



Acquisition of Rice University Flash Joule Heating Technology for PFAS

Investor Presentation

OCTOBER 2025



Disclaimer

DISCLAIMER



Important Notice and Disclaimers

This presentation is dated 09 October 2025 has been prepared by Environmental Clean Technologies Limited (**Company**).

Not an offer

This presentation is provided for general information purposes only. This presentation does not constitute an offer, invitation, solicitation or recommendation with respect to the purchase or sale of securities in the Company in any jurisdiction. It is not a prospectus, product disclosure statement, pathfinder document or any other type of public offer disclosure document for the purposes of the *Corporations Act 2001* (Cth) (**Corporations Act**) and has not been, and is not required to be, lodged with the Australian Securities and Investments Commission.

Not investment advice

This presentation does not constitute investment or financial product advice. It is not intended to be used as the basis for making a financial decision, nor is it intended to constitute legal, tax, accounting or other advice. This presentation has been prepared without taking account of any person's individual investment objectives, financial situation or particular needs. Before making an investment decision, the recipient should consider its own financial situation, objectives and needs, and conduct its own independent investigation and assessment of the contents of this presentation, including obtaining investment, legal, tax, accounting and such other advice as it considers necessary or appropriate.

Future performance and forward-looking statements

Past performance is not an indication of future performance. This presentation may contain forward-looking statements, guidance, forecasts, estimates, prospects, projections or statements in relation to future matters that may involve risks or uncertainties and may involve significant items of subjective judgement and assumptions of future events that may or may not eventuate (**Forward Statements**). Forward Statements can generally be identified by the use of forward looking words such as "anticipate", "estimates", "will", "should", "could", "may", "expects", "plans", "forecast", "target" or similar expressions. Forward Statements including indications, guidance or outlook on future revenues, distributions or financial position and performance or return or growth in underlying investments are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance. To the extent that certain statements contained in this presentation may constitute Forward Statements or statements about forward-looking matters, then the information reflects the Company's (and no other party's) intent, belief or expectations as at the date of this presentation. No independent third party has reviewed the reasonableness of any such statements or assumptions. None of the Company, their related bodies corporate and their respective officers, directors, employees, advisers, partners, affiliates and agents (together, the **Parties**) represent or warrant that such Forward Statements will be achieved or will prove to be correct or gives any warranty, express or implied, as to the accuracy, completeness, likelihood of achievement or reasonableness of any Forward Statement contained in this presentation. Except as required by law or regulation, the Company assumes no obligation to release updates or revisions to Forward Statements to reflect any changes. Recipients should form their own views as to these matters and any assumptions on which any of the Forward Statements are based and not place reliance on such statements.

Risks

An investment in the Company's securities is subject to known and unknown risks, many of which are beyond the control of the Company. The Company does not guarantee any particular rate of return or the performance of the Company, nor does it guarantee any particular tax treatment. Prospective investors should make their own enquiries and investigations regarding all information in this presentation, including the assumptions, uncertainties and contingencies which may affect future operations and prospects of the Company and the impact that different future outcomes may have on the Company.

Distribution

The distribution of this presentation to persons or in jurisdictions outside Australia may be restricted by law and any person into whose possession this presentation comes should seek advice on and observe those restrictions. The presentation is not an offer of securities in the Company for subscription, purchase or sale in any jurisdiction outside Australia, including the United States or in relation to any US person (as defined in Regulation S under the U. S Securities Act of 1933, as amended). Any failure to comply with such restrictions may violate applicable securities law.

Authorisation

No party other than the Company has authorised, permitted or caused the issue, submission, dispatch or provision of this presentation, or takes any responsibility for, or makes or purports to make any statement, representation or undertaking in this presentation and there is no statement in this presentation that is based on any statement by any other party. No person, either as a director, partner or in the employment of the Company has any authority to make, imply, or give any representation or warranty whatsoever in relation to the information contained in this presentation.

This Presentation has been authorised for release by the board of the Company.

Disclaimer

None of the Parties take any responsibility for any information in this presentation or any action taken by any person on the basis of such information. To the maximum extent permitted by law, the Parties: exclude and disclaim all liability, including (without limitation) any liability for fraud or negligence, for any expenses, losses, damages or costs incurred either as a result of the information in this presentation being inaccurate or incomplete in anyway for any reason, or otherwise arising in connection with this presentation; and make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of information in this presentation.

