NEW ENERGY NEXUS (Energy)Lab

SUPERCHARGE AUSTRALIA INNOVATION CHALLENGE #3

INVESTOR BRIEF

Technologies, Value Chain Contributions, and Next Steps

NOVEMBER 2025

Contents

Introduction

The science of climate and the efficiency dividend of electrifying everything are undeniable. Key to this is energy storage, and key to this are lithium batteries - a projected $400 billion industry by 2030 [1]. Australia already produces over one third of the world's lithium [2], the world's largest provider, yet retains less than 1 percent of its realized market value [3].

This Investor Brief provides an early, high-conviction view of the startups and technologies emerging from the **Supercharge Australia Innovation Challenge #3**. It is designed for industry leaders, investors, policymakers and ecosystem partners seeking early insight into scalable solutions shaping Australia's clean-energy and industrial future.

The Supercharge Australia Innovation Challenge is the flagship program of the Supercharge Australia project, co-delivered by EnergyLab and New Energy Nexus, focused on accelerating innovation across the lithium battery and electrification value chain - from critical minerals and advanced materials to manufacturing, storage and deployment. In three years, 41 startups have been supported, as a cohort they have raised over $100 million in follow-on funding from Australian and global investors.

Through a competitive, expert-led program, the Innovation Challenge identifies and supports founders developing technologies with the potential to strengthen Australia's sovereign capability, unlock new industrial pathways and compete globally.

The Innovation Challenge culminated in the Supercharge Australia Innovation Challenge #3 Awards in Sydney on 20 November, 2025, where Liberate Minerals was named overall winner for its breakthrough approach to advanced critical and rare-earth minerals processing.

Together, the startup cohort profiled represents a curated snapshot of investable, partner-ready innovation - offering an early signal ahead of broader commercial scale-up and market adoption.

[1] Battery 2030: Resilient, sustainable, and circular
[2] Top 9 Lithium-producing Countries
[3] Capturing the value of the global lithium supply chain

Winners and Challengers

Liberal Minerals

Liberate Minerals is developing a next-generation critical minerals refining platform to restore sovereign processing capability and reduce global dependence on a single refining hub. Their Resource Maximisation Process (RMP) is a closed-loop refining technology designed to recover a full spectrum of critical and strategic metals from hard-rock ores, with lower energy use and a smaller environmental footprint.

Early Traction

- Strong strategic interest from stakeholders focused on sovereign refining capability and diversification away from a single global processing centre.
- Liberate's efficient process changed the economics of materials recovery. Several previously overlooked tailings processing opportunities have been identified.
- RMP has been advanced to TRL 5 and is ready to move from lab to pilot scale.

Winner

Liberate Minerals

Short-term Deliverables

- Build and commission a pilot-scale RMP plant to demonstrate multi-commodity refining performance.
- Validate RMP across multiple ore types and critical minerals (e.g. rare earths, battery metals).
- Secure early commercial partnerships with miners and downstream processors for demonstration campaigns.
- Generate detailed techno-economic and ESG data to support scale-up to commercial facilities.

Barriers

- High capital cost and long lead times to build pilot and first-of-a-kind refining facilities.
- Technical and perceived risk in adopting novel fluorine-based processes, despite safety and sustainability design.
- Incumbent global refining infrastructure and entrenched supply chains offshore.
- Regulatory approvals and environmental permitting for new refining technologies.

Key Asks

- Strategic partners (miners, offtakers, OEMs, governments) to co-develop RMP demonstration projects in Australia.
- Funding to scale from TRL 5 to pilot, including capex for pilot plant, engineering, and validation campaigns.
- Raising $30M to build a pilot plant on the Central Coast, NSW; scope for greater size and scale quickly possible.

