Acquisition of Rice University Flash Joule Heating Technology for PFAS

Investor Presentation

OCTOBER 2025

ASX:ECT

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ECT Overview

ECT is developing a diversified portfolio of high-impact and disruptive technologies, led by its PFAS remediation solution in collaboration with renowned researchers

Recent corporate consolidation

with a refreshed strategy, led by a new management team, board and advisors

Dedicated to acquiring and building scalable and innovative processes

boasting significant commercial potential across numerous high-growth markets

Acquisition of PFAS and heavy metal remediation technology IP from Rice University

which is a proprietary, scalable, and cost-effective process with strong licensing and commercial potential, is the first acquisition under this new strategy

Well-supported capital raise

to fund the acquisition demonstrates strong support for the new growth strategy and the future of ECT

ECT to grow as a developer of innovative patented IP

by structuring and executing licensing partnerships, while providing the expertise, infrastructure, and capital pathways needed to unlock large-scale, cross-industry applications

Our Ambition

Pursue targeted acquisitions and licensing agreements that complement and strengthen ECT's innovation-led focus

Build a diversified pipeline

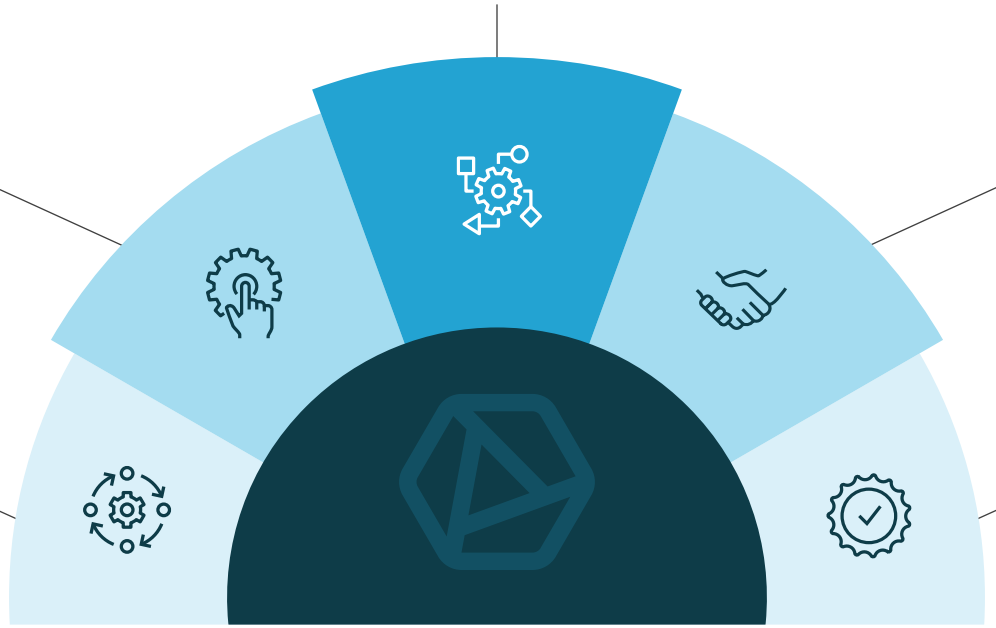
of high-value solution-focused IP processes, aligned with future growth priorities

Exploring advanced material technologies

and cross-industry application.

Agnostic approach

to acquiring or developing complementary innovations



Partnership

with Professor James Tour and Rice University will lead to future acquisition and collaboration opportunities

Commitment to generating measurable impact

and shareholder returns beyond initial PFAS applications

Transaction Highlights

OVERVIEW ›

Building a diverse suite of innovative and scalable technologies

Image Credit: Rice University

ECT to acquire Terrajoule

Option to licence Rice University's proprietary Flash Joule Heating (**FJH**) technology for the purposes of remediating PFAS contaminated soil

Rice University and Professor James Tour

Relationship with Rice University and renowned scientist Professor James Tour, the inventor of the FJH technology with a proven track record of licensing his inventions to ASX listed (and other) entities for commercial development

Entry into large and growing global market

Remediation of PFAS is a global issue. In the US alone, the Environmental Protection Agency and Department of Defense are expected to spend over $10 billion annually to address PFAS contamination

