

METALLIUM

Revolutionary Metal Recovery Technology

ASX Small & Mid-Cap Conference 2025, Sydney Australia

24 September 2025

Metallium Ltd
ASX: MTM / OTCQX: MTMCF

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METALLIUM

Forging a U.S. National Platform for Strategic Metals Recovery

METALLIUM

U.S.-focused Industrial Technology Company with a patented process to recover Metals from both Waste and Ore, more efficiently and economically vs. traditional methods

ASX: MTM / OTCQB: MTMCF

Corporate Overview

ASX: MTM

SHARE PRICE

A$1.17

As at 23 Sept 2025

(52 Week High $1.17; Low $0.05)

MARKET CAPITALISATION

A$714m *

As at 23 Sept 2025

SHARES ON ISSUE

613m

CASH

A$54m *

DEBT

Nil

OPTIONS ON ISSUE

67m

ENTERPRISE VALUE

A$660m *

NOTE: Weighted ave. conversion price = A$0.19

RECENT CORPORATE MILESTONES

- **Today:** Evaluating NASDAQ ADR listing in response to U.S. investor demand
- **Sep-25:** Metallium added to S&P/ASX All Ords (S&P DJI rebalance)
- **Aug-25:** Diggers & Dealers – Deloitte award for top ASX returns FY25
- **Jul-25:** Metallium uplisted to OTCQX (USA)
- **Jun-25:** A$50M institutional capital raise

SHAREHOLDER BREAKDOWN

Institutional Ownership

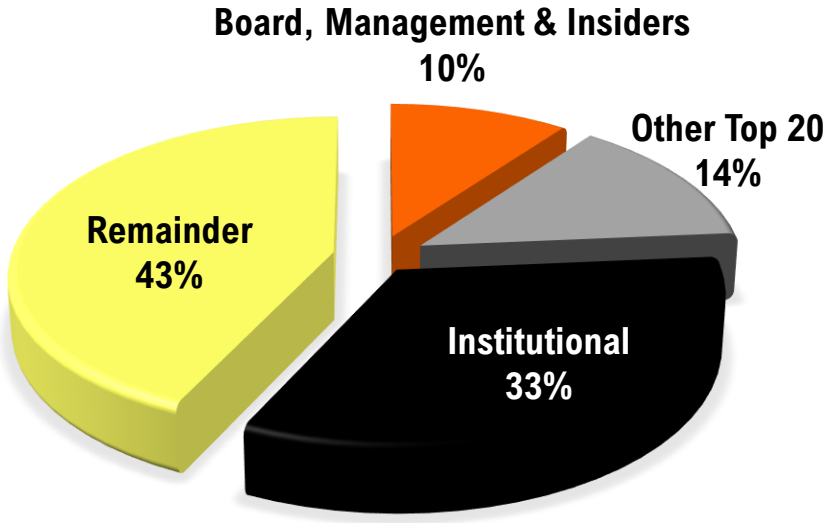
33%

Top 20 Holders:

56%

Total No. of Shareholders:

