operation method	○

○: As planned △: Delayed

*1: BESS stands for battery energy storage system.

*2: VPP stands for virtual power plant, which involves using information and communication technology for the integrated control of dispersed energy resources, creating a virtual plant that operates as if it were a single power plant.

Basic Approach

The rise in populations and economic growth in emerging markets is leading to a rise in the consumption of minerals, fossil fuels and other resources.

Against this backdrop, MITSUBISHI MOTORS is working to use fewer resources and use them more effectively. We believe we can add more value to vehicles in manufacturing process. This believe underpins our belief that effective resource use is an important priority. The Environmental Plan Package positions resource recycling as an environmental issue to engage in directly, and we are contributing to a resource-recycling-oriented society by minimizing input resources and maximizing resource efficiency.

Countries and industry groups are formulating various initiatives in order to promote automobile recycling and correct processing. In response, the Company set targets to improve the ease of recycling, reduce the use of lead, and introduce recycled parts for new vehicles when the MITSUBISHI MOTORS Recycling Initiative was established in 1998. We have continued to engage in this initiative.

At production plants, with the aim of realizing a recycling-oriented society that gives consideration to the environment and resources, we are promoting the effective use of resources. We are achieving a landfill waste disposal rate of zero (less than 0.5%) at every plant by converting industrial waste materials generated from production processes into reusable resources and reducing the volume of waste discharged.

▶ Data (p. 122): Generated waste, generated waste and externally disposed waste (MITSUBISHI MOTORS along), raw material inputs

Recycling-Based Design and Development

Under vehicle recycling legislation in Japan, Europe and China, automobile manufacturers are obligated to consider recycling when developing products.

We conduct design and development that actively incorporates not just recycling, but all aspects of the 3Rs including reduction and reuse. We have implemented the 3Rs in the stage starting with conceptual design in accordance with our unique Recycling Plan Guidelines.

With regard to wires and harnesses, and motors, we have improved detachability and ease of recycling in accordance with the Harness Design Guidelines.

At dealers, bumpers recovered or replaced during repairs are recycled for battery trays and other exterior parts. We are also promoting the increased use in other parts of recycled materials and plastic materials not derived from oil used in vehicles, such as biomass plastics.

TOPICS

Using Thermoplastic Resin

The All-New "Outlander PHEV Model," which was launched in 2021, uses easily recyclable thermoplastic resin for exterior and interior parts.

Main parts (indicated in green) that use thermoplastic resin



Exterior



Interior



End-of-Life Vehicle Recycling

MITSUBISHI MOTORS encourages the recycling of end-of-life vehicles to reduce the environmental impact of waste from these vehicles. In Japan, the European Union and other regions, we promote recycling in accordance with the automobile recycling laws of each country. We comply carefully with the evolving automobile recycling laws that are being introduced in emerging countries in Asia.

The Environmental Targets 2030 identify the reuse of batteries used in electrified vehicles as one item to be addressed. From the perspective of conserving resources, we are undertaking initiatives to utilize used batteries.

Reuse of Batteries Used in Electrified Vehicles

Used electrified vehicle batteries retain sufficient storage capacity to make them useful for other applications, so from the perspective of conserving resources we are working to effectively reuse electrified vehicle batteries. To ensure these batteries can be effectively used for storage, we are conducting verification using a large-scale rooftop solar power system at the Okazaki Plant and built a power storage system that employs used batteries from the "Outlander PHEV."

With MIRAI-LABO Co., Ltd., we have begun considering the development of autonomous street lighting by reusing batteries from electrified vehicles. These

lights would require no external power supplies, but would use solar power, used batteries from electrified vehicles and recycled steel. In the event of disaster or power failure, such street lights would continue to function and would not need to be turned off. We are planning to develop these lights in FY2022 and conduct demonstration tests with municipalities and companies from FY2023.

In Japan, Europe and North America, we have begun creating a system for collecting used batteries. The aim is to develop recycling technologies for and properly dispose of batteries for electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs).

Response to Automobile Recycling Laws in Japan

Since the End-of-Life Vehicle Recycling Law was enacted in Japan in 2005, the company has been accepting used automobile shredder residue (ASR^{*1}), airbags, and fluorocarbons for recycling.

Regarding ASR recycling, we participate in ART^{*2} in order to jointly process ASR. As a result of the creation of new processing facilities and other measures, the ASR recycling rate in FY2021 was 96.5%, substantially above the statutory standard of 70% in effect since 2015. We will continue to develop new recycling facilities to ensure the stable processing of ASR.

The company outsources the treatment of airbags and fluorocarbons to the Japan Auto Recycling Partnership (JARP).

