2. Energy Solutions

2.1 Commencement of Commercial Operation of Goi Thermal Power Station of Goi United Generation LLC

Aerial view of Goi Thermal Power Station

Steam turbine and generator

The Goi Thermal Power Station achieved integrated commercial operation in March 2025 with the commencement of commercial operation of Unit 3, following Unit 1 in August 2024 and Unit 2 in November 2024. This milestone marked the completion of a large-scale renewal project executed under a comprehensive engineering, procurement, and construction (EPC) contract jointly awarded in 2019 to Toshiba Corporation (then Toshiba Energy Systems & Solutions Corporation) and Toshiba Plant Systems & Services Corporation by Goi United Generation LLC, a joint venture formed by JERA Co., Inc., ENEOS Power Inc., and Kyushu Electric Power Co., Inc.

In this project, Toshiba Corporation was responsible for supplying key equipment, including steam turbines, as well as for civil engineering and architectural design and construction, supported by Takenaka Corporation and Takenaka Civil Engineering & Construction Co., Ltd. as primary subcontractors. Toshiba Plant Systems & Services Corporation undertook the overall design of the power generation system, installation work, and commissioning.

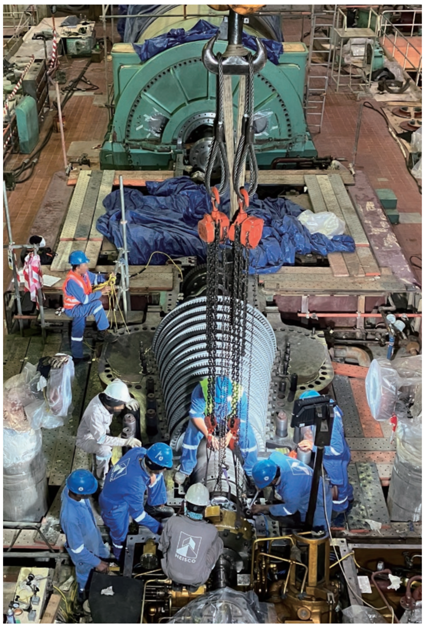
The Goi Thermal Power Station is a liquefied natural gas (LNG)-fired combined-cycle thermal power plant with a total generating capacity of 2 340 MW (780 MW × three units). By integrating GE Vernova, Inc.'s 9HA.02 gas turbines with our high-efficiency steam turbines and generators, and through optimal system-wide design, the plant achieves a world-class thermal efficiency of approximately 64% on a lower heating value basis. This high efficiency contributes to reducing carbon dioxide (CO_2) emissions while providing a stable and reliable power supply.

2. Energy Solutions

Leveraging extensive experience and strong engineering management capabilities, the construction period was reduced by approximately two months compared with conventional plant projects. In addition, advanced digital security technologies were implemented, including mobile operator stations (OPS) that enable plant operation and control from anywhere within the power station, not only from the central control room. Furthermore, a human-centered design concept—“easy to see, easy to understand, comfortable, and easy to operate”—was adopted to prevent human error. As a result, the plant received the 2025 Good Design Award.

Going forward, we will continue to meet customer needs by delivering highly efficient power plants, thereby contributing to the realization of a carbon-neutral society.

2.2 Restoration Work Following Lubricating Oil System Failure at Doha East Power Plant, Kuwait



Doha East Power Plant restoration work (turbine side)

Doha East Power Plant restoration work (generator side)

In August 2024, a plant trip occurred at the Doha East Power Plant in the State of Kuwait as a result of a grid-side disturbance, leading to the loss of part of the emergency lubricating oil system. Consequently, the bearings of the steam turbines and generators in four of the plant's seven operating units sustained severe damage, resulting in a critical situation in which the units could not be restarted. The customer, the Ministry of Electricity, Water and Renewable Energy (MEW) of the State of Kuwait, strongly requested early restoration by the end of June 2025, prior to the peak summer season, when the electricity supply-demand balance becomes extremely tight each year.

In response, Toshiba Corporation, as the original equipment manufacturer (OEM) of the turbines and generators, established a cross-functional emergency task force at Keihin Product Operations, bringing together engineering, sales, and manufacturing personnel, with support from its local subsidiary, Toshiba Power Systems (Kuwait) Co. W.L.L.

As the four affected units had been in operation for more than 40 years since their commissioning in the late 1970s, the restoration work posed significant challenges in terms of design verification, manufacturing feasibility, and component procurement. Nonetheless, the task force formulated and implemented a rational and highly effective restoration plan within the limited timeframe.

(1) On-site investigation and early order placement

Immediately after the incident, an investigation team was organized and dispatched to the plant. The extent of the damage was promptly assessed, enabling the formulation of an optimal and rapid restoration plan in coordination with the task force. Based on this assessment, technical discussions were conducted with the customer, and orders for replacement components were placed at an early stage, thereby reducing the overall plant downtime.

(2) Reduction in lead time for required components through global procurement

As the standard delivery lead time for replacement components would not meet the required restoration schedule, the global supply chain was actively leveraged. Negotiations with suppliers worldwide enabled a significant reduction in lead times for critical components essential to the restoration process.

(3) On-site construction planning, scheduling, and quality control

Restoration work commenced in January 2025. Under our leadership, a comprehensive construction plan was developed in collaboration with local contractors, and the schedule was optimized in consideration of component delivery constraints. To maximize on-site efficiency, parallel operations on two units were implemented. The work schedule was further adjusted in accordance with crane availability for component handling, and a 24-hour operation based on a two-shift system (day and night) was introduced, resulting in efficient, high-quality, and safe restoration.

Through these efforts, the restoration work and reconnection to the power grid were completed by the end of May 2025, one month ahead of the customer's requested schedule, without any accidents or safety incidents. The prompt and reliable execution of the project strengthened customer confidence and demonstrated our technical expertise and project execution capabilities, which continue to be highly valued by the management of MEW.

2.3 Commencement of Commercial Operation of Tanawon Geothermal Power Plant, Philippines

Tanawon Geothermal Power Plant steam turbine generator

The Tanawon Geothermal Power Plant in the Philippines commenced commercial operation in 2025. Toshiba Corporation was responsible for the supply of a full set of power generation equipment—including the steam turbine generator, condenser, cooling tower, main transformer, switchgear, and distributed control system (DCS)—as well as for commissioning. The plant is equipped with the GXP-X, a high-performance, compact standard geothermal turbine in the Geoportable™ series. With a rated output of 21 MW, the turbine is designed for high-speed operation at 4 900 rpm and is coupled to the generator via a reduction gearbox, enabling space-efficient installation.

This project employed a project execution scheme that we had not experienced before, in which equipment supply was undertaken by us and installation work was carried out by a local contractor. Although concerns were initially raised regarding potential confusion during the transition from the construction phase to the commissioning phase, a smooth transition was achieved through close on-site communication and coordination. The plant is currently operating in a stable manner.

We will continue to provide high-performance, high-quality, and highly efficient geothermal solutions, thereby contributing to the realization of a carbon-neutral society.

2.4 Delivery of Steam Turbine and Generator Control Systems for Olkaria I Geothermal Power Plant, Kenya

Olkaria I Geothermal Power Plant

Turbine control panel

Units 1 to 3 of the Olkaria I Geothermal Power Plant in the Republic of Kenya were originally constructed in the 1980s. Due to the aging of the facilities, a refurbishment project based on a scrap-and-build approach was planned.

In 2023, Toshiba Corporation secured a contract for steam turbines, generators, and their control systems, which were delivered to the site as scheduled from early April to late July 2025. The newly installed turbine and generator control systems incorporate our proprietary protection modules compliant with Safety Integrity Level 2 (SIL 2), ensuring the protection of both personnel and equipment in emergency situations. In addition, the turbine control systems incorporate accident analysis functions previously implemented in separate systems, thereby consolidating monitoring, control, and protection functions and improving operational efficiency and overall system reliability.

Going forward, we will proceed with commissioning activities as planned in preparation for the commencement of commercial operation in 2026. Through these efforts, we will contribute to the expansion of geothermal power generation capacity in Kenya.

2.5 Expansion of Deployment of Turbine Generator Inspection Robots

Inspection robot for turbine generators

Generator inspection using inspection robot

In 2025, Toshiba expanded the application of its turbine generator inspection robot to periodic inspections at multiple thermal power plants in Japan. Following its first domestic deployment at a power plant in 2024, full-scale implementation is now underway nationwide.

Conventional generator inspections required removal of the rotor from the stator, involving highly precise and labor-intensive operations performed by multiple specialist inspectors. The introduction of the new inspection robot has made it possible to perform inspections without removing the rotor. While maintaining an inspection scope equivalent to that of conventional methods, the robot has reduced inspection lead time and maintenance workload. For these inspections, an ultra-slim robot with a thickness of only 10 mm—among the thinnest in the industry(*)—was used to perform visual inspections of the rotor (scratches, signs of overheating, and clogged ventilation holes), visual inspections of the stator (scratches and overheating marks), and inspections for stator wedge looseness. All inspections were completed smoothly, confirming the sound condition of the generators.

We will continue to contribute to improving power plant availability through more efficient turbine generator inspections, as well as to maximizing customer benefits by reducing maintenance costs.

(*) As of April 2026 (according to the Toshiba Group research)

2.6 Successful Completion of Preparations for Restart of Kashiwazaki-Kariwa Nuclear Power Station Unit 6

Since the Great East Japan Earthquake, Toshiba Corporation has been carrying out construction work to implement enhanced safety measures and verifying the integrity of major equipment required for the restart of the Unit 6 reactor at Kashiwazaki-Kariwa Nuclear Power Station (KK-6) operated by Tokyo Electric Power Company Holdings, Inc. (TEPCO). As a result of sustained and systematic efforts, TEPCO announced in October 2025 that the technical preparations necessary for reactor startup had been completed, marking the successful completion of restart preparations for KK-6.

To achieve an early restart, TEPCO and Toshiba Corporation established KK6 Safety Measures Joint Venture Co., Ltd. (KS6) in June 2020, bringing together technical expertise and operational knowledge beyond the traditional organizational boundaries between a power utility and a plant manufacturer. Under this framework, KS6 has been responsible for the integrated management of the project implementing safety measures, as well as for the coordinated control of design and construction activities.

By consolidating the role of prime contractor under KS6, personnel integration—including on-site contractors—was promoted, fostering a strong sense of unity through the sharing of common objectives. In addition, KS6 implemented initiatives such as visualization of construction schedules and progress, centralized management of risk information affecting schedule reliability, and front-loading based on integrated equipment layout and construction area information. By leading the entire process from planning through completion, KS6 generated synergies that contributed to on-schedule completion of construction work for safety measures.