Richard Simons and Ben Apfel from Liberate Minerals

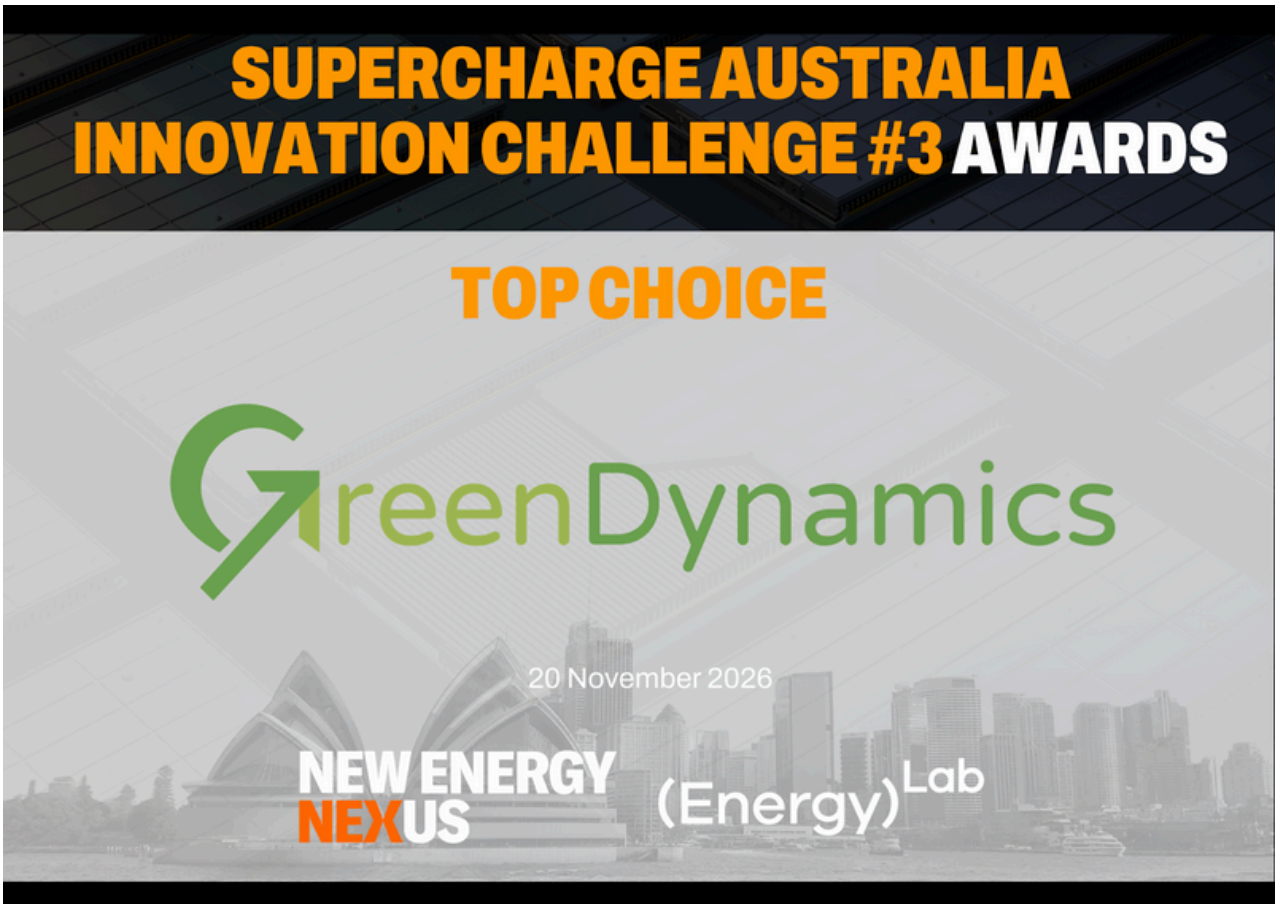
Fluorine unlocks decarbonised materials processing

"Liberate's efficient process changed the economics of materials recovery."

Led by CEO Richard Simons, founded by Phill Hall and Jane Hall

LIBERATE MINERALS
Mine, Refine, Monetise

Winners and Challengers



Green Dynamics

Green Dynamics builds an AI-driven materials discovery SuperIntelligence combining LLMs, agents and robotics to accelerate new-material R&D 10–100× faster. Their platform spans data mining, material prediction, automated synthesis, validation, and manufacturing analysis. Target sectors include batteries, alloys, semiconductors and chemicals.

Early Traction

- World record [4] on MatBench materials benchmark.
- First procurement contract signed with a global chemical manufacturer(~10M Tone level); less than 0.5% error.
- Over USD $1M revenue in 2025; growing toward USD $10M by 2026.

