

Europe Flow Battery - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Europe Flow Battery Market size is estimated at USD 75.51 billion in 2025, and is expected to reach USD 174.96 billion by 2030, at a CAGR of 18.3% during the forecast period (2025-2030).

Key Highlights

- Over the medium period, growing penetration of the technology in long-duration energy storage applications, such as renewable power systems, and their long service lives are expected to drive the market during the forecast period.
- On the other hand, factors like low energy density are expected to negatively impact the market in the future.
- Nevertheless, the new technological innovations that diversify the scope of flow batteries in new commercial areas create tremendous opportunities for market growth.
- The United Kingdom is expected to experience significant growth in the market during the forecast period due to many upcoming renewable energy and storage projects.

Europe Flow Battery Market Trends

Vanadium Redox Flow Batteries are Expected to Witness Significant Growth

- A vanadium redox flow battery (VRFB) is a redox flow battery (RFB) that stores energy by using V²⁺/V³⁺ and V⁴⁺/V⁵⁺ redox couples of vanadium in the negative and positive half-cells, respectively. The power ratings and energy ratings of these batteries are not related to each other, and each can be optimized for a different type of use.

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- The advantages of using vanadium redox flow battery (VRFB) over other flow batteries are higher specific energy and power, a very long lifespan with up to 20,000 charge and discharge cycles, a reduced levelized cost of energy, and no problems with overcharging and deep discharge.
- Furthermore, vanadium redox flow batteries (VRBs) are promising energy storage systems suitable for large-scale solar-battery integrated electric vehicle charging stations. Thus, these batteries are of significant use in EV industry.
- According to the European Environment Agency, in 2023, the share of electric cars accounted for 23.6% of the total cars in Europe, increased from 21.6% share in 2022. Thus, with an increase in the percentage of EVs, the use of these batteries in EVs is expected to be in demand, thereby driving the market's growth.
- Moreover, with technological developments to increase the efficiency of vanadium redox flow batteries, the use of these batteries is expected to increase during the forecast period. For example, in March 2024, Enel Green Power installed 1.1 MW/5.5 MWh vanadium redox flow battery in its Son Orlandis solar PV plant in Spain.
- Thus, owing to the advantages of using these batteries, along with research and development activities, vanadium redox flow batteries are expected to witness significant growth.

The United Kingdom is Expected to Witness Significant Growth in the Market Studied

- The United Kingdom witnessed significant growth in the demand for flow batteries in recent years, particularly after 2021, with a number of projects coming online and proposed to come online in the near future.
- Flow batteries can be used in an integrated ES system to store renewable energy. The country's renewable energy capacity has been increasing consistently, creating a positive scope for the flow battery market. According to the International Renewable Energy Agency, as of 2023, the total capacity installed by the UK renewable energy industry accounted for 55,561 MW, an annual growth rate of 4.7%.
- In May 2024, the UK Infrastructure Bank announced EUR 25 million (~USD 27 million) investment into Invinity Energy System Plc to develop next generation vanadium flow battery products. Furthermore, in January 2023, StorTera Ltd developed a single liquid flow battery that combines the advantages of lithium-ion technology and a long-duration renewable energy storage system.
- Moreover, in April 2023, Invinity Energy Systems PLC announced that it received EUR 11 million (~USD 11.88 million) in funding from the Department for Energy Security and Net Zero under Phase 2 of the Longer Duration Energy Storage Demonstration Competition. Using the funds, the company will deploy a 30 MWh vanadium flow battery, the UK's largest flow battery, and Invinity's largest delivery.
- Overall, owing to the above projects, the country is expected to witness significant growth in the demand and supply of flow batteries, mainly driven by increasing investments in the sector combined with increasing research and development.

Europe Flow Battery Industry Overview

The European flow battery market is semi-fragmented. Some of the major players in the market are, in no particular order, VRB Energy, RedFlow Ltd, Invinity Energy Systems PLC, Primus Power Corporation, and ESS Tech Inc.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

Table of Contents:

1 INTRODUCTION

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- 1.1 Scope of Study
- 1.2 Market Definition
- 1.3 Study Assumptions

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET OVERVIEW

- 4.1 Introduction
- 4.2 Market Size and Demand Forecast in USD billion, till 2029
- 4.3 Recent Trends and Developments
- 4.4 Government Policies and Regulations
- 4.5 Market Dynamics
 - 4.5.1 Drivers
 - 4.5.1.1 Growing Penetration of the Technology in Long-Duration Energy Storage Applications
 - 4.5.1.2 Increasing Adoption of Renewable Energy
 - 4.5.2 Restraints
 - 4.5.2.1 Low Energy of Battery Cells
- 4.6 Supply Chain Analysis
- 4.7 Porter's Five Forces Analysis
 - 4.7.1 Bargaining Power of Suppliers
 - 4.7.2 Bargaining Power of Consumers
 - 4.7.3 Threat of New Entrants
 - 4.7.4 Threat of Substitutes Products and Services
 - 4.7.5 Intensity of Competitive Rivalry
- 4.8 Investment Analysis

5 MARKET SEGMENTATION

- 5.1 Type
 - 5.1.1 Vanadium Redox Flow Batteries
 - 5.1.2 Zinc Bromine Flow Batteries
 - 5.1.3 Iron Flow Batteries
 - 5.1.4 Zinc Iron Flow Batteries
- 5.2 Geography
 - 5.2.1 United Kingdom
 - 5.2.2 France
 - 5.2.3 Germany
 - 5.2.4 Russia
 - 5.2.5 Spain
 - 5.2.6 NORDIC
 - 5.2.7 Rest of Europe

6 COMPETITIVE LANDSCAPE

- 6.1 Mergers & Acquisitions, Joint Ventures, Collaborations, and Agreements
- 6.2 Strategies Adopted by Leading Players
- 6.3 Company Profiles

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- 6.3.1 VRB Energy
- 6.3.2 ESS Tech Inc.
- 6.3.3 Vanadis Power GmbH
- 6.3.4 Primus Power Corporation
- 6.3.5 RedFlow Ltd
- 6.3.6 Invinity Energy Systems PLC
- 6.3.7 Dalian Rongke Power Co. Ltd
- 6.3.8 CellCube Energy Storage Systems Inc.
- 6.3.9 Stryten Energy
- 6.3.10 H2 Inc.
- 6.4 Market Ranking/Share(%) Analysis
- 6.5 List of Other Prominent Companies

7 MARKET OPPORTUNITIES AND FUTURE TRENDS

- 7.1 The New Technological Innovations to Diversify the Scope of Flow Batteries

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