



Rethinking BESS: new markets, new advantages

Proven at scale: Performance, policy, and the power of local content

All Energy Australia | Melbourne | October 2026

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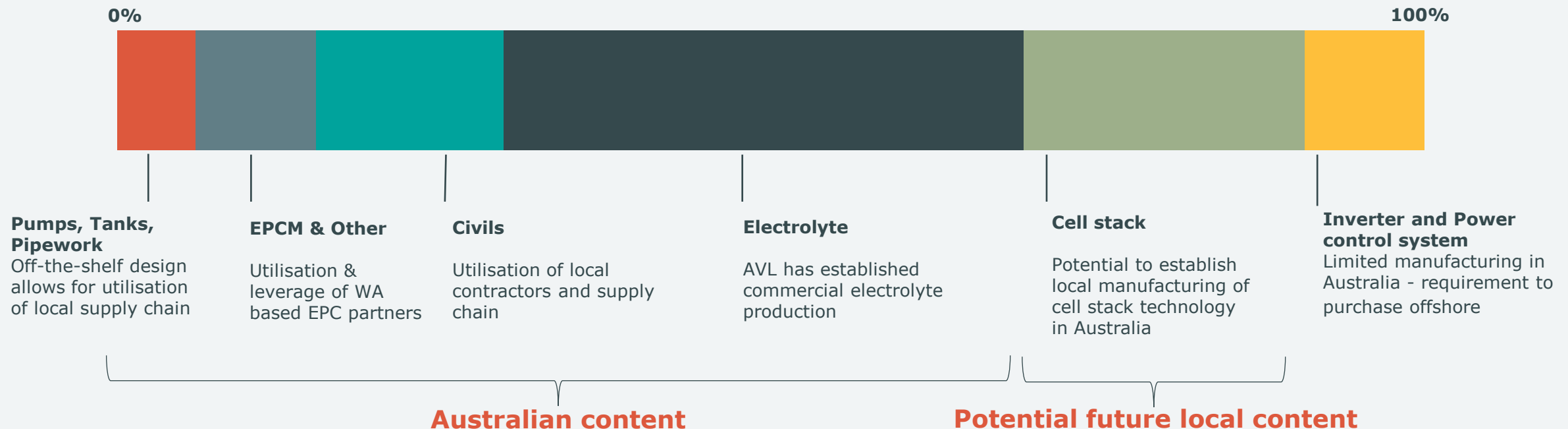
Market, industry and third-party data in this Presentation have been obtained from sources considered reliable, but have not been independently verified by AVL.

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.

