

# FROM EARTH TO ENERGY™: A DOMESTIC SUPPLY CHAIN FOR VANADIUM IS VITAL TO U.S. ENERGY SECURITY

The Inflation Reduction Act provided incentives for companies to invest in domestic manufacturing within the clean energy sector. The intermittent nature of wind and solar has created the demand for long-duration energy storage (LDES), which offers the ability to shift renewable energy over periods of four hours or more.

## Why VRFBs?

VRFBs can discharge over many hours and can be deployed with power and energy requirements independent of each other.



C&I/Microgrids



Utility-scale storage



Data centers



Military bases

VRFBs are an ideal solution to meet domestic energy security needs, offering:



Unlimited cycle life with proper maintenance



Almost infinitely reusable vanadium electrolyte

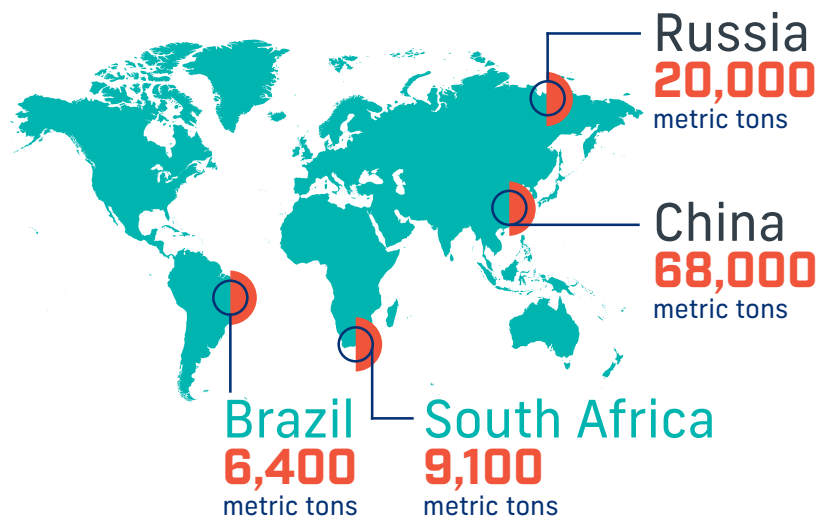


Cost-effective discharge time greater than 4 hours

## Vanadium Production

Vanadium is on the U.S. Critical Minerals list. Countries of concern are rapidly positioning themselves to dominate important vanadium markets.

The world's leading vanadium producers include<sup>1</sup>:



The U.S. is ramping up vanadium production. In the meantime, we must support NATO-friendly sourcing in Brazil and secondary domestic sourcing via recycling spent catalyst.

**Largo Resources**  
Bahia State,  
Brazil

## Vanadium Electrolyte Production

Reducing the cost of electrolyte production is key to scaling up domestic manufacturing.

**40-60%** Electrolytes generally represent **40-60%** of a VRFB's cost.

**100%** **100%** of the vanadium electrolyte for VRFB will be supported by domestic sources.

**3-5 YRS** Stryten Energy will deliver GWh/yr in **3-5 years** to support the U.S. market.

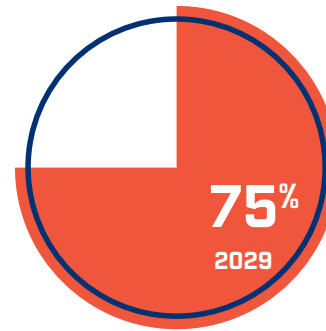
Stryten Energy's large-scale production of vanadium electrolyte will allow battery manufacturers to hit the DOE's LCOS goal of **under \$0.05/kWh**.



Stryten Energy  
Alpharetta, GA

## VRFB Manufacturing

**70-80%** of a VRFB power system is sourced from and built in China.



**"Made in America"** will require **75%** of a battery's component parts to be manufactured here in **2029**<sup>2</sup>.

A domestic vertically integrated vanadium supply chain offers a wealth of benefits:



Strengthening U.S. job growth and workforce training



Enhancing supply chain resiliency



Reinforcing technology leadership and export market development



Protecting energy independence and national security

## Meet Stryten Energy

U.S.-based manufacturer of energy storage solutions supported by a vertically integrated domestic supply chain.



Robust portfolio of advanced lead, lithium and vanadium battery chemistries



Manufacturing space totaling 2.5 million square feet



10 plants and four innovation centers in the U.S.



Distribution and service centers across North America to support our customers

An industry leader backed by more than a century of expertise, Stryten Energy's customers benefit from our strong domestic presence with greater product availability, market readiness to meet evolving needs and the assurance of higher environmental and safety manufacturing standards in the U.S.

### Sources:

<sup>1</sup> Nasdaq; Top 4 Vanadium Producing Countries, <https://www.nasdaq.com/articles/top-4-vanadium-producing-countries-updated-2024>

<sup>2</sup> White House Fact Sheet: Biden-Harris Administration Delivers on Made in America Commitments, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/04/fact-sheet-biden-harris-administration-delivers-on-made-in-america-commitments>

For more information, visit [stryten.com](https://stryten.com)

