

## Form Energy's breakthrough iron-air technology sets a new benchmark for safety in energy storage systems

Berkeley, CA (December 12, 2024) — Form Energy, a leader in multi-day energy storage solutions, proudly announces that its breakthrough iron-air battery system has successfully completed UL9540A safety testing, demonstrating the highest safety standards with no flame or thermal event propagation.

UL9540A is a critical safety benchmark in the energy storage industry, designed to evaluate a battery's potential for thermal runaway and its ability to prevent the spread of heat or fire. As part of the testing, Form Energy's iron-air battery cells were subjected to simulations of fault and abuse conditions known to trigger thermal runaway in other battery technologies, such as lithium-ion. The results were consistent across all scenarios: no uncontrolled heating, no thermal runaway, no dendrite formation, and no fire. This achievement underscores Form Energy's commitment to delivering safe, reliable, and innovative energy storage solutions.

"The UL9540A cell-level test is the baseline for a battery's safety profile," said **Matthew Paiss, Technical Advisor, Battery Materials & Systems at the Pacific Northwest National Laboratory**. "Battery chemistries that demonstrate no thermal runaway at the cell-level represent a significant determination of inherent safety under extreme abuse conditions and eliminate the need for additional testing at the module or system level."

Form Energy's iron-air battery cells underwent rigorous testing, including multiple short-circuit failure modes in both charging and discharging conditions. Even when subjected to extreme scenarios, such as charging while short-circuited or overcharging for seven continuous days, the cells remained stable with no uncontrolled heating or thermal runaway. These results underscore the robust safety design of Form Energy's batteries and their compliance with the most stringent safety standards.

"We are incredibly pleased with the outstanding safety performance of our first commercial iron-air battery system," said **William Woodford, Co-founder and Chief Technology Officer of Form Energy**. "Given the novelty of our iron-air battery technology, the UL9540A testing went beyond standard lithium-ion protocols to evaluate potential failure modes. These exceptional results are a testament to the ingenuity of our team in developing a multi-day energy storage solution that excels in both performance and safety. As we scale production, this milestone demonstrates our commitment to delivering energy

storage solutions that ensure safety and long-term reliability for our customers.”

Form Energy’s iron-air system is built from safe, low-cost, abundant materials — iron, water, and air — and operates on the principle of reversible rusting. With no heavy or rare-earth metals and approximately 80% of all components sourced domestically from within the United States, Form’s battery provides a sustainable solution to meeting the growing demand for grid security and resiliency. Unlike lithium-ion batteries, which are typically used for intraday energy storage, Form’s battery system is designed to serve inter-day periods, delivering low-cost, clean electricity when and where it’s needed.

The results from the UL9540A test confirm that Form Energy’s batteries can be deployed without the need for fireproof barriers, simplifying installation and reducing costs. This further distinguishes iron-air technology from conventional lithium-ion solutions and marks another step forward in Form Energy’s mission to deliver energy storage for a better world.

Learn more at [FormEnergy.com](https://www.formenergy.com).