

Testimony of Ted Wiley  
President and Chief Operating Officer  
Form Energy

U.S. Senate Committee on Energy and Natural Resources

**Hearing on Opportunities and Challenges In Deploying Innovative Battery and  
Non-Battery Technologies for Energy Storage**

Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee, thank you for inviting me to testify on behalf of Form Energy at today's hearing to examine opportunities and challenges in deploying innovative battery technologies for energy storage.

My name is Ted Wiley. I am the Co-founder, President, and Chief Operating Officer of Form Energy, a long-duration energy storage company with more than 300 employees.

We are headquartered in Massachusetts – and also have operations in California and Pennsylvania.

Today, many battery technologies on the market can only provide, at most, four to six hours of energy storage at full rated power. While this is adequate for some circumstances, recent severe weather events – ranging from heat waves to cold snaps to thousand-year rains – have hamstrung our electric grid.

And, as has been demonstrated over the last few years – we are increasingly reliant on vulnerable supply chains to meet our energy needs.

To meet supply chain challenges and to run the grid reliably and affordably, we need new domestically-manufactured energy storage technologies capable of cost-effectively storing electricity for multiple days, during extended periods of extreme weather, grid outages, or low renewable generation.

When we started Form Energy, we conducted a broad review of available technologies and have reinvented and optimized the iron-air battery for the electric grid.

Our breakthrough, low-cost, multi-day energy storage systems will be made in America and help ensure a reliable electric grid year-round.

As the Chairman and others on this committee have highlighted, we cannot be over reliant on any single country to meet our energy needs. We need to strive for energy independence.

The active components of our iron-air battery system are some of the safest, cheapest, and most abundant materials on the planet — low-cost iron, water, and air. In fact, every material in our battery is readily available here in the U.S., as well as at the global scale, along with opportunities for high recyclability, as we think about end of life product management.

Our technology is based on research supported by the Department of Energy in the 1970s and is designed to drive down energy costs for American consumers. In fact, we will be able to store energy at less than 1/10th the cost of lithium-ion battery technology.

The basic principle of operation in our battery is reversible rusting.

While discharging, the battery breathes in oxygen from the air and converts iron metal to rust. While charging, the application of an electrical current converts the rust back to iron and the battery breathes out oxygen.

Through this process, our technology delivers 100-hour duration required to safely make solar and wind reliable, year round, anywhere in the country, with no risk of thermal runaway.

When we started the company five years ago, our vision was to develop a multi-day energy storage battery that would unlock the power of extremely low-cost renewable energy to transform the electric grid. Over the last five years, through rigorous R&D and product engineering, we now have an iron-air battery product ready to scale.

We are grateful for the support and effort from this Committee – and in particular Chairman Manchin – for making the Infrastructure Investment and Jobs Act – as well as the Inflation Reduction Act – a reality. These unprecedented investments by Congress position the American clean energy innovation ecosystem for success and ensure we can more effectively, and efficiently, leverage private sector investment with smart, whole-of-government policies, to support the energy transition reliably and affordably.

Lithium-ion battery technology was invented in a lab in the early 1980s and took decades to achieve gigawatt-scale production. With the support of these new laws, companies like Form Energy will be able to scale in the timeframe needed to meet our country's energy goals: enhancing grid resilience and security, increasing grid reliability and safety, creating good-paying jobs and economically benefiting local communities, and ensuring the inventions that secure our energy future are built right here in the United States.

Right now, Form Energy is in the final stages of a site selection process for our first full-scale battery production factory in America, east of the Mississippi River.

As we look to our future, when we are receiving hundreds of thousands of tons of iron by rail or barge and turning it into electrodes in batteries, there are only a few places in the United States that make sense to build these batteries because the infrastructure and know-how is already there. Those are our historic coal and steel communities – communities that sit on a river – communities that have rail access – communities that know how to make great things out of iron and have always been leaders in American energy production and innovation.

We expect to announce the location of our first full-scale battery manufacturing facility in the coming months and look forward to being an integral part of the local community, where we will grow our team by the hundreds to create good-paying, permanent jobs, build cost-effective, safe batteries for the American clean energy future, and keep the factory humming for years to come.

Thank you again, Chairman Manchin, Ranking Member Barrasso, and distinguished members of the Committee for your time. I look forward to answering any questions you may have.