Diversification of technology suite

Acquisition diversifies ECT's technology suite, and is a significant step towards its strategy of building a diverse portfolio of innovative and scalable technologies

Refreshed strategy and team

Recent consolidation of capital and Board restructure, with additional expertise to be added as ECT looks to fast track the development of its existing and new technologies

Transaction Structure

OVERVIEW ›

ECT to acquire 100% of Terrajoule, holder of the exclusive option with Rice University over the PFAS Flash Joule Heating technology

Acquisition Consideration

73.3M

ordinary shares

66.7M

performance rights (two tranches, milestone-based)[1]

Escrow Terms & Conditions

All Consideration Shares are subject to a 6-month escrow from issue

Any Shares issued on vesting of performance rights are also subject to a six-month escrow

Ensures alignment of vendor interests with shareholders during early commercialisation

Transaction subject to shareholder approval and entry into formal Licence Agreement

Capital Raise

$3M

placement to sophisticated and institutional investors.

50M

new shares issued at $0.06/share

Register Strength

Vendors include Professor James Tour and Rice University, now directly aligned on the ECT register

Brings world-leading scientific expertise and credibility alongside commercial development

[1]33.3M vesting if the FJH technology is developed to enable remediation of 5kg of soil within 30 minutes within 12 months; and 33.3M vesting if ECT completes construction of electrothermal remediation system and demonstrates in-situ usability; and enters into a contract to generate at least $2.5 million revenue or receives non-dilutive project funding of at least this amount within 24 months

The PFAS challenge

Known as “forever chemicals”, PFAS are long-lasting, hazardous chemicals which pose a significant health risk to all living organisms

The Problem

PFAS pose a significant health and environmental risk and are very slow to degrade

- As known carcinogens, they have been linked to serious health risks, including cancer, immune system disruption, and reproductive and developmental issues
- They are used in a wide range of products, from cookware and food packaging to firefighting foam
- PFAS have a unique chemical structure, which makes it extremely difficult to isolate and destroy
- PFAS can take up to 1,000 years to decompose naturally
- Traditional PFAS disposal methods are costly, energy-intensive and often generate secondary pollutants, prompting the need for innovative solutions

Scale of Contamination

PFAS are found in trace amounts in water and soil globally due to widespread use and environmental persistence

There is typically a higher concentration near industrial sites, airports, and landfills

79,000 +

presumed PFAS-contaminated sites in the US alone

An emerging global problem

Initial focus on the US, Japan and Australia, where the market size is large

Market Drivers

Public pressure is driving regulatory action

Tougher regulation of PFAS will stimulate spending by forcing potentially exposed parties to address liability risks

ECT has a novel technology, able to destroy PFAS without secondary pollutants, unlike incumbent methods