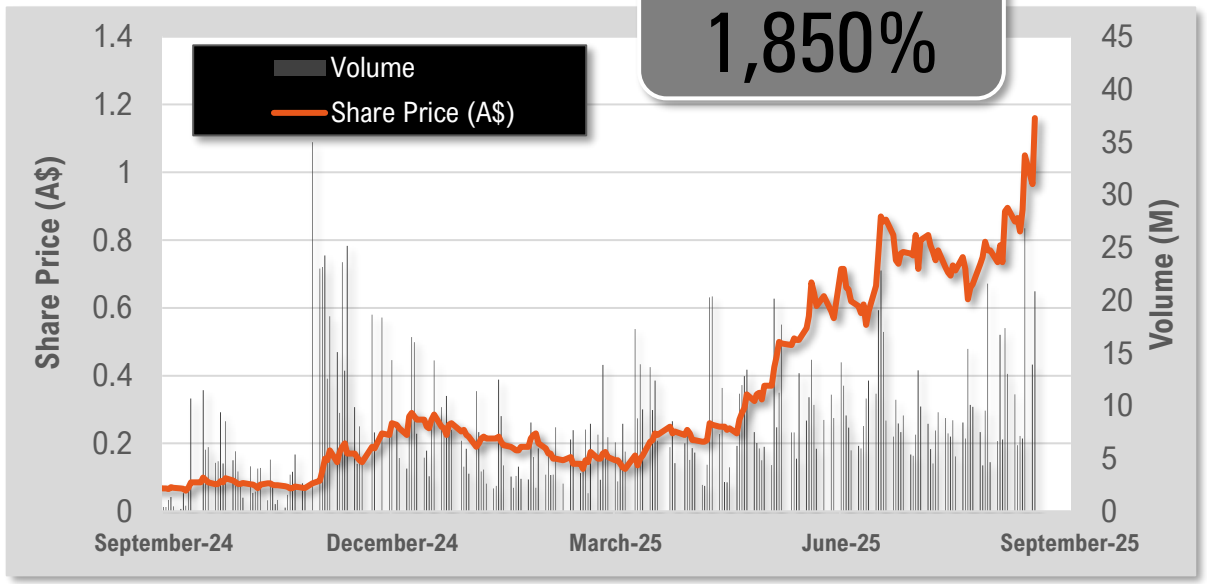
3,655



ASX SHARE PRICE & VOLUME

1 Year Returns

1,850%



** Proforma - Based on cash balance as reported at 30 March 2025 and post June 2025 Placement*

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Board & Senior Management



Michael Walshe
B.Eng. (Hons) Chemical, MIEAust CPEng, MBA (Finance), MAusIMM

Managing Director & CEO

Chemical engineer and MBA with 15+ years' experience in minerals processing (ex-Metso Outotec), scaling industrial technologies across lithium, REEs, gold, and waste-to-value, including as CEO of ASX-listed companies.



Steve Ragiel
BCHe, Chemical Engineering

President – U.S. Operations

Former global recycling division head at Waste Management Inc. with 30+ years leading industrial recycling businesses, commercialising new technologies and building processing plants across the U.S. and internatonally.



John Hannaford
BCom, FFin

Non-Executive Chairman

Chartered Accountant and seasoned corporate finance executive with extensive experience in ASX-listed mining companies, currently serving as director on multiple public boards.



Tony Hadley
B.Sc. (Extractive Metallurgy & Chemistry)

Non-Executive Director

Metallurgist with 30+ years in mineral processing and plant commissioning, including extensive REE expertise including as General Manager at Lynas Rare Earths.



Paul Niardone
MBA, BA

Non-Executive Director

Entrepreneur and ASX-listed company founder with a track record in business development and strategy, including founding The Agency Group (ASX: AU1).

U.S.-Based Advisory Board



Gregory L. Bowman
LLM, J.D., Colonel (Ret.), U.S. Army

Chief Strategy Officer at Siemens Govt. Technologies with 30+ years in U.S. defence, critical infrastructure, & industrial base strategy. Retired U.S. Army Colonel & former advisor to the Secretary of the Army



Travis Langster
B.S., Aerospace Engineering

Former U.S. Deputy Assistant Secretary of Defense & Principal Director of Space Policy, with 20+ years shaping space, missile defence, & semiconductor supply chain strategy

Coming Soon

U.S. Key Personnel



Dr. Lucas Eddy
PhD Physics

Technology Development Manager
Lucas completed his PhD in the Tour Lab in 2025. His research advanced FJH technology development and he continues this work at Flash Metals USA



Sam Klos
BSc Business

VP Integration
Sam joined in 2024 after a decade in procurement leadership at Kiewit on major energy and water projects.



Daniel Vazquez
LLM, JD

Senior Advisor Grants
Policy and grants executive; former USAID Director of Standards; Based in Washington D.C.