[4] Our Large Language Model DARWIN takes first place in two categories at MatBench

Top Choice

Green Dynamics

Short-term Deliverables

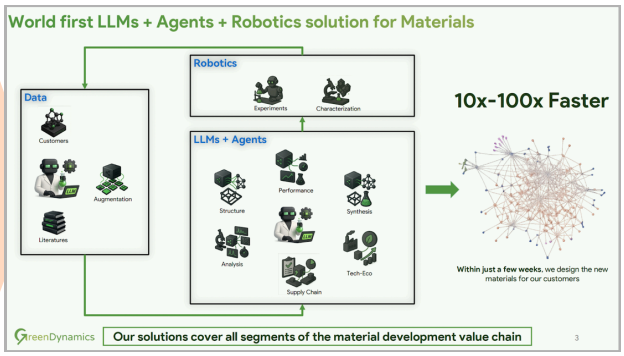
- Expand automated AI-driven labs.
- Deploy SaaS platforms to enterprise clients.
- Grow CRO high-throughput experimentation services.
- Scale enterprise integrations in chemicals, energy, semiconductors.

Barriers

- High upfront capex for robotics-enabled laboratories.
- Need for standardisation around AI-designed materials.

Key Asks

- Strategic industry partners and corporate pilots.
- Government co-investment in AI-driven materials discovery facilities.
- Planning AUD $8-$10M raise.



"World record...10x-100x faster materials engineering."

Founded by Tong Xie

GreenDynamics

Winners and Challengers

Next-Gen Energy Technology

Next-Gen Energy Technology is building Australia's first Li-NCA cathode materials manufacturing plant (10,000 tpa goal). Their patented "magic black powder"is claimed to improve battery lifespan (up to 30 years), reduce charging time by more than 70%, and double energy density. Technical validation underway at the University of Adelaide and UniSA however Li-NCA has been originally produced at scale in China for Panasonic and Tesla.

Early Traction

- Global patents transferred from China to Australia.
- Offtake agreements secured worth $500M/year.
- Factory location secured at former GM Holden site.

Top Choice

Next-Gen Energy Technology (NGET)

Short-term Deliverables

- Phase 1: 2,000 tpa production ($55M build).
- Phase 2: 10,000 tpa ($85M).
- Workforce growth to 138 permanent jobs.

Barriers

- High capex for advanced cathode processing.
- Dependence on precursor supply security.

Key Asks

- Australian & US investment participation for Phase 1.
- Support for construction and scaling ($15M—$30M)

"Offtake agreements secured worth $500M/year."

Led by Andrew Cooper

NEXT-GEN Energy Technology ®

Winners and Challengers

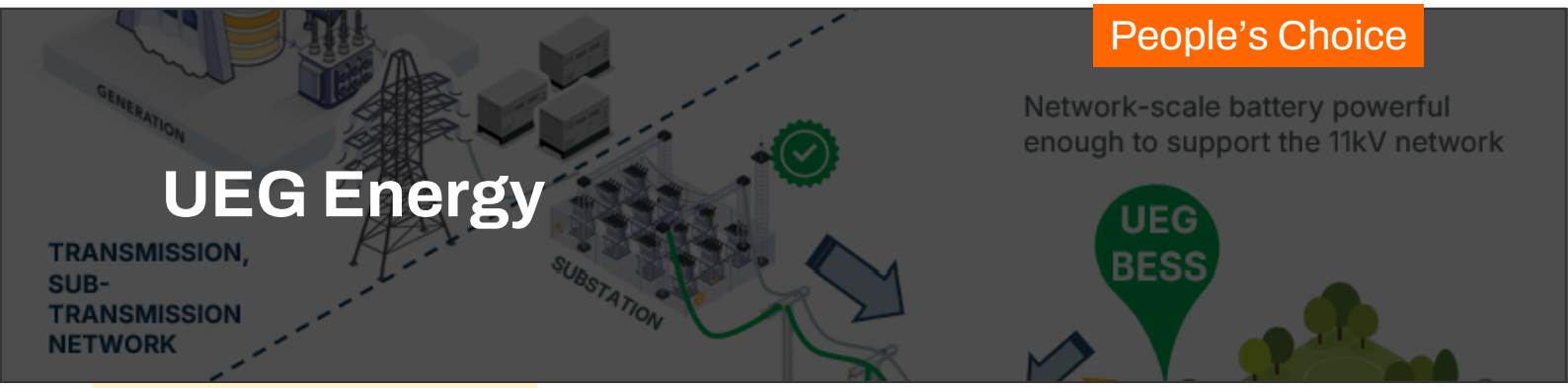
UEG Energy

UEG Energy is deploying front-of-meter network-batteries across Australia's urban grid, and addresses critical constraints on mid-voltage (11 kV) networks using right-sized batteries as an alternative to capital-intensive poles and wires augmentation—the “missing middle” between home/community batteries and large grid-scale BESS.

