

# Asia-Pacific policy landscape on flow batteries: Insights and the way forward

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## Welcome and introduction





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## Agenda



- 1. Welcome and Introduction
- 2. Asia-Pacific Policy Landscape on Flow Batteries Key Findings and Lessons for Europe
- 3. Panel Discussion: Is the Regulatory Environment More Beneficial in the Asia-Pacific Region than in Europe?
- 4. Takeaways and Closing Remarks





# Asia-Pacific Policy Landscape on Flow Batteries

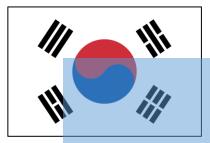
Key Findings and Lessons for Europe

**NOVEMBER 2024** 

Flow Batteries Europe Report, available at: www.flowbatterieseurope.eu



# **Asia-Pacific**: the fastest-growing flow battery & energy storage market – but why?

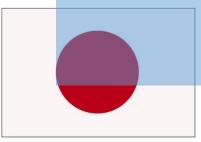


South Korea: aims to secure 35% of global ESS market, incl. 20.85GW LDES by 2036



China: 275.4MW total installed flow battery capacity (June 2024)

Japan: FB market CAGR of 20% (2023-2030); 170MWh of installed FB capacity



Australia: LDES deployment of 10 GW in 2023 and expected 23 GW by 2031







## China



#### 14th Five-Year Plan (FYP) (2021-2025) for Energy Storage

- It aims to move novel energy storage technologies from the early commercialisation stage to large-scale development by 2025 and achieve full market readiness by 2030.
- A key target is to reduce the per-unit cost of energy storage by 30% by 2025: CNY 0.8–1.0 (EUR 0.10–0.13) per watt-hour.
- 13<sup>th</sup> FYP (2016-2021): was favourable to new storage technology and various large-scale demonstration projects approved



Figure 1 Energy storage capacity in China (non-hydro); targets and installed capacity.





## China



- 'New Energy + Storage' model with mandating storage allocation rates of 5% to 20%; reiterated by local governments.
- Sichuan Province, 8 May 2024: 'Implementation Plan for Promoting High-Quality Development of the Vanadium Battery Storage Industry' – the first vanadium batteryspecific policy

Aims to establish a leading vanadium battery storage industry through pilot demonstrations, innovation, cost reduction, industrial clusters, and improved standards and branding. 四川省经济和信息化厅四川省经展和改革委员厅四川省发展和改革委员厅文四川省省自然资源厅文中共四川省委金融委员会办公室四川省委金融委员会办公室四川省

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四川省经济和信息化厅等 6 部门 关于印发《促进钒电池储能产业高质量发展的 实施方案》的通知





#### Policy & market developments:



Electricity Basic Act Reform (2023): Standalone BESS classified as independent power generation source, eligible for grid connection and revenue from energy and capacity markets.



Long-term Decarbonisation Power Source Auction (2023): 20-year fixed revenue on CAPEX for lowcarbon power sources, enhancing energy market stability.



FIP Scheme (2023): Subsidies tied to wholesale market prices, incentivising peak demand supply; provides flexibility for BESS integration.

#### Supply chain strengthening:



Economic Security Promotion Act (2022): Allocates JPY 150 billion (EUR 1 billion) annually to enhance the storage battery production base.



Global partnerships: Agreements with Canada, Australia, and the US to secure critical minerals for energy transition.



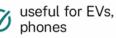
## Australia

- The Future Made in Australia agenda to enable a clean energy transition.
- National Battery Strategy (May 2024)
  - Energy storage identified as critical for transitioning the grid to renewable energy
  - Offers production-linked incentives for critical battery manufacturing
  - Boosts battery research, workforce development, and national collaboration
  - Supports innovation, commercialisation, and pilot projects in priority sectors, incl. clean tech like batteries

#### What are batteries and how are they made?

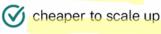


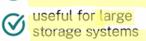






long cycle (recharge) and discharge) life





Batteries are critical to the renewable energy transition, as they allow for renewable energy to be accessed even when it isn't being produced.

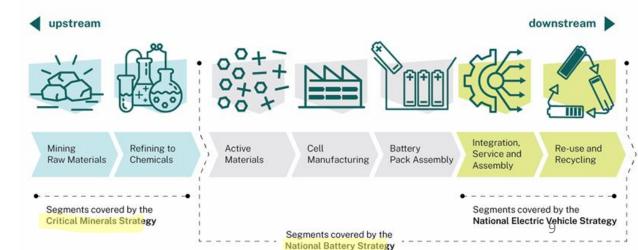
Through a controlled and reversible chemical reaction, batteries store energy for use at any time.