The Industry's Technology Problem

PYROMETALLURGY

Energy intensive, fossil-fuel powered

HYDROMETALLURGY

Chemical intensive, embedded emissions

SUB-ECONOMIC OR DO NOT WORK

Legacy techniques unsuitable for certain ores and wastes

Legacy Metal Processing Tech is Costly and Unsustainable

- ✓ **Traditional methods:** High-energy smelting (1,000°C+) or kiln-based heating over long time periods, low yields.
- ✓ **Environmental cost:** Legacy processes emit large volumes of CO_2 and typically generate hazardous waste.
- ✓ **Economic cost:** Predominantly acid-based / chemical heavy with significant energy and management costs.
- ✓ **Legacy technology:** Many industry-standard equipment (e.g. centuries-old rotary kilns) remain inefficient, underscoring a lack of innovation in the sector.







The industry is ripe for a cleaner, more efficient solution …

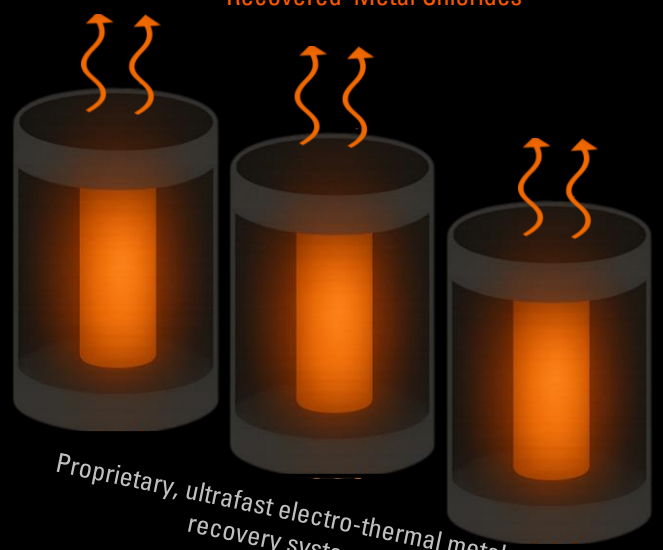
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Metallium's Elegant Solution:
Flash Joule Heating

Metal Bearing Feedstock → FJH Process → Recovered Metal Products

Recovered Metal Chlorides

Metal-rich Feedstock
+
Proprietary Catalyst
+
Reactant



Proprietary, ultrafast electro-thermal metal recovery system

ULTRAFAST HEATING + PROPRIETARY CHEMISTRY

Ultrafast Heating
We apply a short burst of electric energy to crushed ore or waste. The feed heats in very short timeframes.

Proprietary Chemistry
Reactive chemistry helps vaporise target metals as chlorides. Metals are released as vapours and condensed into saleable metal chlorides. → **No acid leaching** → **No multi-stage smelting** → **No harmful tailings**.

What It Enables
FJH can unlock value from difficult materials like lithium concentrates, rare earth concentrates and intermediates, red mud tailings, and e-waste - faster and more economically than traditional methods.

Designed for rapid deployment and modular scalability - enabling fast setup across distributed sites, with minimal permitting and infrastructure requirements.

Net result:* *Single-step, low-carbon process to extract metals faster, with higher efficiency and lower reagent use than incumbent technologies.

Positioned to industrialise FJH - a disruptive new pathway for critical and precious metals recovery

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Commercial Readiness
Texas Technology Campus

Metallium's U.S. Technology Campus will house our first commercial plant and serve as a hub for ongoing R&D and future expansion.



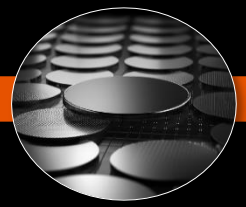
Prime Location in Houston Industrial Corridor

Strategic location offers direct access to Interstate 10, the Houston Ship Channel (major port), and is within a 40-minute drive of central Houston, ensuring efficient logistics and access to suppliers/customers.

