

# Offices

All Casio office sites are engaged in efforts to reduce CO<sub>2</sub> emissions and cut resource use by upgrading office equipment and improving work processes.

## Reducing power consumption through server integration

Casio has vastly reduced its energy consumption by integrating the servers that had once been disparately located across the group.

### Server integration results

A total of 1,140 servers had been integrated by March 2017.

### Effects of reducing power consumption through server integration

This server integration effort resulted in a total reduction in power consumption of 1,710,000 kWh, yielding a reduction in CO<sub>2</sub> emissions of 942 tons.

### Contributing to Green IT Through Server Integration

	Through Mar.2016	Apr. 2016 - Mar. 2017	Cumulative total
Number of servers integrated (machines)	1,080	60	1,140
Annual power consumption reduction (kWh) <sup>*1</sup>	1,620,000	90,000	1,710,000
Annual CO <sub>2</sub> reduction (tons-CO <sub>2</sub> ) <sup>*2</sup>	892.6	49.6	942.2
Number of Japanese cedars needed to absorb this amount (trees) <sup>*3</sup>	63,759	3,542	67,301

\*1 : Calculated based on a 1,500 kWh reduction per server per year.

\*2 : Calculated based on CO<sub>2</sub> emissions of 0.551kg kg/kWh.

Figures for past fiscal years have been recalculated using the GHG Protocol Calculation Tools.

\*3 : Based on a document published by the Forest Agency of Japan's Ministry of the Environment, "Absorption Source Countermeasures for Greenery to Prevent Global Warming," indicating that a single Japanese cedar tree absorbs about 14 kg of CO<sub>2</sub> annually.

## Initiatives at Casio America

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

In 2016, it 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 third the company has received, following 2012 and 2013. Going forward, it will continue to carry out environmentally friendly initiatives to help achieve a sustainable society.

## Casio Europe's energy-efficient building

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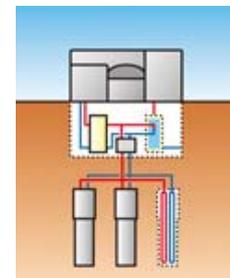
Casio's office sites have shifted from focusing on reducing CO<sub>2</sub> per unit of production to cutting the total volume of CO<sub>2</sub> emitted across the entire Casio Group. In January 2009, Casio Europe integrated its offices, distribution center, and service center, which had previously been separately located around Germany, into a new energy-efficient building.



CASIO Europe

This building has an innovative air conditioning system that uses Geothermal heat collecting equipment 130m below ground to pump water through pipes embedded in the concrete ceiling and floor of the building. The system pumps cool water in the summer and hot water in the winter to either cool or heat the building.

Energy consumption in the building is further reduced by controlling room temperatures using blinds that open and close automatically according to the weather as well as proper ventilation.



Geothermal heat usage model

## Hachioji R&D Center takes on the challenge of climate change and environmental preservation

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*The Hachioji R&D Center was designed and constructed to reduce CO<sub>2</sub> emissions in order to contribute to the fight against climate change. The center continues to take on the challenge of environment protection. Some of its innovations are highlighted below.*

## Ongoing power-saving activities

The Hachioji R&D Center completed in November 2003 is a research and development facility that incorporated environmentally friendly equipment from the initial design stage. It has been running efficiently for approximately 13 years since it opened, boasting energy-saving features such as high-efficiency vertical thermal storage tanks, a natural ventilation system, automatic blinds, lighting control and equipment control based on weather forecasting. Thus, instead of just relying on its hardware, the center has been enthusiastically pursuing other improvements such as finely tuned temperature control adjustments, and the revision of operation methods based on actual daily data. In fiscal 2013, interior lighting fixtures started being converted from fluorescent to LED, as part of effort to reduce energy consumption.

## Natural ventilation system maximizes use of outside weather conditions

No heating equipment is needed at the Hachioji R&D Center. This is because the building has comprehensive thermal insulation, which prevents interior heat from escaping to improve thermal efficiency. Since room temperatures increase even in winter, due to body heat and heat from equipment such as computers, the interior is cooled by letting outside air in as needed through ducts on each floor. This provides ventilation through natural airflow using the chimney effect to lower room temperatures. Thus, the temperature is adjusted using hardly any electric power.

## Automatic blinds and a green wall of vegetation

Automatic blinds reduce the air conditioning load by calculating the position of the sun and using sensors to detect its intensity to open and close automatically. The center has been using these blinds, combined with a green wall of vegetation, since 2012 in an initiative to reduce the cooling load in the summer. The center has also reduced unnecessary usage of electricity by regulating air conditioning to match the number of people in the building according to building entry data and by switching interior lighting on and off and adjusting brightness with sensors that detect room brightness and human movement.



Automatic blinds



The green wall of vegetation covers the surface with bitter melon and morning glory.

The initiatives of the Hachioji R&D Center make a significant contribution to reducing CO<sub>2</sub> and energy conservation. They also play a further role in environmental education via descriptions given during facility tours for elementary and junior high school students from the local area and beyond and others who visit the Hachioji R&D Center.

Related materials: See the “Environmental Communication” section for information about educational tours of the facility [Environmental Communication](#)

## Installation of LED lighting

Through the active adoption of LED technology within the Casio Group, energy consumption for lighting has been greatly reduced. As of March 2017, about 4,900 LED fixtures have been installed, saving about 101 tons of CO<sub>2</sub> emissions per year compared to conventional fluorescent lamps.



LED lighting in the lobby of the Hatsudai headquarters



LED lighting in the Hamura R&D Center lobby



LED lighting in the Hachioji R&D Center lobby

## Participation in Light Down Campaign

Casio supports COOL CHOICE, a national movement promoted by the Japanese government, and the Fun to Share climate change campaign implemented by the Ministry of the Environment. The Group has also been taking part in the Light Down campaign since fiscal 2011.

In fiscal 2017, 13 sites at five companies (Casio Computer Co., Ltd. [headquarters, Hamura R&D Center, Hachioji R&D Center, Fukuoka Sales Office, Shizuoka Sales Office, and Higashi-fussa Dormitory], Yamagata Casio [headquarters and Yamanashi Office], Casio Electronics Manufacturing, Casio Business Service [Hamura and Kofu], and Casio Techno [Akihabara and Inadaira]) took part in the campaign by turning off outdoor signs and other unnecessary lights. In fiscal 2018, 14 sites at six companies (the above plus Casio Marketing Advance) did the same.