This presentation contains general background information only, which is current at the date of this presentation unless otherwise specified. It contains selected summary information and does not purport to be all-inclusive, comprehensive or to contain all of the information that may be relevant, or which a prospective investor may require in evaluations for a possible investment in the Company. It should not be relied upon by the recipient in considering the merits of the Company, or the acquisition of shares in the Company. Prospective investors should not rely on the information contained in this presentation, and must satisfy themselves as to the accuracy of all such information. This presentation has been prepared based on information available at the time of preparation. No person is under any obligation to update this presentation at any time after its release.

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

OVERVIEW



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

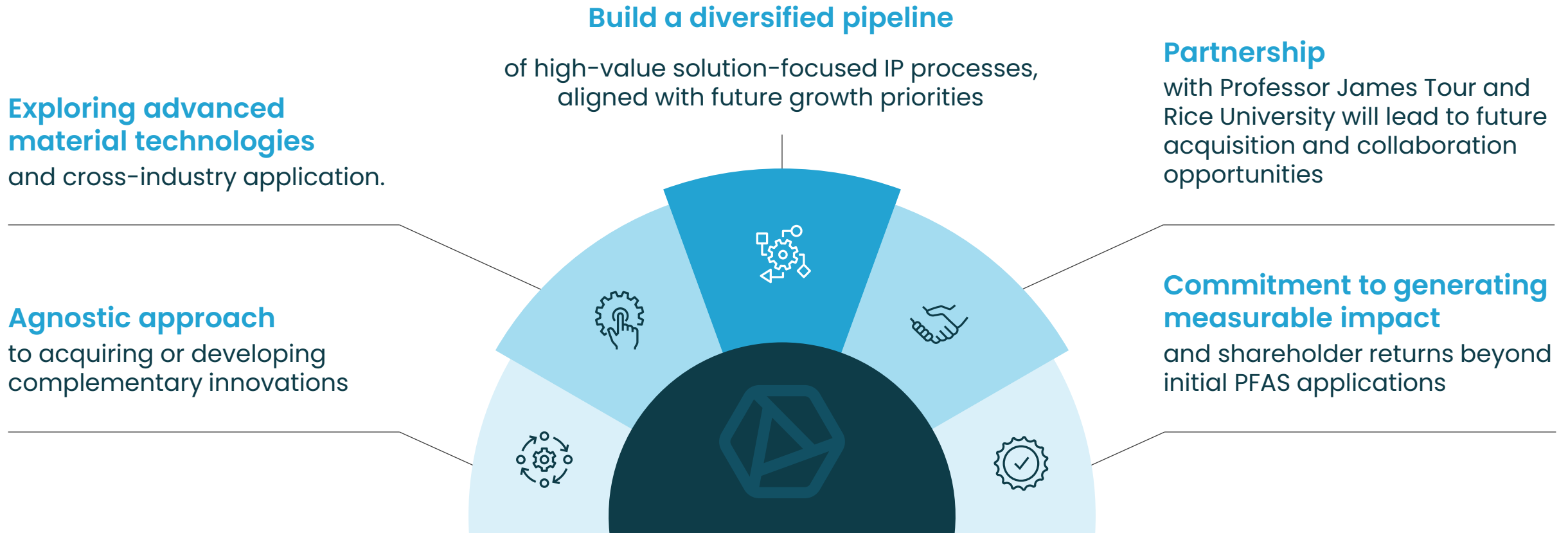
by structuring and executing licensing partnerships, while providing the expertise, infrastructure, and capital pathways needed to unlock large-scale, cross-industry applications

Our Ambition

OVERVIEW



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



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



¹33.3M 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

OVERVIEW



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

MARKET OPPORTUNITY

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 remediation¹
- White House focus on reducing PFAS exposure

Japan

- Market entry planned for Japan via strategic partnerships
- Estimated ¥8 billion² 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 million³ in managing and remediating PFAS contamination
- Over 1,700 sites identified