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Primary Focus Feedstocks – High-Value Materials First

1



Gallium / Germanium / Indium
(semiconductor or refinery scrap)

Access to ultra-rich feed: e.g. Ga/Ge scrap very high in metal value.

2



Gold-Rich E-Waste (PCBs)

Tested material with up to **550 g/t Au + 40% Cu + 14% Sn**

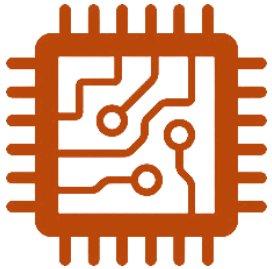
3



Mineral Concentrates

Engagements with major mining and chemical companies underway

Critical and Precious Metals with highly compelling economics



✓ **Gallium, Germanium, Indium** - the hidden semiconductors of AI, chips, and fibre optics.



✓ **Gold** from e-waste - the richest of urban mines.

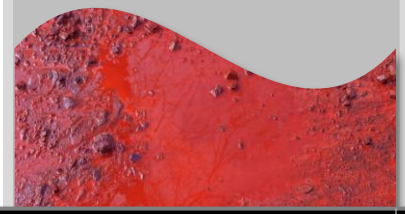


✓ **Rare Earths** such as Nd, Pr, Dy, Tb - the magnets of electric motion, mobility, clean energy, and defence.

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Our Business Model: Two Engines of Value

How do we monetise this moat? Through two core Business Units

	URBAN MINING (WASTE RECYCLING)		MINERAL PROCESSING (MINING PROJECTS)	
	Technology Metals: Gallium, Germanium, Indium, Tin, Antimony	**Electronic Waste:** Gold, Copper, PGE -rich Printed Circuit Boards	**Rare Earth Elements** (REEs) Nd, Pr, Dy, Tb	**Red Mud** (Bauxite Residue) Alumina, Ga, REEs, Titanium
				
BUSINESS MODEL	**BUILD-OWN-OPERATE:** Metallium will source feedstock, operate its own facilities, & capture full value from recovered metals		**LICENCING:** Provide equipment & services to miners / processors. Monetise via **Licensing** & **Production Royalties**	
PRODUCTS	Metal chlorides or derivatives – Essential for semiconductors, photovoltaics etc.	Metal chlorides or derivatives incl. Gold Chloride – Highly saleable	Various optionality for metal chlorides or more refined intermediates	
INDUSTRIAL PARTNER(S)	INDIUM CORPORATION	DYNAMIC LIFECYCLE INNOVATIONS; Plastic Recycling Inc.	METEORIC RESOURCES; ucore	vedanta transforming for good

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Metallium's Focus Metals Align with U.S. Strategic Priorities