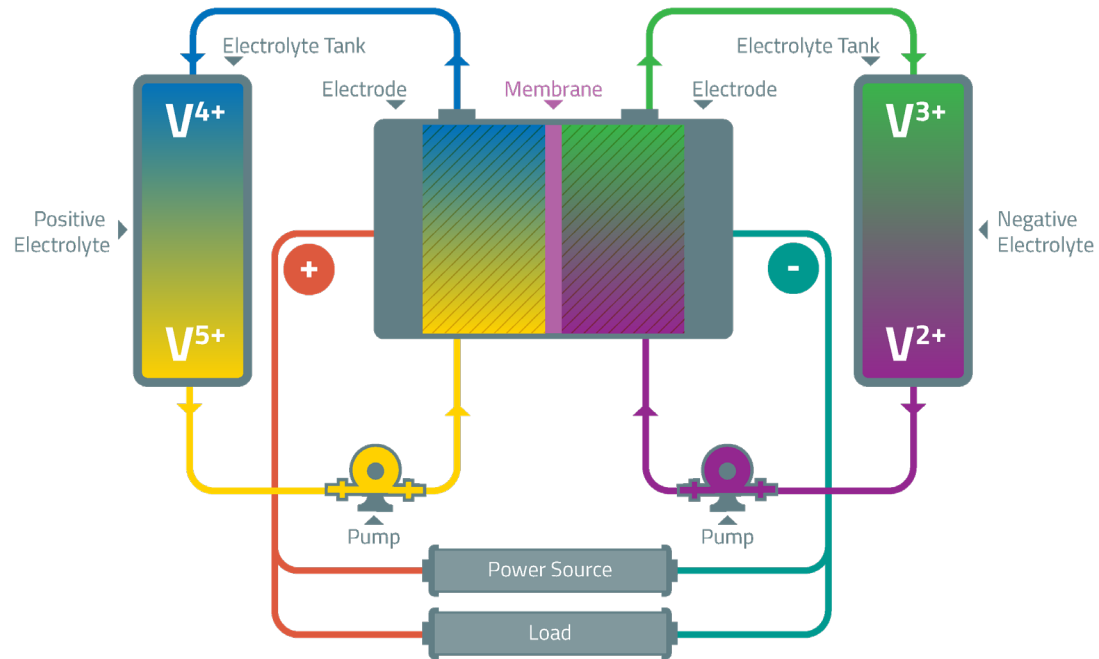


AVL's Lumina™ vanadium flow battery BESS architecture is engineered to maximise local Australian content

Local content opportunities in a Lumina™ 50MW/500MWh VFB BESS



Why have vanadium flow batteries scaled to gigawatt-hour capacity?



The journey of maturity and scale: technology, supply chain, operating proof

Vanadium flow batteries: Validated at scale, differentiated to unlock new opportunities

STABLE & VERSATILE

Minimal degradation and full depth of discharge support project economics¹

SAFE AND RESILIENT

No thermal runaway risk.¹
Ideal for deployment near critical infrastructure, such as data centres, and in hot climates

VALIDATED AT SCALE

History of grid-connected VFB projects globally with more than 8 GWh operational and single projects now exceeding 1 GWh²

LONG LIFE, LONG DURATION

VFB systems can be designed as 30+ year infrastructure assets, and easily and cost effectively scale in duration for LDES applications¹

HIGH LOCAL CONTENT

VFB architecture provides opportunities for significant local content and associated local economic benefits¹

CIRCULAR

Electrolyte is not consumed and retains value over time, supporting practical and economical recycle and reuse pathways¹

VFB gigawatt-hour scale-up has unlocked a global opportunity

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

BEFORE

Technology scale-up

Manufacturing development

Limited project experience

Bespoke solutions



NOW

Demonstrated large-scale systems

Established industrial supply chains

Growing deployment and operating references

Repeatable Australian projects

Next step is now underway: translating industrial maturity into bankable Australian projects

Large VFB projects now span multiple markets

2026 – Example Projects

Switzerland – 2.1 GWh

Project: Flexbase Technology Centre¹
Status: in construction
Use case: data centre

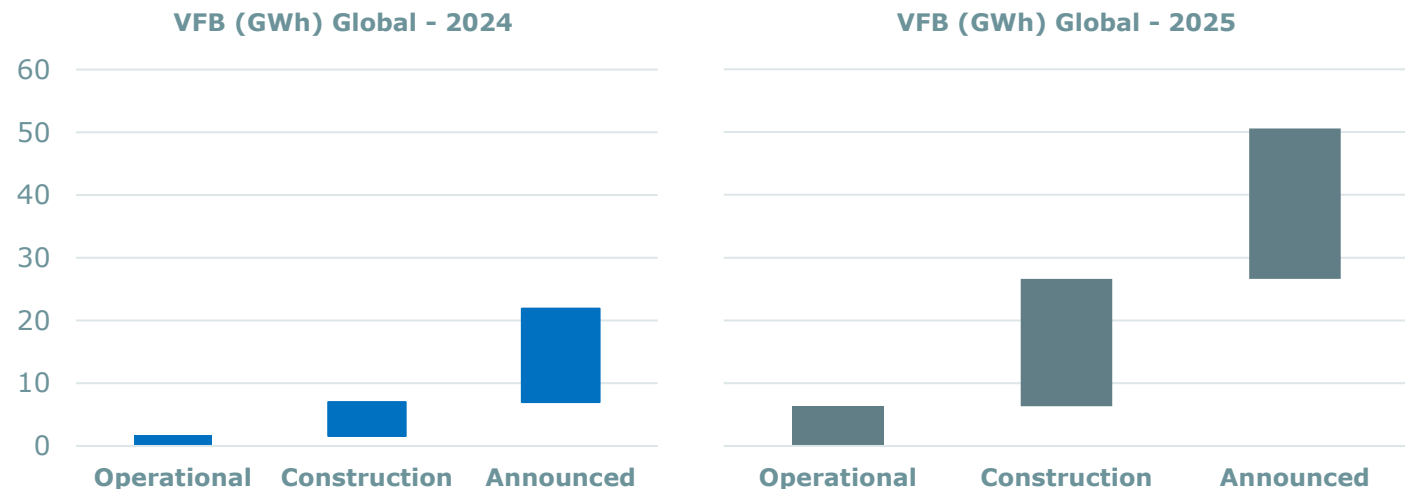
Australia – 864 MWh

Project: Hunter VFB²
Status: early development
Use case: long duration, grid reliability