This first-of-a-kind innovative solution:

- Avoids costly upgrades for networks, lowers fixed costs for consumers.
- Powerful batteries that reduce the risk of outages.
- “Solar sponge”, reducing costs for communities.

People's Choice



UEG Energy

Early Traction

- Constraint analysis across more than 2,500 electricity feeders.
- Opportunity assessment, which has identified a market potential of more than 700 constrained networks.
- Selected sites with Ausgrid for exclusive trial.
- Strong DNSP interest due to the opportunity to lower Capex, whilst lowering consumer cost of distribution.

Short-term Deliverables

- Stage 1: Deploy 66 MWh across 10 feeders (2026).
- Stage 2: Scale to 924 MWh (140 feeders) by 2028.
- Stage 3: NZ and North American expansion by 2030.

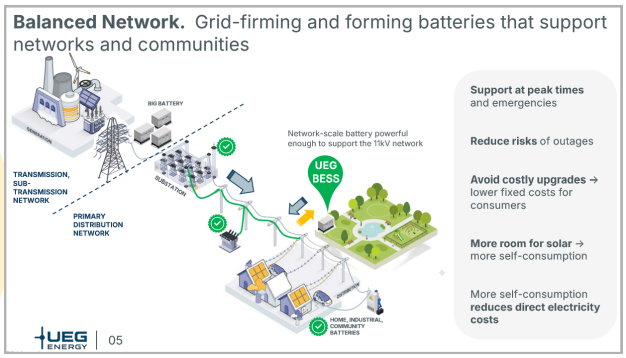
Barriers

- Need for DNSP endorsement and flexibility.
- Council site approvals for larger batteries, mitigated by human-centred design and community benefit sharing.
- Capital-intensive deployment across many feeders.

Key Asks

- $6.4M for 25% SPV equity in Stage 1

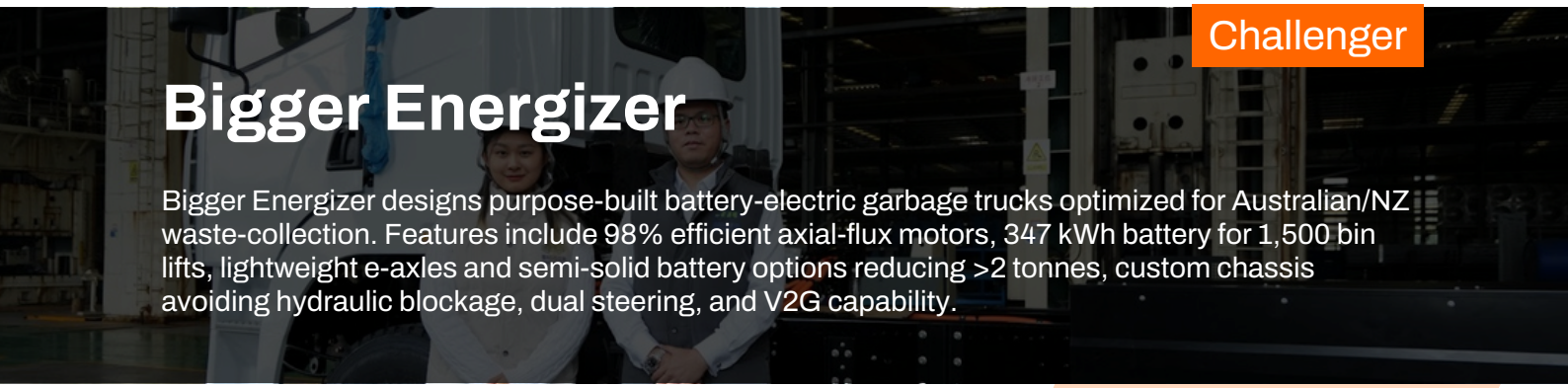
Eugenie Knight and George Knight of UEG Energy with the Supercharge Australia team receiving their People's Choice award.



