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Australian VANADIUM LIMITED

Vanadium's next frontier

New markets. New applications. Global partnerships.

2026 International Symposium on Vanadium and Vanadium Flow Batteries | Beijing, China
October 2026

ASX:**AVL**

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Market, industry and third-party data in this Presentation have been obtained from sources considered reliable, but have not been independently verified by AVL.

ASX Listing Rule 5.23 The information in this announcement relating to mineral resource estimates for the Australian Vanadium Project is extracted from the announcement entitled '39% Increase in High Grade Measured and Indicated Mineral Resource' released to the ASX on 7 May 2024. The relevant announcement is available on the Company's website www.avl.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements, and that all material assumptions and technical parameters underpinning the estimates in the original market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the competent person's findings are presented have not been materially modified from the original market announcements.

The vanadium-VFB flywheel

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Industrial scale-up

China has successfully industrialised VFB technology and manufacturing

High purity supply

AVL and other developers prepare quality and cost capable assets to meet future demand

Bankable projects, expanding use cases

VFB demand from Australian / international projects and new use cases

Growing vanadium demand

Deployment strengthens the case for investment in supply

KEY DRIVERS

Energy policy

LDES and storage technology diversification

Electrification

Hot climates
High cycle applications

AI data centres

Commercial opportunity
- increase compute

Economics

Scale up, leasing
Whole of BESS approach

China's VFB scale-up has unlocked a global opportunity

International deployment can increasingly draw on an established technology and manufacturing base

BEFORE		NOW
Technology scale-up	→	**Demonstrated large-scale systems**
Manufacturing development	→	**Established industrial supply chains**
Limited project experience	→	**Growing deployment and operating references**
Bespoke solutions	→	**Potential for repeatable global projects**

Next step is now underway: translate industrial maturity into bankable international projects

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Large VFB projects now span multiple markets

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2026 – Example Projects

Switzerland – 2.1GWh

Project: Flexbase Technology Centre[1]
Status: in construction
Use case: data centre

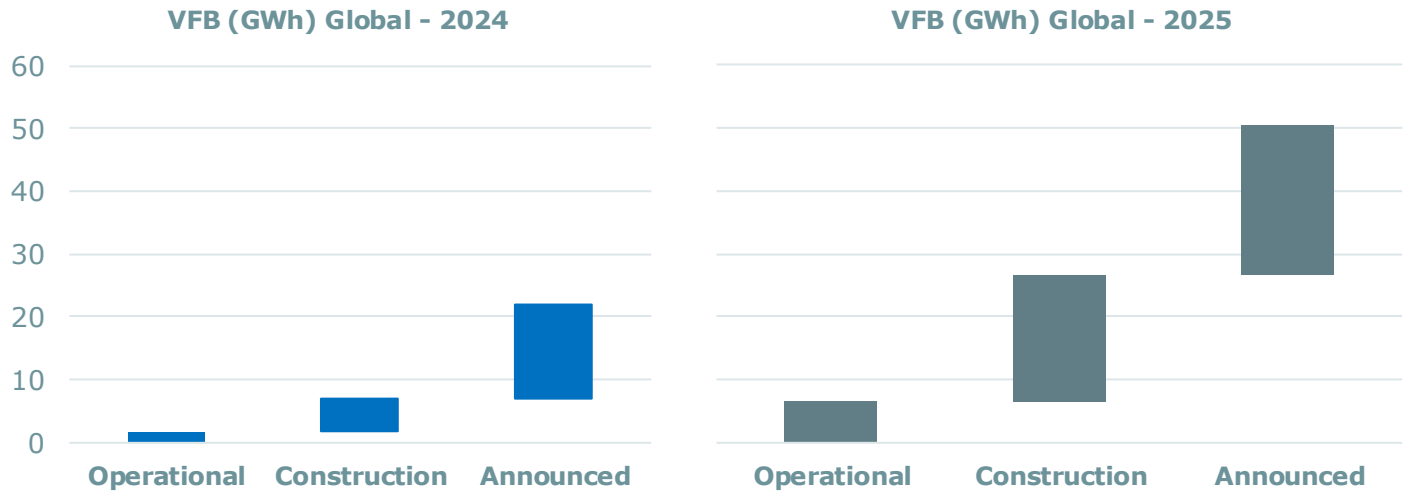
Australia – 864MWh

Project: Hunter VFB[2]
Status: early development
Use case: long duration, grid reliability

Australia – 500MWh

Project: Kalgoorlie VBESS[3]
Status: targeting 2029 operation
Use case: long duration, grid reliability