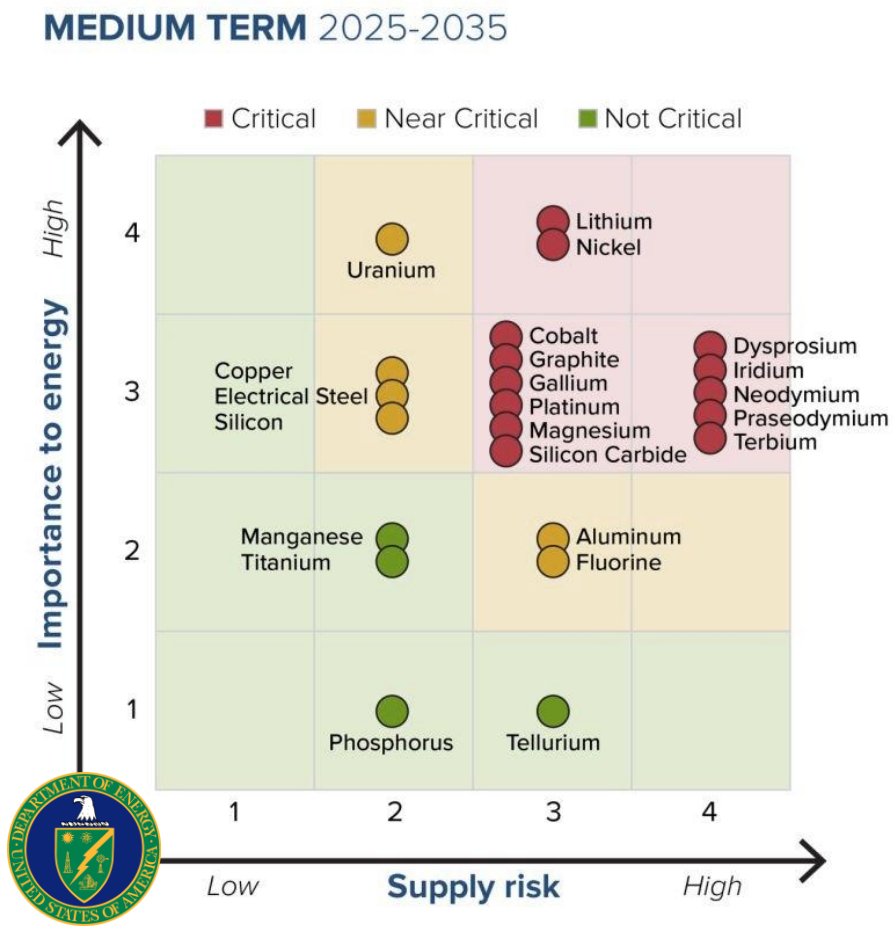
Critical Metals

- REEs, Sb, Ga, Ge, In: DOE-designated critical.
- Used in semiconductors, AI, clean energy, defence etc
- All **are 90–100% import-reliant in the U.S.**

Aligned with U.S. Policy and Funding Mandates

- Supports onshoring & de-risking of critical metal supply.
- Potential for DoE / DoW funding, offtake, and strategic procurement.

U.S. Department of Energy – 2025 Draft Critical Materials Assessment



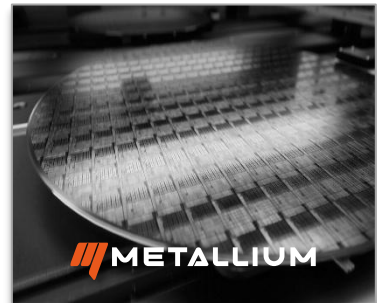
Reference: U.S. Department of Energy (2025). Draft Critical Materials Assessment – Public Consultation Graphic. Office of Energy Efficiency & Renewable Energy (EERE). Available at: https://www.energy.gov/eere











Proof of Execution

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Capital & Markets

- A$50m institutional raise – Jun 2025 / A$15.5m raised Q4 2024
- Uplisted to OTCQX – Jul 2025
- Added to S&P/ASX All Ords – Sep 2025
- Investigating future NASDAQ U.S. listing

Industrial Partnerships

- E-Waste supply: 2 x major U.S. players – Q2 2025
- Vedanta, Indium Corporation, Meteoric Resources
- Binding Ucore deal for U.S. REE refining independence – Sep 2025

Operations

- Texas commercial plant under construction – Dec 2025 start
- Equipment ordered & feedstock secured – Aug 2025
- Two new U.S. site options identified – Aug 2025
- Team buildout

Government & Advisory

- U.S. DoW SBIR Phase I contract (Gallium) – Sep 2025
- Advisory Board established with senior U.S. defence leaders



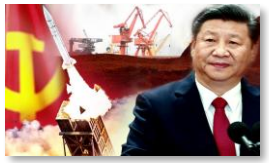





The U.S. Rare Earths Vulnerability

Critical Risk to National Security, Economic Competitiveness, and Manufacturing Independence

CHINA'S CONTROL: REE DOMINANCE



- ✓ 70% of mined REEs
- ✓ ~100% of NdFeB magnet production
- ✓ **>90% of REE refining capacity**



U.S. DEFENCE IMPACT:

- ✓ **REEs used ubiquitously in Military tech**
- ✓ 2022: Pentagon halted F-35 deliveries after finding a Chinese-made magnet in a critical part
- ✓ Production resumed only after a national security waiver → exposing U.S. weapons programs.