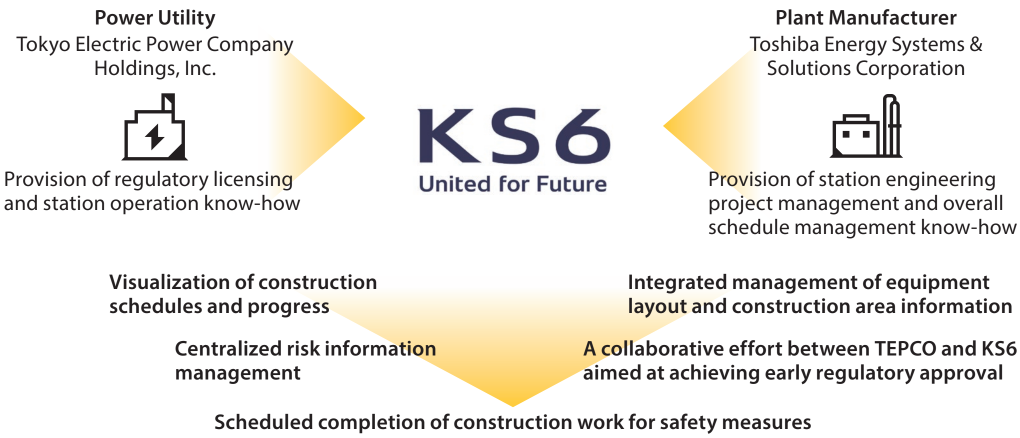
Furthermore, KS6 cooperated with TEPCO in responding to hearings conducted by the Nuclear Regulation Authority (NRA). By providing accurate and timely responses to detailed technical inquiries, KS6 contributed to reducing the number of hearings and to the acquisition of regulatory approval in September 2024.

Following the completion of construction work for safety measures, support was provided for major startup milestones, including fuel loading, reactor pressure vessel and primary containment vessel leakage tests, and functional verification of control rod drive mechanisms. To enable a prompt response to unforeseen events, expert teams were dispatched to the plant, and a dedicated support team was established at headquarters, comprising specialists from manufacturing facilities and research laboratories.

Through these efforts, we, in collaboration with TEPCO, established a solid technical foundation for the restart of KK-6, marking an important milestone toward safe and reliable operation.

Photo courtesy of Tokyo Electric Power Company Holdings, Inc.

Panoramic view of Kashiwazaki-Kariwa Nuclear Power Station



KK6 Safety Measures Joint Venture Co., Ltd.

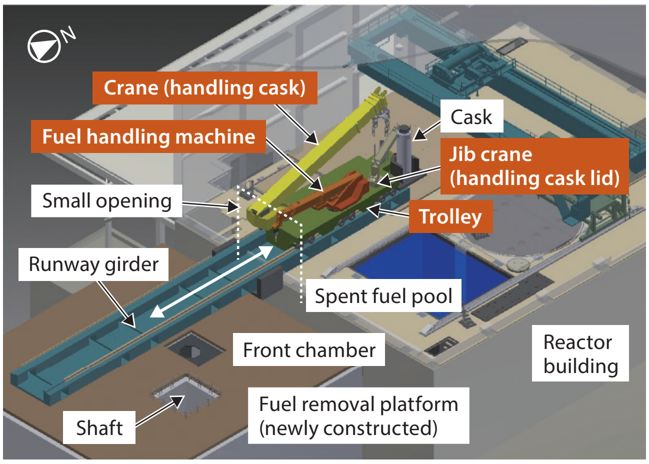
Photo courtesy of
Tokyo Electric Power Company Holdings, Inc.

Loading nuclear fuel into reactor pool

Photo courtesy of
Tokyo Electric Power Company Holdings, Inc.

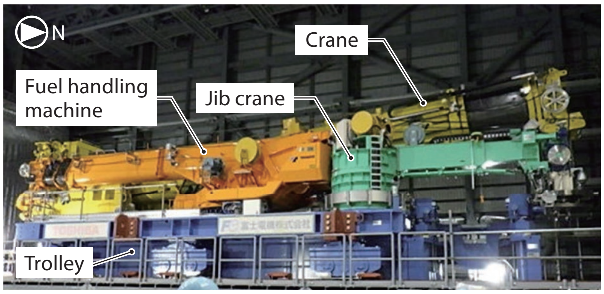
Loading nuclear fuel into reactor

2.7 Completion of Fabrication and On-site Installation of Spent Fuel Removal System for Fukushima Daiichi Nuclear Power Station Unit 2



■: Fuel removal equipment

Overview of spent fuel removal equipment for Fukushima Daiichi Nuclear Power Station Unit 2



Spent fuel removal system installed on site

Following the Great East Japan Earthquake, the reactor building of Fukushima Daiichi Nuclear Power Station Unit 2 did not collapse, as it did not undergo a hydrogen explosion. However, due to a core melt, radioactive materials remain within the building, resulting in a high-radiation environment that makes manned operations inside the building extremely difficult. A total of 615 fuel assemblies stored in the spent fuel pool inside the building require continuous removal of decay heat generated by spontaneous fission. In the event of a potential loss of cooling capability in the damaged building, a plan has been established to transfer the spent fuel to another pool on the site.

Conventional fuel retrieval operations are performed using gantry crane systems. Installation of such conventional equipment at Unit 2 would require dismantling the upper structure of the reactor building, raising concerns regarding the dispersion of radioactive materials during demolition and a potential increase in contaminated water due to rainwater ingress. Therefore, fuel retrieval is being carried out by inserting fuel handling equipment into the reactor building through a small opening in the wall, without dismantling the upper structure of the building.

To expedite the commencement of fuel retrieval, Toshiba Corporation developed new fuel removal equipment based on an existing boom-type industrial crane, rather than creating a completely new design from scratch, while accommodating the dimensional constraints of the access opening. The equipment is designed to enter the building with the boom stowed and to subsequently extend it inside the building for fuel retrieval operations. The equipment consists of three cranes with different functions mounted on a common trolley, enabling all operations required for fuel retrieval to be performed using a single integrated system.

This unprecedented equipment incorporates safety functions required for the handling of nuclear fuel and is structurally reinforced to satisfy seismic requirements equivalent to those for nuclear facilities. Furthermore, it is equipped with remote operation and failure recovery functions to address potential malfunctions in the high-radiation and confined environment inside the reactor building. As a result, the equipment ensures a level of safety equivalent to that of the existing fuel handling equipment. Following functional verification at the factory, transportation and on-site installation were completed as planned in collaboration with TEPCO.

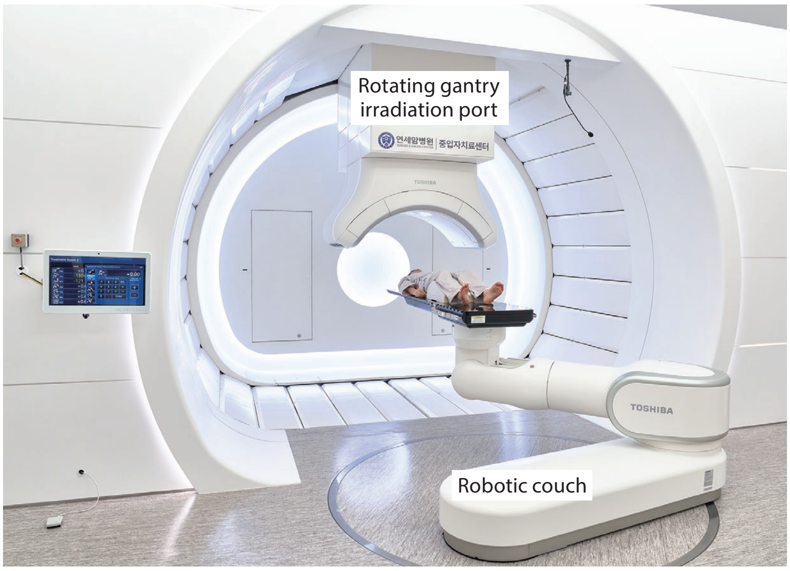
This project will contribute to the acceleration of fuel retrieval from the spent fuel pool of Unit 2, scheduled to commence in fiscal year 2026, thereby supporting the decommissioning of the Fukushima Daiichi Nuclear Power Station.

2. Energy Solutions

2.8 Handover of All Treatment Rooms for Heavy-Ion Radiotherapy System to Yonsei University, South Korea

Heavy-ion radiotherapy facility installed at Yonsei University, South Korea

Rotating gantry



Rotating gantry irradiation room

Toshiba Corporation is actively expanding its overseas business in heavy-ion radiotherapy systems. In March 2018, we formed a consortium with DK Medical Solutions, a major medical company in South Korea, and received an order from Yonsei University Health System (YUHS), a hospital affiliated with Yonsei University, marking our first overseas project in this field. This facility is the world's first to be equipped with one fixed-beam treatment room and two superconducting rotating gantry treatment rooms(*). In December 2025, the handover of all treatment rooms was completed.

Heavy-ion radiotherapy delivers a highly localized dose to the tumor while minimizing exposure to surrounding healthy tissue, thereby reducing patient burden and side effects.

The use of a superconducting rotating gantry reduces the time required for patient positioning without requiring uncomfortable postures, thereby alleviating both physical and psychological burdens. In addition, irradiation can be delivered from arbitrary angles around the patient's body axis, enabling highly flexible and efficient treatment. This capability makes the system applicable not only to prostate cancer but also to pancreatic cancer, liver cancer, as well as other cancer types. By leveraging our latest technologies, high-speed scanning irradiation and respiratory-gated irradiation have also been realized.

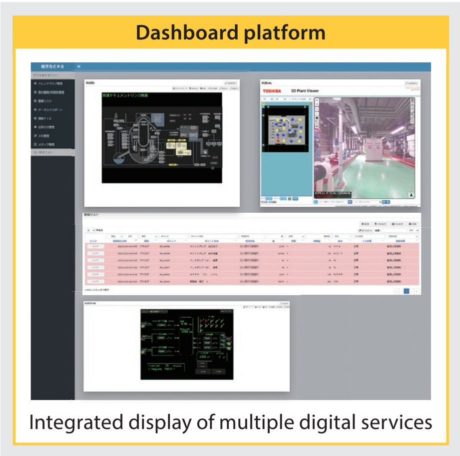
In March 2021, local personnel assumed responsibility for delivering equipment to the installation site for the first time. In the event of any issues, our headquarters and manufacturing facilities cooperated remotely with partner companies to carry out the installation, adjustment, and testing of the main accelerator, high-energy beam transport line, and the superconducting rotating gantry, ensuring that the system met the required performance as a medical treatment system.

To enable the first-ever maintenance operations by local on-site technicians overseas, training was conducted in parallel with on-site testing. Since 2023, maintenance has been performed by locally trained personnel. In February 2023, the fixed irradiation room was handed over to YUHS, and clinical treatment using this room commenced. In addition, we proceeded with functional verification of the superconducting rotating gantry treatment rooms, and the first gantry treatment room was handed over to YUHS in May 2024, marking the commencement of clinical treatment in this room. Subsequently, the second superconducting rotating gantry treatment room was handed over in December 2025, enabling treatment in all rooms.

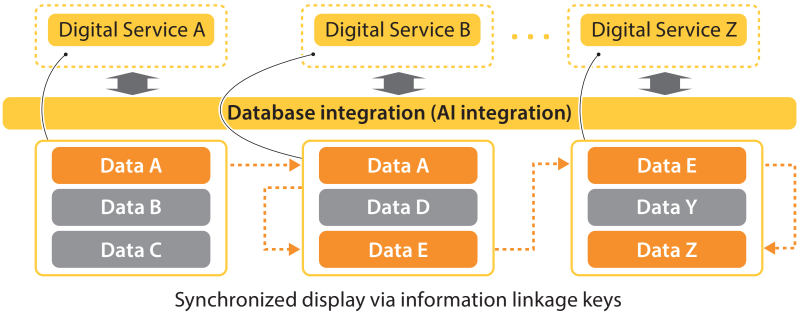
Since then, we have secured contracts for multiple overseas projects. Going forward, we will continue to promote the broader deployment of heavy-ion radiotherapy systems both in Japan and overseas.