In addition, for the effective use of recycling fees deposited from customers, we proactively work on increasing the recycling rate by conducting efficient recycling and proper processing of these three items.

The Company accepts for recycling three items identified by Japan's End-of-Life Vehicle Recycling Laws (fluorocarbons, airbags and ASR). As part of a project to support the advancement of automobile recycling, we have engaged in the following two R&D projects since August 2021.

- 1) Research to restore the physical properties of PP resin^{*3} recovered from ASR and expand the use of plastic materials not derived from oil
- 2) In the aim of realizing a low-carbon society, research to verify the applicability of technology to diagnose battery degradation, quickly and to a high degree of accuracy, that can facilitate the reuse and closed-loop utilization of drive batteries

We have joined the LiB Joint Recovery System and begun working to efficiency recovery lithium-ion batteries (LiBs). The system serves as contact point for the Japan Auto Recycling Partnership, which the Japan Automobile Manufacturers Association, Inc. set up in FY2018 to foster the appropriate processing of LiBs.

^{*1} Automobile shredder residue

^{*2} Automobile Shredder Residue Recycling Promotion Team established by 13 companies, including Nissan Motor Co., Ltd., Mazda Motor Corporation and MITSUBISHI MOTORS.

^{*3} Polypropylene resin, a general-purpose polymer composed of carbon and hydrogen

Recycling Promotion in the EU

Response to the EU's Directive on the Recycling of End-of-Life Vehicles

In the EU, in accordance with the End-of-Life Vehicles Directive*1 established in 2000, automobile manufacturers or importers must accept and recycle end-of-life vehicles. Also, in 2003, the ELV Directive*2 was enacted, specifying ease of recycling as a certification requirement.

MITSUBISHI MOTORS built a system of acceptance and recycling in line with the actual situation of EU member countries centering on our European subsidiary Mitsubishi Motors Europe B.V. (MME).

*1 "Directive of the European Parliament and of the Council on End-of-Life Vehicles"

*2 Abbreviation of End-of-Life Vehicles.

Provision of Dismantling Information

In the EU, automobile manufacturers must provide dismantling information for new model vehicles to treatment operators. The company provides such information on a timely basis by using the International Dismantling Information System (IDIS) jointly developed by automobile manufacturers.

Response to the EU's Directives on Approval for Vehicle Models for Recyclability

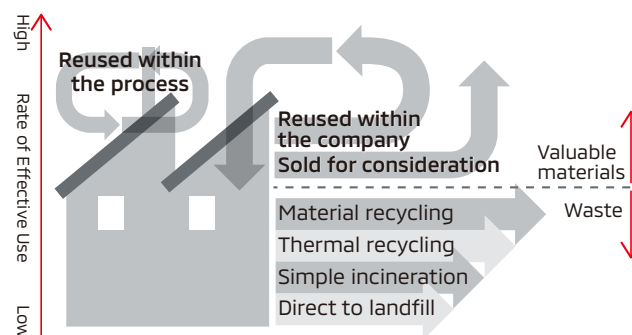
In the EU, satisfying the minimum 95% recyclability rate is a requirement for type approval of vehicle models, and the company established a system that satisfies the requirements of this directive. Our vehicles sold in the EU meet the requirements of the directive under this system.

Going forward, we will continue to acquire recyclability approval for all new models sold in the EU.

Initiatives to Reduce Waste Generation and Reuse Resources in Production Activities

To achieve "landfill waste disposal rate of zero (less than 0.5%)," which is one of the Environmental Targets 2030, the Company is working to reduce the amount of waste it generates through manufacturing by improving its production processes. For the waste we do generate, while curtailing treatment costs we continue to improve the ways in which we sort and treat waste, using it more effectively as resources.

Effective Use of Resources and Recycling



TOPICS

Reducing Environmental Impact by Eliminating the Process of Cleaning Cushioning Materials Used in Melting Furnaces Used for Casting (Mizushima Plant)

By changing the cushioning materials*4 used in melting furnaces for casting from metal chips produced in the cutting process to sheet metal scrap, we have eliminated the chip cleaning process, reducing industrial waste and CO₂ emissions.

To use chips as cushioning materials, a cleaning process was required to remove oil and moisture. This process had a high environment burden, because it generated waste liquids and sludge and used substantial energy for steam and heaters.

By improving the material separation and transport methods, as well as the component analysis process, we were able to use sheet metal scrap as an alternative, which meant we could eliminate the chip cleaning process. As a result, we reduced annual industrial waste by approximately 290 tons and CO₂ emissions by around 135 tons.

*4 Material that is used in small quantities on the furnace floor to protect the melting furnace from shocks when feeding material



Feeding in materials into a melting furnace used for casting