NO U.S. / WESTERN DOMESTIC SAFETY NET:

- ✓ No U.S. capacity for heavy REE refining
- ✓ Only one Western NdFeB magnet producer
- ✓ **Heavy reliance on Chinese downstream processing**

CURRENT CRISIS — 2025:

- ✓ China imposes export curbs on REE magnets and alloys; shipments halved in May.
- ✓ Ford (Chicago), Suzuki, and European auto suppliers halt production due to shortages.
- ✓ Export licenses issued selectively — demonstrating geopolitical leverage over supply.

BOTTOM LINE:

The U.S. is one geopolitical decision away from a critical metals supply shutdown.



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Decoupling from China: Building the Future of REE Processing in the U.S.

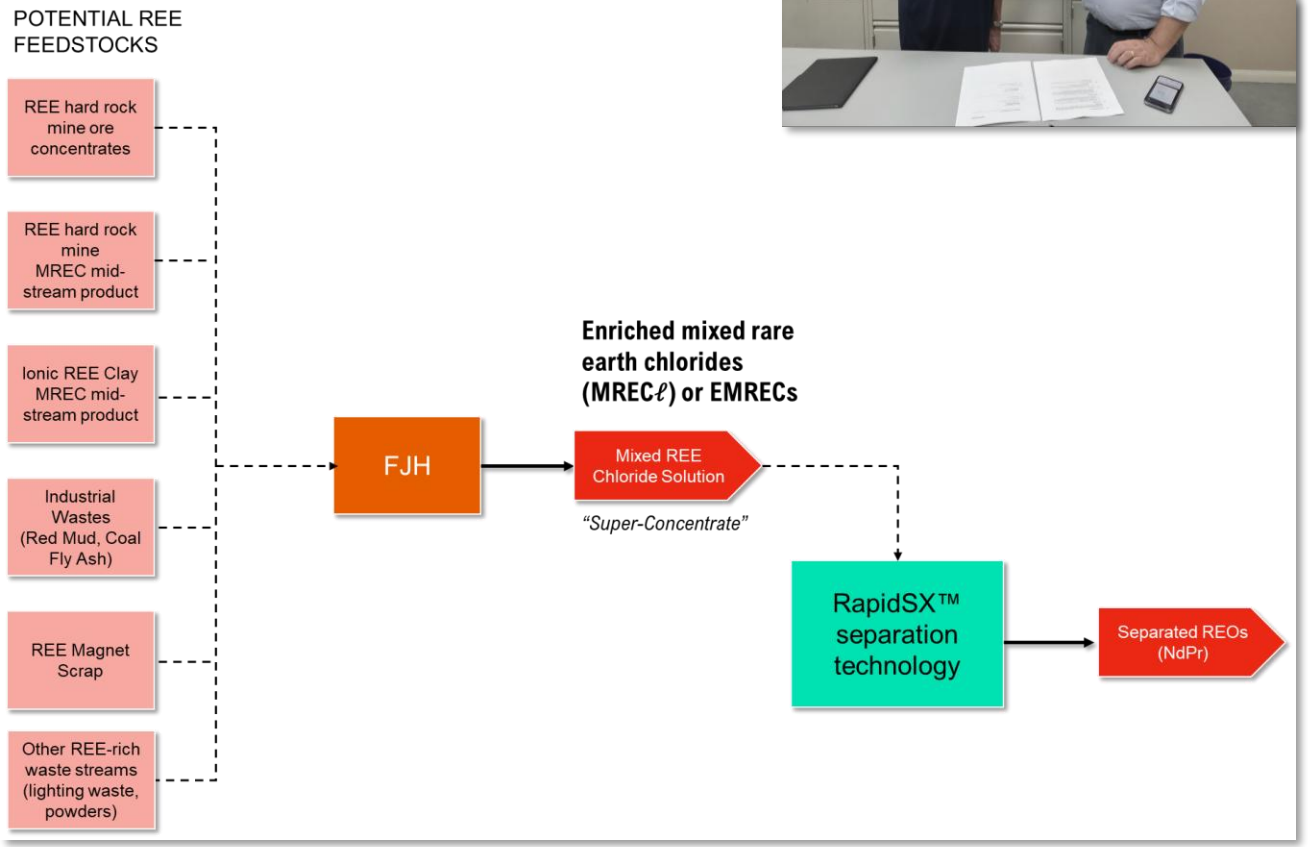
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ucore™

