

News Release

FOR IMMEDIATE RELEASE

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**Hitachi Selected as System Vendor
for Demand Response Demonstration Project for the Optimization
of Thai Power Supply and Demand Balance**

*Promoting the introduction of renewable energy
and contributing to the reduction of greenhouse gas emissions*

Bangkok, Thailand, May 28, 2021 – Hitachi, Ltd. (TSE: 6501, “Hitachi”) and Hitachi Asia (Thailand) Co., Ltd. (“Hitachi Asia (Thailand)”), a local corporation in the Kingdom of Thailand (“Thailand”) today announced that they have been selected for participation in a demand response*¹ (“DR”) demonstration project driven by the Electricity Generating Authority of Thailand (“EGAT”), as system vendors of the EGAT-adapted DR management system (DRMS)*².

The project aims for system design and implementation to optimize power supply and demand balance in accordance with the comprehensive energy policy plan, Smart Grid Development Master Plan*³ that is led by the Thai government.

This demonstration project centers around the DR system design of Chulalongkorn University, which is Thailand's oldest national university, and is part of efforts to build a smart grid*⁴ system that can expand renewable energy system capacity through the efficient operation of power distribution facilities.

At present, thermal power stations are the principal domestic energy source in Thailand. Considering global warming, the Thai Ministry of Energy aims in the Thai Power Development Plan 2018*⁵ (PDP), which was issued in 2019 and applies to the 2018-2037 period, to realize an energy source balance that reduces greenhouse gas emissions and otherwise lightens the environmental load. It lays out a policy of more or less keeping current natural gas dependence, lowering thermal power dependence to about 10%, and adopting actively solar energy and other renewable energy sources. With the expansion of renewable energy, the difficulties of operating systems will become apparent in adjusting power demand in response to sudden changes in

weather or other factors. Then, it is expected to increase the importance of measures to stabilize systems that maintain the demand and supply balance. This new DR system is an example of such measures.

For many years, Hitachi has accumulated technologies, insights, and know-how by engaging in demonstration projects in Japan and abroad, going back to the early days of DR technology. Hitachi has been involved in a smart grid demonstration project^{*6} for introducing renewable energy in Hawaii, USA as well as Japanese demonstration projects for building virtual power plants^{*7} ("VPP") (2016-2020)^{*8}, which were led by the Ministry of Economy, Trade and Industry ("METI"), in cooperation with Waseda University and power distribution departments of power companies that promote the standardization of DR and VPP technologies and systems in response to Japanese institutional design.

On this occasion, Hitachi will deploy its DR and VPP solutions in the Thai project, with all the technologies and knowledge that we have, to provide a system that comprehensively manages multiple decentralized sources of renewable energy as if they were a single VPP.

From May 2021, Hitachi Asia (Thailand) will start this project by building and trialing the system. This will lead into system verification conducted by EGAT with support from Chulalongkorn University between December 2021 and December 2022. In addition to providing Hitachi DR and VPP solutions, which have an excellent track record in Japan, and facilitating rapid system-building, Hitachi Asia (Thailand) will also conduct technical support and training to help Chulalongkorn University and EGAT with operations. By setting up a system for continuous support in Thailand, this will contribute to the further sophistication of the Thai smart grid system in the future.

Building on the results of this project, Hitachi will expand from Thailand to other Southeast Asia countries by applying Japanese system stabilization technology and related solutions and know-how to the development of smart grid-centered DR and VPP projects as well as contribute to initiatives for stable energy supply and promote renewable energy use and decarbonization.

*1 Demand response (DR): This refers to when power companies and other power suppliers suppress and control power consumption through power charges and incentive criteria, thereby keeping down power consumed by users (households and companies) to match supply capacity. It is called "demand response" because the users respond to the needs of the suppliers.

- *2 DRMS (demand response management system): a system that manages the issuance of demand responses.
- *3 Smart Grid Development Master Plan: This defines the planned policies and measures for smart grid development in Thailand as four steps. The concrete activities described in the plan include countermeasures to output fluctuations for solar power, wind power, and other forms of renewable energy, such as energy management systems, demand response, energy storage, and weather forecasting.
- *4 Smart grid: Advanced power grid that matches power demand and power supply in real time by using IT and control technology.
- *5 Power Development Plan 2018: Plan relating to power generation, including diversification of procurement fuels and predicting power demand in line with predictions for national economic growth.
- *6 News release from December 17,2013."Hitachi Commences Demonstration Site for Japan-U.S. Island Grid Project in Hawaii "
<https://www.hitachi.com/New/cnews/131218.html>
- *7 Virtual power plant (VPP): Technology that uses IoT technologies to control solar power and other forms of renewable energy as well as energy resources from storage batteries and electric vehicles (EV) as if they were a single power plant.
- *8 An initiative where METI partly funds demonstration projects relating to VPP building.

Contact information for Inquiries

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<https://www2.hitachi.com/inquiry/region/thailand/en/general/form.jsp>

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 2020 (ended March 31, 2021) totaled 8,729.1 billion yen (\$78.6 billion), with 871 consolidated subsidiaries and approximately 350,000 employees worldwide. Hitachi is working to increase social, environmental and economic value for its customers across six domains; IT, Energy, Industry, Mobility, Smart Life and Automotive Systems through Lumada, Hitachi's advanced digital solutions, services, and technologies for turning data into insights to drive digital innovation. For more information on Hitachi, please visit the company's website at <https://www.hitachi.com>.

About Hitachi Asia (Thailand) Co., Ltd.

Incorporated in 1992, Hitachi Asia (Thailand) Co., Ltd. provides expert solutions in meeting the needs of customers in Thailand, Laos and Cambodia. Hitachi Asia (Thailand) is focusing on the business areas of Smart Cities, Smart Manufacturing and Smart Public Services, with the aim of contributing to the community as a responsible corporate citizen.

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