(*) As of December 2025 (according to Toshiba Corporation research)

2.9 Integrated System for Nuclear Power Plants Enabling Coordination of Multiple Digital Services via Dashboard Platform



Overview of AX-VIEW dashboard platform



AI: artificial intelligence

Collaborative framework for digital services

Toshiba Corporation has developed an integrated system for nuclear power plants that enhances operational efficiency by enabling effective utilization of diverse information required for plant maintenance, inspection, monitoring, and control via a dashboard platform. The system integrates information from various sources, including technical documentation, troubleshooting cases, and codified expert knowledge from experienced engineers.

The system integrates multiple digital services and provides a unified user interface on the AX-VIEW dashboard platform, allowing users to access information intuitively and seamlessly, as if they were interacting with a single, cohesive service rather than multiple independent systems. In addition, the system provides a mechanism for interconnecting different digital services using information linkage keys. For example, when a specific piece of equipment is selected in the piping and instrumentation diagram (P&ID) system, the corresponding equipment area is automatically displayed in a separate plant graphical display system that operates independently. Through such service-to-service linkage, related information can be presented in a coordinated manner without requiring users to launch each digital service individually. As a result, users can readily obtain the necessary information on a single screen, thereby improving operational efficiency and situational awareness.

Furthermore, the layout of displayed services can be customized by users according to their roles and objectives, enhancing usability and flexibility and contributing to more efficient execution of plant-related tasks.

2.10 Digital Controller for Efficient Maintenance and Long-Term Stable Operation of Nuclear Power Plants

Digital controller overview

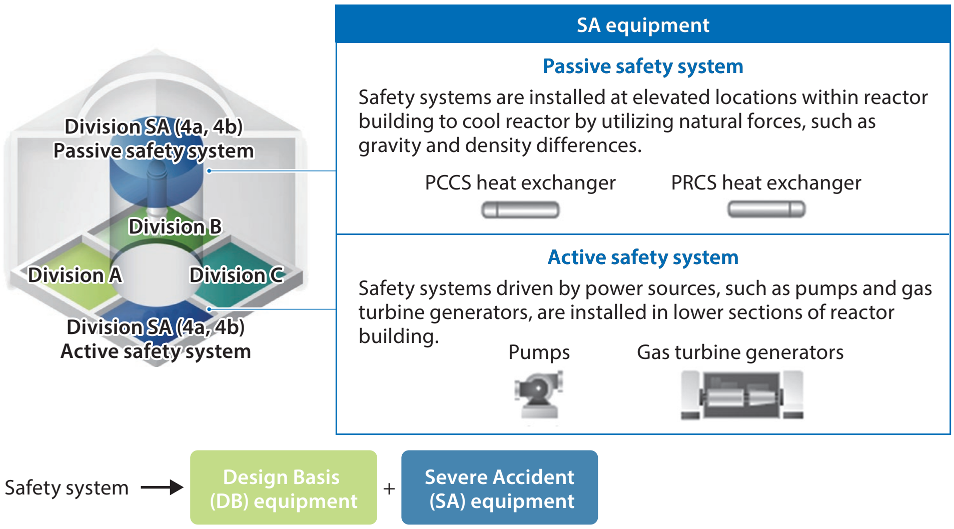
Printed circuit boards in digital controller

New TOSMAP-C3000SX digital controller

There is increasing demand for the modernization of the instrument and control (I&C) systems in nuclear power plants to ensure long-term stable operation following restart after compliance with enhanced safety regulations introduced in the wake of the Great East Japan Earthquake. To enable long-term maintenance of the upgraded systems, I&C systems and associated services are required to incorporate the latest components and technologies while ensuring adequate analyzability in the event of failure and improving reliability, operability, availability, and maintainability.

To address these needs, Toshiba Corporation has developed the TOSMAP-C3000SX, a digital controller for nuclear I&C systems that is compatible with existing models, thereby facilitating system upgrades. In addition, as the multimode optical cables used in conventional systems have been discontinued, the controller now supports single-mode optical cables. To enhance performance, the processing speed of the communication boards has been improved. Furthermore, to improve reliability, the number of components has been reduced, resulting in an approximately 41% reduction in the failure rate per CPU unit. With future expansion into a service-oriented business in mind, the sensing capabilities for plant data have also been enhanced.

2.11 Assessment of Conformity with Technical Requirements for Next-Generation Innovative Boiling Water Reactors (iBRs)



SA division: division corresponding to defense-in-depth levels 4a and 4b
4a: core damage prevention function
4b: containment failure prevention function
PCCS: passive containment cooling system
PRCS: passive reactor cooling system

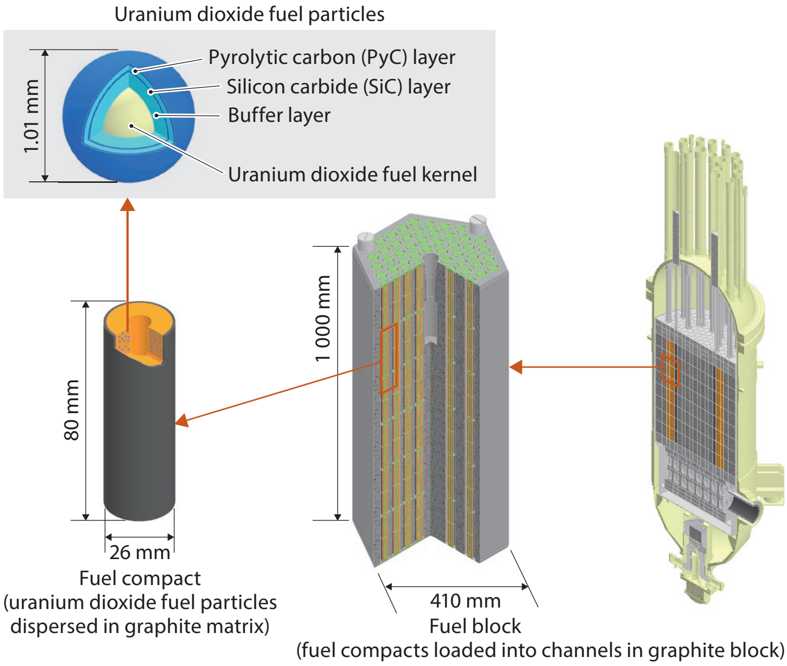
Independence from active safety systems via spatial distribution of passive safety systems

Toshiba Corporation is advancing the development of an innovative boiling water reactor (BWR), the iBR, which is designed to coexist harmoniously with society while ensuring a stable energy supply. For the development of new light water reactors targeting commencement of operation in the 2030s, the Atomic Energy Society of Japan established a Working Group on the Technical Requirements for the Next-Generation Light Water Reactors. By March 2024, the Working Group had defined key concepts and technical requirements for next-generation light water reactors, as well as outlined regulatory frameworks and institutional considerations to be addressed.

Subsequently, in November 2024, the BWR Branch was established within the Working Group to address BWR-specific topics, and we have actively participated as a secretariat member. The BWR Branch has discussed BWR-specific approaches based on lessons learned from the accident at the Fukushima Daiichi Nuclear Power Station. It was also confirmed that specific implementation examples of the iBR satisfy the technical requirements for next-generation light water reactors.

In particular, the next-generation light water reactors are required to implement a well-balanced defense-in-depth approach that enhances overall plant safety in a rational and effective manner. In response, the significance of incorporating passive safety systems—an innovative safety feature inherent to iBR design—as well as their diversity, reliability, and spatial separation characteristics, was demonstrated, confirming that our proprietary technologies are well aligned with the technical requirements for next-generation light water reactors.

2.12 Plant Design Methodology for High-Temperature Gas-Cooled Reactors



High-temperature gas-cooled reactor core structure

High-temperature gas-cooled reactors (HTGRs) are a type of nuclear reactor that may achieve a high level of public acceptance owing to their excellent confinement of radioactive materials and inherent safety, based on passive decay heat removal and negative temperature coefficients. In addition, owing to their high reactor outlet temperatures, HTGRs are expected to be applied not only to power generation but also as decarbonized heat sources for applications such as hydrogen production, chemical plants, and other industrial processes.

Leveraging expertise accumulated through the design and development of light water reactors, fast reactors, and the High Temperature Engineering Test Reactor (HTTR) at the Japan Atomic Energy Agency, Toshiba Corporation has been developing reactor core design methodologies and safety design approaches for HTGRs. The reactor core consists of stacked graphite blocks, each containing fuel compacts that encapsulate uranium dioxide fuel particles approximately 1 mm in diameter, coated with layers of materials, such as silicon carbide, to ensure fuel integrity.

In this work, we have developed a methodology for high-precision analysis of the nuclear characteristics of such core structures and applied the results to reactor core design. With respect to safety design, we have established an integrated analysis code system and constructed a comprehensive set of analytical methods, including plant dynamic analysis and pressure propagation analysis. Furthermore, we have developed new design methodologies for reactivity control systems, which represent one of our core strengths.

These achievements will be applied to future HTGR plant design.

2.13 Completion of Construction of Kerinci Merangin Hydroelectric Power Plant, Indonesia

Equipment layout inside Kerinci Merangin Hydroelectric Power Plant (PLTA Merangin) building

Generator rotor installation

PT Kerinci Merangin Hidro (PT KMH) in Indonesia completed the installation and testing of four hydraulic turbines and generators at the Kerinci-Merangin Hydroelectric Power Plant, and commenced commercial operation of all four units in November 2025. Located in the western part of Jambi Province in southern Sumatra, the plant is one of the largest hydroelectric power facilities on the island, with a total installed capacity of 480 MW and a maximum head of 415.6 m. Developed by PT KMH of the Kalla Group, an independent power producer (IPP) in Indonesia, the plant is intended to ensure a stable power supply in line with the country's decarbonization policy.

Toshiba Hydro Power (Hangzhou) Co., Ltd. (THPC) received orders from PT KMH for the generators in 2020 and for the turbines in 2021. Because the turbines were required to operate under head and rotational speed conditions higher than those typical for Francis turbines, a splitter-blade runner featuring alternating long and short runner blades was adopted to achieve both high performance and stability. Toshiba Corporation conducted turbine performance development using advanced flow analysis techniques.

Model acceptance testing conducted at THPC's model test facility confirmed that the turbine meets all performance requirements, including efficiency, cavitation characteristics, and pressure pulsation, thereby demonstrating high quality and performance.

Furthermore, the generator is rated at 145 MVA and 16.5 kV, making it one of the largest machines exported by THPC from China to overseas markets.

Since 2016, THPC has secured a series of orders for hydroelectric power generation equipment for four power plants in Indonesia, including the Kerinci Merangin Hydroelectric Power

Plant. THPC will continue to contribute to the achievement of carbon neutrality in Indonesia, as well as in China, elsewhere in Southeast Asia, and in Africa.

