

MoU signed to trial electric heating and thermal energy storage technology

ArcelorMittal (the 'Company') today announces an investment in Electrified Thermal Solutions ('Electrified Thermal') through its XCarb® Innovation Fund. The Fund, launched in 2021, invests in companies developing disruptive technologies that have the potential to support the decarbonisation of steelmaking.

Electrified Thermal, a US-based company, has developed a breakthrough technology that electrifies industrial heat generation. Originating at Massachusetts Institute of Technology and developed over the past decade, Electrified Thermal's patented firebricks sit at the heart of its Joule Hive™ Thermal Battery (JHTB) system.

The JHTB is a stack of electrically and thermally conductive firebricks in an insulated steel container. It charges by running renewable electricity directly through the bricks, storing low-cost, carbon-free thermal (or heat) energy at temperatures proven up to 1,700°C. The thermal energy is then discharged by running air or gas through the brick channels, providing heat to industrial applications.

High temperature thermal energy, most commonly created by burning steel plant gases or natural gas, is used throughout the steelmaking process. Applications include hot stoves in a blast furnace, reheating slabs before rolling, and heat treatment in finishing processes such as quenching or annealing. Electrified Thermal's JHTB system therefore holds the potential to be a key enabler for decarbonising the steelmaking process and reducing reliance on fossil fuels to create thermal energy.

Construction is underway on a 1MW/5MWh commercial demonstration plant at the Southwest Research Institute in Texas, with commissioning scheduled for the second half of 2025.

Alongside the investment, ArcelorMittal and Electrified Thermal have signed a Memorandum of Understanding to explore technology validation tests at ArcelorMittal's GasLab facility in Asturias and pilot deployment pathways within ArcelorMittal operations.

Commenting, Irina Gorbounova, Head of the XCarb® Innovation fund, said:

"Electrifying high temperature heating processes, and thereby reducing reliance on fossil fuel use, in steelmaking is a widely recognised challenge. Having scoured the market for companies looking to address this, Electrified Thermal's patented technology stood out. They have made good progress in recent years, and we are investing at an important time in the company's development as they look to move to commercial scale pilots. We are therefore pleased to make this investment and excited about our collaboration to support further development of their technology through testing and potential deployment at our industrial facilities."

Joey Kabel, Co-founder and CTO of Electrified Thermal Solutions, said:

"We're thrilled to work with ArcelorMittal to explore integration of our technology into their operations. This collaboration has the potential to accelerate decarbonisation of the steelmaking process through electrification of existing infrastructure with minimal disruption and cost impact."