Global growth of PFAS liability events

USA

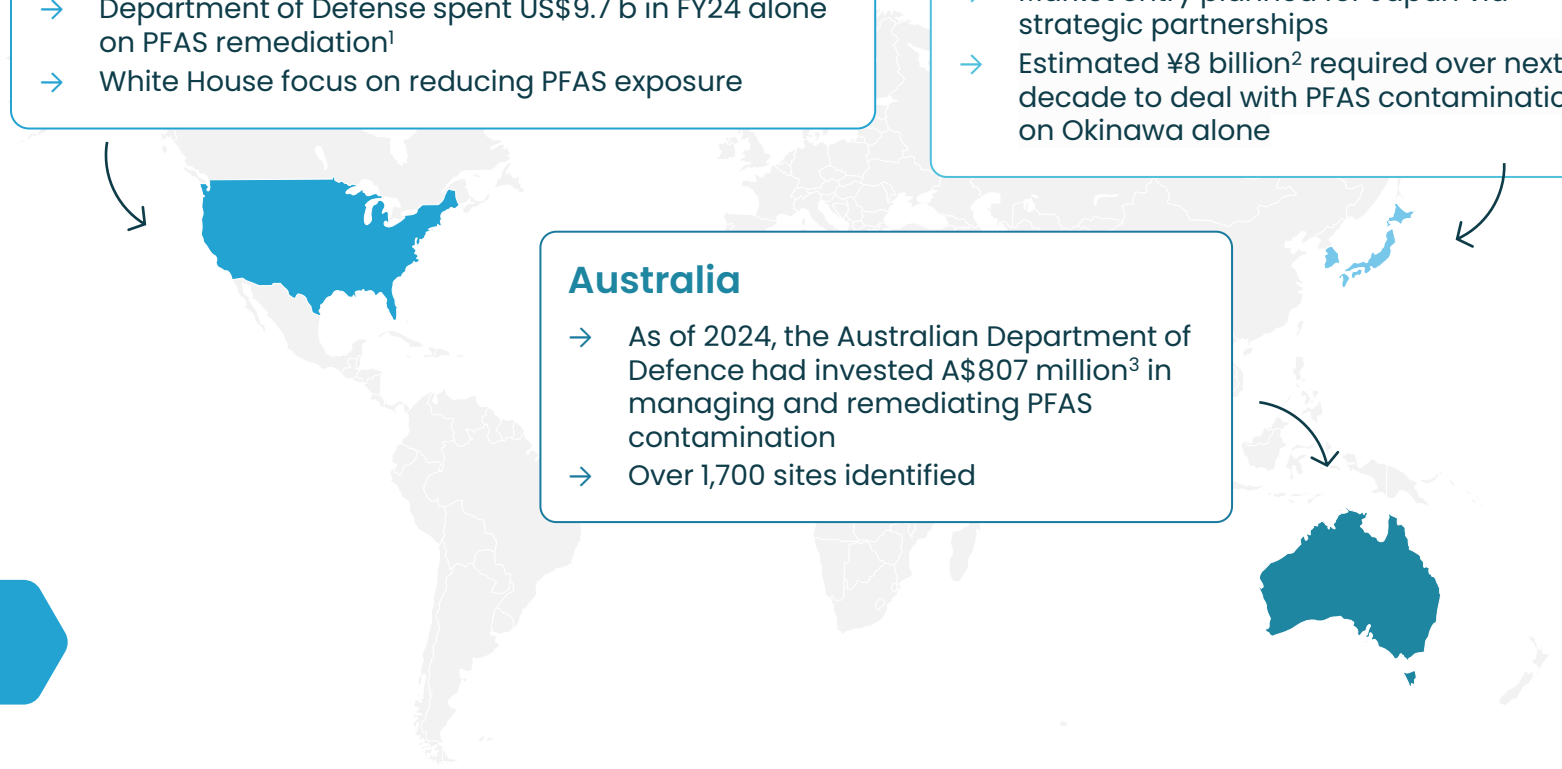
- Environmental Protection Agency annual expenditure for PFAS remediation estimated to scale from US$334.6 m (2022) to US$1.1 b (2030)[1]
- Department of Defense spent US$9.7 b in FY24 alone on PFAS remediation[1]
- White House focus on reducing PFAS exposure

Japan

- Market entry planned for Japan via strategic partnerships
- Estimated ¥8 billion[2] required over next decade to deal with PFAS contamination on Okinawa alone

Australia

- As of 2024, the Australian Department of Defence had invested A$807 million[3] in managing and remediating PFAS contamination
- Over 1,700 sites identified



[1]Kluger, Jeffrey. "How the U.S. Military Plans to Tackle Its 'Forever Chemical' Problem." *TIME*, September 25, 2024.
[2]Tanahashi, Satsuki, and Taro Ono. "Japan Exception to U.S. Military's Handling of PFAS Contamination." *The Asahi Shimbun*, February 7, 2024
[3]Parliament of Australia, *Chapter 5 – Remediation of PFAS Affected Sites*, in *Interim Report of the Senate Select Committee on PFAS (per- and polyfluoroalkyl substances)*

