Realizing a Decarbonized Society

Approach

Social Background

Recent times have seen the emergence of global scale problems, including global population growth and an increase in average temperatures around the world. In 2015, the United Nations Sustainable Development Goals (SDGs) and the COP21 Paris Agreement were adopted as stepping stones in solving these problems. The objective of the Paris Agreement is to keep a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. To achieve that goal, the agreement set out the target of net zero emissions of greenhouse gases by the second half of this century.

Moreover, in October 2018, the Intergovernmental Panel on Climate Change (IPCC) released the Special Report on Global Warming of 1.5°C, which stressed that many of the impacts of climate change could be avoided by limiting global warming to 1.5°C instead of 2°C. This debate was continued at COP24 held in December 2018, resulting in ever-greater demand from the international community for decarbonization.

Risks and Opportunities for the Casio Group

As the move toward decarbonization gains momentum, a variety of future risks and trends become conceivable, including carbon pricing and tighter energy-saving regulations as well as climate changed-induced natural disaster such as typhoons, torrential rain, and flooding. To help avoid such risks, going forward Casio will seek to reduce greenhouse gases generated in its business operations by, among other measures, pursuing greater energy savings, expanding the introduction of renewable energy, and securing alternatives in the value chain.

Since its establishment, Casio has made use of technology to make products smaller, lighter, thinner, and more energy efficient. In this way, it has created a wide variety of eco-products. Anticipating the market needs for energy-saving products to increase even more in the future, Casio will push its technical development ahead further in light of these environmental challenges in an effort to create products with high environmental performance and in pursuit of business growth.

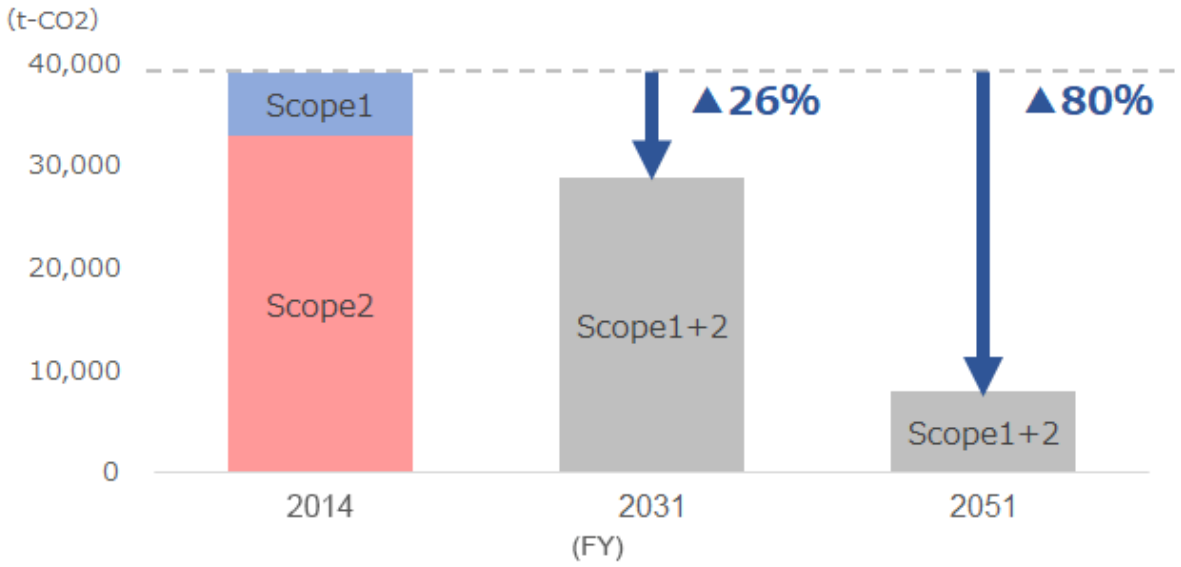
In order to minimize the various risks mentioned above, and expand opportunities, Casio must contribute to the sustainability of the planet and its human societies. Casio recognizes that this is an extremely important issue for further strengthening its business foundation, and will make even more strenuous efforts to realize a decarbonized society.

Policy

Aiming to realize a decarbonized society, Casio is committed to reducing greenhouse gas emissions across the value chain. It has established the goals of reducing greenhouse gas emissions from business operations (Scope 1 and 2) by 26% by fiscal 2031, compared to fiscal 2014, and by 80% by fiscal 2051. To achieve those targets, Casio will promote the introduction of high-efficiency/energy-saving equipment, the improvement of work processes, and the adoption of renewable energy.

