Power/Energy

In the Power/Energy domain, leveraging Hitachi's strengths in operational technology (OT), IT, and products, we provide power generation systems, transmission & distribution systems, and other solutions to a diverse range of customers across the energy value chain spanning production, distribution, and consumption. We are achieving social innovation by tackling issues in the constantly changing energy market, based on applying our extensive knowledge and advanced technology.

Kamisu Offshore Wind Farm No. 1
Wind Power Ibaraki Co., Ltd.

Future Growth Drivers of the Business

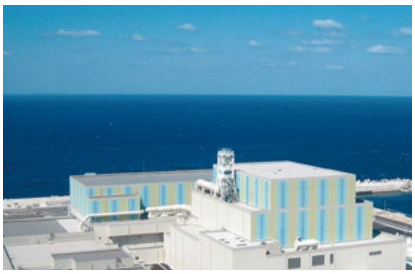
Wind Turbines

Wind turbines are an excellent source of renewable energy that provide a solution to resource depletion and global warming, while also supplying energy to local or regional areas in ways that meet community needs and help realize a recycling-based sustainable society. Hitachi's downwind turbines are designed for harsh weather conditions with frequent bouts of high wind. They capture upward-blowing winds efficiently, and can also operate safely if a typhoon or storm causes a local blackout by switching to a free-yaw mode of operation to reduce wind load. Hitachi has supplied many turbines for wind farms in Japan. In 2018, based on this track record, we received an order to supply wind turbines for an offshore wind farm in Taiwan. Going forward, we will strive to meet customer needs by developing total solutions that use grid interconnection technology to distribute wind power in combination with high value-added maintenance services utilizing IoT.

Fukashiba Wind Power
Station in Kashima Port
Hitachi Wind Power Ltd.

Nuclear Power Plants (ABWR*)

The major advantage of nuclear power systems is lower environmental impact. Compared with fossil fuels, they can generate huge quantities of power safely from limited resources with substantially lower emissions of carbon dioxide, a significant factor in global warming. Hitachi was the main contractor in the construction of Chugoku Electric Power's Shimane Nuclear Power Station Unit 1, which began operating in 1974. It was the first commercial nuclear power system built entirely in Japan. As one of the world's leading manufacturers of nuclear power equipment, today we are involved in efforts to restart nuclear power plants in Japan based on new safety standards and in the reactor decommissioning program in Fukushima Prefecture. Overseas, we are involved in a project to build a new nuclear power station in the UK. Hitachi aims to make a broad contribution to realizing a safe and sustainable society through the maintenance and development of nuclear technology.



Shimane Nuclear Power Station
(Unit 3, under construction)
The Chugoku Electric Power Co., Inc.

* ABWR: Advanced Boiling Water Reactor

Executive Vice President's Message

Toshikazu Nishino
Executive Vice President and Executive Officer

Market-related Issues

As we work towards realizing a sustainable society, global markets for power and energy are undergoing a major transformation due to the "three Ds" of decarbonization, decentralization, and digitalization. For widespread adoption of wind power and other renewables as sources of base load power, we not only require systems that can cope with harsh natural conditions, but it is also essential to develop resilient power transmission and distribution infrastructure so that power generated from renewable sources can be delivered efficiently and reliably to residential and corporate users. Nuclear energy can generate large quantities of power with minimal environmental impact, irrespective of the weather. Provided we pay more attention to the safety aspects, we believe it has the potential to be a major future source of base load power in many parts of the world.

Recently, we have also seen moves to apply cutting-edge digital technology to facilitate more advanced maintenance and management of power generation systems. Decentralization is an important emerging trend, with regions taking advantage of local characteristics to develop distributed energy resources that generate power efficiently for local consumption as part of creating a recycling-based sustainable society.

Where Hitachi Is Focusing

With over a century of experience in delivering world-class products, services, and solutions, Hitachi is contributing to industrial development and the realization of a sustainable society through the supply of low-emission and zero-emission power generation systems. To this end, we are looking to generate high returns as market leader by investing aggressively in growth sectors such as the non-carbon energy solutions business.

In the renewable energy sector, we aim to expand our wind turbines business globally, while also developing total solutions to deliver reliable power from the bulk power network to residential and other users at the edge of the grid. We are also applying IoT, data analytics, and other digital technology to develop innovative systems, including virtual power plants* to support state-of-the-art power generation as well as more advanced facilities maintenance systems. Mixed energy distribution solutions that can integrate decentralized power sources with a large-scale power grid are another major focus for us.

In the nuclear energy sector, our primary emphasis is on fulfilling our social responsibility as a manufacturer of nuclear power equipment through our engagement in domestic initiatives. These include efforts to modify existing nuclear power plants to meet new safety standards ahead of restarts, and an active role in the decommissioning of reactors at the Fukushima Daiichi Nuclear Power Station for Tokyo Electric Power Company Holdings, based on the lessons learned from the Great East Japan Earthquake. Overseas, in the UK, we are assessing the economic rationality as a private company for a project that involves the construction of a new nuclear power station, amid ongoing discussions with the British government.

Our Future Mission and Role

A reliable supply of uninterrupted power is essential to the lifestyles and safety of consumers living in our modern, highly urbanized society. At Hitachi, we are committed to promoting collaborative creation with a range of customers across the energy value chain that can support reliable supplies of eco-friendly energy for the safety and peace of mind of users. We are also striving to provide new value through the utilization of digital technology.

The Creation of Social Value

Finding ways to ensure the reliable and efficient supply of the energy essential to modern society while minimizing environmental impact is vital to an affluent and sustainable future. We aim to contribute to industrial development and the realization of a sustainable society by developing power generation systems to exploit renewables and other zero-emission energy sources, along with innovative solutions to support efficient on-demand supplies of energy.

* A virtual power plant (VPP) is a technical solution for balancing power supply and demand. It uses energy management technology utilizing IoT to aggregate distributed energy resources such as storage batteries or power generation systems operated by households or factories, controlling the energy generated from these sources remotely to integrate them in a way that functionally emulates a power plant.

SDG Focus