The ratings of the turbines and the generators are as follows:

- Turbines: 125 MW (maximum), 415.6 m (maximum effective head), 428.6 min^{-1}
- Generators: 145 MVA (maximum), 16.5 kV, 428.6 min^{-1}, 50 Hz

2.14 Completion of Turbine and Generator Rehabilitation for Okutadami Power Station Unit 3 of Electric Power Development Co., Ltd.

Installation of Unit 3 hydraulic runner at Okutadami Power Station

Hydraulic runner in transit

Toshiba Corporation completed the overhaul of the turbine and generator for Unit 3 at the Okutadami Power Station, owned by Electric Power Development Co., Ltd., and commercial operation of the unit resumed in November 2025.

Located in Fukushima Prefecture, the Okutadami Power Station is a dam-type hydroelectric facility that utilizes water from the Okutadami Dam. We supplied all four turbine-generator units installed at this power station. Units 1 to 3, which commenced operation in 1960, each have a rated output of 120 MW, while Unit 4, added in 2003, has a rated output of 200 MW. With a total installed capacity of 560 MW, the Okutadami Power Station is the largest conventional hydroelectric power station in Japan(*).

The overhaul of Unit 3 was conducted for the first time in approximately 20 years. In this overhaul, major components, including the turbine runner, guide vanes, and upper cover, were replaced. The turbine runner and guide vanes were optimized through advanced flow analysis, increasing the turbine output from 127 MW to 128.2 MW at the rated effective head. The turbine guide bearings were also upgraded from a cylindrical type to a segmented type to extend service life and improve bearing performance. Furthermore, on-site machining for turbine installation alignment and line boring of guide vane bores was performed to correct the level of the mounting surface of the upper cover for the stay ring.

The turbine runner, with a diameter of approximately 4 m, is exceptionally large. Due to transportation constraints, it was shipped by sea from Keihin Product Operations to Niigata East Port and then transported by a special trailer from the port to the power station, taking approximately 10 days in total.

As the power station is located in a region with heavy snowfall where the access road is closed during winter, it was necessary to complete the overhaul work within the period from June to November. Accordingly, components requiring repair at the factory were shipped immediately after the access road reopened in June and delivered to the site in time for on-site assembly and testing conducted from September to November.

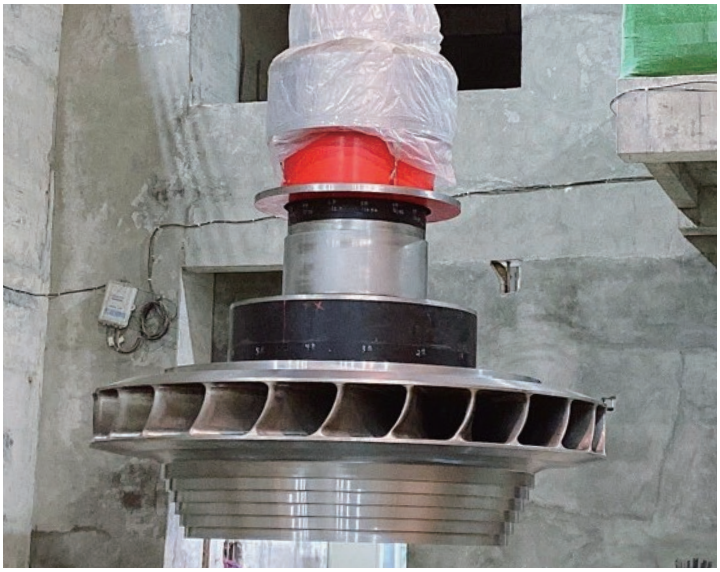
Going forward, we will continue to provide solutions that meet customer expectations and contribute to the stable operation of hydroelectric power stations.

The turbine and generator ratings are as follows:

- Turbine: 128.2 MW, 170 m, 200 min^{-1}
- Generator: 128 MVA, 15.4 kV, 50 Hz

(*) As of December 2025 for conventional hydroelectric power stations in Japan (according to Toshiba Corporation research)

2.15 Completion of New Construction at Jianke Hydropower Station, China



Installation of Unit 3 hydraulic runner at Jianke Hydropower Station

Construction of three new turbine–generator units at the Jianke Hydropower Station in Sichuan Province, China, was completed, and all units commenced commercial operation in July 2025. For this project, THPC was awarded the contract for the design and manufacture of the turbines and generators, while Toshiba Corporation was responsible for turbine performance development and model testing.

Because the plant is expected to operate under partial-load conditions for a significant portion of the time, a splitter blade runner combining long and short blades was adopted. This configuration improves weighted-average efficiency, reduces hydraulic pressure pulsation in the partial-load operating region, and enhances operational stability through improved cavitation performance. In addition, the generators employ lower anti-vibration stay arms to suppress vibrations at high rotational speeds.

Field tests confirmed that the turbine efficiency exceeded the guaranteed values and that both hydraulic pressure pulsation and vibration levels were relatively low, resulting in a highly favorable evaluation from the customer. We will continue to actively promote these advanced technologies in the Chinese market.

The ratings of the turbines and generators are as follows:

- Turbine: 83.67 MW, 495 m, 600 min^{-1}
- Generator: 91.1 MVA, 13.8 kV, 600 min^{-1}, 50 Hz

2. Energy Solutions

2.16 Completion of Manufacturing of Equipment for Refurbishment of Sedawgyi Hydropower Plant, Myanmar

Kaplan turbine runner

In December 2025, Toshiba Corporation completed the manufacturing of equipment for the refurbishment of the Sedawgyi Hydropower Plant in the Republic of the Union of Myanmar. The refurbishment project is funded by the Government of Japan through the Japan International Cooperation Agency (JICA) as part of Japan's support for the country's reconstruction. The project was initiated because, after 30 years of operation since its commissioning in 1989, the plant's power output had declined due to the deterioration of and damage to major equipment.

We were responsible for two Kaplan turbines and a complete set of control systems. The Kaplan turbines were developed using computational fluid dynamics (CFD) analysis, achieving an efficiency improvement of approximately 0.5% at the maximum output point compared with the existing units. For the control system, an integrated control panel was adopted, consolidating automatic control, governor control, and automatic voltage regulator (AVR) functions. In addition, the introduction of digital transmission enabled a reduction in footprint and cable volume, as well as improved maintainability. The control system also employs our latest TOSMAP-LX controller and incorporates a supervisory control and data acquisition (SCADA) system, enabling remote monitoring and operation. Going forward, we will proceed with on-site installation and commissioning tests.

The ratings of the Kaplan turbines after refurbishment are as follows:

Kaplan turbines: 14.174 MW, 34.56 m, 250 min^{-1}

2.17 Completion of Relocation to New Factory of THPC in China

New factory of THPC

THPC completed construction of its new factory and finalized the relocation in December 2024. In March 2025, an inauguration ceremony for the new factory was held in conjunction with a commemorative event marking the 20th anniversary of the company's founding.

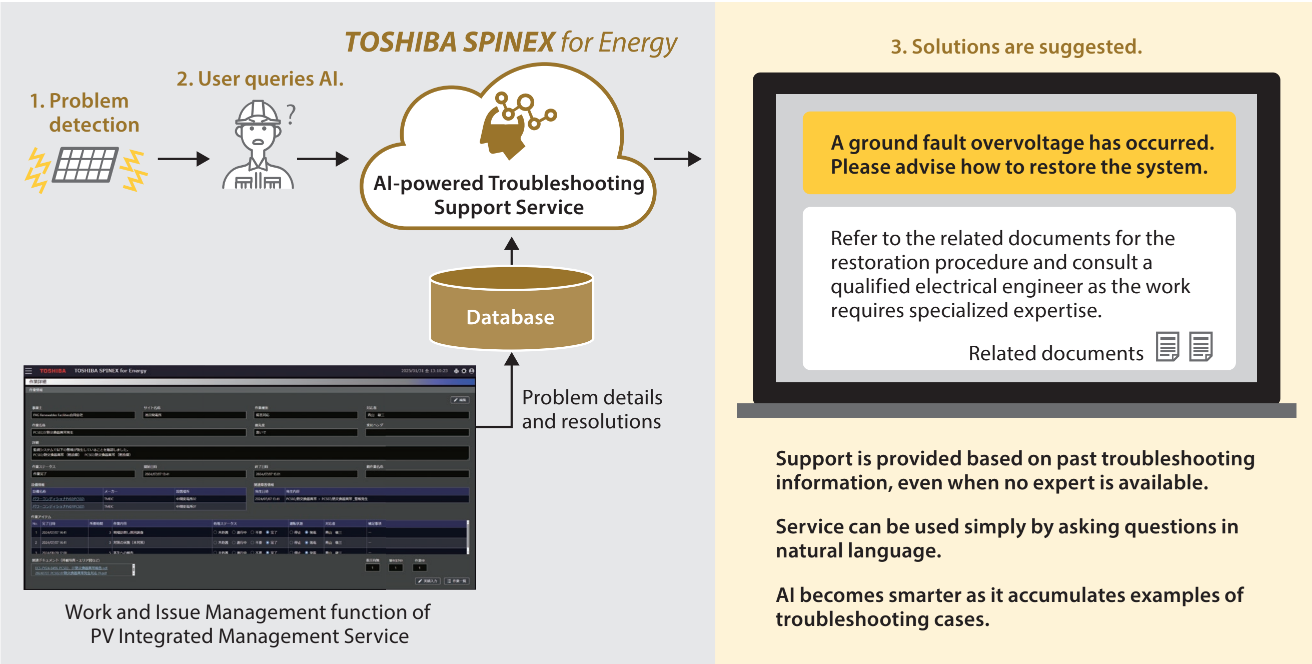
The new factory is located approximately 3 km southwest of the former factory and occupies a site area of about 66 600 m².

Designed under the concept of "Digital × Smart Manufacturing," the new factory is intended to reduce manufacturing costs and shorten lead times. Specifically, the new factory has introduced advanced manufacturing equipment and an optimized floor layout to improve production efficiency, and has implemented an energy management system, enabling visualization of electricity, water, and gas consumption, as well as the accumulation and analysis of operational data, thereby optimizing energy usage.

Since our founding in 2005, THPC has delivered 111 hydraulic turbines and 129 hydro generators to customers in China as well as in Southeast Asia and Africa, leveraging highly reliable design and manufacturing technologies together with stringent quality control. Going forward, we will position the new factory as a manufacturing hub to further expand our business in China and global markets.

2. Energy Solutions

2.18 AI-Powered Troubleshooting Support Service for Photovoltaic Power Plants



Overview of AI-powered Troubleshooting Support Service for PV power plants

In November 2024, Toshiba Corporation launched the PV Integrated Management Service that enables centralized management of multiple photovoltaic (PV) power plants via a cloud-based system, thereby enhancing the efficiency of operation and maintenance tasks.

As generative artificial intelligence (AI) services became available on the TOSHIBA SPINEX for Energy digital service platform in 2025, we have now developed the AI-based Troubleshooting Support Service for PV power plants, which is designed to meet the strong demand for the rapid resolution of problems encountered during routine maintenance of PV power plants.