Since emissions from purchased goods and services (Category 1, Scope 3) account for 60% or more of Casio's CO_2 emissions throughout the value chain, suppliers' initiatives to reduce greenhouse gas emissions are important. Going forward, Casio will start surveying the reduction of greenhouse gas emissions by its main suppliers and encourage initiatives leading to reduction of greenhouse gas emissions across the value chain.

Reduction targets for greenhouse gas emissions (Scope 1 and 2)



Management Approach

Environmental Action Plans and Performance

Evaluation ◎: All targets met, ○ : Most targets met, △ : Remaining issues outweigh results, × : No progress made

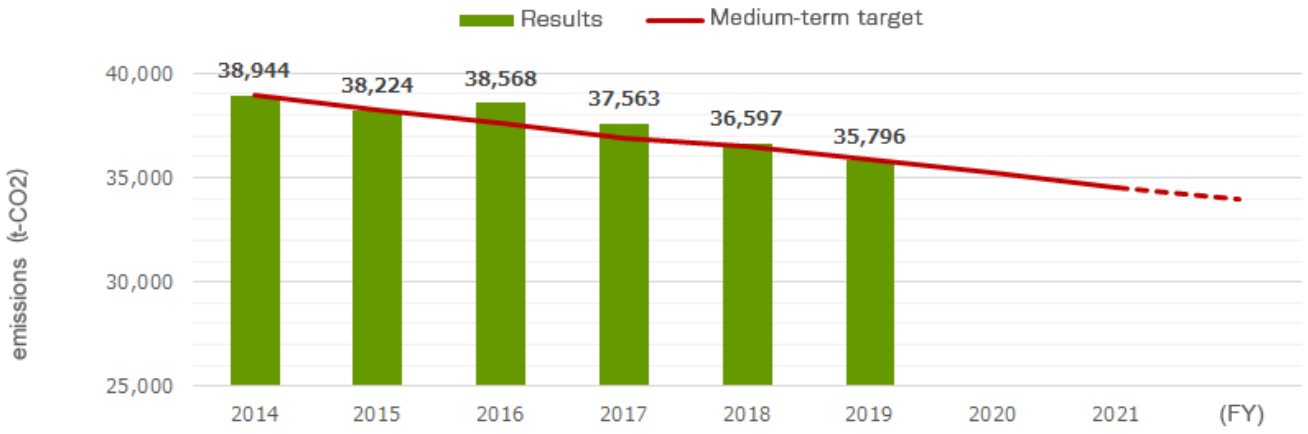
Medium and long-term targets	FY2019 Target	FY2019 Performance	Evaluation	FY2020 Targets and KPI
Long-term target: To reduce the total volume of the Casio Group's greenhouse gas emissions (scope 1 and 2) by 80% compared to FY2014 by FY2051	Create scenarios to reduce CO_2 emissions and achieve medium and long-term targets	Created reduction scenarios	○	Acquire SBT certification and join RE100

Medium-term target: To reduce the total volume of the Casio Group's greenhouse gas emissions (scope 1 and 2) by 26% compared to FY2014 by FY2031	Reduce the FY2018 CO_2 emissions for the entire Casio Group by 7.95% compared with FY2014	Achieved a 8.08% reduction	◎	Reduce the FY2018 CO_2 emissions for the entire Casio Group by 9.6% compared with FY2014
To have 70% or more of main suppliers establish GHG reduction targets by FY2025	-	-	-	Establish a supplier survey

Activity Results

Greenhouse gas emissions in business operations (Scope 1 and 2)
The Casio Group has established medium-term reduction targets for CO_2 emissions from each office and Group company based on its medium-term targets for greenhouse gas emissions in business operations (Scope 1 and 2). Each site carried out energy-saving activities to achieve those targets, resulting in an 8.56% reduction in greenhouse gas emissions for fiscal 2019, compared to fiscal 2014, thus achieving the annual target. Going forward, in addition to practicing energy-saving activities and introducing high-efficiency equipment, Casio will also work on making use of renewable energy and will aim to acquire SBT certification and join RE100.