Existing PFAS soil remediation technologies

Existing Solutions

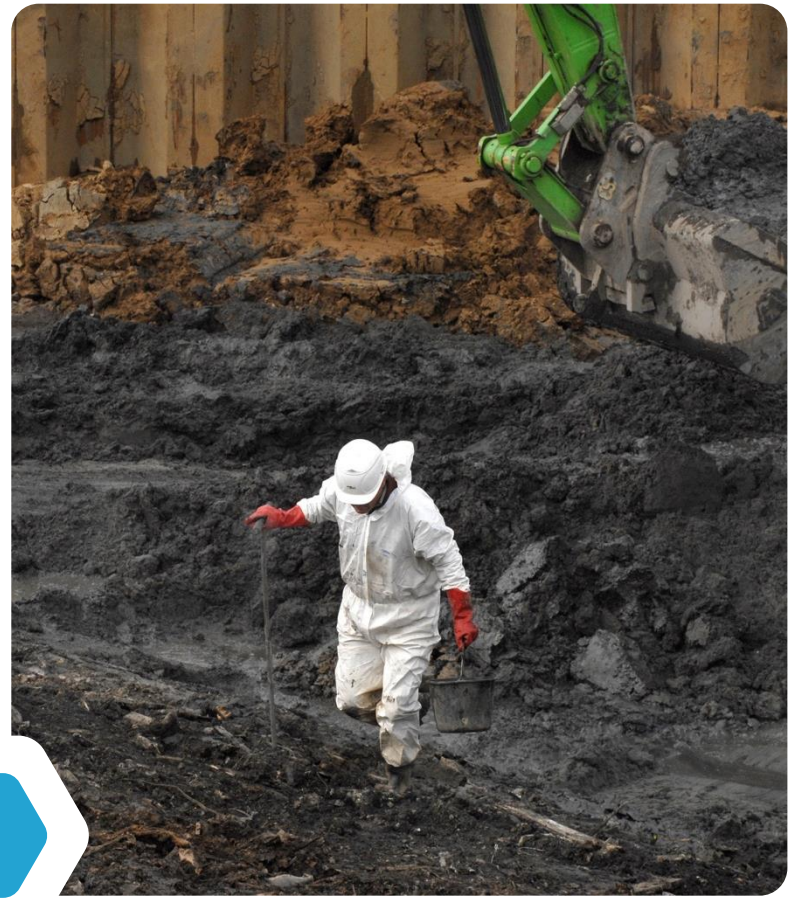
Existing technologies for remediating PFAS contaminated soil include:

- Thermal desorption
- Immobilisation
- Soil washing
- Advanced oxidation processes
- Bioremediation
- and others

Challenges

Existing processes face a number of challenges, including:

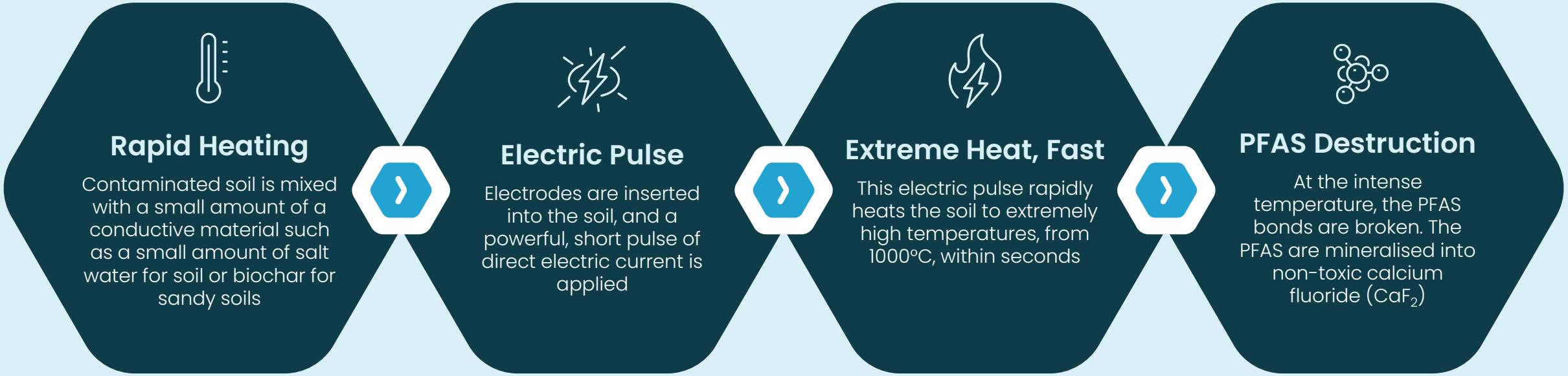
- Slow remediation speeds
- Co-contamination
- High consumption of chemicals burdens economics
- Waste water generation leading to secondary pollution

