

Fives and NOC Energy: a technology partnership to accelerate smarter energy use and the decarbonization of the cement industry

Fives, a global leader in industrial engineering and a reference player in cement and minerals technologies, and **NOC Energy**, a start-up specializing in the production and storage of clean, ultra-high temperature heat, have joined forces to **accelerate a better use of energies and decarbonize one of the world's most energy-intensive and carbon-emitting industrial processes**.

This partnership was announced during the Innovation Day organized by Fives at its Research and Testing Center, an event that brought together several major European cement producers and sector experts.

By integrating NOC Energy's clean heat technology, **NOC Cell™**, of which **one single module (currently 10 MW) can avoid up to 20,000 tons of CO₂ emissions per year**, on **Fives FCB clay calcination pilot plant**, the two partners are exploring a new pathway for the decarbonization of high-temperature thermal processes in the cement industry.

| A major step forward for decarbonizing cement process

Responsible for nearly **8% of global CO₂ emissions**, cement production is among the industrial sectors most exposed to energy constraints and regulatory requirements, particularly in Europe. Decarbonizing high-temperature thermal processes, historically dependent on the fossil fuels, therefore represents a major challenge for the industry.

In this context, the partnership between Fives and NOC Energy is built on strong **technological complementarity**:

- **NOC Energy supplies the NOC Cell™ technology**, a modular thermal battery capable of converting renewable electricity into clean industrial heat at very high temperatures, up to 1,500°C;
- **Fives** provides its recognized expertise in industrial processes, the pilot calcination platform, and decades of leadership in thermal processes and cement technologies.

The demonstration at Fives' pilot plant aims to **validate the integration of the NOC Cell™ into the clay calcination process** – a key lever for producing **low-clinker, low-CO₂ cements**, and to facilitate its deployment at industrial scale.

Beyond this application, the solution can also be deployed in other industrial processes involving Supplementary Cementitious Materials (SCMs), such as fly ash or blast furnace slag. In the longer term, this technology could even have the potential to power rotary kilns.

« Fives FCB has built its history on breakthrough innovations that have profoundly transformed cement production. By hosting the NOC Cell™ on our pilot facility, we are once again placing our expertise at the service of highly promising technology. Our role is clear: to help this solution reach industrial maturity and to accelerate the energy transition and the real decarbonization of the cement processes.

Alain CORDONNIER, President of Fives FCB

An innovative, flexible, and cost-effective clean heat technology for industry

Capable of **producing, storing and delivering heat on demand**, the **NOC Cell™** ensures process continuity despite the intermittency of renewable energy sources.

At a scale of **one 10 MW module**, the technology can avoid **up to 20,000 tons of CO2 emissions per year**. It also delivers **high energy density**, up to 7× higher than many alternatives, and offers **economic competitiveness** in line with the requirements of heavy industry, with costs representing approximately one-fifth the cost of lithium storage for comparable applications.

Its modular architecture and ability to operate in hybrid mode make it a credible, **industrial-ready alternative to fossil fuels for high temperature thermal processes**.

“This partnership with Fives FCB is a unique opportunity to demonstrate the effectiveness of our solution under conditions close to those of industrial operations. Together, we are advancing energy transition and energy security, while contributing to the decarbonization of a key industrial sector.”

Carlos CEBALLOS, CEO of NOC Energy

A project embedded in an industrial ecosystem approach

This project is part of a broader ecosystem dynamic aimed at accelerating the deployment of decarbonized industrial solutions. **As part of this effort, Schneider Electric contributed to bringing NOC Energy and Fives FCB together and supported the structuring of the project**, drawing on its expertise in electrification, automation and digitalization.

“Through this demonstration, Schneider Electric reaffirms its commitment to supporting the emergence of decarbonized industrial solutions by facilitating cooperation between technology providers, process experts and industrial players. For us, process electrification is a strategic pillar of industrial decarbonization.”

Maxime RAMAEL, Global Business Development Leader for Cement Industry at Schneider Electric

About Fives FCB

Fives designs and supplies machines, process equipment and production lines for the world's leading manufacturers. From the first railway lines to the Eiffel Tower elevators and industry 4.0, Fives has been designing the disruptive solutions and technologies that make industry for over 200 years. A pioneer in decarbonization and digitalization, Fives is always one innovation ahead thanks to its ability to anticipate customer needs. By responding to the specificities of each market locally, Fives combines economic and environmental performance in 25 countries thanks to over 8,500 employees.

Within the Cement & Minerals division, Fives FCB is a major technology provider in the cement and minerals industries, providing innovative and tailor-made solutions designed to maximize the energy efficiency and reduce the environmental footprint of cement producers' facilities.

www.fivesgroup.com/cement-minerals

About NOC Energy

NOC Energy is an industrial technology company focused on accelerating the transition toward cleaner energy systems. They bring together expertise in electrification, and thermal processes to support heavy industry in navigating the shift to more sustainable operations. Their approach is grounded in performance, reliability, and long-term industrial impact.



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