- Over 8GWh of VFBs in operation globally, with a further 44GW of projects either in construction or announced[4]
- If fully deployed, the Flexbase, Hunter VFB and Kalgoorlie VBESS would represent almost 12% of the estimated annual global vanadium oxide supply in new vanadium demand[5]



Source: Vanitec

1. invinity.com/invinity-selected-to-design-gwh-scale-vfb-system/
2. idemitsu.com.au/projects/
3. wa.gov.au/organisation/energy-policy-wa/kalgoorlie-vanadium-battery-energy-storage-system-expression-of-interest-stage-two
4. vanitec.org/latest-from-vanitec/article/china-vanadium-market-enters-new-phase-as-energy-storage-drives-structural-transformation, 5 March 2025 and vanitec.org/latest-from-vanitec/article/steady-growth-in-chinas-new-energy-storage-capacity-over-44-million-kilowatts-now-operational
5. Based on aggregate stated project capacity of 3.464 GWh, AVL's internal assumption of approximately 7.9 tonnes V_2O_5 per MWh and 2024 global supply of approximately 237 kt V_2O_5

Continued focus on competitiveness and bankability will remain critical to the flywheel

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COMPETITIVE SYSTEM COST

Manufacturing scale, design and delivered installation cost to match project requirements

MATURING BANKABILITY

Including risk allocation, performance guarantees, building stronger operating references at flagship projects

ELECTROLYTE FINANCING

Leasing for potential to reduce upfront capital requirements

INTERNATIONAL DELIVERY

Standardised engineering architectures to match locality, local partners and service capability

Growing the international VFB market requires collaboration across technology, finance and local supply chains

Electrolyte leasing – another potential accelerator of VFB adoption

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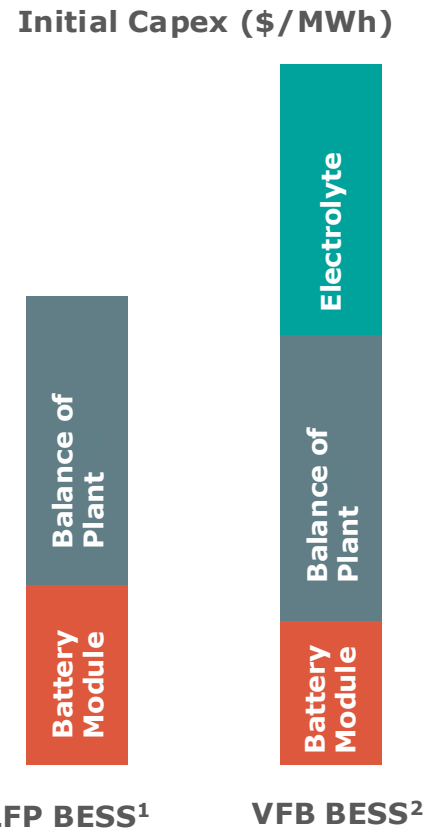

Indicative initial capital cost comparison for the assumed project configurations. AVL VFB estimate is based on internal January 2026 modelling at ±30%. The comparison is illustrative only and actual project costs will depend on project duration, configuration, location, procurement and financing assumptions.

- **Electrolyte leasing:** deployed at utility-scale in China[3] and capable of converting electrolyte component, estimated at 40-50% of VFB capex, into opex[4] – a similar leasing model could potentially be applied in Australia
- **AVL's V-NOMAD™ platform:** designed to reduce the delivered cost of electrolyte at utility scale[5]

- **VSUN Energy's Lumina™ architecture:** designed to improve the cost competitiveness of utility-scale VFB deployment in Australia[6]
- **Balance of plant (BoP):** commonality with lithium iron phosphate (LFP) BESS means LFP BESS BoP innovation has potential to translate into VFB BESS BoP innovation

- **Economies of scale:** OEMs continue to scale production, enabling cost reductions
- **Stack innovation:** OEMs continue to validate higher energy density solutions

1. Economic Regulation Authority Analysis, March 2026: https://www.erawa.com.au/sites/default/files/2026-benchmark-reserve-capacity-prices-2028-29-capacity-year-final-determination.PDF
2. AVL - Internal capital cost estimate January 2026, ±30% – Utility-scale VFB BESS
3. RKP International – Unlock the potential – financial benefits, scalability, and success stories of vanadium electrolyte leasing
4. World Bank – Circular business model for vanadium use in energy storage https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099020324185517458
5. ASX announcement dated 31 March 2026, '*Development of vanadium electrolyte production technology*'
6. ASX announcement dated 9 May 2025 '*Project Lumina confirms improved competitiveness*'

VFBs' unique attributes offer competitive advantages in key emerging markets

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VFBs' advantages over established BESS technology – including duration, no thermal runaway risk, minimal degradation and full depth of discharge – position this technology for use in key emerging BESS use cases

AI data centres

AI data centres' requirement for instantaneous backup power, over multiple cycles per day, with minimal degradation and high reliability may create a significant potential market for VFBs.

