RedoxBlox Receives $25M to Demonstrate its Pioneering Long-Duration Thermochemical Energy Storage Technology

Company awarded grants from the California Energy Commission and the U.S. Department of Energy following Series A financing led by Khosla Ventures

SAN DIEGO, California – RedoxBlox, a leader in energy storage solutions, today announced it was awarded $8.9M from the California Energy Commission (CEC) and $6.7M from the U.S. Department of Energy (DOE). These grants follow the company's $9.4M Series A financing led by Khosla Ventures for a total of $25 million to support demonstrations of RedoxBlox's cutting-edge thermochemical energy storage (TCES) technology, which delivers zero-carbon electricity and heat.

RedoxBlox is at the forefront of high-temperature TCES systems with a mission to decarbonize two critical areas of the economy: industrial heat and renewable energy storage for the grid. The company's innovative high-temperature thermochemical battery boasts energy densities comparable to lithium-ion batteries at a fraction of the cost. This advancement enables electrification of industrial heat for the difficult-to-decarbonize sectors including - cement, steel, food and beverage, refining and chemicals manufacturing. It also enables more renewable electricity sources such as solar and wind to come onto the electrical grid through ultra-low-cost energy storage.

RedoxBlox's Co-Founder and CTO, Dr. Joerg Petrasch, said, "Our goal is simple: use electrification and thermochemical energy storage to compete as a zero-carbon replacement for natural gas. We have proven the science. Our focus now is to scale up to commercially relevant sizes. Funding from the DOE and CEC across two large markets and the partnerships with our customers across multiple industrial sectors are key enablers."

In partnership with the University of California, San Diego (UCSD) and the Electric Power Research Institute (EPRI), the CEC selected RedoxBlox to pioneer long-duration energy storage solutions. Hosted by UCSD, the project will leverage RedoxBlox's technology to power a turbogenerator, providing up to 24 hours of energy storage capacity.

Similarly, the DOE's Industrial Efficiency and Decarbonization Office selected RedoxBlox for a first-of-its-kind, industrial-scale TCES, conducted in partnership with Dow and EPRI. This application will showcase the decarbonization of industrial steam at the Dow West Virginia plant through electrification using long-duration TCES. Both projects mark a pivotal step towards the decarbonization of industrial heat and grid storage at scale.

The RedoxBlox storage module features a vessel filled with a proprietary and abundantly available, low-cost metal oxide material. To charge, renewable electricity heats the metal oxide pellets from 1000-1500°C, triggering a chemical reaction that releases oxygen and stores heat in the form of chemical energy. Later, when stored energy is needed, air is directed through the module and the metal oxide consumes oxygen to reverse the reaction and release heat to the air. Hot air from the RedoxBlox module can then deliver heat to an array of industrial processes or to a gas turbine to generate electricity, thus serving as a drop-in replacement for natural gas. RedoxBlox is uniquely positioned to use the existing, massive natural gas-powered industrial infrastructure and replace natural gas with renewables-based heat – allowing significant reduction in capital needs for deployment of RedoxBlox technology for both industrial heat and grid storage.

In addition to Khosla Ventures, RedoxBlox is backed by top climate technology firms, including Breakthrough Energy Ventures (BEV). BEV led the company's Seed round and participated in its Series A fundraise.

"The RedoxBlox TCES technology is a promising discovery in materials science and energy storage technology," said Carmichael Roberts, BEV. "Paired with renewable energy resources, this technology aims to be cost competitive with natural gas for industrial heat applications. We're looking forward to continuing to support the RedoxBlox team as they develop a cheaper, zero-carbon alternative to natural gas."

About RedoxBlox

RedoxBlox, based in San Diego, CA, is a thermochemical energy storage company focused on replacing natural gas heating for industry and providing the lowest cost grid-scale storage. The company was founded around a groundbreaking thermochemical material discovery. This innovation addresses the significant global emissions that result from industrial heat and electrical grid (replacing fossil fuels with renewable electricity requires energy storage). RedoxBlox is backed by Breakthrough Energy Ventures, Khosla Ventures, and Red Cedar Ventures.

To learn more, visit the website or follow RedoxBlox on LinkedIn.