

# Fusion No 1 All-Iron Liquid Flow Battery



## Overview

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The design provides a pathway to a safe, economical, water-based, flow battery made with Earth-abundant materials. — A commonplace chemical used in water treatment facilities has been repurposed for large-scale energy storage in a new battery design by researchers at the Department of Energy's Pacific Northwest National Laboratory. (Image: Researchers at the Pacific Northwest National Laboratory have created a new iron flow battery design offering the potential for a safe, scalable renewable energy storage system.)

## Fusion No 1 All-Iron Liquid Flow Battery



### [New all-liquid iron flow battery for grid energy storage](#)

What makes this battery different is that it stores energy in a unique liquid chemical formula that combines charged iron with a neutral-pH phosphate-based liquid electrolyte, or energy carrier.

### [Low-cost all-iron flow battery with high performance towards long](#)

Herein, we propose a low-cost alkaline all-iron flow battery by coupling ferri/ferro-cyanide redox couple with ferric/ferrous-gluconate complexes redox couple.



### [All-Liquid Iron Flow Battery Is Safe, Economical](#)

This battery stores energy in a unique liquid chemical formula that combines charged iron with a neutral-pH phosphate-based liquid electrolyte.



### [PNNL Researchers Develop All-Liquid Iron Flow Batteries for Utility](#)

Researchers at the Department of Energy's Pacific Northwest National Laboratory (PNNL) have developed a new large-scale energy storage battery design featuring a commonplace

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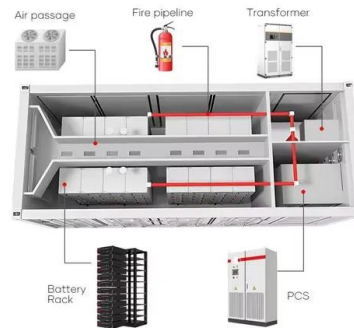
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Case Western Reserve University is developing a water-based, all-iron flow battery for grid-scale energy storage at low cost. Flow batteries store chemical energy in external tanks instead of within the ...



[New All-Liquid Iron Flow Battery for Grid Energy Storage](#)

A commonplace chemical used in water treatment facilities has been repurposed for large-scale energy storage in a new battery design by researchers at the Department of Energy's ...



[New Iron Flow Battery Promises Safe, Scalable Energy Storage](#)

Researchers at the Pacific Northwest National Laboratory have created a new iron flow battery design offering the potential for a safe, scalable renewable energy storage system.

[Low-cost all-iron flow battery with high performance towards long](#)

Among the numerous all-liquid flow batteries, all-liquid iron-based flow batteries with iron complexes redox couples serving as active material are appropriate for long duration energy storage ...



[New All-Liquid Iron Flow Battery for Grid Energy Storage](#)

A new iron-based aqueous flow battery shows promise for grid energy storage applications.

[Flow batteries for grid-scale energy storage](#)

A promising technology for performing that task is the flow battery, an electrochemical device that can store hundreds of megawatt-hours of energy--enough to keep thousands of homes ...



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