Existing PFAS soil remediation technologies

MARKET OPPORTUNITY



Existing Solutions

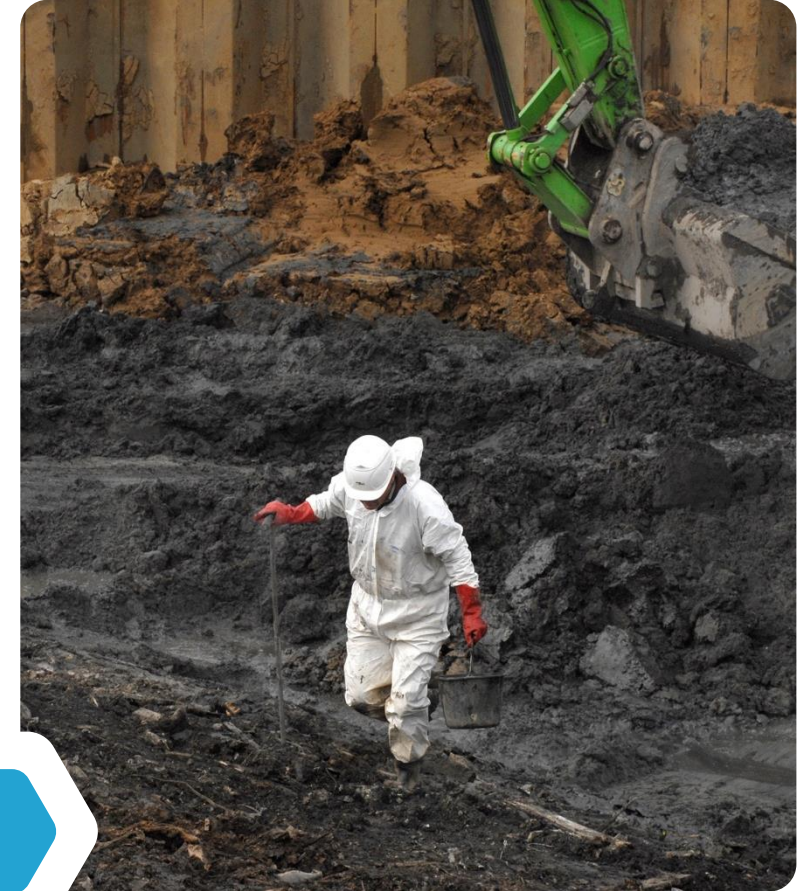
Existing technologies for remediating PFAS contaminated soil include:

- 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



Rapid Heating

Contaminated soil is mixed with a small amount of a conductive material such as a small amount of salt water for soil or biochar for sandy soils



Electric Pulse

Electrodes are inserted into the soil, and a powerful, short pulse of direct electric current is applied



