

Business Sites

Reducing CO₂ from Production

Targets of the 9th Environmental Plan (Fiscal 2019–2021) and Achievements in Fiscal 2020

The Mitsubishi Electric Group continues to promote activities that combine the initiatives for reducing CO₂ originating from energy and for reducing non-CO₂ greenhouse gases (SF₆, HFCs, and PFCs) with the aim of reducing CO₂ emissions from production.

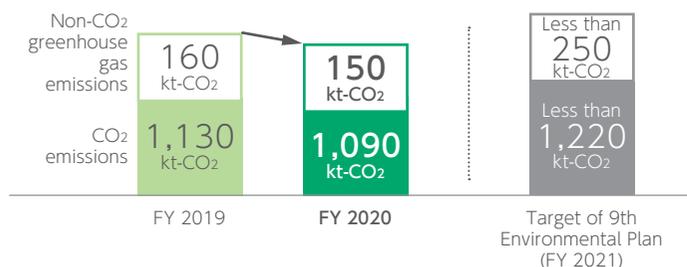
The 9th Environmental Plan (fiscal 2019–2021) is the final environmental program before Environmental Vision 2021 is to be achieved. The goal of this plan is to reduce total annual emissions of greenhouse gases to a CO₂ equivalent of 1.47 million tons or less in fiscal 2021. By achieving this, we will have outperformed our target of 30% reduction from the base year level*, which had been set at the time of formulating Environmental Vision 2021, and will actually achieve a 45% reduction from the base year level.

In fiscal 2020, emissions of greenhouse gases amounted to a CO₂ equivalent of 1.24 million tons and achieved our target of less than 1.43 million tons. One of the major factors behind this accomplishment is the steady reduction of CO₂ emissions originating from energy. This was owing to the introduction of high-efficiency machinery, the switching of fuels, and the progress in thorough waste elimination. Another factor was the acceleration in the reduction of non-CO₂ greenhouse gases, owing to the replacement of traditional refrigerant gases with those having lower global-warming potential (GWP) and the increase in the amount of refrigerant gases recovered during manufacturing processes overseas.

In January 2020, the Mitsubishi Electric Group's targets of reducing greenhouse gases by 2030 were approved as science-based targets, certified by the Science Based Targets (SBT) Initiative. We will hereafter substantiate our roadmap for long-term reductions in greenhouse gas emissions and implement further measures.

Note: Base year for CO₂: Mitsubishi Electric Corporation, fiscal 1991; affiliates in Japan, fiscal 2001; and overseas affiliates, fiscal 2006.
Base year for non-CO₂ greenhouse gasses: Mitsubishi Electric Corporation and affiliates in Japan, fiscal 2001; overseas affiliates, fiscal 2006.

Reducing CO₂ Emissions from Production (Mitsubishi Electric Group)



Note: Calculations were made using the following coefficients:

- Emission coefficient for Japan: 0.487 (published by the Federation of Electric Power Companies of Japan in 2013, when two nuclear power plants are in operation)
- Overseas emission coefficient: Calculated with reference to figures published by the Japan Electrical Manufacturers' Association (JEMA) in 2006.
- The global warming potential (GWP) of non-CO₂ greenhouse gases was calculated in reference to the figure published in IPCC's Second Assessment Report (1995).

Initiatives to Reduce CO₂ Originating from Energy and Their Results

Toward reducing CO₂ originating from energy, our activities focus on systematically introducing and updating high-efficiency and energy-saving equipment, improving operations, and extending energy conservation measures to production lines. As a result, we managed to reduce CO₂ emissions originating from energy by 22 kt to 1.09 million tons in fiscal 2020.

Half of the major achievements were realized through the introduction of high-efficiency machinery, while activities to develop energy-efficient technologies implemented by an internal technical committee also produced solid results. These activities also focus on visualizing and reducing the wasteful use of utilities and production equipment during non-operational hours.

In the classification system (SABC assessment) based on Japan's Energy Savings Law, 11 out of 20 specific Group companies in Japan, including Mitsubishi Electric, have been recognized as excellent business operators (S Class) in terms of energy conservation.

Example Promoting Energy Savings by Shifting to Eco-factory

Fukuyama Works develops and manufactures breakers for low-voltage wiring, electricity meters, indicating meters, and products that support energy savings. As part of Mitsubishi Electric's initiative to promote a shift toward eco-factories, which increase resource efficiency through detailed measurement and monitoring of power use, an operational structure that introduces advanced energy-saving technologies has been constructed at Fukuyama Works as a model factory of that initiative. In recent years, a FEMS*1 energy management system has been introduced that uses measuring terminals produced at the Works and that embodies Mitsubishi Electric's e-F@ctory*2 concept. This system goes beyond visualizing and facilitating the understanding of data, to realizing effective operational control of lighting, air conditioning, and other building equipment through cooperation among the manufacturing, design and environmental management divisions. Owing to the improved operations of production facilities, coupled with the effect of enhanced production areas, energy per unit was reduced by 29% in fiscal 2018 compared to fiscal 2014.

*1 FEMS: Factory Energy Management System

*2 e-F@ctory: Integrated concept proposed by Mitsubishi Electric to construct highly reliable and flexible manufacturing systems that enable users to achieve high-speed and information-driven production targets.



Fukuyama Works

Initiatives to Reduce SF₆, HFCs and PFCs, and the Results

Three types of non-CO₂ greenhouse gases are emitted by the Mitsubishi Electric Group in its business activities: SF₆ (sulfur hexafluoride), HFCs (hydrofluorocarbons), and PFCs (Perfluorocarbons). SF₆ is used inside gas-insulated switchgear for electrical insulation, as well as in the etching process during semiconductor and liquid-crystal display production.

HFCs are used as refrigerants in air conditioners and refrigerators, while PFCs are used during the etching process in production of semiconductors and liquid-crystal displays.

In fiscal 2020, we continued our initiatives for switching to the use of refrigerants with lower GWP, improving operations, and achieving greater gas recovery and abatement. Owing to these measures, emissions turned out to be 68 kt less than our initial prediction, which anticipated a year-on-year increase due to growth in business. Due to an increase in production, increased emissions were anticipated, however there turned out to be a 0.8 kt reduction compared to the previous fiscal year.

Greenhouse Gases	Past Measures	8th Environmental Plan			9th Environmental Plan		
		2016	2017	2018	2019	2020	2021
SF ₆ (Sulfur hexafluoride)	Vacuum pump Recovery/abatement Early gas-leakage detection	Japan: Expand introduction of recovery/abatement systems					
		Overseas: Improve operation during filling process		Overseas: Strengthen SF ₆ reduction measures			
HFCs (Hydrofluorocarbons)	Recovery	Japan: Switch refrigerant (from R410A to R32)					
		Japan: Completed construction of refrigerant recovery scheme		Overseas: Switch refrigerant (from R410A to R32)			
		Overseas: Construct refrigerant recovery/disposal scheme					
PFCs (Perfluorocarbons)	Recovery/abatement system	Japan: Expand introduction of recovery/abatement systems					