As with interactive AI chat services, users can submit questions about problems in natural language, and the AI will provide answers regarding the causes and solutions based on pre-accumulated expertise. The AI-powered Troubleshooting Support Service has the following features:

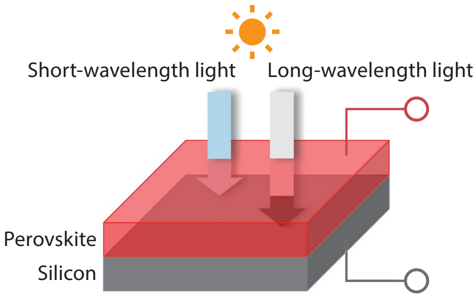
(1) The Work and Issue Management function of the PV Integrated Management Service allows users to record information on trouble conditions and response results in the database. This information is incorporated into answers from the AI system as accumulated know-how.

(2) Designed for a wide range of users—including less experienced workers and those unfamiliar with the system—the service allows users to ask questions in natural language and features a display layout optimized for visibility on mobile devices such as smartphones, thereby improving usability.

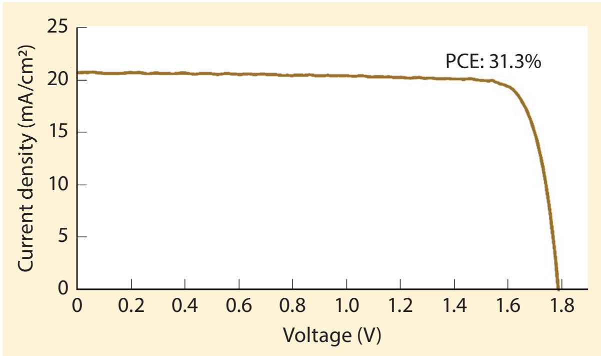
(3) While AI-based services are generally costly, this service reduces operational cost by optimizing data storage formats and locations.
(4) To prevent the leakage of customers' personal and internal confidential information and thereby enhance security, know-how data accessible to each customer is segregated.
(5) The service allows users to utilize generalized versions of trouble cases encountered during our maintenance work, enabling even users with limited experience or knowledge to use the service effectively from the outset.

The AI-powered Troubleshooting Support Service, released in April 2026, has received favorable evaluations both internally and externally.

2.19 Improvement of Energy Conversion Efficiency of Perovskite/Silicon Tandem Solar Cells



Overview of two-terminal perovskite/silicon tandem solar cells



PCE of two-terminal perovskite/silicon tandem solar cells (measured by Toshiba Corporation)

Solar cells, as a key renewable energy technology, are increasingly deployed worldwide to support the realization of a carbon-neutral society. Toshiba Corporation is developing two-terminal perovskite/silicon tandem solar cells as next-generation photovoltaic devices with high power conversion efficiency (PCE). By integrating multiple photoactive materials with complementary light absorption wavelengths, tandem solar cells achieve high PCE. Consequently, replacing conventional solar cells with tandem solar cells is expected to enhance power generation capacity in Japan.

In this study, improvements to the perovskite and passivation layers enabled the development of a perovskite solar cell exhibiting a high fill factor (FF) comparable to that of silicon solar cells, resulting in a tandem solar cell with a PCE of 31.3%. This represents an improvement of 3.8 percentage points over the PCE confirmed in 2024. A PCE exceeding 30% surpasses that of currently mainstream monocrystalline silicon solar cells and is regarded as a key milestone toward practical application.

We were responsible for the development of the perovskite and passivation layers, while Kyocera Corporation, Meiji University, Toyota Technological Institute, and Nagoya University contributed to the development of the silicon bottom cell. Electrode fabrication was carried out with the support of the National Institute of Advanced Industrial Science and Technology (AIST) and The University of Electro-Communications, and device evaluation was conducted with the cooperation of Niigata University. We are now planning field testing to assess the stability of the new tandem solar cells.

In 2025, this work was selected for inclusion in a project under a grant program of the New Energy and Industrial Technology Development Organization (NEDO) of Japan (project code: P25011). Going forward, we will focus our efforts on scaling up tandem solar modules to a practical size of approximately 250 cm^2 or larger, as well as improving their PCE and durability. Through these initiatives, we aim to accelerate the practical application of tandem solar cells and contribute to the realization of a carbon-neutral society.

2.20 Launch of EneHub Renewable Energy Matching Platform

Area
Location (prefecture)
Type of power source (e.g., solar, wind)
Rated AC capacity
Rated DC capacity
Estimated annual power generation
FIP/non-FIP
FIP price
Desired purchase price (physical PPA, virtual PPA)
Desired contract duration
Planned commercial operation start date
Development status

FIP: feed-in premium

Main information posted on EneHub renewable energy matching platform

Example of EneHub screen

In recent years, demand for renewable energy (RE) procurement has increased rapidly in line with corporate decarbonization initiatives and broader societal efforts to achieve a sustainable society. However, traditional RE procurement has been characterized by closed information flows between sellers (power producers) and buyers (electricity retailers and consumers), requiring significant effort to identify suitable transaction counterparts.

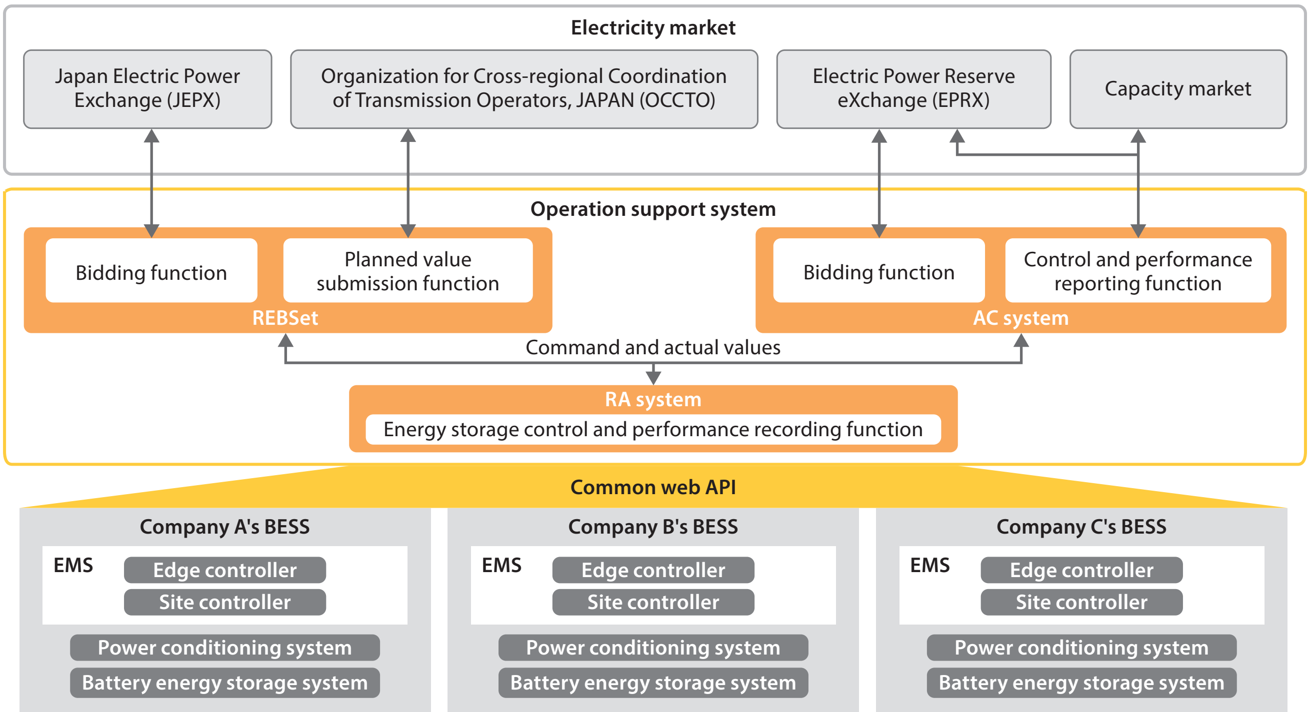
To address this issue, as part of its renewable energy aggregation service, Toshiba Corporation launched EneHub, a renewable energy matching platform for off-site power purchase agreements (PPAs)(*), in January 2025. EneHub is a web-based platform that efficiently connects power producers seeking to sell renewable electricity or certificates with electricity retailers and consumers wishing to purchase them. The platform lists a variety of domestic renewable power plants, allowing buyers to compare key parameters such as plant location, generation capacity, price, and contract period, and to select the optimal option. Compared with conventional manual processes, EneHub significantly improves efficiency, ensures up-to-date information, and enhances the quality of decision-making.

When a buyer identifies a suitable power source and clicks the “Request for Negotiation” button, our personnel act as intermediaries with the selected counterparty, facilitating negotiations toward contract conclusion. The combination of online information provision and comprehensive support streamlines the entire process and reduces the burden on both buyers and sellers.

By the end of October 2025, more than 400 power plants had been listed on the platform, and successful matches between buyers and sellers had been achieved. Going forward, we plan to analyze the data accumulated on EneHub to enhance the user experience and introduce functionalities to enable more advanced matching. By leveraging digital technologies, we will continue to promote the adoption of renewable energy and contribute to the realization of a decarbonized society.

(*) A power purchase agreement is a contract between a power producer and an electricity retailer or consumer.

2.21 Enhancement of Operation Support System for Grid-Connected Battery Energy Storage Systems Using Common Web API



REBSet: renewable energy balancing system from Toshiba Corporation AC: aggregation coordinator RA: resource aggregator
PCS: power conditioning system

Aggregator system for participating in electricity market using common web API

The amendment to the Electricity Business Act of Japan has enabled battery energy storage systems (BESSs), which were previously not treated as power generation facilities, to be directly connected to the power grid. This regulatory reform has created an environment in which operators of BESSs (hereinafter "operators") can independently participate in electricity markets. Although entry into this field is possible even without prior experience in the electricity business, forecasting business viability in response to changes in regulatory frameworks and market conditions remains challenging. Consequently, expectations are increasing for aggregators capable of understanding diverse market mechanisms and revenue structures while providing low-cost and flexible operational services.