The absence of thermal runaway risk and the ability to provide extended-duration storage may support VFB adoption in data-centre applications.

Remote site electrification

Rio Tinto estimates it will require 600–700MW of renewable energy to displace the majority of gas use across its Pilbara power network – supported by large-scale BESS.[1]

Hot climates

Saudi Arabia plans to deploy 48GWh of battery storage by 2030 to support a vision of securing 50% of its electricity from renewables.[2]

VFBs are ideal for hot climates given their ability to cycle efficiently at higher temperatures and the aqueous flow battery chemistry presents no thermal runaway risk.

1. www.riotinto.com/en/news/stories/pilbara-renewable
2. www.energytrend.com/news/20250110-48972.html

The case for new upstream supply: a single utility-scale VFB BESS would create significant demand for vanadium

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50 MW/ 500 MWh VFB BESS

~

4kt

V_2O_5 demand[1]

~

c.1.7%

Of global V_2O_5 supply[2]

"Western Australia, of itself, is going to have a strong demand for vanadium as part of our domestic market" [3]

- Premier Hon Roger Cook MLA

1. Based on AVL internal modelling and the assumed electrolyte concentration and system configuration. Actual vanadium requirements will depend on system design and electrolyte specifications
2. TTP Squared, Inc – 2024 global vanadium market size 133,000 metric tonnes vanadium (equivalent to 237kt V_2O_5)
3. https://www.businessnews.com.au/article/No-nickel-woes-for-vanadium-Cook

Three value platforms, one integrated strategy

	Upstream	Midstream	Downstream
	Vanadium Mining and Processing	**Vanadium Electrolyte Manufacture**	**Utility-scale BESS Solutions**
Asset	Australian Vanadium Project	Electrolyte manufacturing facility	VSUN Energy (100% AVL)
AVL advantage	High-grade project in Tier-1 jurisdiction – WA	WA's only established and operational electrolyte manufacturing facility	Cost-competitive, utility-scale VFB storage solutions
Status	• Targeting completion of Optimised Feasibility Study (OFS) H2CY2026[1] • Current focus on finalising OFS and remaining approvals, while positioning for offtake and funding	• Advancing qualification with multiple leading OEMs • Successfully deployed AVL electrolyte into operational VFB[2] • Advancing V-NOMAD™, a platform designed to reduce delivered vanadium electrolyte cost for utility-scale VFB BESS projects[3]	• Commercial VFB BESS projects and Lumina™ architecture support VSUN Energy's position in Australian VFB deployment[4] • VFB project for WA-based Horizon Power has exceeded client expectations in hot climate • Building pipeline of potential Australian and international opportunities[5]

1. See ASX announcement dated 19 February 2026, '*OFS enhancement to address evolving high purity demand*'
2. See ASX announcement dated 16 September 2024, '*Electrolyte Successfully Deployed in VFB for Horizon Power*'
3. See ASX announcement dated 31 March 2026, '*Development of vanadium electrolyte production technology*'
4. See ASX announcement dated 6 November 2024, '*Realising AVL's Utility-Scale Vanadium Flow Battery Strategy*'
5. See ASX announcement dated 27 July 2026, '*AVL submits stage two proposal for Kalgoorlie VBESS*' and ASX announcement dated 4 August 2026, '*Collaboration with Alcoa to evaluate vanadium flow battery application*'

