

Realize a Sustainable Society



"Energy-saving throughout entire buildings" creating new value by combining the Mitsubishi Electric Group's comprehensive strengths and advanced technologies

At the COP21* held in 2015 (the meeting that produced the Paris Agreement), 175 Parties agreed to an overall target of holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and to a non-binding target of limiting the temperature increase to 1.5°C, by 2025 or 2030. To achieve this target, it is vital to reduce CO₂ emissions from all aspects of our activities—from households and offices to transportation and factories.

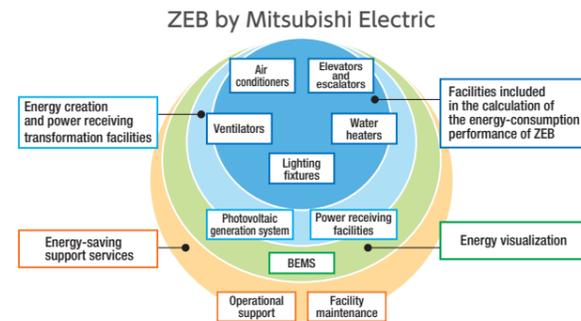
The Mitsubishi Electric Group contributes to promoting energy-saving, highly efficient buildings by combining multiple technologies and applying leading-edge technologies in the area of the operation and control of facilities in office buildings and other buildings.

* COP21: 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change. An international conference for discussing climate change issues.

The value of ZEB supplied by Mitsubishi Electric, the first ZEB planner among Japanese electronics manufacturers

ZEB stands for net Zero Energy Building, and refers to buildings that achieve significant energy savings, with standards differing by country.

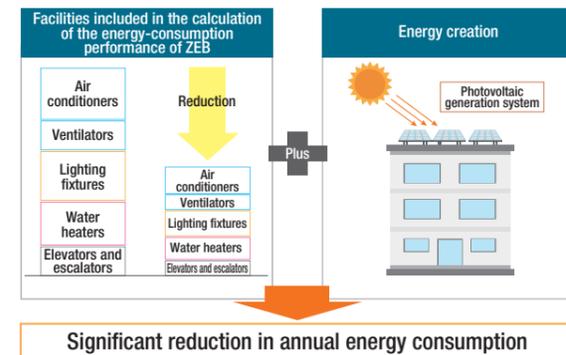
The Mitsubishi Electric Group's ZEB realize these significant energy savings by comprehensively incorporating not only highly energy-efficient building facilities (air conditioners, ventilators, lighting fixtures, water heaters, elevators, escalators), but also energy creation and power receiving/transformation facilities such as photovoltaic generation facilities, energy visualization achieved by BEMS* and other such systems, and energy-saving support services.



* BEMS (Building Energy Management System): A system that visualizes and centrally manages the energy usage of an entire building.

Achieving energy savings through synergies between diverse equipment and technologies

To effectively reduce a building's energy consumption, it is vital to achieve coordination between the know-how that the Mitsubishi Electric Group has developed over many years and the hardware and software of the diverse electrical equipment that has been installed in the building to date. In addition to deploying Mitsubishi Electric-brand high-efficiency facilities, the installation of facilities including photovoltaic generation equipment to create energy also contributes to significantly reducing the annual energy consumption of buildings.



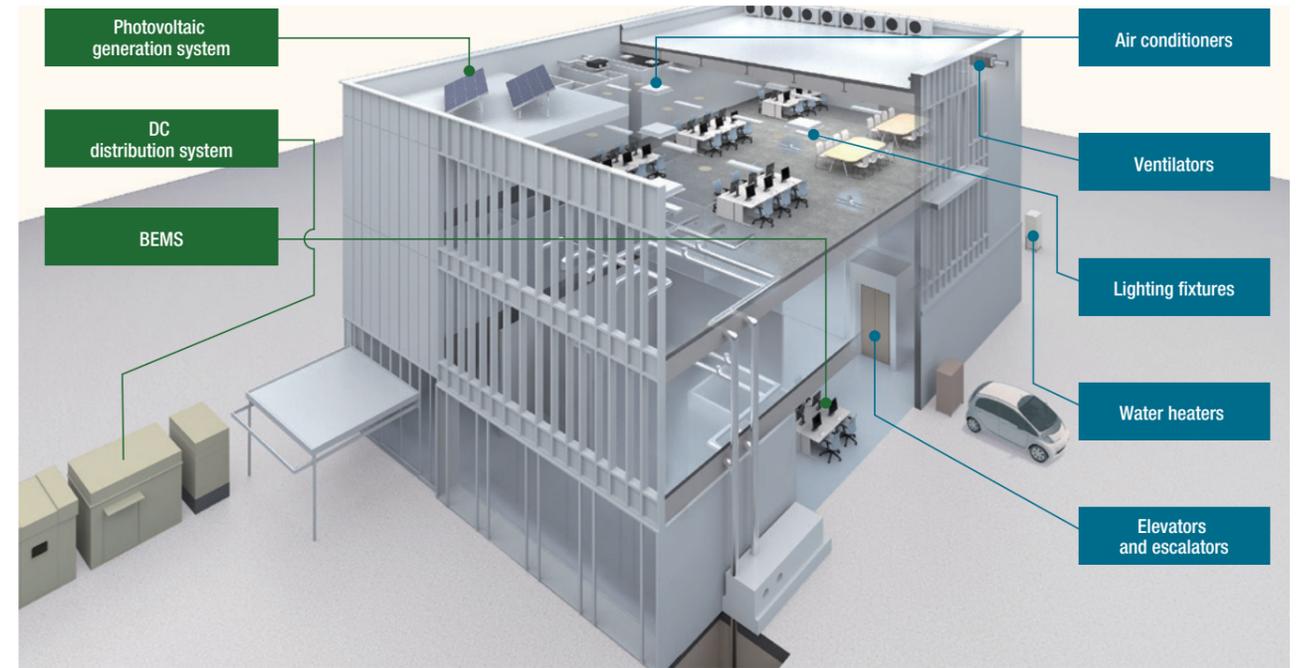
How a building's energy consumption can be reduced