Changes in greehouse gas emissions (Scope 1 and Scope 2)



(t-CO_2)

		FY2014 (Base year)	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2031
CO_2 emissions	CO_2 emissions	38,944	38,224	38,568	37,563	36,597	35,796	-	-	-
	Reduction rate	-	1.85%	0.97%	3.55%	6.03%	8.08%	-	-	-
Medium-term target	CO_2 emissions	-	38,261	37,589	36,929	36,509	35,847	35,197	34,403	28,819
	Reduction rate	-	1.76%	3.48%	5.17%	6.25%	7.95%	9.62%	11.66 %	26.00 %

Scope 3

Casio monitors and calculates greenhouse gas emissions in its own business operations (Scope 1 and Scope 2) and also emissions throughout the entire value chain, upstream as well as downstream (Scope 3). Since emissions from “purchased goods and services” (Category 1) account for 60% or more of Casio’s Scope 3 CO_2 emissions, the Casio Group will promote activities to reduce greenhouse gas emissions across the value chain, chiefly by encouraging its main suppliers to establish targets for greenhouse gas reduction.

CO_2 Emissions throughout the Entire Value Chain

Life Cycle Assessment

In the past, Casio implemented unscheduled life cycle assessment (LCA) for products, but there was no systematic framework for conducting LCA for newly developed products.

In fiscal 2018, Casio brought together members of development departments, distribution departments, IT departments and others for each product to establish an in-house LCA Working Group and commenced studies in order to implement constant product LCA.

Going forward, Casio will identify issues and formulate a roadmap for the constant implementation of LCAs with the aim of building a system that can perform LCAs for 100% of new models by fiscal 2026.

Realizing a Decarbonized Society

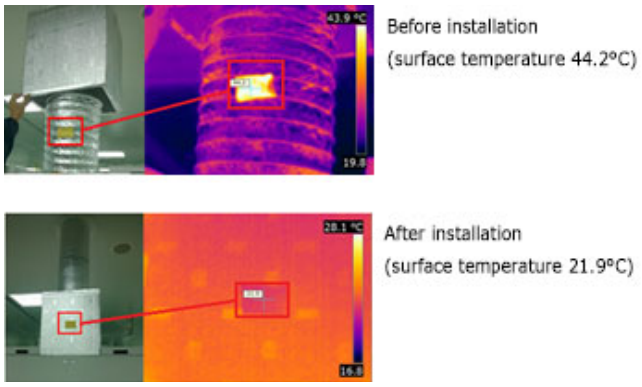
Business Sites Initiatives

Initiatives at Casio (Thailand) Co., Ltd.

Using insulation to reduce energy use

The company reduced the air-conditioning cooling load by installing insulation around the exhaust ports of the reflow system and dryer to block heat conduction. This reduced energy use by 4,651 Kwh per year.

Reflow systems insulation



Surface temperature decreased from 44.2°C to 21.9°C.

Introducing buses to reduce CO_2 emissions

The company has 40 buses that it provides for employees to use for their daily commute. Around 2,000 employees use these commuting buses. This measure accounts for an annual reduction of CO_2 emissions of 1,567 tons.

Item		Consumption rate (km/L) *1	Distance (km) *2	Emission coefficient (kg-CO_2/L) *3	Amount *4	Days/year	GHG emission (kg-CO_2/year)	Special notes
Before introduction	Motor cycle (gasoline)	50	60	2.32166	1600 people	268	1,194,633	
	Car (gasoline)	14,763	60	2.32166	400 people	268	1,011,510	
	Total						2,206,143	
After introduction	Bus (diesel)	2.6	60	2.58496	40 units	268	639,479	

Total						1,566,664	Reduction

*1 Value published by the Ministry of Science and Technology of the Kingdom of Thailand
*2 Employees' average commuting distance (round trip)
*3 Based on the Casio Group's calculation standard (emission coefficient from Japan's Act on Promotion of Global Warming Countermeasures)
*4 The number of people before introduction was calculated as 80% of all employees commuting by motorcycle and 20% commuting by car.

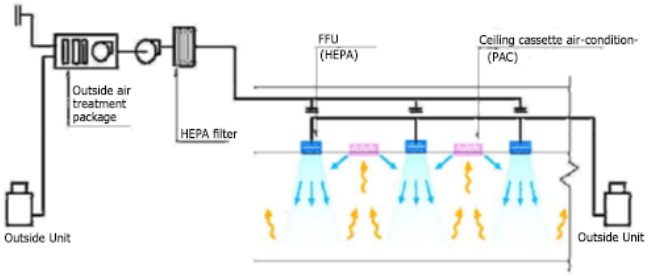
Commuting buses at Casio (Thailand)

Initiatives at Yamagata Casio Co., Ltd.