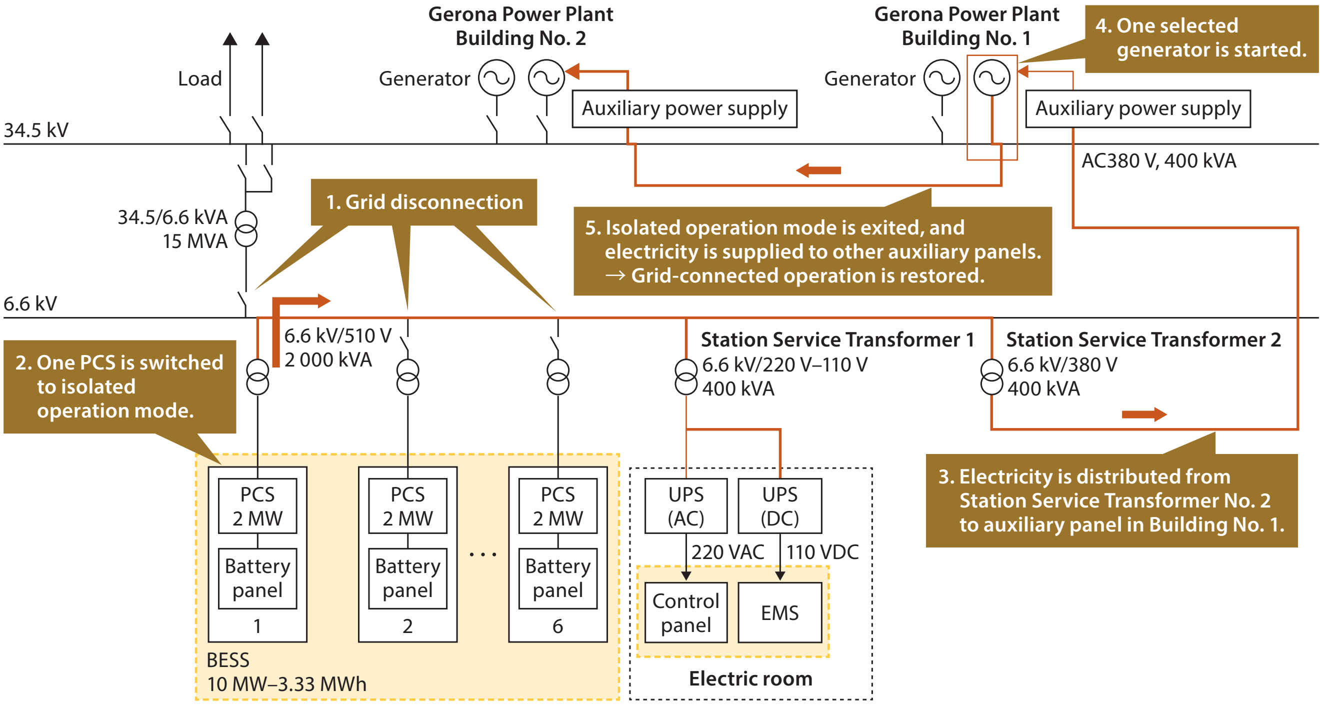
To meet the needs of operators, Toshiba Corporation, as an aggregator, has developed and deployed an operation support system that enables the utilization of battery energy storage systems across multiple electricity markets. The system's functionality has also been continuously enhanced in response to changes in regulations and market conditions.

In this work, we developed a common web application programming interface (API) to enable the flexible exchange of information required for electricity trading—including charge/discharge plans, charge/discharge records, and state-of-charge (SoC) information—with battery energy storage systems from various manufacturers. The web API enables the operation support system to connect with the energy management systems (EMSs) of grid-connected battery energy storage systems from different vendors through a unified interface. This eliminates the need for specification coordination between the operation support system and individual EMSs. In addition, test procedures can be standardized, thereby reducing implementation time and costs.

Furthermore, we have introduced a revenue simulation function to support operators in making investment decisions. This function enables the presentation of revenue models centered on primary reserve, which provides the highest profitability according to the simulation results, and facilitates the formulation of corresponding operational strategies for operators already using our battery control service.

Going forward, we will continue to support the deployment and operation of BESSs while adapting to regulatory changes such as the introduction of day-ahead trading in the balancing market in 2026. We will also address the need for efficient power management, including peak shaving and peak shifting, as well as integrated operation with solar and wind power generation systems.

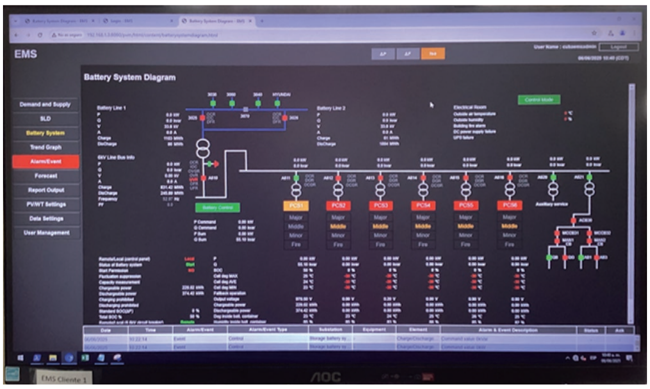
2.22 JICA Cuba Project: Addition of Isolated Operation Function to BESS to Enhance Power Plant Resilience



Equipment supplied by Toshiba — : Live line → : Power supply

UPS: uninterruptible power supply

Overview of power outage recovery using isolated operation function available with BESS



EMS monitoring screen during independent operation

In June 2025, Toshiba Corporation completed additional construction work on the grid stabilization system comprising an EMS and a large-scale BESS rated at 10 MW–3.33 MWh, at the Gerona Power Plant on the Isle of Youth in the Republic of Cuba. The plant is operated by Unión Eléctrica (UNE), the national electric utility of Cuba. This work was carried out as part of the JICA project, “Project for Improvement of Power Supply on the Isle of Youth.”

Previously, in the event of a total blackout, a small auxiliary generator was started to supply startup power for the diesel generators at the power plant. Through this additional construction, the BESS can now be switched to isolated operation mode, enabling the diesel generators to be started using power discharged from the battery system.

The BESS, which consists of a 2 MVA power conditioning system (PCS) and our SCiB™ lithium-ion rechargeable batteries, was enhanced with an isolated operation function that maintains constant voltage and frequency. In the event of a total blackout, the PCS supplies power not only to the BESS control systems but also to the auxiliary panels required to start the diesel generators.

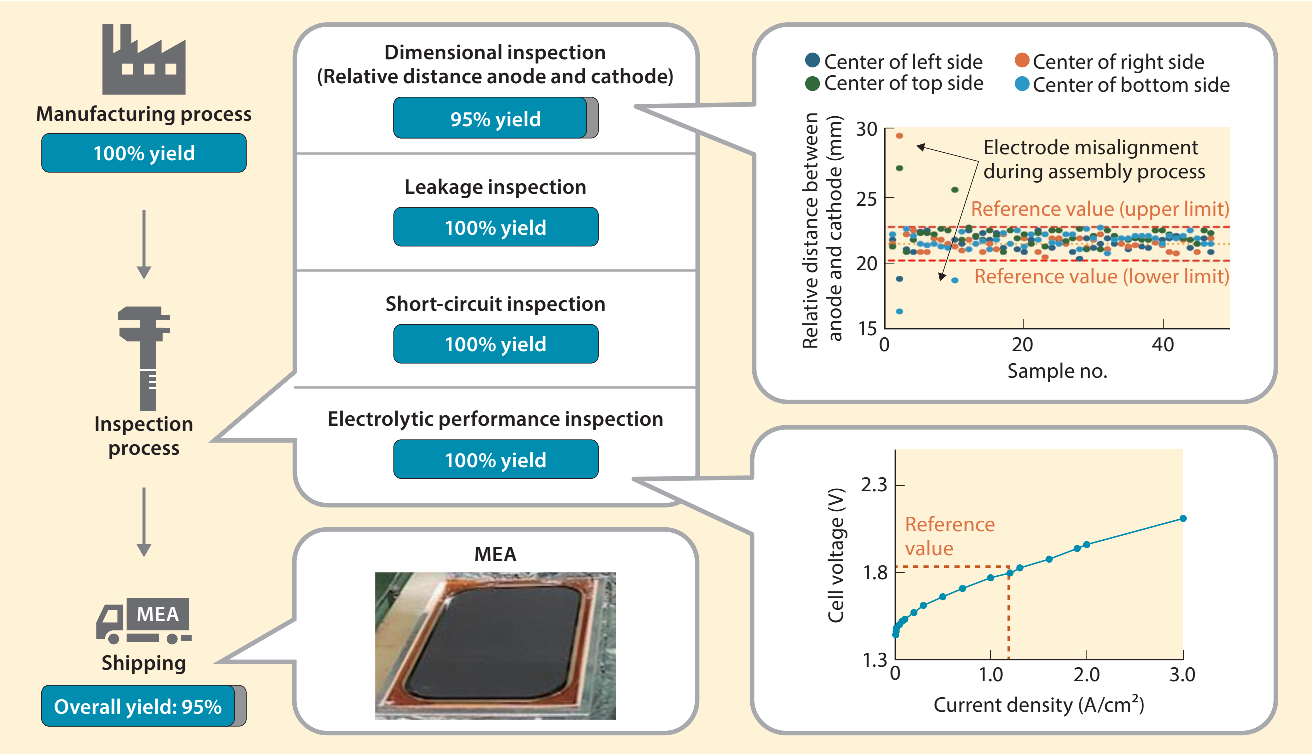
Because the electricity supplied by the PCS in isolated operation mode is not in phase with grid electricity, it cannot be used in parallel with the grid. Therefore, the PCS must be started in a safe state, isolated from the upstream grid. To achieve this, the BESS control system was modified to monitor the absence of upstream grid voltage. In addition, interlocks were implemented to ensure a safe transition to isolated operation based on the open/close status of the circuit breaker.

Furthermore, to enable a smooth transition from the BESS to the backup power supply, operational procedures for system switching were established in consultation with relevant power plant personnel based on blackout recovery procedures.

Rapid recovery from power outages significantly contributes to enhancing the resilience of power generation infrastructure against disasters. On the Isle of Youth, planned outages occur frequently due to aging thermal power generation facilities and insufficient power supply capacity, and sudden outages occur due to equipment failures. Similar issues are also present on mainland Cuba.

This project is expected to serve as a catalyst for the standardization of isolated operation functionality in BESS installed at power plants in island nations, promoting the adoption of BESS as a backup power source for recovery from total blackouts.

2.23 Yield Evaluation for Mass Production of MEAs for PEM Water Electrolysis



Yield evaluation results for MEA manufacturing and inspection processes

As the deployment of renewable energy advances toward the realization of a carbon-neutral society, proton exchange membrane (PEM) water electrolysis is attracting attention as a promising technology for enhancing power grid stability and supporting a stable power supply. PEM water electrolysis offers advantages such as high responsiveness to fluctuating power input and the ability to produce high-pressure hydrogen. However, the use of iridium—a rare precious metal—as the anode catalyst presents challenges in terms of resource constraints and high cost.

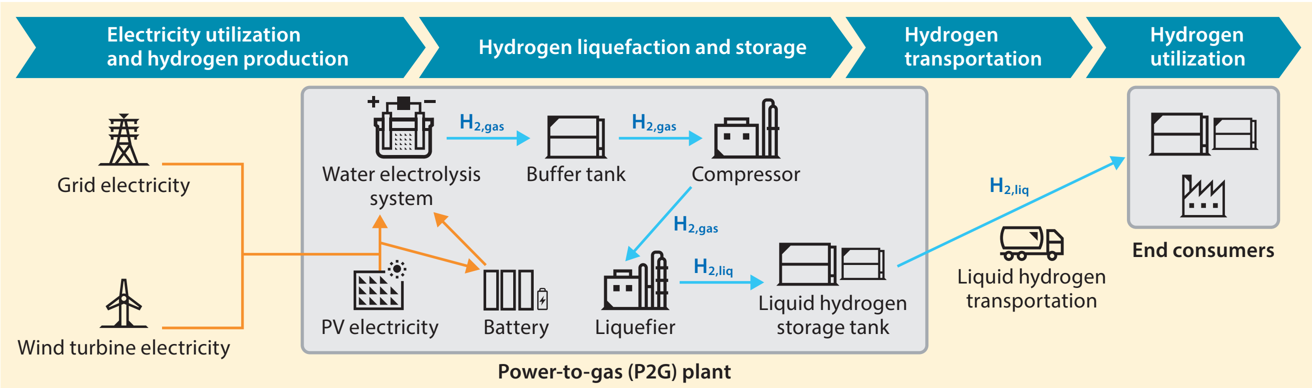
To address these challenges, Toshiba Corporation has developed a membrane electrode assembly (MEA) featuring a nanosheet-laminated catalyst structure fabricated using a sputtering process. This technology enables the reduction of iridium loading to less than one-tenth of that required by conventional methods without compromising electrode performance. Furthermore, we have established manufacturing technology not only for laboratory-scale MEAs but also for large-area MEAs of approximately 3 000 cm².