Mitsubishi Electric's advanced technology : DC distribution system allows energy to be fully utilized

The Mitsubishi Electric Group has succeeded in realizing efficient power supply with its DC distribution system, the latest in its power receiving and distributing facilities. Normally, OA equipment and electric facilities receive AC power, but they actually operate by internally converting the AC power to DC power. As a result, loss or waste is generated in the conversion process. The DC distribution system, by contrast, directly supplies DC power, eliminating any conversion loss or waste. Linking the system to a photovoltaic generation system that generates DC power and storage batteries that store and supply DC power will realize efficient power supply, and is therefore expected to contribute to the realization of ZEB.

Issues going forward

In the future, energy conservation is expected to steadily advance in all aspects of society on a global scale. To address the energy-saving issues that buildings and homes are likely to face, the Mitsubishi Electric Group will deploy the technologies and know-how that are its strengths as a comprehensive electronics manufacturer in the development of ZEB and ZEH (net Zero Energy Houses), expanding its role in these areas. By further boosting energy-saving performance and using technologies that create a best mix of renewable energies, the Group aims to contribute to the creation of low-carbon societies, bringing an active role in the global arena into its sights.



Schematic diagram of ZEB case study

CASE (Shirasagi Denki Kogyo Co., Ltd. head office building)

Realizing 75% energy savings

In February 2018, the Mitsubishi Electric Group installed facilities and systems that included air conditioners, ventilators, lighting fixtures, elevators, photovoltaic generation facilities, BEMS and a DC distribution system in Shirasagi Denki Kogyo's head office, which had been rebuilt in a new location after the original building was damaged in the Kumamoto Earthquake. These installations have realized significant energy savings and enabled the building to achieve "Nearly ZEB"* status.

* Evaluation based on "Building-Housing Energy-efficiency Labeling System" formulated by the Ministry of Land, Infrastructure and Transport



Shirasagi Denki Kogyo Co., Ltd. head office building

VOICE (Customer)



Mr. Yukihiro Numata
President, Shirasagi Denki Kogyo Co., Ltd.

During the Kumamoto Earthquake, our office building suffered considerable damage, to the point that it had half collapsed. We therefore had to build a new office building. We decided to build the new building based on the twin concepts of constructing a disaster-resistant building that could be used as an evacuation center by our employees and their families in a disaster, and deploying ZEB technologies to minimize energy consumption.

Examining several examples of ZEB, we developed a strong interest in Mitsubishi Electric's DC distribution system, and decided to adopt it. Our new office building, which incorporates a BCP (business continuity plan) and environmental measures, is in a way symbolic of our forward-looking attitude. We will continue to pursue whatever we can do as a company for the benefit of our employees and their families, and for the future of the world.

VOICE (In charge of ZEB engineering)



Tadashi Ishio
Energy Management Technologies Group,
Total Building System Solution & Engineering
Dept. 2, Domestic Marketing Division, Building Systems Group, Mitsubishi Electric Corporation

A ZEB is not something that can be realized with one superior building facility. It involves the appropriate combination and optimal control of diverse facilities. It also requires a good coordination between energy-saving designs that are incorporated into the building itself and actual facilities. Therefore, ZEB engineers need to be knowledgeable not only about the facilities that their own department is responsible for designing, but also facilities that are handled by other departments. Cooperation with relevant departments outside the company, such as companies that undertake building design and construction, is also vital to the realization of ZEB.

This recent project made me keenly aware that we are able to supply outstanding ZEB precisely because of Mitsubishi Electric's wealth of building facility products. We hope to contribute to the realization of sustainable societies by offering even better ZEBs going forward.