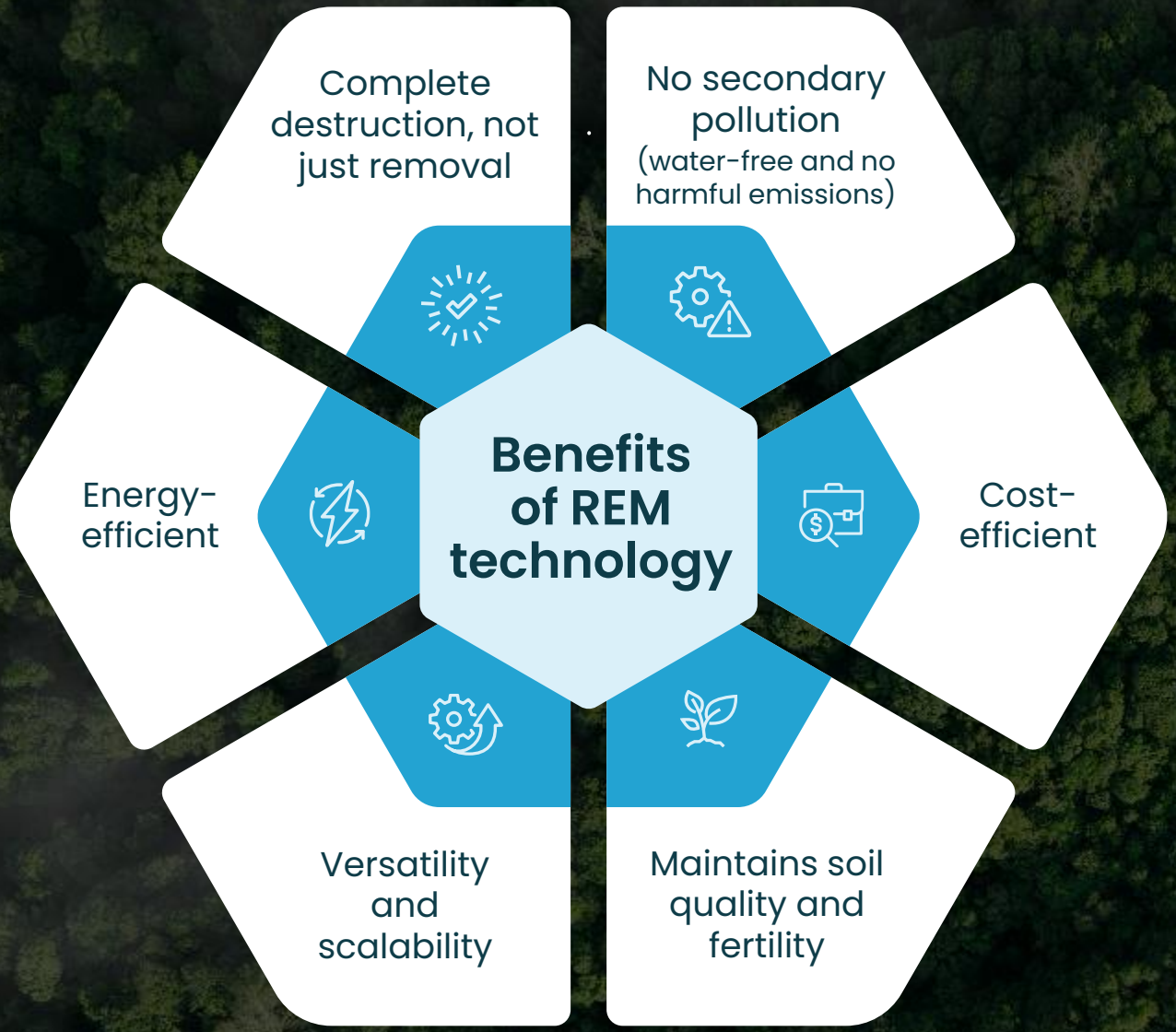


Using Flash Joule Heating to destroy PFAS

OUR EXPERTISE ›

Professor James Tour and Rice University have developed an innovative solution to remediate PFAS and heavy metals contaminated soil using its patented Rapid Electrothermal Mineralisation (REM) process, a subset of its FJH technology





