

# **Swiss large-capacity all-vanadium liquid flow battery**





## Overview

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What is the world's largest flow battery?

Construction has started on what is described as the world's largest flow battery, an 800-MW/1.6-GWh project in Laufenburg, Switzerland, non-profit association Flow Batteries Europe (FBE) said on Tuesday.

Could a redox flow battery be Europe's largest flow storage system?

Flexbase Group has broken ground on an 800 MW/1.6 GWh redox flow battery project in Laufenburg, Switzerland, in what could become one of Europe's largest flow storage systems. The multi-use site will integrate utility-scale storage, an AI data center, and district heating. From ESS News.

Are all-vanadium redox flow batteries a viable energy storage technology?

Abstract: As a promising large-scale energy storage technology, all-vanadium redox flow battery has garnered considerable attention. However, the issue of capacity decay significantly hinders its further development, and thus the problem remains to be systematically sorted out and further explored.

Are flow batteries a good option for large-scale energy storage?

Flow batteries have numerous benefits that have made them a potential option for large-scale energy storage. They are well-suited for applications requiring long-duration storage due to their scalability, high energy density and long cycle life.



## Swiss large-capacity all-vanadium liquid flow battery



### Construction launched on 1.6-GWh flow battery in Switzerland

Jun 18, 2025 · Construction has started on what is described as the world's largest flow battery, an 800-MW/1.6-GWh project in Laufenburg, Switzerland, non-profit association Flow Batteries ...

### [Swiss developer breaks ground on 800 ...](#)

May 23, 2025 · Flexbase Group has broken ground on an 800 MW/1.6 GWh redox flow battery project in Laufenburg, Switzerland, in what could ...



### [Go with the flow: redox batteries for massive energy storage](#)

Mar 27, 2025 · In summary Flow batteries for large-scale energy storage systems are made up of two liquid electrolytes present in separate tanks, allowing energy storage. The stored energy is ...



### [Research on Performance Optimization of ...](#)

Oct 6, 2023 · The all-vanadium flow batteries have gained widespread use in the field of energy storage due to their long lifespan, high efficiency, and ...



### The world's largest flow battery energy storage system is ...

Jun 2, 2025 · Redox Instead of Lithium The foundation of the project lies in redox flow batteries, which use liquid electrolytes (usually based on vanadium or bromine) containing up to 75% ...



### [A Review of Capacity Decay Studies of All-vanadium ...](#)

Aug 13, 2024 · Abstract: As a promising large-scale energy storage technology, all-vanadium redox flow battery has garnered considerable attention. However, the issue of capacity decay ...



### [A novel flow design to reduce pressure drop and enhance ...](#)

Feb 1, 2025 · The Vanadium Redox Flow Battery (VRFB) is one of the promising stationary electrochemical storage systems in which flow field geometry is essential to ensure uniform ...





[Invinity aims vanadium flow batteries at large ...](#)

Dec 12, 2024 · Vanadium redox flow battery (VRFB) manufacturers like Anglo-American player Invinity Energy Systems have, for many years, ...



**italian large-capacity all-vanadium liquid flow energy storage battery**

A comparative study of iron-vanadium and all-vanadium flow battery for large scale energy storage ... Another battery technology, the vanadium redox battery (VRB), which is under the ...

**Construction approval for 1.6GWh flow battery in Switzerland**

May 27, 2025 · A render of the technology and data centre in Switzerland. Image: FlexBase Group. FlexBase Group will start construction on a data centre plus 800MW/1,600MWh flow ...



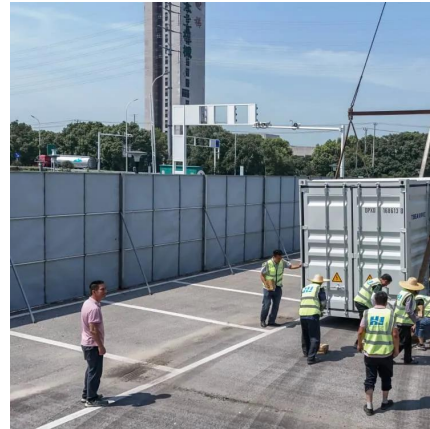
[Construction approval for 1.6GWh flow ...](#)

May 27, 2025 · A render of the technology and data centre in Switzerland. Image: FlexBase Group. FlexBase Group will start construction on a data ...