- ✓ **Strategic Synergy** – Integration of FJH with Ucore's RapidSX™, enabling diverse REE feedstocks to be processed into separated oxides in U.S. (vs. China)
- ✓ **Natural Flowsheet Fit** – FJH upgrades feedstocks into clean chlorides, directly compatible with RapidSX™, cutting steps, costs, & expanding acceptable inputs (incl. magnet scrap, tailings)
- ✓ **Strategic Growth** – Provides entry into U.S. magnet recycling, heavy REEs (Dy, Tb), and joint pursuit of DoW/DoE funding
- ✓ **Outcome** – Establishes a sovereign U.S. pathway to separated REE oxides, breaking dependence on China

Binding Agreement with Ucore Rare Metals (TSXV: UCU) - Sep 2025



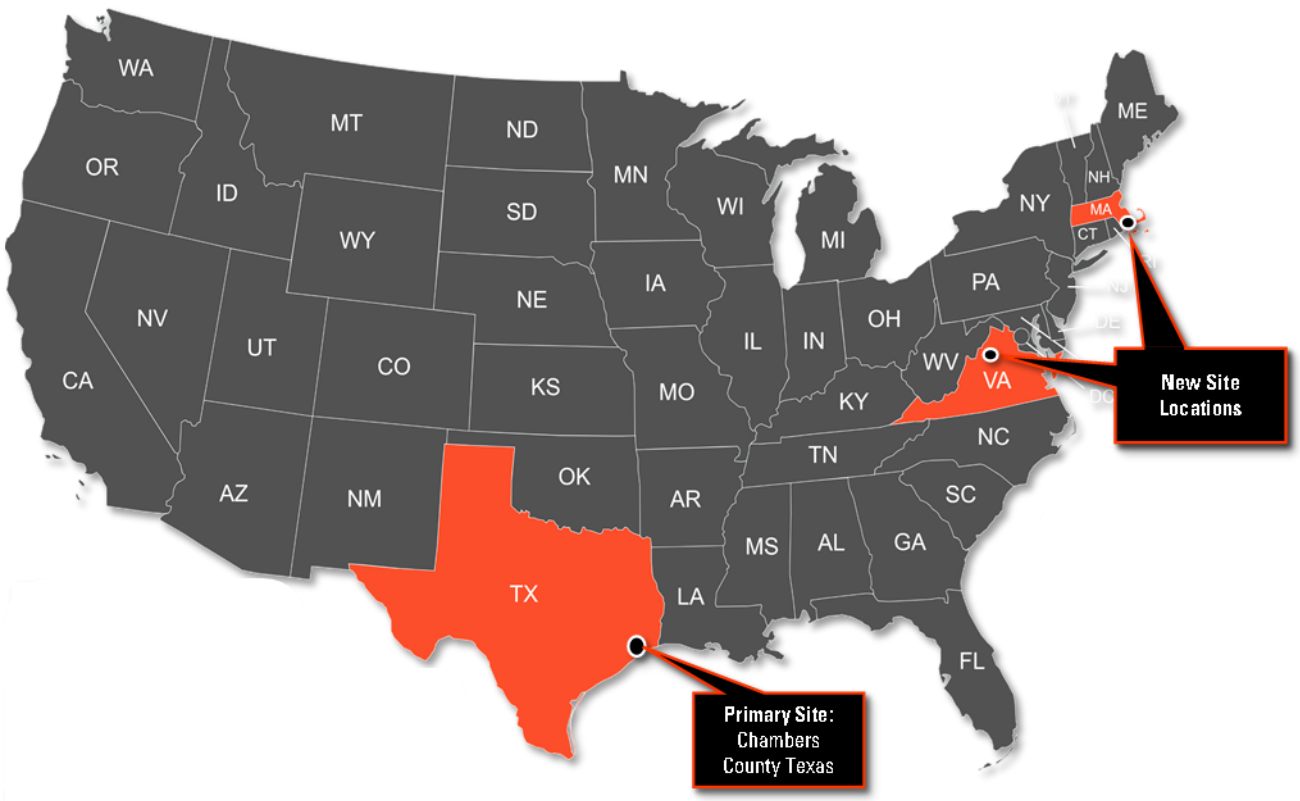


U.S. National Commercial Sites: Rollout Plan



Strategic Multisite Deployment Plan – Pre-Permitted U.S. Network Anchored in Texas

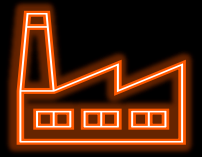
- **Texas Hub Secured:** Pre-permitted anchor site in Houston for near-term commissioning.
- **Expansion Pipeline:** Additional sites secured/shortlisted near e-waste aggregators and industrial partners.
- **Site Criteria:** Access to feedstock, partners, and logistics corridors.
- **Deployment:** Fixed hubs plus mobile modular units for flexibility.
- **Strategic Rationale:** Geographic redundancy, U.S. reshoring alignment, and fast-track to scale recovery capacity nationwide.



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Execution Roadmap – Key Milestones Through Early 2026*

U.S. Operations



- Construction completion for Line 1 (Texas)
- Field testing starts
- Dry commissioning
- Wet commissioning on feedstock

Commercial Pathway



- Licensing pathway initiated – MOU or agreement for IP royalty model
