VANADIUM FLOW BATTERY

RICHMOND VANADIUM TECHNOLOGY

POWERING THE FUTURE

AUSTRALIA'S EMERGING MINE-TO-BATTERY VANADIUM OPPORTUNITY

CRITICAL MINERALS, ENERGY SECURITY & SOVEREIGN INDUSTRIAL CAPABILITY

ASX : RVT

2026

AUSTRALIA'S EMERGING MINE-TO-BATTERY VANADIUM OPPORTUNITY

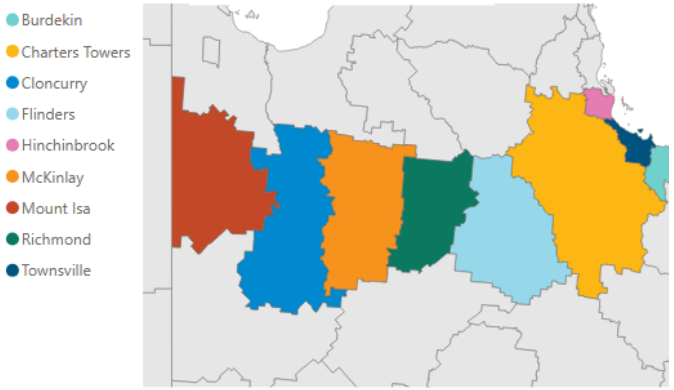
North Queensland Project Pipeline: Australia's Critical Minerals Supply Chain

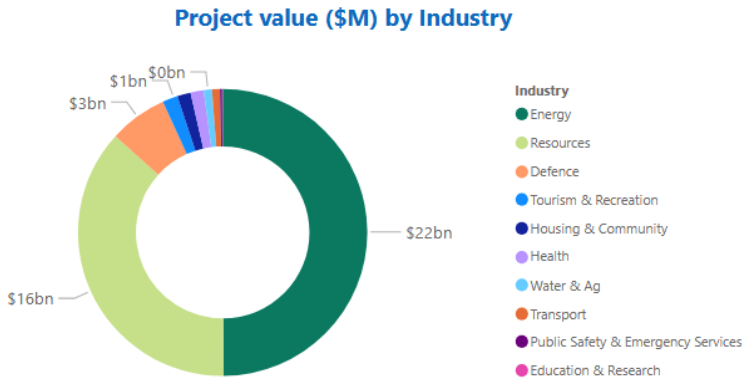
Australia's critical minerals opportunity is no longer just about extraction: it is increasingly about energy security, industrial resilience and sovereign capability.

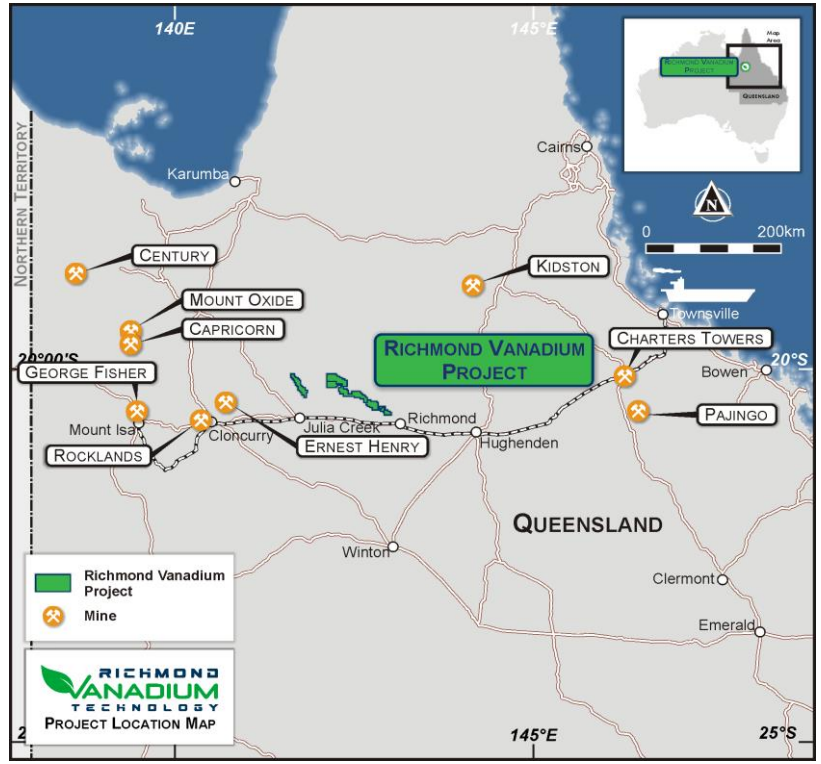
We are seeing a structural shift where mining, energy infrastructure, AI/data infrastructure and sovereign manufacturing are becoming increasingly interconnected…

21 Energy Projects I 20 Resource Projects I $55.2bn Investment Pipeline

The RVT Richmond Julia Creek Vanadium Project (**RJCVP**) sits within the broader North Queensland industrial corridor extending through Townsville







Source: Townsville Enterprise Limited (TEL), North Queensland Project Pipeline / Future Economy investment data 2025

The region is already transitioning into an energy infrastructure corridor.