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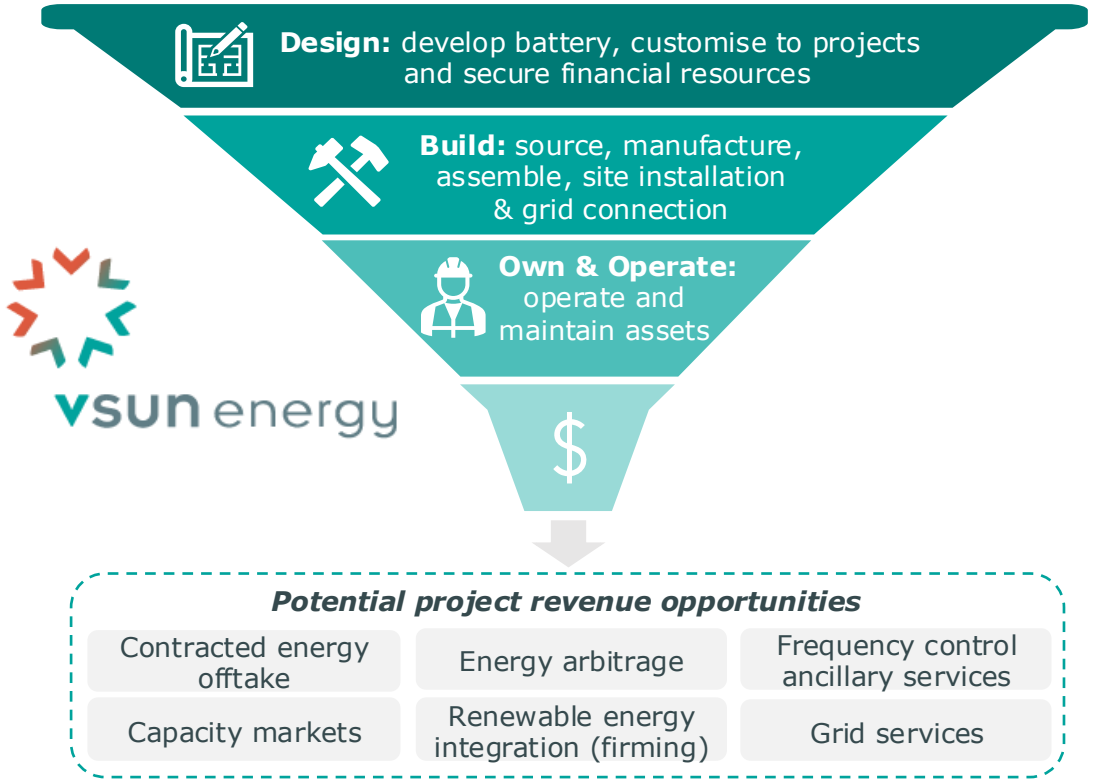
Value Platform 1: VSUN Energy and Lumina™

Proposed build-own-operate (BOO) BESS platform



Examples of Australian BOO BESS platforms[1]

Company	Establishment year
akaysha	2021
Eku	2022
VALENT ENERGY	2024

VSUN Energy has taken strategic actions to position itself for VFB BESS deployment in Australia, differentiating through its VFB architecture (Lumina™), VFB project experience and AVL's vanadium supply-chain capability (V-NOMAD™ and the Australian Vanadium Project). Positioned to target a growing pipeline of long-duration energy storage opportunities.

Note: 1. Example operators are all currently utilising lithium-ion solutions

Value Platform 2: Electrolyte manufacturing and V-NOMAD™

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Established foundation
Operational WA electrolyte manufacturing facility, established technical expertise and ongoing product qualification and engagement with multiple OEMs.[1]

V-NOMAD™
A scalable vanadium electrolyte manufacturing platform progressing towards potential commercial deployment.[2]

Repeatable growth model
Platform designed to manufacture electrolyte at or near battery projects, reduce delivered cost and support successive utility-scale deployments.[2]

Australian market opportunities
Pursuing Australian opportunities for commercial-scale V-NOMAD™ deployment for VSUN Energy and third-party customers.[3]

International market opportunities
Exploring potential applications with leading VFB technology providers to support projects in international markets.

Conceptual render of AVL's V-NOMAD™ relocatable electrolyte production

1. See ASX announcement dated 19 March 2024 '*Battery Ready Vanadium Electrolyte Produced*'
2. See ASX announcement dated 31 March 2026 '*Development of Electrolyte Production Technology*'
3. See for example, ASX announcement dated 27 July 2026 '*AVL submits Stage Two Proposal for Kalgoorlie VBESS*' and ASX announcement dated 4 August 2026 '*Collaboration with Alcoa to evaluate Vanadium Flow Battery*'

Value Platform 3: The Australian Vanadium Project Advancing readiness through the cycle

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- A world-class asset located in Western Australia, a Tier-1 mining jurisdiction
- Proposed open-pit mining with a conventional magnetite concentrator process
- Global vanadium MRE of 395.4Mt at 0.77% V_2O_5 including 104.5Mt at 1.12% V_2O_5 classified as Measured or Indicated[1]
- Optimised Feasibility Study nearing completion, aimed at optimising project with improved project economics[2]
- Current focus on finalising remaining approvals, while progressing offtake and funding workstreams[2]
- Delivers local jobs and regional development

Proposed location of Australian Vanadium Project

1. ASX announcement dated 7 May 2024, '*39% increase in HG Measured and Indicated Mineral Resource*'
2. ASX announcement dated 19 February 2026, '*OFS Enhancement to Address Evolving High Purity Demand*'

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AVL's integrated capability positioned for VFB deployment