To demonstrate stable production, we manufactured 50 large-area MEAs (3 000 cm² class) for customer evaluation and evaluated the yield at each stage of the manufacturing and inspection processes. The results showed an overall yield of 95% for this production run. Furthermore, the primary cause of defective MEAs was identified as electrode misalignment during the assembly process. To address this issue, the jig used to secure the electrodes was optimized to improve alignment accuracy. Through these efforts, we confirmed that MEAs can be manufactured with yields exceeding 95%. The fabricated MEAs have been supplied to PEM water electrolyzer manufacturers, where performance and durability testing is currently underway.

In addition to the 3 000 cm^2-class MEAs, we have manufactured and delivered MEAs in a range of sizes and configurations—including 1 800 cm^2, 1 100 cm^2, 300 cm^2, and 100 cm^2—to flexibly address diverse customer requirements.

Going forward, we will accelerate efforts toward the early commercialization of MEAs and contribute to the realization of a carbon-neutral society.

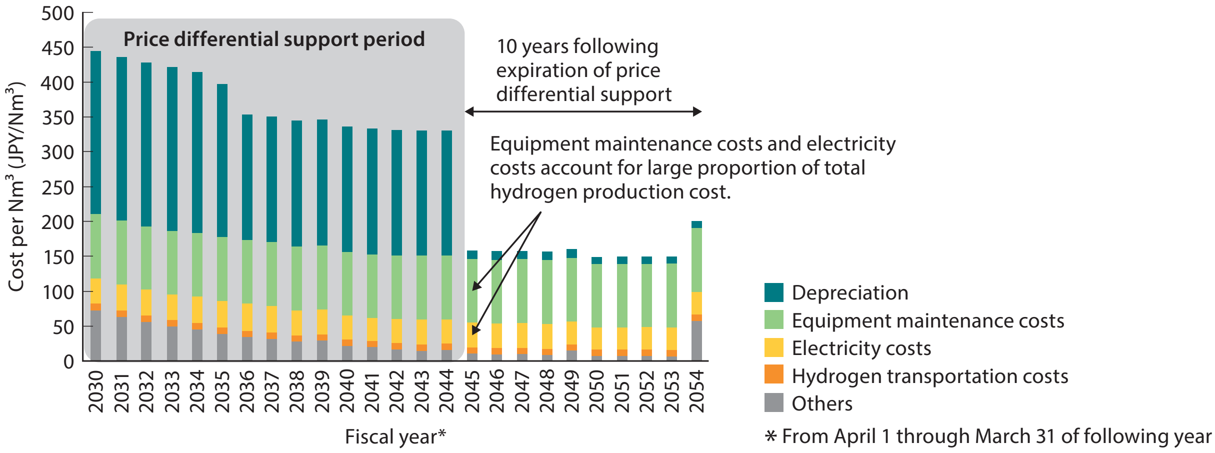
2.24 Optimization of Hydrogen Production Facilities and Hydrogen Cost Analysis for Achieving Carbon Neutrality in Tohoku Region



PEM	Capital expenditure (CAPEX)	65 000 JPY per kW	2030 values assumed based on Hydrogen and Fuel Cell Roadmap
	Operating expenditure (OPEX)	2.7% of CAPEX	Values based on literature survey
Battery (LiB)	CAPEX	39 665 JPY per kWh	2030 values assumed based on DOE database
	OPEX	3.5% of CAPEX	
PV	CAPEX	172 000 JPY per kW	2030 values assumed based on METI report on power generation cost verification
	OPEX	4 800 JPY per kW	
Hydrogen liquefaction system	CAPEX	11 970 000 000 JPY per unit	5 t/day-scale data converted from data in Air Liquide S.A. press release
	OPEX	3.0% of CAPEX	Values based on interviews with vendors

$H_{2,gas}$: gaseous hydrogen $H_{2,liq}$: liquid hydrogen   LiB: lithium-ion battery
DOE: Department of Energy of the United States   METI: Ministry of Economy, Trade and Industry of Japan

Hydrogen production plant configurations and cost settings



Hydrogen cost breakdown at optimal facility capacity

In pursuit of global carbon neutrality, hydrogen (H_2) utilization across entire industrial supply chains is required to achieve decarbonization. The Tohoku region of Japan hosts an automobile assembly plant operated by Toyota Motor East Japan, Inc. (TMEJ), which aims to achieve zero CO_2 emissions at all its global manufacturing plants by 2035, as well as at many suppliers. In addition, offshore wind power projects are being advanced in the Tohoku region under Japan's Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities. Offshore wind farms are expected to generate surplus electricity that cannot be fed into the grid, first because they are often designed with overcapacity beyond grid connection limits to increase power output, and second because curtailment of wind farm output is anticipated to maintain supply-demand balance. In this context, the utilization of surplus renewable energy for hydrogen production is expected.

Against this background, this study evaluated hydrogen demand from TMEJ and the potential of offshore wind farms to supply surplus power, and optimized hydrogen production plant configurations as well as hydrogen production cost estimation. The annual hydrogen demand was estimated at approximately 2 700 tons, while the annual offshore wind power generation potential was estimated at approximately 148 000 MWh; both exhibited temporal variations depending on the time of day and season. Based on the annual hydrogen demand, a plant configuration was designed under the assumption that the produced liquefied hydrogen would be transported overland. Hydrogen production costs were evaluated, as a 10-year average, assuming independent business operation following the expiration of price differential support. The results indicated that an optimal water electrolysis capacity of 110 MW was required, with a hydrogen production cost of 196.1 JPY per Nm^3(*) and a renewable energy utilization rate of 54.8%.

Furthermore, to more effectively utilize fluctuating surplus electricity, battery energy storage systems were introduced, and PV generation was considered as a supplementary power source. Under this configuration, optimal utilization of surplus electricity was achieved with an electrolysis capacity of 60 MW, a battery system with an output of 45 MW and a capacity of 180 MWh, and a PV capacity of 150 MW, resulting in a hydrogen production cost of 158.9 JPY per Nm^3 and a renewable energy utilization rate of 92.2%. It was also found that electricity costs and equipment maintenance costs account for a large proportion of the total hydrogen production cost.

This study was conducted as part of the project "Survey on Hydrogen Production and Utilization Potential for Carbon Neutrality in the Tohoku Region" (NEDO Technology Development Project for Building a Hydrogen Society / Regional Hydrogen Utilization Technology Development (JPNP14026), funded by NEDO of Japan.

(*) Nm^3 denotes the gas volume converted to standard conditions of 0°C and 1 atm

2.25 Commencement of Commercial Operation of 300 MVA Gas-Insulated Transformer at Ameren Missouri's Taum Sauk Pumped Storage Power Plant

138 kV–300 MVA GIT commencing commercial operation

Toshiba Corporation completed on-site installation of the first 138 kV–300 MVA gas-insulated transformer (GIT) at Ameren Missouri's Taum Sauk Pumped Storage Power Plant in Missouri, United States. The first GIT was energized in November 2025, marking the commencement of commercial operation, and the second GIT commenced operation in May 2026. The 300 MVA three-phase GIT in service is a three-phase integrated, high gas-pressure type and is the largest-capacity GIT currently available in the North American market.

This project involved the replacement of oil-immersed transformers that had been in operation for more than 60 years at the Taum Sauk Pumped Storage Power Plant. To mitigate the risk of environmental contamination due to oil leakage, as well as the risk of fire and explosion in the event of transformer failure, Ameren Missouri has adopted GITs that, by eliminating insulating oil, are inherently nonflammable and explosion-free. The company is proceeding with the replacement of existing oil-immersed transformers with these GITs.

This initiative follows earlier GIT installations in two power plants in the United States—four 144.5 kV–80 MVA units at the Osage Hydroelectric Power Plant and three 69 kV–36 MVA units at the Keokuk Hydroelectric Power Plant. For application at the Taum Sauk Pumped Storage Power Plant, the GIT was designed to be as compact as possible to accommodate space constraints arising from its installation between steel transmission towers. As this unit is the largest-capacity high-pressure GIT used as a main transformer at a power plant, low-voltage connection conductors carry very high currents; accordingly, the design incorporates measures to mitigate localized heating. In addition, due to restrictions on crane usage at the site, the

GIT was preassembled and subsequently moved into its final position. Through these design considerations and carefully developed construction planning, the on-site installation was successfully completed.

The adoption of GITs is expanding not only in North America but also in Japan, Southeast Asia, Europe, Australia, and the Middle East. We will continue to pursue further expansion of our GIT solutions in global markets.

2.26 Completion of Integrated Control Center System Replacement for Kyushu Electric Power Transmission and Distribution Co., Inc.

Renovated control room at Kitakyushu Branch Office of Kyushu Electric Power Transmission and Distribution Co., Inc.

Toshiba Corporation has completed the replacement of the integrated control center system for Kyushu Electric Power Transmission and Distribution Co., Inc. Previously, the power grid was monitored using individual systems installed at each branch office. These systems have now been unified into an integrated platform covering all branch offices.

Featuring a new architecture, the integrated system connects two server sites that provide core functions such as monitoring, control, and data recording with eight operation sites equipped with operator consoles and grid monitoring panels, all interconnected via a wide area network (WAN). We were responsible for one server site and three operation sites. This configuration ensures business continuity: even if a site becomes unavailable due to a major disaster, operations can be maintained by seamlessly switching server or operation site connections to other locations.

Furthermore, to manage supply-demand imbalances arising from the increasing integration of RE into the power grid, the system provides an advanced RE coordination function. This function interfaces with the central load dispatch center system and the automatic distribution control system to monitor scheduled curtailments and generation levels of RE sources and to issue commands to curtail surplus power as necessary.

These capabilities support the continued expansion of RE integration while preventing large-scale blackouts and ensuring grid stability.

2.27 TOSHIBA SPINEX for Energy: AI-Enabled Digital Services for Energy Operation Optimization

Toshiba Corporation released the core functions of TOSHIBA SPINEX for Energy, a suite of digital services for electric power utilities and manufacturing industries, in February 2024, followed by the introduction of additional enhancements in March 2025 to strengthen AI-based capabilities. These enhancements, including an optimization topology tool and an AI-based inspection image analysis service, are designed to support efficient and reliable energy operations.