REM aims to provide a fast, energy-efficient, and scalable solution to environmental PFAS contamination issues

REM technology development

OUR EXPERTISE

Clear path to commercialisation

Current State of Development

Lab testing of REM has demonstrated >96% defluorination efficiency and 99.98% removal of perfluorooctanoic acid (PFOA), one of the most persistent and harmful PFAS pollutants

Next ~18-24 months

- Development of high voltage/high frequency system to enable REM treatment at a significantly lower cost
- Development of a scaled-up prototype as a modular, mobile unit

The Future

- Development of commercial units
- Partnership opportunities with farming equipment producers and landowners

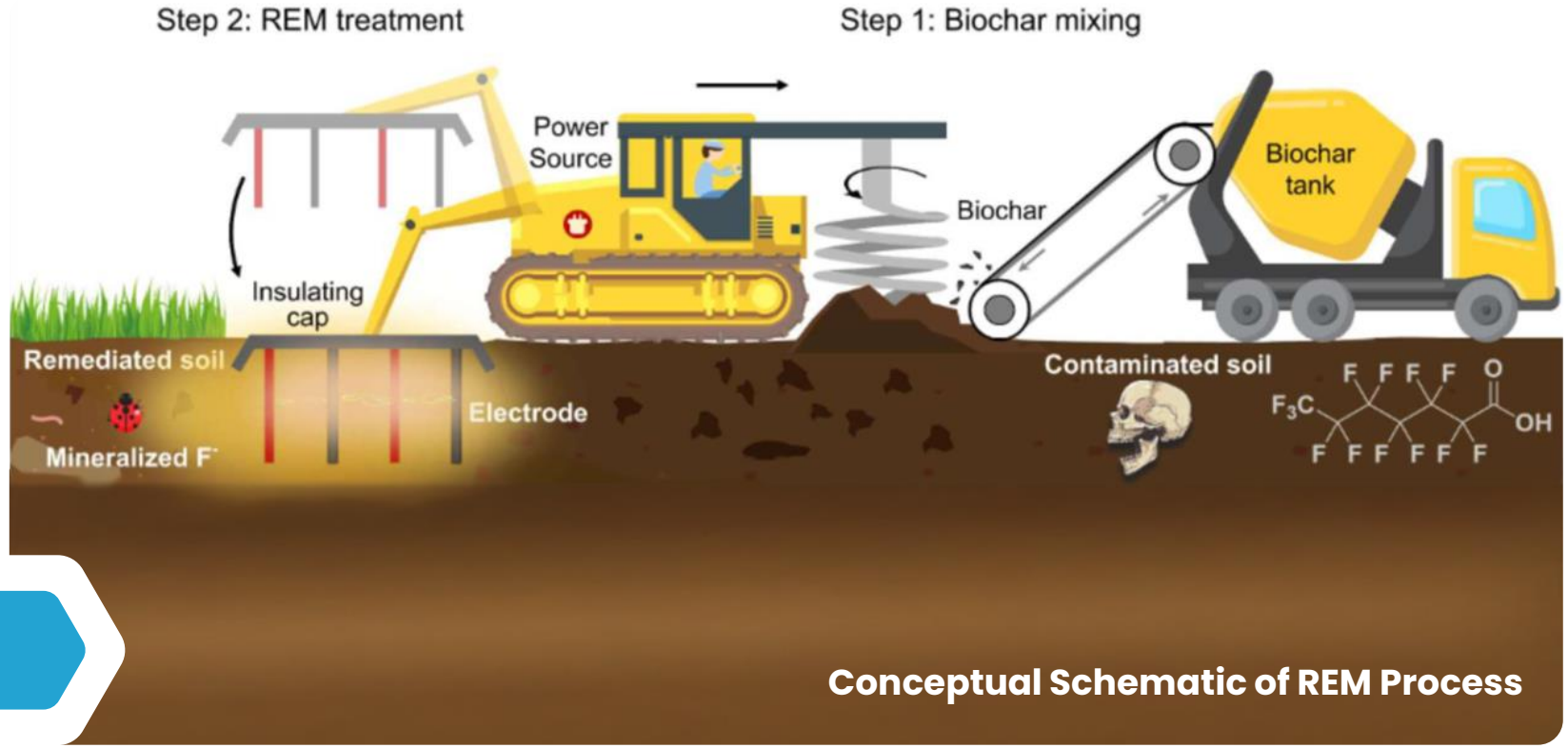
Future workstreams for technology development