This is not a mining story.

It is a load story.

And load is accelerating…

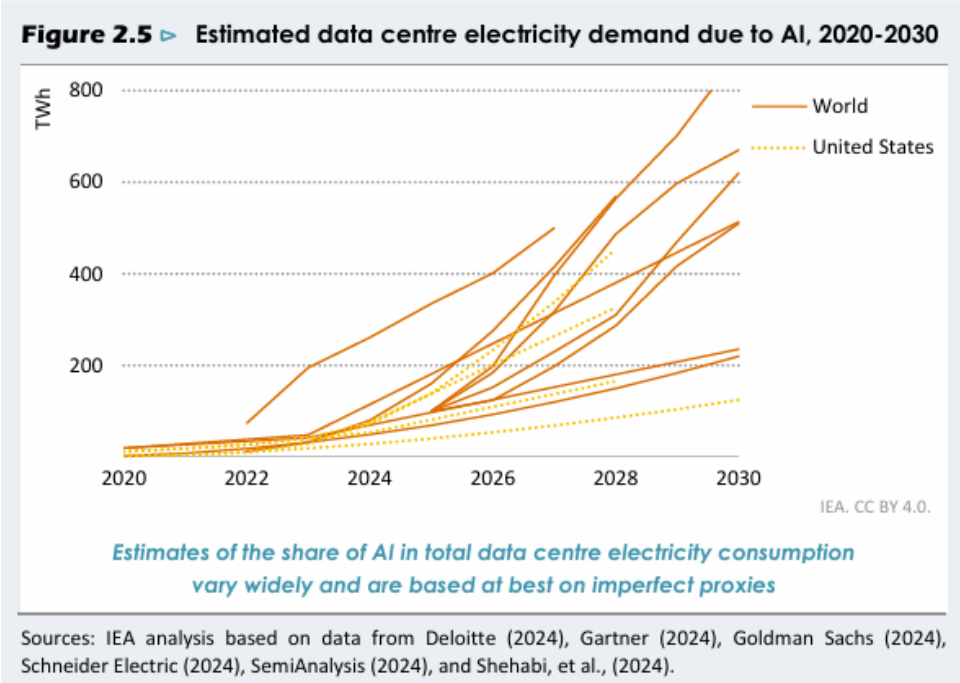
DATA CENTRES, SOVEREIGNTY & THE VANADIUM MOMENT

Why Long-Duration Storage Demand Will Reshape Australia's Critical Minerals Supply Chain

THE CONVERGING DEMAND SHOCK..

- Three structural shifts are now converging globally
  - AI + data centre growth
  - Electrification of mining and industry
  - Grid stability / transmission constraints
- AI and data infrastructure are fundamentally changing future power demand.
- Mining electrification is increasing pressure on already constrained grids.
- Renewables generation is scaling rapidly — but storage duration remains unresolved.
- The challenge is no longer simply generating energy. It is storing and dispatching it reliably.

GLOBAL DATA CENTRE ELECTRICITY DEMAND EXPECTED TO MORE THAN DOUBLE BY 2030



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THE GRID PROBLEM

Renewables Without Duration Don't Work… Why Vanadium Fits the Shift

LONG-DURATION STORAGE CHANGES THE EQUATION

- Australia will require multiple battery chemistries to support future energy systems
- Lithium has been transformative for mobility
- But long-duration storage increasingly addresses a different problem — grid resilience and industrial continuity
- As grids become more renewable-intensive, duration and reliability become increasingly important
- Vanadium flow batteries are particularly relevant where long cycle life and infrastructure resilience matter

By leasing vanadium electrolyte, CAPEX is significantly reduced

WHAT WINS IN 8+ HOUR SYSTEMS?

Attribute	Lithium	Vanadium Flow
Duration sweet spot	2–4 hrs	6–12+ hrs
Degradation	3–5% p.a.	~0%
Replacement cycle	7–10 yrs	20+ yrs
Residual value	Disposal cost	Recyclable asset (99% electrolyte recovery)
Fire Risk	High (thermal runaway)	Zero (non-flammable electrolyte)

This is not about chemistry preference.

It's about duration economics.

Long-duration is not optional.

It is systems resilience.

EMERGING LONG-DURATION STORAGE INFRASTRUCTURE

This is Already Happening

Operational

RKP Xinjiang / Jimusar Project, China: 200 MW / 1GWh solar input, utility scale grid balancing infrastructure – the worlds first GWh scale VFB

Deployment Model

TerraFlow / Storion, US: data-centre-focused LDUPS architecture claiming sub-5 ms response and long-duration VRFB integration.

