



SupraMarine consortium formed by leading European players to launch an innovation project connecting distant offshore wind farms to land using a superconducting system

PRESS RELEASE

- **Air Liquide, CentraleSupélec, ITP Interpipe, Nexans, and RTE have joined forces to develop a superconducting power transmission demonstrator designed to accelerate energy transition**
- **Called SupraMarine, the project is key to developing a subsea superconducting system, which will ultimately strengthen the competitiveness of offshore wind energy far from the coast**
- **Each partner brings complementary expertise to this cutting-edge technology**

Paris, November 6, 2025 – Air Liquide, CentraleSupélec, ITP Interpipe, Nexans and RTE have formed a consortium to develop a High Voltage Alternating Current (HVAC) superconducting power transmission system demonstrator.

The SupraMarine project will study the electrical connection between offshore wind farms and the coastline using High-Temperature Superconducting (HTS) cables. Superconducting cables, cooled by liquid nitrogen, transport electricity with near-zero energy loss.

Such a system would offer major advantages for the energy transition by improving the competitiveness of offshore wind power installed far from the coast, compared to a direct current connection. It could thus contribute to developing the industrial sector of superconductivity, while helping to reduce Europe's dependence on imports of electronic equipment.

The cutting-edge technology demonstrator would represent a breakthrough in energy transmission from offshore wind farms by adapting and simplifying part of the electrical grid connection. The SupraMarine project would offer an alternative solution to the growing offshore wind energy supply chain challenges, while sourcing most of its materials from Europe.

The SupraMarine consortium relies on leading European players that bring complementary expertise to the project:

- Air Liquide will supply the cryogenic plants featuring its Turbo-Brayton technology, crucial for maintaining the superconducting state of the cables, and will also conduct in-depth studies on the system's thermal performance and oversee its cryogenic operations;
- CentraleSupélec, through GeePs laboratory (Université Paris-Saclay, Sorbonne Université, CNRS, CentraleSupélec) will bring its expertise ranging from experimental platforms to doctoral research student training to overcome key scientific barriers;
- ITP Interpipe will design the highly-insulated rigid Pipe-in-Pipe cryostat envelope, a key element that safeguards the superconducting state of the cables and underpins the overall performance of the system;
- Nexans, as the leading innovator in superconducting cables and systems, will ensure the development of the advanced HVAC superconducting cables, junctions and terminations;
- RTE will provide its insights as a leading grid operator, ensuring the research aligns with real-world grid integration requirements.

The testing of the demonstrator is planned by 2028.

The SupraMarine project was awarded a grant of €7.3 million.

This project is funded by the French State as part of France 2030 operated by ADEME.

Funded by



About Air Liquide

Air Liquide is a world leader in gases, technologies and services for industry and healthcare. Present in 60 countries with approximately 66,500 employees, the Group serves more than 4 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the Group's activities since its creation in 1902.

Taking action today while preparing the future is at the heart of Air Liquide's strategy. With ADVANCE, its strategic plan, Air Liquide is targeting a global performance, combining financial and extra-financial dimensions. Positioned on new markets, the Group benefits from major assets such as its business model combining resilience and strength, its ability to innovate and its technological expertise. The Group develops solutions contributing to climate and the energy transition — particularly with hydrogen — and takes action to progress in areas of healthcare, electronics and high technologies.

Air Liquide's revenue amounted to more than 27 billion euros in 2024. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, CAC 40 ESG, EURO STOXX 50, FTSE4Good and DJSI Europe indexes.

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About CentraleSupélec

CentraleSupélec is a public scientific, cultural, and professional institution, created in January 2015 from the merger of École Centrale Paris and Supélec. Today, CentraleSupélec comprises 4 campuses in France (Paris-Saclay, Metz, Rennes, and Reims). It has over 5,400 students, including 3,800 engineering students, and 18 laboratories or research teams. Highly internationalized (25% of its students and nearly a quarter of its teaching staff are international), the school has forged over 170 partnerships with the world's leading institutions. A leader in higher education and research, CentraleSupélec is a benchmark in engineering and systems sciences. It co-founded Université Paris-Saclay in 2020 and chairs the Groupe des Écoles Centrale (CentraleSupélec, Centrale Lyon, Centrale Lille, Centrale Nantes and Centrale Méditerranée), which operates the international sites in Beijing (China), Hyderabad (India), Casablanca (Morocco).

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About ITP Interpipe

Since 1992, ITP Interpipe has established itself as a global leader in pipeline transport, specializing in the design, manufacture, and supply of highly insulated and electrically traced pipelines. These advanced solutions are primarily used for the transport of energy at extreme temperatures, serving industries that demand reliable and efficient transportation of critical resources.

ITP Interpipe is renowned for its expertise in research and development, equipment design, project management, manufacturing, and worldwide field support for both onshore and offshore installations.

As a recognized leader in the energy sector, ITP Interpipe has pioneered numerous “world-first innovations”, contributing significantly to the advancement of sustainable energy solutions. The company is at the forefront of the energy transition, particularly in the transportation of liquid hydrogen, liquid ammonia, and liquid CO₂.

At the core of ITP Interpipe's success is a dedicated team of professionals whose expertise and commitment drive the company's technological advancements. The company remains steadfast in its dedication to maintaining the highest standards of quality and safety while continually striving to exceed customer expectations.

For more information, please visit www.itp-interpipe.com

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About Nexans

Nexans is the global pure player in sustainable electrification, building the essential systems that power the world's transition to a connected, resilient, and low-carbon future. From offshore and onshore renewable energies to smart cities and homes, Nexans designs and delivers advanced cable solutions, accessories and services that electrify progress safely, efficiently, and sustainably.

With over 140 years of history, through three core businesses: PWR Transmission, PWR Grid, and PWR Connect, Nexans blends deep industry expertise with cutting-edge innovation to accelerate the energy transition, and better meet its customers' needs. Its unique E3 model, focused on Environment, Economy and Engagement, drives every action, aligning performance with purpose.

Nexans operates in 41 countries with 28,500 people and generated €7.1 billion in standard sales in 2024. As recognized climate action leader, Nexans is committed to Net-Zero emissions by 2050 aligned with the Science Based Targets initiative (SBTi) and expanding energy access through the Fondation Nexans.

Nexans is listed on Euronext Paris, Compartiment A.

www.nexans.com | #ElectrifyTheFuture

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About RTE

RTE is France's transmission system operator, in charge of an impressive infrastructure: more than 105 000 km of high and ultra-high-voltage lines spanning the whole of France and 50 interconnections with neighbouring European countries. RTE is renowned for its expertise. It has been operating, maintaining and developing this grid for 20 years, while constantly balancing supply and demand, second by second. RTE is a public utility which provides all competing power-generation facilities with non-discriminatory access to the grid.

RTE informs the decisions of the public authorities who make energy policy. It also educates the members of the general public, helping them to gain a better understanding of electricity so that they can use it more efficiently.

Playing a central role within the French and European power systems, RTE is a vital economic partner of businesses and regions, a pivotal player in the energy transition and the move towards renewable energy sources, and a firm proponent of Europe-wide electrical solidarity.

For more information, please visit [RTE, France's Transmission System Operator | RTE](#)

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