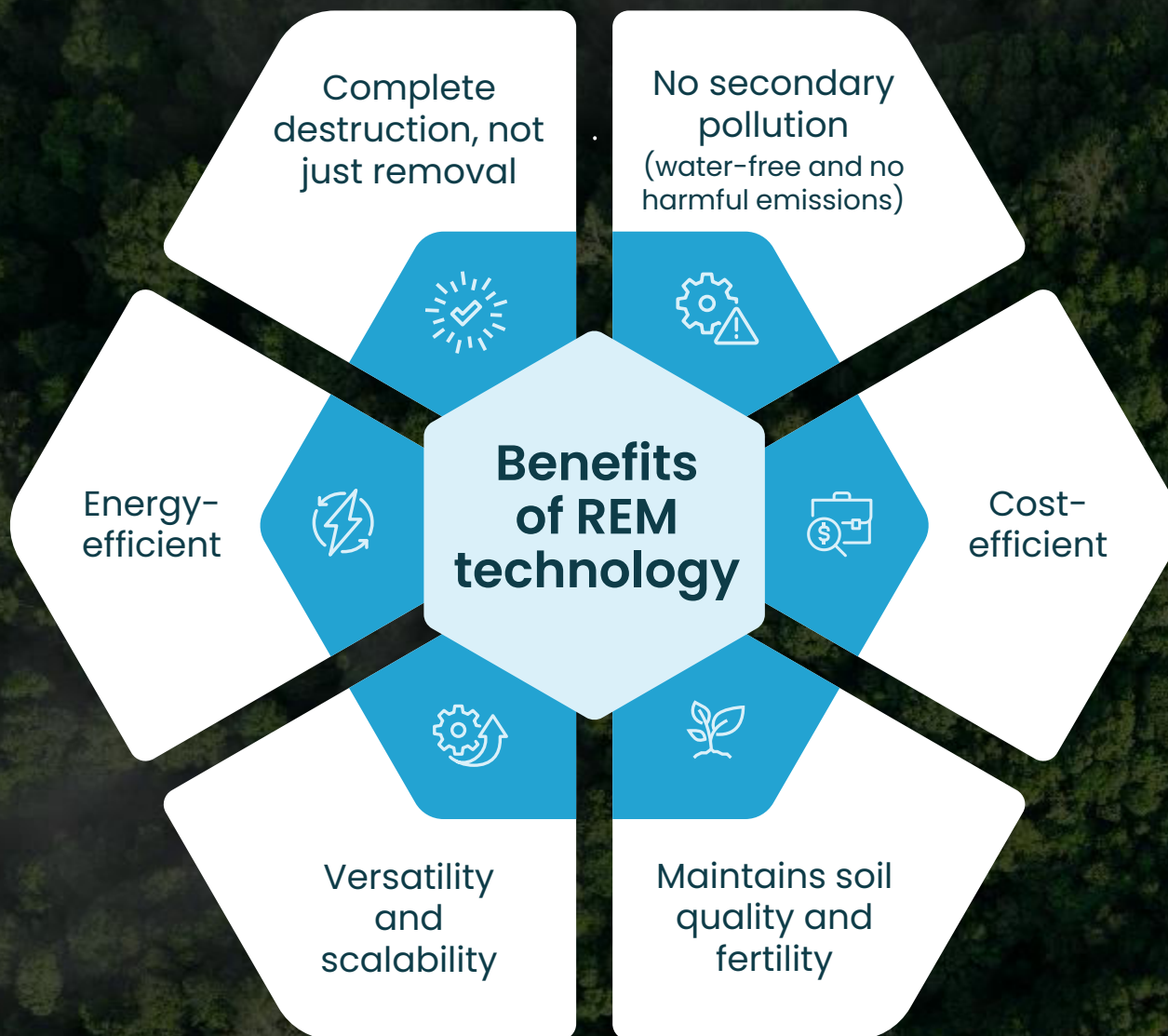
Extreme Heat, Fast

This electric pulse rapidly heats the soil to extremely high temperatures, from 1000°C, within seconds



PFAS Destruction

At the intense temperature, the PFAS bonds are broken. The PFAS are mineralised into non-toxic calcium fluoride (CaF_2)



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

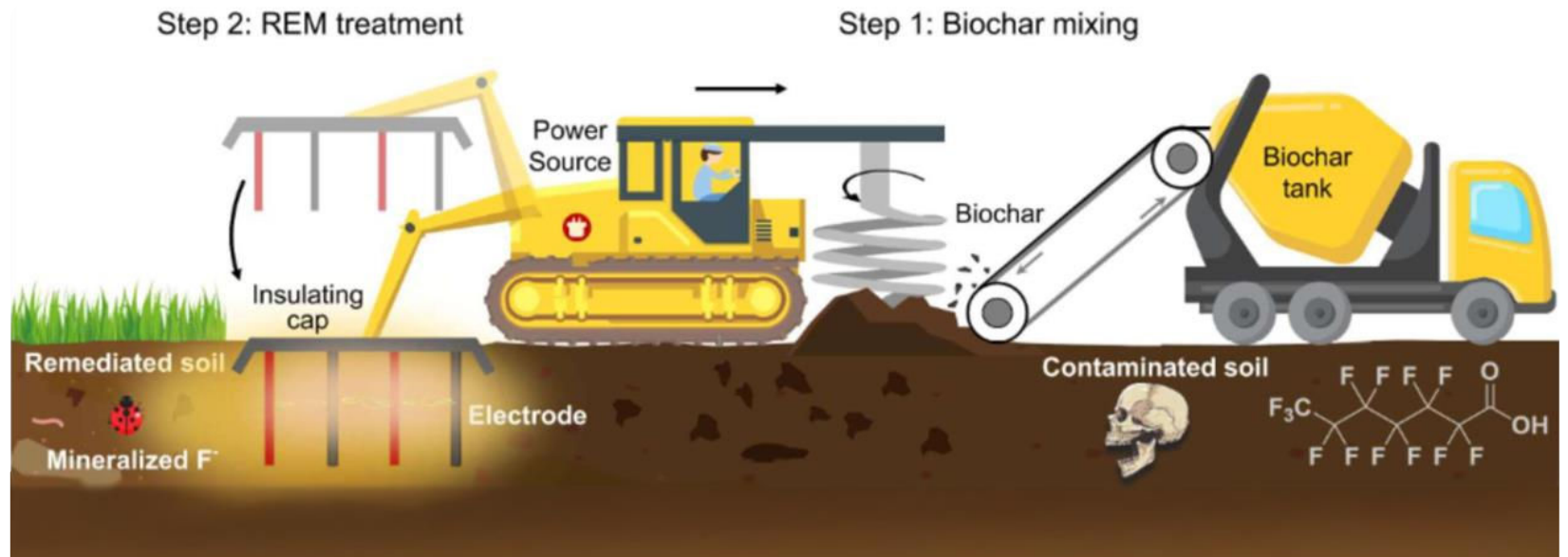
OUR EXPERTISE



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

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



OUR EXPERTISE



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

INVESTMENT



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



CONTACT

Faldi Ismail

EMAIL

info@ectltd.com.au

CONTACT

Stephanie Richardson

EMAIL

stephanie.richardson@sodali.com



Appendix



Appendix 1



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>