Introducing the latest energy-saving air-conditioning systems

A new watch plant that started operations in May 2018 uses the latest energy-saving air-conditioning systems, such as an air-conditioning system with several air-conditioners with FFUs*1 and ceiling cassettes, zoning and separate air-conditioning for clean rooms. These systems enable efficient operation according to the production situation.

*1 FFU: Fan-filter unit. A system that passes air sucked in by the fan through a filter to purify it before sending it out as clean air.



Air-conditioning system at Yamagata Casio

Clean room with latest air-conditioning system

Initiatives at Casio America

Casio America has been carrying out energy- saving measures for many years.

In 2018, the company again won an ENERGY STAR Award from the U.S. Environmental Protection Agency (EPA). The award recognized Casio America's efforts to ascertain data on and efficiently manage electricity usage at its data center, and its initiatives to use a building management system to more effectively use cooling and heating. This ENERGY STAR Award was the fifth the company has received, following 2012, 2013, 2016 and 2017. Going forward, Casio America will continue to carry out environmentally friendly initiatives to help achieve a sustainable society.

Casio America, Inc.

ENERGY STAR plaque

Initiatives at Hachioji R&D Center

The Hachioji R&D Center has installed automatic blinds and grows a green wall of vegetation at its facility to reduce CO_2 emissions. The automatic blinds calculate the location of the sun, use sensors to detect the strength of the sunlight, and open and close automatically, thereby reducing the cooling and heating load. Since 2012, the Center has also grown a green wall of vegetation as a summertime energy-saving measure in an effort to reduce the cooling load even more. Through a process of trial and error to balance watering, fertilization, and sunlight, currently, the green wall (planted with two kinds of morning glories) grew splendidly to a size of 8.5 meters wide by 10 meters tall. Local residents even stopped by to take photos of it. This initiative to grow a green wall of vegetation has entered Hachioji's Green Wall of Vegetation Contest in the "organization grouping" since 2017 and won awards two years running, including the first place award in 2017.

Green wall of vegetation at the Hachioji R&D Center

Award certificate and first place gift

Installation of LED Llighting

Casio is installing LED lighting at its business sites to reduce electricity consumption. Thus far, it has installed LED lighting at many Casio sites, including the Hatsudai Head Office, Hamura R&D Center, Hachioji R&D Center, Yamagata Casio, Casio Electronics (Shenzhen) Co., Ltd., Casio (Thailand) Co., Ltd., Casio America, Inc., and Casio Electronics (Shaoguan) Co., Ltd., and other sites. The installed LED lighting has brought about substantial CO_2 emissions reductions.

LED lighting in Casio Electronics (Shenzhen)'s lobby

LED lighting in Casio (Thailand)'s plant

LED lighting in Yamagata Casio's plant

Realizing a Decarbonized Society

Logistics process initiatives

Casio is actively reducing its environmental impact by striving to reduce CO_2 and waste emissions arising from logistics. In order to reduce CO_2 emissions in the logistics process, Casio is promoting the following three action plans.

- *Shortening transport distances*： Promoting direct shipping to customers from logistics centers in and outside Japan
- *Promoting a modal shift*： Actively using modes of transport with low environmental impact such as rail for transport between sites
- *Improving loading efficiency and reducing transport volume*： Improving the packaging design of electronic dictionaries, musical instruments electronic cash registers, and other products, and reducing the volume of packaging

Four products obtain Eco Rail Mark certification

On February 28, 2013, Casio obtained Eco Rail Mark certification from the Railway Freight Association for four products: clocks, digital pianos, electronic keyboards and electronic cash registers.

The Eco Rail Mark indicates that a product or company is proactively addressing global environmental issues by using rail freight transport. Rail transport produces about one sixth of the CO_2 emissions of commercial trucking, making it an environmentally friendly method of transport with a low environmental impact.

The criteria for certification are utilization of rail for at least 30% of land freight transport for distances of 500km or more for a product, and utilization of rail for at least 15% of land freight transport for distances of 500km or more for a company.

Casio obtained Eco Rail Mark certification as a company in October 2009 and successfully obtained product certification as a result of further expanding rail transport due to the relocation, amalgamation and closure of business sites.

Casio now actively uses rail for transport from its logistics center in Saitama Prefecture to distribution centers in Hokkaido, Osaka and Fukuoka. Going forward, Casio will make active efforts to reduce environmental impact by pursuing environmentally friendly transport.

Eco Rail Mark


Promoting a modal shift to rail transport

Environmentally friendly rail containers