

Environmental Preservation

Mitsui E&S Group Global Environmental Philosophy

The Mitsui E&S Group recognizes that the preservation of the global environment is one of the most important issues facing society. As such, Mitsui E&S will contribute to the realization of a prosperous society in harmony with the environment, taking into consideration the health and well-being of people and the preservation of the global environment through all its corporate activities.

Mitsui E&S Group Global Environmental Action Guidelines

- 1. To Comply with Environmental Regulations and Reduce our Impact on the Environment**
As well as complying with environment-related laws and agreements, creating its own voluntary standards where necessary, the Group shall give care and consideration to reducing its impact on the environment at every stage, from the R&D and design stages of its technologies and products to their production, distribution, use, and ultimate disposal.
- 2. To Promote Resource Conservation, Energy Saving and Recycling, and to Reduce Waste**
As well as seeking to promote the conservation of resources, energy saving and recycling in all areas of its corporate activities, the Group shall endeavor to reduce waste.
- 3. To Contribute to Environmental Conservation through the Development of New Technologies and Products**
The Group shall actively work to develop technologies and products that contribute to environmental conservation, providing them to society.
- 4. To Consider the Environment in Overseas Business Activities**
The Group shall give sufficient care and consideration to environmental conservation in the countries where it is engaged in overseas business activities.
- 5. To Promote PR Activities and Contribute to Social Activities**
As well as engaging in proactive PR activities with regard to environmental conservation, the Group shall contribute to local communities and society as a whole through the provision of suitable technologies and information.
- 6. To Raise Awareness through Environmental Education and Participate in Social Activities**
The Group shall seek to increase awareness of environmental issues among its employees by providing such things as environmental education and conducting internal PR activities.
Through voluntary participation in environmental conservation activities, employees shall endeavor to build a relationship of trust with local communities and wider society.
- 7. To Establish an Environmental Administrative Organization and Build an Environmental Management System**
As well as establishing an environmental administrative organization, the Group shall endeavor to improve its environmental conservation efforts by building and maintaining an environmental management system.
- 8. To Collaborate with Group Companies**
The Group shall promote a complete roll-out of its environmental philosophy and action guidelines by endeavoring to introduce them in all Group companies in order to further increase the effectiveness of its environmental conservation activities.

Environmental accounting (non-consolidated)

MES spent a total of ¥4,310 million on investments and costs related to environmental preservation efforts. A detailed breakdown of these expenditures is shown on the bottom. The categories for environmental preservation costs are based on the Environmental Conservation Cost Categories shown in the Environmental Accounting Guidelines 2005. These expenditures included a total of ¥670 million spent on investment, consisting of ¥660 million spent on research and development, ¥330 million spent on pollution prevention cost such as exhaust gas measures, and ¥130 million spent on energy conservation of global environment conservation. Total non-investment costs came to ¥3,650 million, which included ¥1,400 million spent on the research and development of environmentally friendly energy-saving products, ¥410 million as the cost for preservation of the global environment, including energy conservation, ¥130 million allocated to resource circulation costs such as waste treatment, and ¥1,580 million for pollution prevention costs.

● Environmental preservation cost (=sum of investment and cost: ¥4,312 million) (¥million)

Categories corresponding to business activities	Investment	Cost	Major initiatives and effects
1. Business Area Cost			
(1) Pollution prevention cost	3.3	410.5	Exhaust gas measures, wastewater treatment, dust control and other pollution control
(2) Global environmental conservation cost	1.3	178.8	Energy saving
(3) Resource circulation cost	-	1,579.5	Waste treatment
2. Upstream / downstream cost	-	-	
3. Administration cost	-	76.8	Environmental management system implementation, integrated reports, environmental education, and open space development, etc.
4. Research & development cost	660.5	1,399.0	Development of various environmentally friendly products
5. Social activity cost	-	2.5	Road cleaning, seminar sponsorship
6. Environmental remediation cost	-	-	
Total	665.1	3,647.1	

Improving the Environmental Management System

Obtained environmental management system ISO 14001 certification

The Company acquired ISO 14001 certification at the Tamano Works in October 2000 and at the Chiba and Oita Works in September 2001. In FY2018 ('17/4-'18/3), all factory works moved to the ISO 14001:2015 standard. The Tamano Works achieved the renewal of its certification following an audit in 2018. The Oita Works will be audited in 2019 at which time it is expecting to renew its certification. The Chiba Works will also be audited for renewal in 2019. Periodic surveillance is carried out at each factory works twice a year by an external auditing body, checking the operational conditions of the systems.



Renewal audit at the Oita Works

Initiatives to Reduce Environmental Impact through Business

72% reduction in port crane power consumption

■ Uses ultra-fast charging battery

https://www.mes.co.jp/press/2018/1023_001113.html

Mitsui E&S Machinery, together with Exergy Power Systems, Inc., conducted demonstration experiments on the FY2018 ('17/4-'18/3) grant project of National Research and Development Agency New Energy and Industrial Technology Development Organization (NEDO) at Nagoya Port. The tests proved that by collecting the regenerative power, generated when a cargo container crane is unwound, into an ultra-fast charging battery and then supplying it at the time of hoisting, it is possible to reduce power consumption by 72% and contract demand associated with smoothed charging by 54%.



Demonstration experiment



Exergy battery (1 module)
*Exergy battery is a trademark of Exergy Power Systems, Inc.

Delivery of the Miyama City Biomass Center

■ Facility to recycle food and human waste as a biomass resource

https://www.mes.co.jp/press/2019/0226_001177.html

Mitsui E&S Environment Engineering completed construction of the Miyama City Biomass Center which was ordered from Miyama City in Fukuoka Prefecture and delivered it in November 2018. The facility ferments food waste, human waste, and septic tank sludge from the area, creating a resource recycling system in the region through on-site use of biogas-derived renewable energy and returning fluid fertilizer to farmland. Furthermore, the closed elementary school building has been turned into a multi-purpose facility which includes training rooms, a cafe and a food processing plant, community spaces, and shared offices, attracting attention as a base of sustainable community.



The Miyama City Biomass Center

Handover of 7,000kW class gas turbine co-generation systems

https://www.mes.co.jp/press/2019/0225_001176.html

Mitsui E&S Machinery handed over two MSC70 gas turbine co-generation systems for Toyo Tire Corporation's Sendai Plant, which was ordered from Mitsubishi UFJ Lease & Finance Company Limited, an energy-saving joint venture partner with OGCTS Co., Ltd. The delivered MSC70 boasts the best performance in its class with a power generation output of 7,630 kW and a power generation efficiency of 33.3% per gas turbine, achieving an extremely high overall efficiency for a co-generation system.



A gas turbine co-generation system