"Selected sites with Ausgrid for exclusive trial."

Founded by Eugenie Knight and George Knight

UEG ENERGY



Challenger

Bigger Energizer

Bigger Energizer designs purpose-built battery-electric garbage trucks optimized for Australian/NZ waste-collection. Features include 98% efficient axial-flux motors, 347 kWh battery for 1,500 bin lifts, lightweight e-axles and semi-solid battery options reducing >2 tonnes, custom chassis avoiding hydraulic blockage, dual steering, and V2G capability.

Early Action

- Strong council interest. Launch planned for Melbourne Q1 2026.

Short-term Deliverables

- Prototype completion, validation, and assembly setup
- Securing 1,000+ orders in 3 years
- Expand to mixers/tippers/tow trucks.

Barriers

- High upfront capex
- Pocurement inertia
- Limited domestic supply chain
- Long validation cycles.

Key Asks

- Support for trials, manufacturing partnerships, and scale-up funding.

"Strong council interest. Launch planned for Melbourne Q1 2026."

Founded by Zoe Chen and Louis Ching

BIGGER ENERGIZER

Challenger

Dovetail Electric Aviation

Dovetail Electric Aviation develops certifiable battery and propulsion systems to retrofit existing aircraft for zero-emission regional flight.

Early Action

- Developed and validated full-scale prototypes of the Dovepack aircraft battery.
- The product has attracted strong global interest from e-aircraft and e-air taxi manufacturers due to its safety and reliability. We are currently engaging with over eight companies through active RFI/RFQ processes.
- Dovetail also maintains a robust pipeline of pre-orders for its proprietary aircraft e-propulsion conversions, where Dovepack batteries serve as a critical enabling technology.

Short-term Deliverables

- Building an aerospace-grade battery production line in Australia for our battery customers globally.rucks.

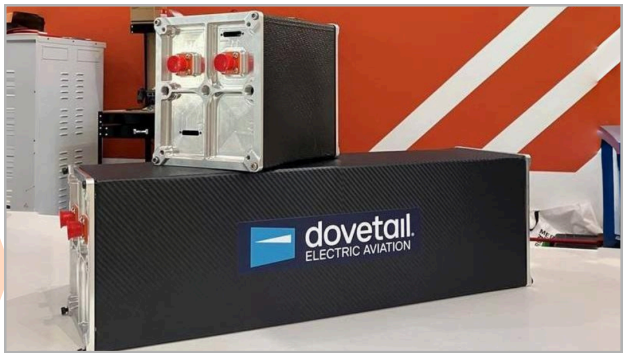
Barriers

- Lack of Financial support. Regulatory challenges. Lack of supplier base and test centres locally.
- Lack of support for Electric -aviation with focus currently mostly on Sustainable Aviation Fuels (SAFs).

Key Asks

- Our current pre-seed round of around $7.5M to match for grant funding for a battery production facility in Australia.

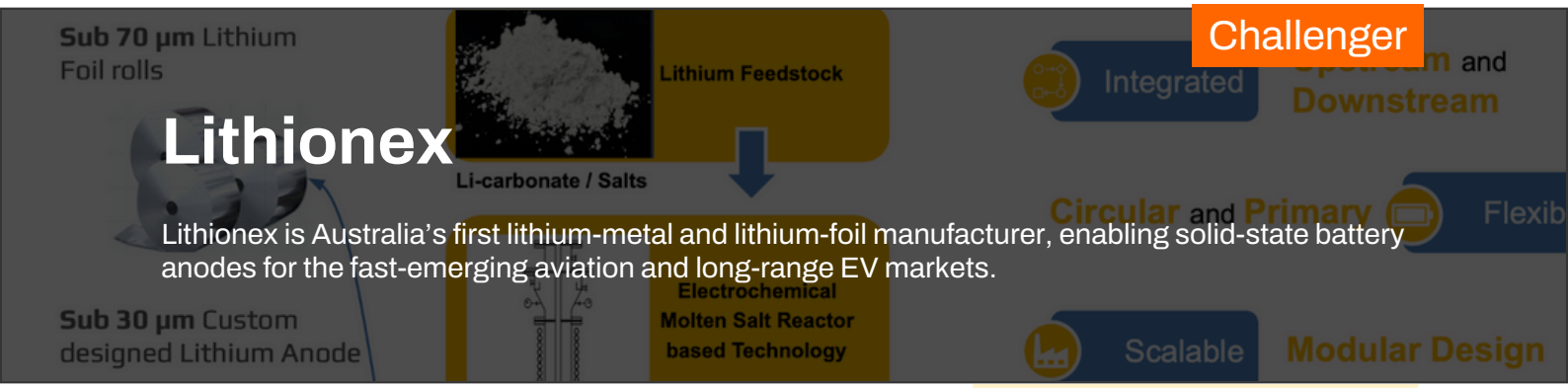
Arnab Nath, Business Development Manager