The optimization topology tool enables users to intuitively formulate and solve optimization problems, such as power plant operation planning and factory energy management. Previously, creating or updating optimization models based on equipment data and operational constraints was difficult for parties other than equipment manufacturers. Newly added functions enable customers to perform these tasks independently. The tool can also be applied to the evaluation of the impact of CO_2 emission reductions at waste treatment plants with multiple types of facilities. Furthermore, we have developed and are continuing to develop services for hydroelectric power plants by integrating the tool with AI technologies such as weather forecasting and dam inflow prediction.

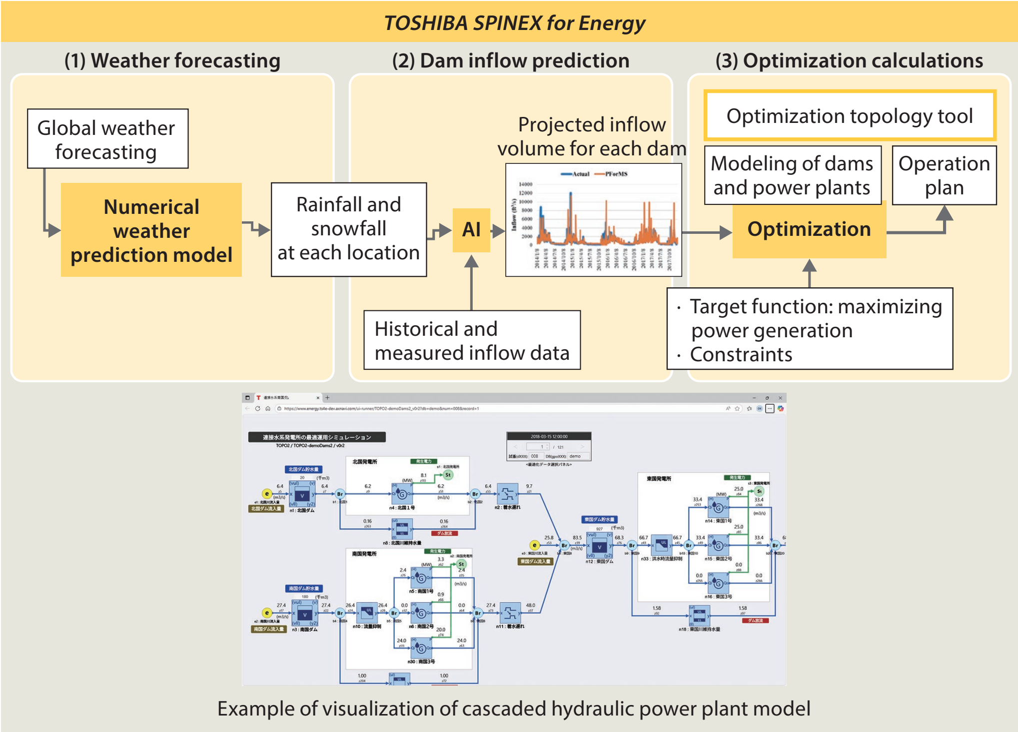
The AI-based inspection image analysis service automatically analyzes on-site inspection images to detect anomalies. By leveraging proprietary algorithms developed by our research laboratories, the service can identify anomalies using only a small number of images representing normal conditions. Under specific conditions, it achieves a world-leading anomaly detection accuracy of 91.7%(*1).

Additional enhancements include data integration with i-Reporter, a field reporting system widely used across industries; functions to improve the efficiency of on-site safety patrol operations; and a web-based chat function that enables secure information sharing among internal and external stakeholders. Data collection and processing capabilities have also been enhanced, including the reduction of the data storage interval from one minute to one second.

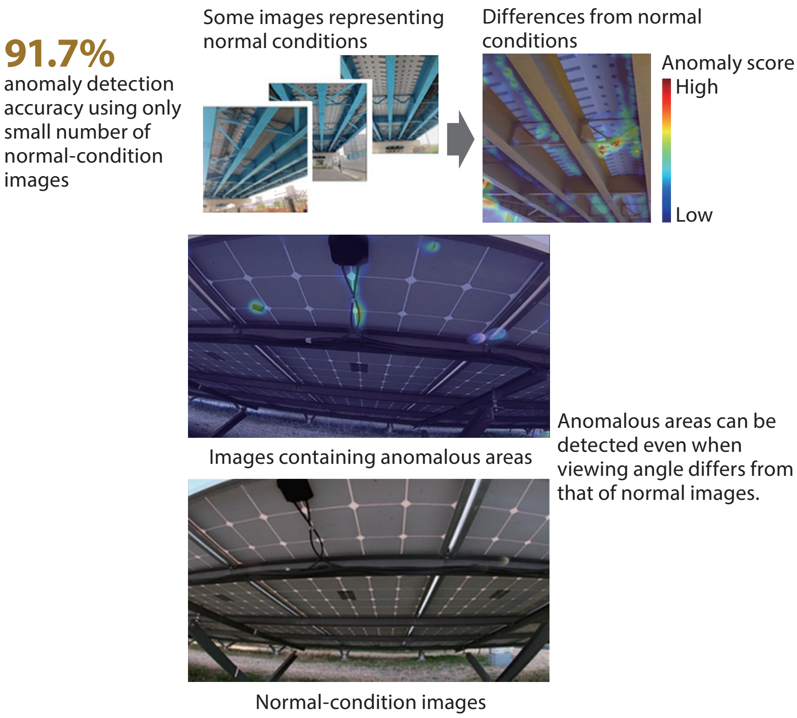
Furthermore, efforts are currently underway to validate the use of generative AI to reduce response times to equipment incidents and failures by leveraging design documents, operation manuals, and past incident records(*2).

(*1) As of May 2022 (according to Toshiba Corporation research)

(*2) The Plant Knowledge AI Chat service was launched in April 2026.



Example of application of topology optimization tool to hydroelectric power plant



AI-based inspection image analysis service

2.28 Expansion of Cybersecurity Training Service for Energy Operators

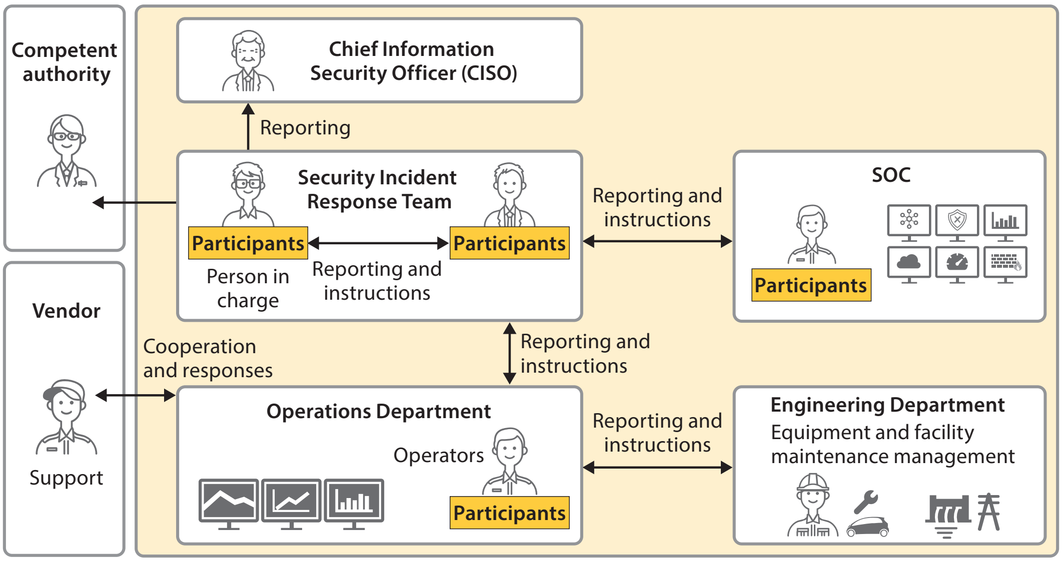
In recent years, cyber threats to control systems have increased due to advances in information and communication technology (ICT), digitalization, and the widespread adoption of general-purpose communication protocols. While strengthening system defenses is essential for preventing cyberattacks, it is also critical to address vulnerabilities, minimize damage, and ensure rapid system recovery in the event of an attack.

To address these challenges, Toshiba Corporation provides cybersecurity training services designed to prepare for cyberattacks on control systems. In addition to existing training services targeting power grids, we have now launched a training service for renewable energy systems.

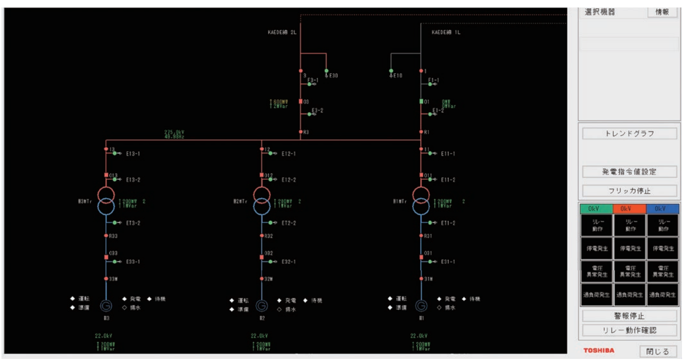
The training is conducted in a scenario-based role-playing format using a SCADA simulator. Participants assume roles in the operations, risk management (SIRT: Security Incident Response Team), and information systems (SOC: Security Operations Center) departments. The SIRT coordinates the overall response, including the identification and mitigation of cyberattacks, and leads system restoration in cooperation with the operations department and SOC. The simulator accurately reproduces the behavior of field equipment during an attack and generates SCADA logs and network traffic. This enables operators to develop the capability to rapidly assess cyberattacks, which is particularly important for remotely operated facilities such as hydroelectric power plants, where direct confirmation of field equipment is difficult. In addition, the simulator enables SOC personnel to develop the capability to process and evaluate large volumes of data, as well as analytical skills required to identify anomalies in real time through the investigation and analysis of SCADA logs and network traffic.

We offer a cybersecurity training program based on a structured curriculum and provide a newly developed behavior evaluation method for each role to enable quantitative assessment of the required capabilities. By leveraging the PDCA (Plan–Do–Check–Act) cycle based on this method, training is conducted continuously and effectively with varying levels of difficulty. Through our cybersecurity training program, we will continue to contribute to the development of human resources for energy operators.

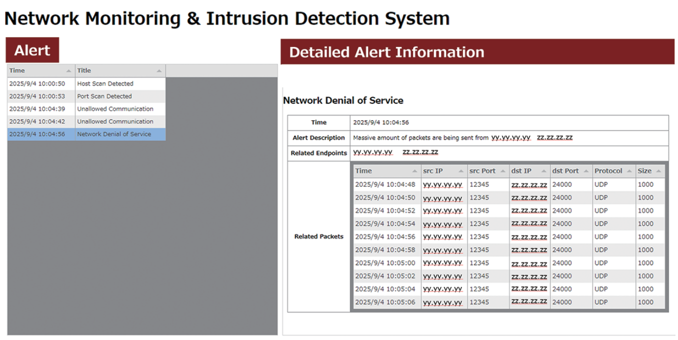
2. Energy Solutions



Example of organizational structure for security training



Example of supervisory control interface for renewable energy system cybersecurity training



Example of investigation and analysis tool for SOCs