Australia – 500 MWh

Project: Kalgoorlie VBESS³
Status: targeting 2029 operation
Use case: long duration, grid reliability

- Over 8GWh of VFBs in operation globally, with a further 44 GWh of projects either in construction or announced⁴
- 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 demand⁵



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 V₂O₅ per MWh and 2024 global supply of approximately 237 kt V₂O₅

The cost competitiveness opportunity

Initial Capex (\$/MWh)



- **Electrolyte leasing:** deployed at utility-scale in China³ and capable of converting electrolyte component, estimated at 40-50% of VFB capex, into opex⁴ – 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 scale⁵
- **VSUN Energy's Lumina™ architecture:** designed to improve the cost competitiveness of utility-scale VFB deployment in Australia⁶
- **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

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.

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

VFBs' advantages over established BESS technology – including duration, no thermal runaway risk, minimal degradation / cycle resilience 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.

LDES and remote site electrification



Emerging LDES policies like Japan's LTDA consider long-term capacity, long-duration, and local content outcomes central to procurement decisions.¹

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.²

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.³

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.

Australia's vanadium-VFB supply chain flywheel is gathering momentum

Industrial scale-up

VFBs now industrialised: single projects and manufacturing capacity exceed GWh scale

High-purity supply
AVL and other developers prepare assets capable of meeting required quality and cost parameters to meet future demand

**Growing market.
Stronger supply chain.**

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 sovereign technology diversification

Electrification

Hot climates
High cycle applications

AI data centres

Commercial opportunity
- increase compute

Economics

Scale up, leasing
Whole of BESS approach

Vanadium flow batteries: proven in utility service

A decade of operating experience and 100 MW grid-scale reference

Project / OEM	Operating history ¹	Grid services
Dalian, China Rongke Power 100 MW / 400 MWh	4 years	Peak shifting Frequency regulation Renewables integration Black start
Minami-Hayakita, Japan Sumitomo Electric 15 MW / 60 MWh	10+ years	Frequency control Wind / solar smoothing Surplus generation management

Operating longevity, demonstrated grid services and repeat utility procurement

1. History as at October 2026. Supplier-reported performance

Sources: https://dicp.cas.cn/xwdt/kyjz/202210/t20221031_6541871.html,
<https://rpkstorage.com/2024/06/18/dailan-rongke-power-achieves-groundbreaking-milestone-in-energy-storage-technology/>,
<https://sumitomoelectric.com/products/flow-batteries/case-studies/hokkaido-largescalegrid>, and
<https://sumitomoelectric.com/press/2026/04/prs015>