- Further strategic collaborations announced

U.S. & Global Expansion



- U.S. site rollout beyond Texas
- Global review of opportunities for Urban Mining and mineral-processing licensing

Capital Markets / Federal Grants



- U.S. Listing Review – NASDAQ
- DOE / DoW grants update – submissions and outcomes expected

** Above newsflow is provisional only*

METALLIUM

Executive Summary



- **Proprietary Technology with No Direct Rival / Unique Moat**
  Flash Joule Heating (FJH) - no equivalent exists in commercial refining.
- **Economically Disruptive Metal Recovery vs Traditional Processing**
  Simplifies complex flowsheets, eliminates acids and smelting, and enables high-margin recovery from challenging waste and ore streams.
- **Feedstock Secured**
  Agreements with leading U.S. recyclers and specialty metal producers
- **First U.S. Production Site Under Development**
  Permitted Texas facility equipped to support scalable, high-throughput production.
- **Aligned to Structural Supply Chain Shifts**
  Positioned to meet U.S. demand for domestic refining of strategic metals
- **Investor-Backed, Execution-Ready, Primed for Rapid Commercialisation**
  Institutional capital raised. Key offtake and deployment partners progressing. S&P/ASX All Ords inclusion; NASDAQ ambitions.

The Future of Metals Recovery – Contact us to learn more or for partnership discussions

Michael Walshe
Managing Director & Chief Executive Officer
Metallium Ltd

Stock Exchange

ASX: MTM | OTCQX: MTMCF

Investor and Announcement Engagement

InvestorHub
https://investorhub.metalliuminc.com/

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