

# News Release

FOR IMMEDIATE RELEASE

## Completion of Chubu Electric Power Grid Hida Converter Station Equipped with Hitachi's Frequency Converters

*Contributing to a stable supply of electricity by enabling efficient interconnection  
between Tokyo and Chubu regions with HVDC Technology*



Hida Converter Station of Chubu Electric Power Grid Co., Inc.



A valve hall equipped with a line commutate converter HVDC (AC/DC converter)

**Tokyo, April 1, 2021** --- Hitachi, Ltd. (TSE: 6501, "Hitachi") today announced that the operations of the Hida-Shinano frequency conversion facility have commenced, enabling the Shin-Shinano Substation of TEPCO Power Grid, Inc. ("TEPCO") to be connected to the Hida Converter Station of Chubu Electric Power Grid Co., Inc. ("Chubu Electric Power"), to which Hitachi delivered a line commutate converter high-voltage direct current ("HVDC") system.

The Hida-Shinano frequency conversion facility is a direct current transmission system with an interconnection capacity of 900MW, connecting the 60 Hz-based Chubu Electric Power area and the 50 Hz-based TEPCO area via an approximately 89 km long aerial cable. In the wake of the Great East Japan Earthquake that occurred on March 11, 2011, the new facility was purpose-built to increase the interconnection capacity between the different areas and enhance the power supply capacity in the event of a large disaster. In this project, Hitachi received an order for a frequency converter to be installed at Chubu Electric Power's Hida Converter Station that included installation and testing. The equipment uses the line commutate converter High-Voltage Direct Current (HVDC) power transmission technology to achieve the interconnection of systems with different frequencies through the conversion of alternating current into direct current. The installation of the converters, which began in August 2018, has been completed.

HVDC enables the interconnection of systems using different frequencies. It also reduces the loss of power when transmitting power over long distances and offers other features that are beneficial for the expansion of the systems. Therefore, with an eye

toward expanding renewable energy, the materiality of HVDC is increasing from the perspective of transmitting power from large offshore wind power generation facilities in remote areas to the places where the power is used, and the perspective of increasing the capacity of the interconnections of regional systems.

In most projects related to the installation HVDC <sup>\*1</sup> in Japan, Hitachi has been in charge of technological development and project arrangements and contributed to the maintenance of Japan's high quality power system that is best in the world in availability.<sup>\*2</sup> Hitachi ABB Power Grids established in July 2020 was the first to commercialized HVDC in 1954. The company has the world's best <sup>\*3</sup> HVDC technologies, reflecting their engagement in approximately 120 systems, or almost half of the world's DC power transmission systems with a total wattage of 130,000 MW.

The equipment delivered to the Hida Converter Station is the first HVDC equipment in Japan to establish an aerial interconnection between grids with different frequencies. One of the delivered devices, specifically, the filtering equipment capable of adjusting the phase of the electricity, uses a system made by Hitachi ABB Power Grids and features a combination of Hitachi's rich experience and Hitachi ABB Power Grids' best-in-the-world technologies. In addition, efforts were made to optimize the system by taking into consideration the tough climate conditions such as outside temperatures ranging from -30 to +35 °C in a location 1,085 meters above sea level that often sees two meters of snow accumulate.

Hitachi positions HVDC as one of its main businesses in the energy field. In 2019, it received an order for a voltage-sourced HVDC-based frequency converter for Chubu Electric Power's Higashishimizu Substation of which is now under construction. Going forward, Hitachi will contribute to the creation of a decarbonized society by responding to the growth of demand for strengthening the interconnection of grids in Japan and abroad and for facilities connecting systems due to the increase in renewable energy.

\*1 Including frequency converter

\*2 Reported in "A Survey of the Reliability of HVDC Systems" at the International Council on Large Electric Systems (CIGRE) and other places

\*3 Based on orders received in 2019 and research conducted by Hitachi ABB Power Grids

### **About Hitachi, Ltd.**

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, is focused on its Social Innovation Business that combines information technology (IT), operational technology (OT) and products. The company's consolidated revenues for fiscal year 2019 (ended March 31, 2020) totaled 8,767.2 billion yen (\$80.4 billion), and it employed approximately 301,000 people worldwide. Hitachi drives digital innovation across five sectors – Mobility, Smart Life, Industry, Energy and IT – through Lumada, Hitachi's advanced digital solutions, services, and technologies for turning data into insights to drive digital innovation. Its purpose is to deliver solutions that increase social, environmental and economic value for its customers. For more information on Hitachi, please visit the company's website at <https://www.hitachi.com>.

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