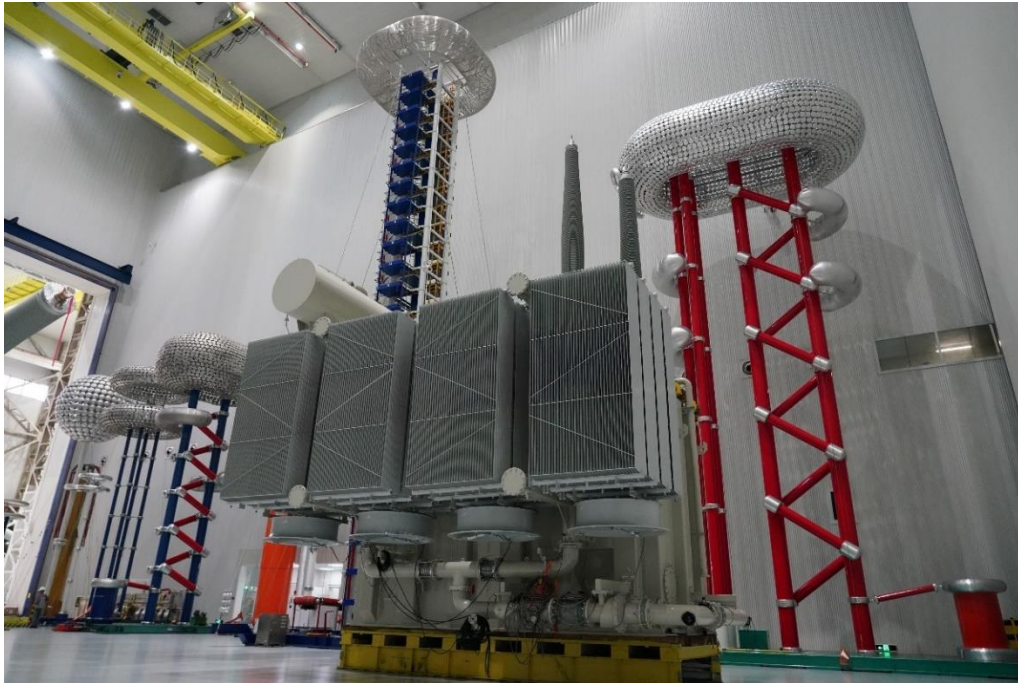


Hitachi Energy successfully tests groundbreaking 765 kV transformer to enhance safety and environmental protection in electrical grids

- Hitachi Energy's 765 kV natural ester-filled transformer is the world's largest at this voltage and power level, setting the benchmark for biodegradable and safety-by-design solutions for high-voltage AC transmission



Zurich, May 19, 2025 – Hitachi Energy has successfully tested a 765 kilovolt (kV) / 400 kV single-phase, 250 megavolt-ampere (MVA) natural ester-filled oil transformer. This breakthrough innovation makes this transformer the first in the world at this voltage and power level, with the implementation of ester oil providing a biodegradable and safety-by-design option for operators of ultra-high-voltage alternating current (AC) grids.

765 kV transformers are part of utilities' strategic transmission expansion plans to meet growing energy needs, thanks to their ability to transmit large amounts of electricity over long distances, improving grid efficiency, stability, and reliability. A typical three-phase 765 kV transformer may supply equivalent power to serve a city of 250,000 people.

The transformer was designed, manufactured and tested to further develop Hitachi Energy's TrafoStar transformer technology platform, which is available in all power transformer factories worldwide.

Transformers have traditionally used mineral oil, well known for its excellent electrical properties, as an insulation and cooling medium. More recently, transformer technology innovation has advanced the use of alternative fluids, such as natural ester, with additional safety and environmental performance features.

The tested 765 kV transformer uses natural ester fluid with a flash point twice as high as mineral oil and with self-extinguishing properties. Combined, these qualities make it safer than mineral oil transformers. Additionally, virgin natural esters are up to 100 percent biodegradable within 28 days, reducing the risk of environmental pollution resulting from insulating fluid leakages. Safety is further enhanced by Hitachi Energy's rupture-resistant TXpand™ technology.

"Driven by the accelerating global energy transition and the continuous growth of electricity demand, the supply of new and innovative transformers is more important than ever," said Bruno Melles, Managing Director for the Business Unit Transformers at Hitachi Energy. "High-voltage, natural ester-filled transformers provide grid operators with an efficient and safe solution, especially for environmentally sensitive areas. We are working closely with customers and partners both to upgrade existing ultra-high-voltage power grid infrastructure and develop new energy projects that help to create a more sustainable and secure power system. This development is hugely exciting, and we expect it to meet the needs of a growing number of customers worldwide."

On its journey from power generation sites to the end-user, electrical energy passes through an average of four to five transformers, making them essential components of power grids. The 765 kV AC high-voltage transmission is part of power grids in various regions worldwide, including North America, South America, South Africa, and parts of Asia (including China).

Hitachi Energy has been supplying natural ester-filled transformers for over 20 years, with products installed in over 40 countries. The company's TrafoStar transformer technology platform harmonizes transformer design, manufacturing processes and quality control measures across all Hitachi Energy power transformer factories worldwide, ensuring consistency and excellence in every transformer produced. With more than 30,000 power transformers produced, the platform incorporates a rigorous quality system and all processes covering material, technical, production, and quality, fostering collaboration, global knowledge sharing, and innovation.

About Hitachi Energy

Hitachi Energy is a global technology leader in electrification, powering a sustainable energy future with innovative power grid technologies with digital at the core. Over three billion people depend on our technologies to power their daily lives. With over a century in pioneering mission-critical technologies like high-voltage, transformers, automation, and power electronics, we are addressing the most urgent energy challenge of our time – balancing soaring electricity demand, while decarbonizing the power system. With an unparalleled installed base in over 140 countries, we co-create and build long-term partnerships across the utility, industry, transportation, data centers, and infrastructure sectors. Headquartered in Switzerland, we employ over 50,000 people in 60 countries and generate revenues of around \$16 billion USD.

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About Hitachi, Ltd.

Through its Social Innovation Business (SIB) that brings together IT, OT (Operational Technology) and products, Hitachi contributes to a harmonized society where the environment, wellbeing, and economic growth are in balance. Hitachi operates globally in four sectors – Digital Systems & Services, Energy, Mobility, and Connective Industries – and the Strategic SIB Business Unit for new growth businesses. With Lumada at its core, Hitachi generates value from integrating data, technology and domain knowledge to solve customer and social challenges. Revenues for FY2024 (ended March 31, 2025) totaled 9,783.3 billion yen, with 618 consolidated subsidiaries and approximately 280,000 employees worldwide. Visit us at www.hitachi.com.

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