

DECARBONIZING INDUSTRY WITHOUT DELAY: HEXANA AND STORABELLE LAUNCH THE POWER-TO-HEAT SMR-READY SOLUTION

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A thermal storage technology that converts excess electricity into industrial heat, helping energy-intensive industries like steel, chemicals, and fuels drastically cut their CO₂ emissions while preparing for the transition to SMR cogeneration platforms.

POWER-TO-HEAT SMR-READY: decarbonization stats today

In response to the climate crisis and energy challenges, STORABELLE and HEXANA are launching an immediate industrial decarbonization solution: POWER-TO-HEAT SMR-READY. This molten salt thermal storage system converts excess electricity into high-temperature heat, enabling immediate change while de-risking the decarbonization pathway: gradually reducing dependence on fossil fuels and preparing for the future integration of a flexible SMR nuclear source.

The POWER-TO-HEAT SMR-READY solution addresses a twofold challenge: decarbonizing industrial processes and stabilizing electrical grids.

The principle: a molten salt Carnot stack captures surplus low-carbon electricity from the grid and stores it in the form of high-temperature heat (>500°C) with optimal efficiency. This heat directly replaces fossil fuels in traditional industrial processes.

Immediate benefits:

- Instant decarbonization: replaces fossil fuels like natural gas
- Maintained competitiveness: captures low-cost electricity
- Grid stabilization: absorbs excess renewable energy production
- Energy independence: reduces reliance on fossil fuel imports

The HEXANA-STORABELLE partnership: a pathway to flexible nuclear power

For our industrial customers, a POWER-TO-HEAT SMR-READY installation is deployed in two phases:

1. **Immediate decarbonization (2025 – 2030):** Installation of STORABELLE's POWER-TO-HEAT system. Converts excess grid electricity into industrial heat. Immediately reduces CO₂ emissions and dependence on fossil fuels for heat production.

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2. **Flexible nuclear integration (from 2035):** Transition to HEXANA's SMR platform. The POWER-TO-HEAT system then becomes the storage component for the SMR system's conventional island, enabling optimized cogeneration (high-temperature heat + electricity) while providing flexibility for the customer or grid and ensuring optimal reactor capacity utilization.

An energy landscape that demands immediate solutions

Solar and wind renewable energy are rapidly expanding in the global energy mix. This growth underscores the need for flexible, competitive low-carbon energy production and storage solutions to ensure grid resilience.

New Gen III nuclear reactors must balance flexibility with cost-effectiveness. However, reducing their capacity factor undermines their profitability. The POWER-TO-HEAT SMR-READY platform solves this challenge: it provides flexibility to the grid and industry while maintaining an optimal capacity factor for the nuclear facility.

Chemicals, steel, fuels: three priority sectors for rapid decarbonization

The POWER-TO-HEAT SMR-READY solution targets three major industrial sectors that consume large amounts of high-temperature heat:

- Chemicals: cracking, distillation, synthesis and hydrogen production processes
- Steel: electric arc furnaces, annealing and heat treatment
- Fuels: atmospheric distillation, reforming, hydrotreatment and synthetic e-SAF production

This configurable solution adapts to the specific needs of each industrial site. It maximizes the value of excess intermittent renewable energy, reduces grid strain, and provides a pragmatic path to net-zero without compromising competitiveness.

"This joint initiative, born from our productive collaboration with STORABELLE and our hands-on approach to industrial challenges, represents a customized and cost-competitive solution for incremental energy transformation. By integrating POWER-TO-HEAT SMR-READY as a storage component in the conventional island of our HEXANA SMR platforms, we're enabling our industrial customers to decarbonize today while preparing for the integration of flexible, next-generation nuclear power. This modular approach ensures a clear, step-by-step path to net-zero without operational disruption or performance loss," said Sylvain NIZOU, CEO of HEXANA.

"Faced with the growing mismatch between electricity production and consumption, POWER-TO-HEAT is proving to be an indispensable tool for stabilizing grids. By transforming surplus electricity into storable heat, we offer manufacturers an immediate solution: replacing their fossil fuels while making use of renewable surpluses. It is a competitive solution that reconciles decarbonization and energy agility," added Frédéric PIERUCCI CEO of STORABELLE.

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About HEXANA

HEXANA, an industrial start-up spin-off from the French Atomic Energy and Alternative Energies Commission (CEA), is developing an innovative energy platform that combines sodium-cooled fast neutron reactors (SFR) with a thermal storage system. SFR is a proven technology with more than 400 years of cumulative experience worldwide, of which 120 years in Europe (from construction to decommissioning). HEXANA's solution delivers decarbonized, flexible, competitive, and sovereign energy tailored to industrial needs. Positioned as a credible alternative to fossil fuels, HEXANA leverages the legacy of the Phénix, Superphénix, and ASTRID projects, integrating unique expertise and decades of experience (more than 70 years of R&D and operation) to transform nuclear energy into a pivotal asset for the energy and climate transition.

Awarded with a France 2030 grant, HEXANA operates from offices in Aix-en-Provence, Paris, and Brussels. The company is a member of GIFEN, the European SMR Industrial Alliance, NuclearEurope, COGEN Europe, the Capénergies and Nuclear Valley clusters, France DeepTech, Forces Françaises de l'Industrie, La French Tech Aix-Marseille, SNETP and Provence Fabrique des Possibles.

For more information, visit www.hexana.com

About STORABELLE

Storabelle pioneers long-duration thermal energy storage, transforming surplus renewable electricity into carbon-free heat and power using molten salts and Carnot battery technology. Our innovative solution enables industries and energy providers to efficiently store and dispatch renewable energy, offering both flexibility and reduced dependence on fossil fuels. By delivering cost-effective heat as a service, we optimize energy costs and drive the energy transition. Storabelle is committed to accelerating the decarbonization of industrial heat worldwide by replacing fossil-fuel boilers. www.storabelle.eu

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