Different battery chemistries provide different benefits, including varying duration, cost and purpose. For example:

- Lithium-ion batteries are highly energy dense, making them suitable for weight and size sensitive applications such as EVs, electric bikes and mobile phones.
- Flow batteries, like vanadium, zinc-bromine or iron flow batteries, are cheaper to scale up and have long cycle life, making them suitable for large stationary energy storage systems.

The National Battery Strategy is chemistry and technology agnostic and considers all battery types, as technologies continue to rapidly improve and evolve.

From rocks to recycling, the battery value chain is a complex process that incorporates other government priorities.







#### Farly mover on ESS deployment:

 R&D and industrialisation strategies, renewable and storage co-location incentives, consumer incentives and tax benefits.

#### Advancements in the past years:

- Since 2020, flow batteries can enter the ESS market tied to new renewable energy sources;
- LDES auctions: 45MW in 2024 & 50MW in 2025,; Honam region targets 600MW each year.

#### The Electricity Basic Plan:

- Renewable energy targets: 21.6% by 2030, 30.6% by 2036 + energy storage goals
- ESS Lifespan Guarantee: ensures rated discharge energy for full lifespan, favouring flow batteries due to minimal capacity degradation.

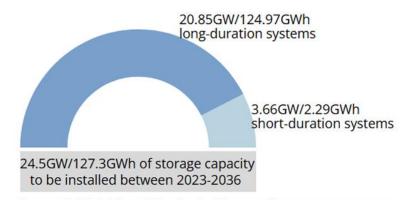


Figure 5 10th Electricity Basic Plan and its energy storage targets for 2036.





# What can Europe learn and what is the way forward?



# Policy recommendations for the EU







1. Set LDES deployment targets and adopt a sustained energy storage strategy

Establish a 2030 target of 200GW of energy storage in Europe, with 50% being LDES, to meet future energy needs and drive investment; complemented by a strategy outlining implementation tools.





2. Enhance subsidies and investment schemes to support the viability of LDES

Promoting LDES adoption, such as through grants, tax credits, and revenue mechanisms like long-term contracts boosts returns and reduces financial risks.





3. Facilitate market participation for LDES

Adapting market rules and standards lowers barriers, ensures fair competition and supports the integration of LDES into the energy system.



# Policy recommendations for the EU







4. Support flow battery manufacturing in Europe and establish a resilient supply chain

With raw materials and organic chemistries available within Europe, domestically manufactured flow batteries can reduce reliance on international suppliers.





5. Facilitate the application of a variety of energy storage technologies

Encouraging the use of diverse storage technologies ensures a balanced energy system, where different technologies can provide the resilience against supply or market shifts.





6. Recognise the advantages of flow batteries for specific applications

Flow batteries are ideal for large-scale storage projects, making them crucial for balancing renewable energy sources and providing grid stability.





7. Accelerate the implementation of the necessary policy mechanisms

Swift action is essential for Europe to remain competitive in the global energy market, meet climate goals, and seize the economic opportunities of the green transition.





# Thank you!

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Is the regulatory environment more beneficial in the Asia-Pacific region than in Europe?

#### MEET THE GUEST EXPERT SPEAKERS



Dr. Changkun Zhang
Secretary-General
China Energy Storage
Alliance



Zamien Sumich

Manger

VSUN Energy



Arata Doi

Manager

Sumitomo Electric

Industries

#### **MODERATOR**



Beata Virsumirska
Policy Officer
Flow Batteries Europe



China Energy Storage Alliance has been looking into energy storage, including flow batteries, in China and other parts of the world for more than 10 years.

Looking back, how do you assess the development and integration of flow batteries in China and what were, in your opinion, the most important enabling factors as well as hurdles?



VSUN Energy is working on several VFB projects across Australia.

With the government's recent policy initiatives and support programmes, how do you evaluate their impact on the sector? Also, how can Australia best leverage its abundant raw materials, including Vanadium, to strengthen its global competitiveness in this industry?



Sumitomo has delivered several battery projects in Japan, as well as Europe and North America.

Why have the customers chosen a flow battery for their applications and do you consider the regulatory environment beneficial in Japan for flow battery deployment?





#### **GUEST EXPERT SPEAKERS**



Dr. Changkun Zhang
Secretary-General
China Energy Storage
Alliance



Zamien Sumich

Manger

VSUN Energy



Arata Doi

Manager

Sumitomo Electric

Industries





In the Asia-Pacific region, sustained efforts are underway to develop flow battery projects. But what steps are required to drive their further advancement and fully realise the potential of long-duration energy storage (LDES)?

The market potential for LDES is enormous, but is the current value to storage owners and operators sufficient to justify investment in flow batteries now?



# **THANK YOU!**

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