"...Seeking $7.5M to match for grant funding for a battery production facility in Australia."

Founded by David Doral

dovetail ELECTRIC AVIATION



Challenger

Lithionex

Lithionex is Australia's first lithium-metal and lithium-foil manufacturer, enabling solid-state battery anodes for the fast-emerging aviation and long-range EV markets.

Early Action

- Prototype reactor to be built and tested with Queensland University of Technology (QUT).
- QUT partnership secured.

Short-term Deliverables

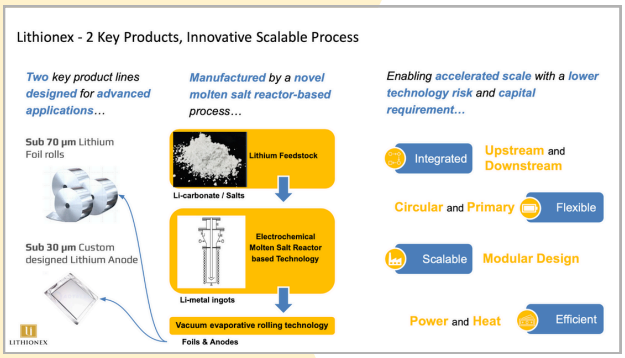
- Build 1 tpa pilot facility.
- Scale to 10 tpa demonstration plant.

Barriers

- High capex for lithium-metal processing equipment.

Key Asks

- $600k funding + supply partnerships with Australian and global lithium-salt providers.
- Offtake MOUs for metal and anode products.



"Queensland University of Technology partnership secured."

Founded by Michael Wilson and Mike Hewitt

LITHIONEX

Challenger

TerraFuse

TerraFuse provides zero-cost, software-optimised EV charging infrastructure for apartments. Their model solves high capex, strata complexity and low electrical capacity by funding installations themselves, recouping through fee-per-kWh and revenue sharing.

Early Action

- 20 chargers live across 10 apartment sites (52,000 sessions/year).
- Pipeline: 240+ chargers across 120 sites.
- Rapidly expanding due to a cost-free model for buildings.

Short-term Deliverables

- Scale installation throughput in major cities.
- Expand software capabilities for fleet and visitor charging.
- Grow to 3,000 apartment sites by 2030.

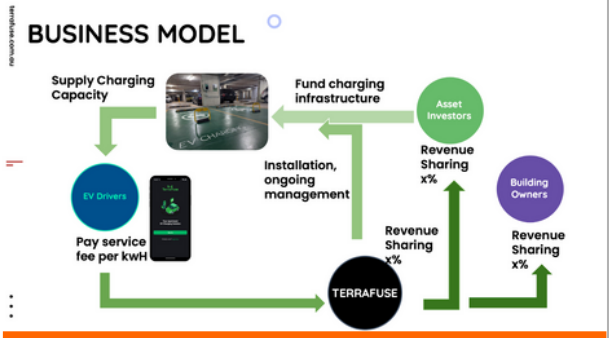
Barriers

- Slow strata approvals and inconsistent building codes.
- Limited electrical upgrades in older buildings.
- Long sales cycles for property managers.

Key Asks

- $3M: 80% marketing, 20% tech development.

Jack Tan of Terrafuse



Terrafuse's unique revenue sharing business model for mid-high density dwelling EV charging.

"20 chargers live across 10 apartment sites (52,000 sessions/year)."