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

**50 MW/
500 MWh
VFB BESS**

~

4 kt
V₂O₅ demand¹

~

c.1.7%
Of global V₂O₅
supply²

"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

Three value platforms, one integrated strategy

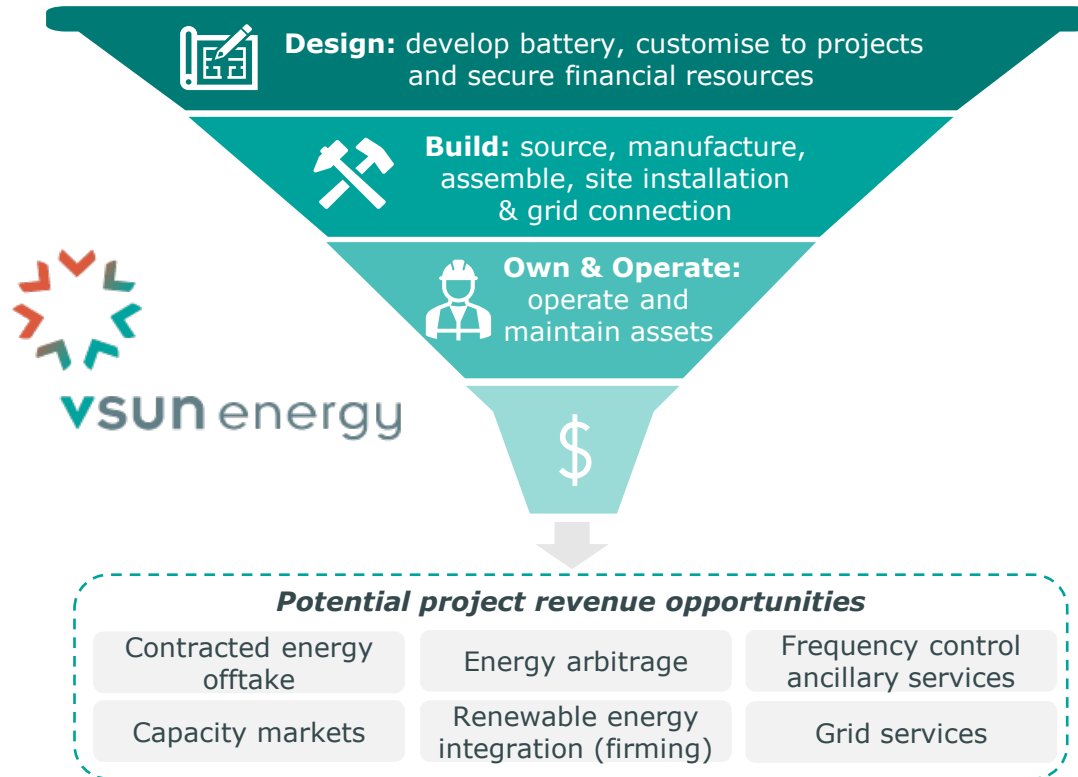


Asset	<div>Australian Vanadium Project</div> <div>Electrolyte manufacturing facility</div> <div>VSUN Energy (100% AVL)</div>		
AVL advantage	<div>High-grade project in Tier-1 jurisdiction – WA</div> <div>WA’s only established and operational electrolyte manufacturing facility</div> <div>Cost-competitive, utility-scale VFB storage solutions</div>		
Status	<div> <ul style="list-style-type: none"> Targeting completion of Optimised Feasibility Study (OFS) H2CY2026¹ Current focus on finalising OFS and remaining approvals, while positioning for offtake and funding </div> <div> <ul style="list-style-type: none"> Advancing qualification with multiple leading OEMs Successfully deployed AVL electrolyte in an operational VFB² Advancing V-NOMAD™, a platform designed to reduce delivered vanadium electrolyte cost for utility-scale VFB BESS projects³ </div> <div> <ul style="list-style-type: none"> Commercial VFB BESS projects and Lumina™ architecture support VSUN Energy’s position in Australian VFB deployment⁴ VFB project for WA-based Horizon Power has exceeded client expectations in hot climate Building pipeline of potential Australian and international opportunities⁵ </div>		

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’

Value Platform 1: VSUN Energy and Lumina™

Proposed build-own-operate (BOO) BESS platform



Examples of Australian BOO BESS platforms¹

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 energy storage opportunities.

Value Platform 2: Electrolyte manufacturing and V-NOMAD™

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

-  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 105.4Mt at 1.12% V_2O_5 classified as Measured or Indicated¹
-  Optimised Feasibility Study nearing completion, aimed at optimising project with improved project economics²
-  Current focus on finalising remaining approvals, while progressing offtake and funding workstreams²
-  Delivers local jobs and regional development



Proposed location of Australian Vanadium Project

AVL's integrated capability positioned for VFB deployment



Value Platform 1 – VFB solution: VSUN Energy's experience from Horizon Power project¹ and AVL's Lumina™ architecture² 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 projects⁴



Value Platform 3 – Australian vanadium resource: AVL's Australian Vanadium Project provides an opportunity for WA-based production of high-purity vanadium oxides⁵



Engagement with industry leaders: History of engagement with leading international technology providers and local delivery partners⁶



Government support: Federal Government grant support for projects⁷ and WA Government's Green Energy Major Project status to facilitate coordination of regulatory approvals processes⁸



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'

AVL: an Australian BESS supply chain



Positioned for large-scale VFB deployments

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



VFB use-case tailwinds

AI data centre, hot-climate and long-duration applications present new use case opportunities aligned to VFB strengths



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



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Mineral Resource Estimate

Zone	Category	Mt	V ₂ O ₅ %	Fe %	TiO ₂ %	SiO ₂ %	Al ₂ O 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