Source: RKP Global— Jimusaer/Xinjiang VRFB Project, China200MW / 1GWh VFB VBESS
Utility-scale long-duration storage deployment supporting renewable integration and grid stability

AI WORKLOADS INCREASE ENERGY INTENSITY

- Long-duration storage is already being deployed at commercial scale.
- We are seeing battery systems increasingly integrated into industrial and grid infrastructure.
- Globally, energy resilience is becoming a strategic infrastructure priority.

Data sovereignty and energy sovereignty are rapidly becoming the same conversation

- Without reliable power, we do not have industrial capability or sovereign capability.
- The discussion has moved well beyond pilot projects. These systems are increasingly being viewed as enabling infrastructure.
- Demand at grid level pulls midstream and upstream with it.

Storage deployment industrialises the Vanadium supply chain

This is no longer experimental chemistry.

As grids become more constrained, duration and reliability increasingly matter

DATA CENTRES, DEFENCE & ENERGY SECURITY

Reliable power is becoming strategic infrastructure.

Data centres drive long-duration storage.

One gigawatt AI facility running continuously — requires eight gigawatt hours of storage to firm just eight hours.

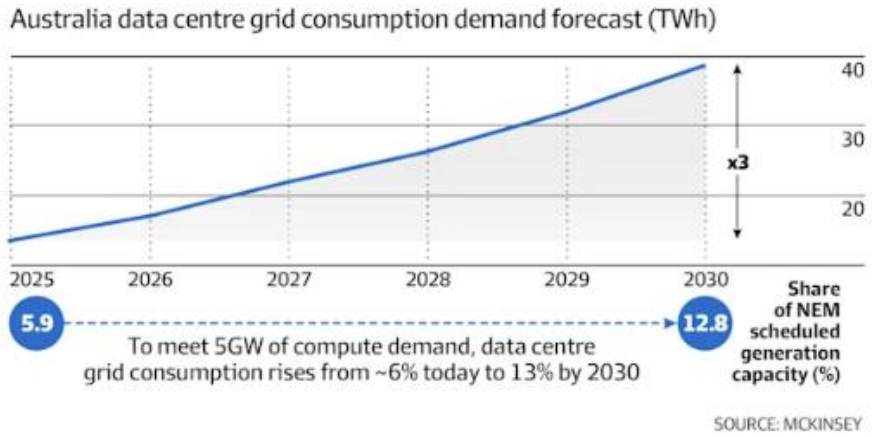
Long-duration storage drives electrolyte demand.

Utility-scale deployment of long-duration storage has the potential to materially increase demand for vanadium electrolyte and upstream vanadium supply.

Electrolyte demand drives vanadium production.

5 GWh of long-duration systems to support data centres, Equates to ~40,000 tonnes V_2O_5 demand

INDUSTRIAL DEMAND	REQUIRES
• AI/data centres • compute growth • defence systems • electrified mining	• resilient grids • long-duration storage • sovereign energy systems



Energy Resilience is rapidly becoming part of National Resilience

As storage duration requirements increase,
Upstream vanadium supply becomes Strategically Important.

RVT - THE SUPPLY ANCHOR

Why Raw Material is the Key.

Integrated "Mine to Battery" Energy Development Concept

Mine → Vanadium Supply → Electrolyte → VFB → Energy System Value Chain

Vanadium concentrate produced from RVT's project and stored in Australia for future electrolyte processing.

Future stages include QLD electrolyte manufacturing and local battery assembly facilities.

- 1 GWh electrolyte plant: 150–300 jobs
- Stack production: 100–200 jobs per GW
- Battery manufacturing: 200–400 jobs per GW

RVT's "Mine-to-Battery" Strategy

Supporting an integrated Australian vanadium value chain.

WHY NORTH QUEENSLAND MATTERS

- **CopperString-enabled industrial corridor**
- **renewable energy expansion**
- **strategic logistics and port access**
- **weak-grid and remote power requirements**
- **emerging sovereign manufacturing and defence alignment**

This is exactly the type of

Integrated Regional Development

Australia will increasingly require

We are not a speculative mine.

We are the upstream keystone in a national LDES ecosystem.

THE BIGGER NATIONAL QUESTION

Why does it matter?

Is Australia building a critical minerals strategy around exports..
or around future energy security?

Sovereign energy systems

Diversified battery capability

Regional industrial resilience

The opportunity is not simply to mine critical minerals
but to build the systems around them..
integrated mine-to-battery supply chains
supporting long-duration energy infrastructure.

AUSTRALIA HAS:

- the resources
- renewable energy
- industrial regions
- logistics infrastructure
- defence alignment
- and emerging demand drivers

The next phase of critical minerals development will be defined not just by what Australia extracts — but by what Australia enables

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SCAN ME

VANADIUM FLOW BATTERY

SOURCES

IEA Electricity 2024 – Data centre demand projections.

IEA Energy and AI reports (2024/2025 updates).

Australian Energy Market Operator (AEMO) Integrated System Plan (firming requirements).

Treasury CMPTI Impact Analysis

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