Founded by Jack Tan

TerraFuse

Challenger

Ultrapower Tech

Ultrapower Tech develops solvent-free dry-coating for electrode manufacturing, reducing energy (~80%), CO2 (~70%), cost (~30%). Produces improved-performance cells with strong adhesion and modular scalability.

Early Action

- Engagement from global material/battery developers
- Strong lab results
- Only AU provider of dry-coating.

Short-term Deliverables

- Lab Proof of Concept (TRL 4-5)
- Pilot line (TRL 6-7)
- Expand contract R&D.
- Begin in-house lithium-ion battery builds.

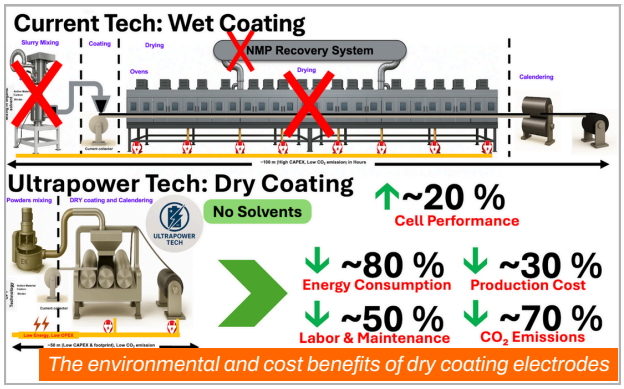
Barriers

- Scaling equipment cost.
- OEM validation needs of cell makers.
- Limited AU cell ecosystem.
- Global competition.

Key Asks

- $500k for R&D.
- Partnerships with the Australian battery ecosystem.

Mahmoud Moussa of Ultratech Power



The environmental and cost benefits of dry coating electrodes

"Only Australian provider of dry-coating."

Founded by Mahmoud Moussa

ULTRAPOWER TECH

Government Role

The startups recommended roles for the government:

- Provide large-scale pilot and first-of-kind plant funding (grants + concessional finance) specifically for refining and processing, not just mining.
- Create critical minerals refinery hubs with shared infrastructure (utilities, waste management, safety systems) for technologies like RMP.
- Introduce offtake-backed or floor-price mechanisms to de-risk early production from new refining plants.
- Fund national AI + robotics materials development centres.
- Create fast-track validation programs for advanced materials (batteries, semiconductors).
- Support sovereign capability in high-value materials.
- Co-invest in cathode-materials processing.
- National programs for precursor refining.
- Incentives for end-to-end battery-material sovereignty.
- Policy amendment that shifts DNSPs away from Capex-intensive augmentation models, incentivising DNSPs to enter more cost-efficient non-network models to address constraints.
- Support mid-voltage storage in national battery programs.
- Reform grid-connection standards for feeder-level BESS.
- Concessional finance for distribution-tied storage.
- Grants/concessional finance for heavy EV trials; incentives for local EV truck manufacturing; support V2G pilots.
- Most government grant programs only fund up to 50% of project costs; such a funding structure tends to favour larger companies over SMEs. Effort needed to offer funding instruments specifically for startups and SME, like programs which exist in Europe and the USA. Such funding instruments have more targeted funding and features such as upfront payment and 70-80% funding for projects. This could be achieved easily with existing funds, as startup projects tend to have a lower overall budget. Support is also needed for electric aviation, as most of the current efforts are focused on supporting sustainable aviation fuels (SAFs) instead. Successful electric aviation, particularly regional short-haul, could provide many additional benefits. Better support for dual-use infrastructure, such as battery qualification and test equipment (could be shared between many manufacturers). Better regulatory framework for R&D activity around novel technologies such as batteries and high-voltage electric propulsion systems.
- Support for upstream lithium-salt refining in Australia.
- Investment in downstream battery-anode manufacturing.
- Mandate EV-ready wiring standards.
- Offer grants for retrofit infrastructure in legacy apartments.
- Support V2G/V2B trials in multi-dwelling units.
- Fund pilot-line development; support AU cathode/anode manufacturing; tax incentives; national battery testbeds.

Next Steps

The Investor Brief is intended as a starting point for direct engagement and action with the startups from this challenge, driving real opportunity for investors and Australia to stake its place in this emerging ecosystem.