[Fact Sheet: Vanadium Redox Flow Batteries \(October 2012\)](#)

Dec 6, 2012 · Unlike other RFBs, vanadium redox flow batteries (VRBs) use only one element (vanadium) in both tanks, exploiting vanadium's ability to exist in several states. By using one ...



**Long term performance evaluation of a commercial vanadium flow battery**

Jun 15, 2024 · This demonstrates the advantage that the flow batteries employing vanadium chemistry have a very long cycle life. Furthermore, electrochemical impedance spectroscopy ...

[A vanadium-chromium redox flow battery toward ...](#)

Feb 21, 2024 · Highlights o A vanadium-chromium redox flow battery is demonstrated for large-scale energy storage o The effects of various electrolyte compositions and operating conditions ...



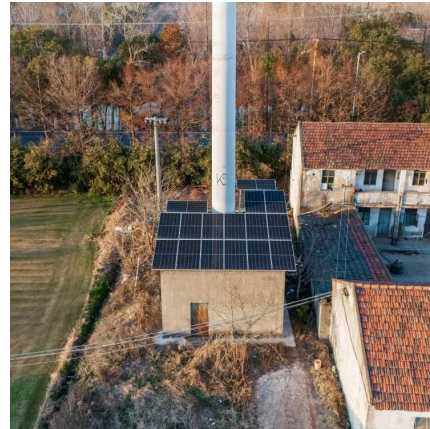
**FlexBase**

5 days ago · The redox flow battery (RFB) is an electrochemical energy storage system based on redox reactions (reduction-oxidation reactions). ...



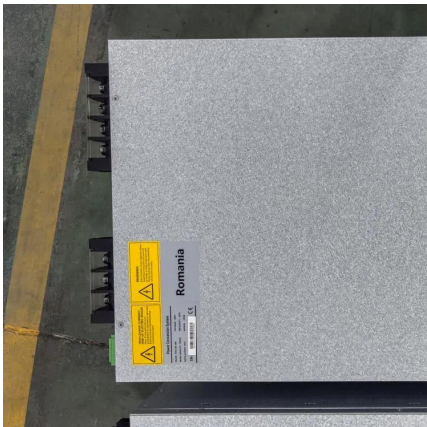
[Go with the flow: redox batteries for massive ...](#)

Mar 27, 2025 · In summary Flow batteries for large-scale energy storage systems are made up of two liquid electrolytes present in separate tanks, ...



**FlexBase Breaks Ground on World's Largest Redox Flow Battery ...**

May 24, 2025 · The initiative is being developed in collaboration with leading universities and technology companies from Switzerland and Germany, aimed at establishing an unparalleled ...



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May 23, 2025 · Flexbase Group has broken ground on an 800 MW/1.6 GWh redox flow battery project in Laufenburg, Switzerland, in what could become one of Europe's largest flow storage ...



[State-of-art of Flow Batteries: A Brief ...](#)

The commercialized flow battery system Zn/Br falls under the liquid/gas-metal electrode pair category whereas All-Vanadium Redox Flow Battery ...





[Swiss developer breaks ground on 1.6 GWh ...](#)

May 23, 2025 · Flexbase Group has begun construction on what could become one of Europe's largest flow battery storage installations, ...

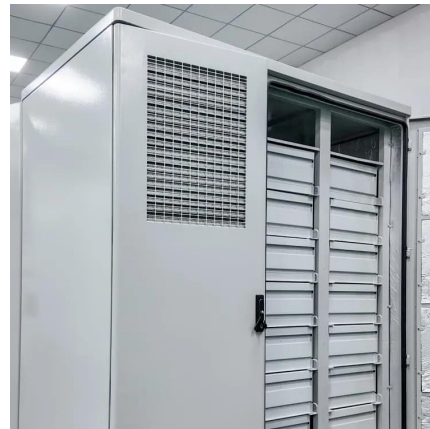


[Construction launched on 1.6-GWh flow ...](#)

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[Swiss developer breaks ground on 1.6 GWh redox flow ...](#)

May 23, 2025 · Flexbase Group has begun construction on what could become one of Europe's largest flow battery storage installations, breaking ground on an 800 MW/1.6 GWh redox flow ...



[Swiss plans for world's biggest flow battery](#)

Sep 27, 2024 · Swiss company Flexbase is planning to build a 500MW/1.2GWh flow battery on the Swiss-German border. It is claiming it will be the biggest flow battery in the world. The ...



### [The World's Largest 100MW Vanadium Redox ...](#)

It adopts the all-vanadium liquid flow battery energy storage technology independently developed by the Dalian Institute of Chemical Physics. The ...



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