Value Platform 1 – VFB solution: VSUN Energy's experience from Horizon Power project[1] and AVL's Lumina™ architecture[2] provide expandable VFB solutions for utility-scale BESS projects in hot climate and remote locations

Value Platform 2 – Electrolyte production: AVL's established Perth-based electrolyte production capability,[3] together with AVL's V-NOMAD™ relocatable platform designed to produce electrolyte near battery projects[4]

Value Platform 3 – Australian vanadium resource: AVL's Australian Vanadium Project provides an opportunity for WA-based production of high-purity vanadium oxides[5]

Engagement with industry leaders: History of engagement with leading international technology providers and local delivery partners[6]

Government support: Federal Government grant support for projects[7] and WA Government's Green Energy Major Project status to support approvals outcomes[8]

Conceptual render of a VFB BESS based on VSUN Energy's Lumina™ battery architecture and AVL's V-NOMAD™ relocatable electrolyte production platform

1. ASX announcement dated 16 September 2024, '*Electrolyte Successfully Deployed in VFB for Horizon Power*'
2. ASX announcement dated 9 May 2025 '*Project Lumina confirms improved competitiveness*'
3. ASX announcement dated 19 March 2024 '*Battery Ready Vanadium Electrolyte Produced*'
4. ASX announcement dated 31 March 2026 '*Development of Electrolyte Production Technology*'
5. ASX announcement dated 19 February 2026, '*OFS enhancement to address evolving high purity demand*'
6. ASX announcements dated 9 December 2024 '*Key Appointments Support Vanadium Flow Battery Development*' and 16 February 2026 '*Agreement with Sumitomo Electric - Kalgoorlie VBESS Project*'
7. ASX announcements dated 30 May 2023 '*$49 Million Government Grant Agreement Executed*' and dated 22 July 2021 '*AVL Awarded $3.69m Federal Government Manufacturing Grant*
8. ASX announcement dated 29 January 2025, '*Green Energy Major Project Status Granted*'

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Investment proposition: positioned for value creation

Positioned for large-scale VFB deployments

High local content, electrolyte production capability, leading technology and delivery partners, highly flexible architecture

Vanadium – demand tailwinds

Vanadium demand remains exposed to steel markets, with additional demand from VFBs and high-purity critical-minerals applications

Three platforms, one integrated vanadium value chain

Upstream mine, midstream electrolyte manufacturing and downstream VFB BESS deployment

Developing VFB opportunity pipeline

Developing opportunities across grid-scale storage, industrial applications, remote locations, hot climates and data centres

Delivering a distinctive business model

Electrolyte leasing could reframe and accelerate adoption of VFBs as affordable infrastructure to enable Australia's electrification

Vanadium's next frontier

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Practical areas for AVL and international partners to explore collaboration:

VANADIUM SUPPLY AND PROCESSING

Product qualification · offtake · industrial partnerships · potential investment

INTERNATIONAL ELECTROLYTE MANUFACTURING

Technology collaboration · scalable processing · transport cost reduction

FLAGSHIP VFB PROJECTS & NEW APPLICATIONS

OEM integration · engineering · financing · project development · AI power concepts

China has industrialised VFB technology.

Australia is emerging as an important new market and supply chain partner.

Together, we can accelerate global adoption.

NEW DEMAND | INVESTMENT | PARTNERSHIPS

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Mineral Resource Estimate

Zone	Category	Mt	V_2O_5 %	Fe %	TiO_2 %	SiO_2 %	Al_2O_3 %
HG	Measured	30.6	1.14	46.3	12.9	7.4	6.2
	Indicated	74.8	1.11	47.5	12.6	7.0	5.7
	Inferred	67.9	1.06	45.3	12.1	9.0	6.6
	Subtotal	**173.2**	**1.09**	**46.5**	**12.5**	**7.8**	**6.1**
LG	Indicated	61.8	0.55	26.1	7.1	26.6	16.3
	Inferred	142.5	0.48	24.9	6.6	28.9	15.2
	Subtotal	**204.3**	**0.50**	**25.3**	**6.8**	**28.2**	**15.5**
Transported	Inferred	17.9	0.65	31.0	7.3	24.1	14.4
	Subtotal	**17.9**	**0.65**	**31.0**	**7.3**	**24.1**	**14.4**
Total	Measured	30.6	1.13	46.3	12.9	7.4	6.2
	Indicated	136.6	0.85	37.8	10.1	15.8	10.5
	Inferred	228.2	0.66	31.4	8.3	22.6	12.6
	Subtotal	**395.4**	**0.77**	**34.8**	**9.3**	**19.1**	**11.4**

Note: Totals may not add up due to rounding