Some in the Supercharge Australia Innovation Challenge #3 cohort are now entering a critical scale-up phase, where strategic partnerships, pilot deployment, and follow-on capital will determine the speed and success of commercialisation; some are breaking into new opportunities.

Engage Directly with the Startups

Cohort companies - led by overall winner Liberate Minerals - are actively seeking the full spectrum of strategic partners, pilot customers, research collaborators, early commercial offtake opportunities, and later and early-stage capital. Direct engagement can accelerate validation, deployment, and global market entry for these Australian-developed technologies.

Support Commercialisation and Scale-up

Investors, corporate, government, and philanthropic funders are encouraged to explore opportunities to support follow-on funding, demonstration projects, and international market access, particularly in advanced minerals processing, battery materials, and electrification-enabling technologies.

Connect with the Supercharge Australia Team

Organisations interested in partnering on future challenges, sponsoring cohorts, or supporting the expansion of Australia's battery and critical minerals innovation pipeline are encouraged to contact the Supercharge Australia team to discuss collaboration pathways.

Help Shape the Future

Industry, government, and ecosystem partners are invited to help co-design future Innovation Challenges that align startup capability with real-world industrial demand.

Contact

The companies are each listed with a URL and LinkedIn details. Contact them directly, or via Supercharge Australia - we are very pleased to discuss further and make introductions.

Startup Contact Details

Organisation	Name	Role	Contact
Liberate Minerals https://www.liberateminerals.com	Richard Simons	CEO	https://www.linkedin.com/in/richard-simons-0744947/
	Ben Apfel	Business Manager & Marketing Officer	https://www.linkedin.com/in/ben-a-54233227/
	Phill Hall	Founder	https://www.linkedin.com/in/phillip-hall-45b93b56/
Green Dynamics https://www.greendynamics.com.au	Tong Xie	Founder	https://www.linkedin.com/in/heliosxie/
Next-Gen Energy Technology (NGET) https://www.next-genet.com/	Andrew Cooper	CEO	https://www.linkedin.com/in/andrew-cooper-business-growth-specialist/
UEG Energy https://www.uegenergy.com	George Knight	Founder	https://www.linkedin.com/in/gknightprofile/
Bigger Energizer https://www.biggerenergizer.com.au/	Zoe Chen	Founder	https://www.linkedin.com/in/zoe1-chen/
Dovetail https://dovetail.aero/	David Doral	Founder	https://www.linkedin.com/in/david-doral/
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Lithionex https://www.linkedin.com/company/lithionex/	Michael Wilson	Founder	https://www.linkedin.com/in/mick-wilson-3844462/
	Mike Hewitt	Founder	https://www.linkedin.com/in/mike-hewitt-965a7885/
TerraFuse https://terrafuse.com.au/	Jack Tan	Founder	https://www.linkedin.com/in/tanjack/
Ultrapower Tech https://www.linkedin.com/company/ultrapower-tech/	Mahmoud Moussa	Founder	https://www.linkedin.com/in/mahmoud-moussa-36ab9038/

About us

Supercharge Australia

is an initiative of EnergyLab and New Energy Nexus, accelerating founders across the lithium-battery value chain—from critical minerals and materials to cell manufacturing, pack integration, second-life applications, and recycling.

EnergyLab

is Australia's largest climate tech startup accelerator and innovation network, backing founders who are building the technologies that will accelerate the transition to net zero since 2017. With more than 300 startup alumni, EnergyLab connects entrepreneurs with the mentors, partners, and investors they need to grow and scale. Each year, EnergyLab delivers ten programs that support founders at every stage of development—from early idea to global expansion—helping position Australia as a leader in clean energy and climate innovation.

New Energy Nexus

is an international organization that strives towards a 100% clean energy economy for 100% of the population. It does this with a laser focus on diverse entrepreneurs, supporting them with accelerators, funds, skills, and networks they need to thrive. NEX has accelerated 1,500+ startups, empowered over 10,400+ entrepreneurs, and mobilized over US$4.7 billion in investment. Since its founding in California in 2004, NEX now operates programs or advisory services in Australia, China, India, Indonesia, Nigeria, Pakistan, the Philippines, Thailand, the UAE, Uganda, the USA (California and New York), and Vietnam.

More at Liberate Minerals wins Supercharge Australia Innovation Challenge #3 | EnergyLab.

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