OUR EXPERTISE ›

Development of high-frequency/high-power system for direct electrical heating (No use of solvents, water, or reagents to drive down costs)

Establish commercial partnerships to develop a pilot “remediation tractor” using current farming technology

Scale production of “remediation tractors” by utilizing autonomous driving to remediate contaminated land and reduce personnel costs and remediation time



Conceptual Schematic of REM Process

Inventor pedigree and ongoing relationship

OUR EXPERTISE ›

To drive commercially viable innovation, ECT has an established relationship with highly renowned researchers at Rice University

This includes a partnership with Professor James Tour, who invented FJH and has substantial experience in commercialising innovative research-based solutions

Academic Appointments

T.T. and W.F. Chao Professor of Chemistry, Professor of Computer Science, and Professor of Materials Science and Nano Engineering at Rice University

Educational Background

Synthetic organic chemist with a BS in Chemistry from Syracuse University, PhD from Purdue University, and post-doctoral training at Wisconsin and Stanford Universities

Research and Intellectual Property

Professor Tour has over 800 research publications, over 130 granted patents, and over 100 pending patents

Honors and Recognition

Inducted into the National Academy of Inventors (2015), elected to the National Academy of Engineering (2024) and listed in “The World’s Most Influential Scientific Minds” by Reuters (2014)

Commercialisation of Professor Tour's technologies

OUR EXPERTISE ›

Commercialisation of the research by Dr. Tour and his research team at Rice University spans many applications across various high-value markets

ASX:WBT

- A leading developer of advanced semiconductor memory technology
- Dr. Tour is a scientific advisor and co-founder of Weebit Nano
- Peaked at a market capitalisation of ~A$1.5B in 2023 (currently ~A$850m)

ASX:MTM

- Revolutionising metal recovery across the mining value chain by changing the way metals are recovered and recycled
- MTM holds a licence from Rice to use the FJH technology for the purposes of recovering metals from electronic waste, bauxite residue, coal fly ash and ores
- Current market capitalisation of ~A$700m

Private Company

- Pioneering the conversion of carbon-based materials, such as coal, petroleum coke, biochar, and mixed plastic waste, into graphene through FJH
- Sells ready-to-use formulations for commercial applications, including concrete, asphalt, rubber, plastics, and paints
- Based in Canada with US and UK subsidiaries

Key catalysts and milestones

OVERVIEW ›

Upcoming newsflow

Completion of Transaction

Transaction proposed to complete in late November

Technical Scale Up and Testing

Development of high frequency high power system

Commercial Partnering Opportunities

Potential commercial partnership opportunities to test technology in different soil conditions

Building out the team

Appointment of technical and industry experts

M&A

Continued search for complementary or synergistic M&A opportunities

Investment summary and value drivers

Commercial Readiness

Focus on accelerated testing, validation, and scaling of technologies, ensuring readiness for commercial deployment and revenue generation

Aligned Leadership

Installing an aligned management team with deep technical expertise and a track record of commercialisation

Strategic Growth

Pursue targeted acquisitions and licensing agreements that complement and strengthen ECT's innovation-led focus

Innovation Pipeline

Building a diversified pipeline of high-value solution-focused IP processes that are aligned with driving long-term growth

Thank You

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Appendix

Appendix 1

APPENDIX ›

Commentary on the technology

- https://news.rice.edu/news/2025/rice-scientists-pioneer-method-tackle-forever-chemicals
- https://www.nature.com/articles/s41467-024-49809
- https://www.nytimes.com/2025/09/23/climate/military-defense-pfas-forever-chemicals-cleanup-delay.html