ECT ENVIRONMENTAL CLEAN TECHNOLOGIES LIMITED

ASX Announcement

5 February 2026

REM Technology Update: Advancing an Emerging In-Situ PFAS Destruction Solution

Highlights:

- PFAS contamination represents a large and growing global challenge, with independent studies estimating long-term societal costs in the hundreds of billions to trillions of dollars[1,2]
- No scalable, commercially deployed in-situ technology currently exists to permanently destroy PFAS in soil, with remediation largely reliant on excavation, storage, or limited off-site destruction capacity[3]
- ECT is developing its Rapid Electrothermal Mineralisation (**REM**) technology to address this gap, targeting electricity-based PFAS destruction directly within soil, subject to validation and scale-up
- Laboratory testing under controlled conditions has demonstrated high PFAS destruction, including defluorination efficiencies >96% and PFOA removal of up to 99.98%
- Development of a high-voltage, high-frequency REM system without conductive additives has progressed, addressing a key scalability and cost barrier for potential in-situ deployment
- Safety testing and hardware validation are in their final stages, representing an important step toward pilot-scale system development

Environmental Clean Technologies Limited (ASX: **ECT**) (**ECT** or **Company**) is pleased to provide an update on the development of its REM technology.

This technology update follows a transformative 12 months for the Company, which has seen ECT refresh its Board of Directors, implement a revised corporate strategy, acquire an exclusive licence from Rice University for the use of the REM technology, and establish a world-renowned Advisory Board with the aim of further develop and commercialise this technology.

REM Technology Update

REM is a subset of Flash Joule Heating (FJH), a proprietary process invented by Professor James Tour and his team at Rice University in Houston.

[1]**European Commission (2026)** *The Costs of PFAS Pollution to Society* – Directorate-General for Environment – Estimates cumulative PFAS costs of ~€440bn by 2050, with scenarios exceeding €1 trillion.

[2]**European Environment Agency (EEA)***PFAS: Health impacts and economic burden* – Estimates annual PFAS-related health costs in Europe of €52–84bn.

[3]**OECD / UNEP / Stockholm Convention Secretariat** – Multiple regulatory assessments confirming the absence of widely deployed, scalable in-situ PFAS destruction technologies, with current practices focused on containment, excavation, and off-site treatment.

ECT completed the acquisition of Terrajoule Pty Ltd in December 2025, securing a licence to use FJH and REM technology for the remediation of soil contaminated with per- and polyfluoroalkyl substances (PFAS).

Figure 1: Professor James Tour

The REM technology is being developed in response to the absence of scalable, in-situ solutions capable of permanently destroying PFAS in soil.

PFAS, commonly known as “forever chemicals”, are highly persistent substances historically used across a wide range of industrial and consumer products. They are now widely recognised as hazardous to human health and the environment. Remediation of PFAS-contaminated soil and water represents a large and growing market, driven by tightening regulation, limited disposal capacity, and the lack of permanent in-situ destruction technologies.

As detailed in the Company’s previous announcements, the REM process is designed to operate by inserting graphite or metal electrodes into PFAS-contaminated soil and applying a high-voltage, high-power electrical current between the electrodes. This process generates temperatures exceeding approximately 1,000°C within around 60 seconds, with the objective of breaking the strong carbon–fluorine bonds in PFAS and converting them into inert, non-toxic fluoride salts.

The REM system offers several potential advantages compared to conventional PFAS remediation approaches, including:

- **In-situ destruction of PFAS in soil, compared with methods that rely on excavation, transport, and storage; and**
- **The use of electricity-based treatment, without the addition of chemicals and without generating secondary liquid waste streams.**

Laboratory testing conducted under controlled conditions has demonstrated high levels of PFAS destruction, including reported defluorination efficiencies exceeding 96% and removal of perfluorooctanoic acid (PFOA) of up to 99.98%. These results form the basis for ongoing scale-up and system validation activities.

Figure 2: Rice University's laboratory

Early REM configurations utilised conductive additives such as biochar to facilitate current flow through soil. While effective at laboratory scale, the requirement for additives introduces additional cost and complexity and limits suitability for large-scale in-situ deployment.

To address this limitation and facilitate scale-up, the Company has been developing a high-voltage, high-frequency REM system designed to operate without conductive additives while maintaining effectiveness. Safety testing and hardware validation of this next-generation system are now in their final stages. This development is intended to address a key barrier to scalability and improve the potential viability of future in-situ deployment.

Testing of the new system to date has demonstrated:

- **Scaling of voltage input from 160 V to 500 V and power output from 500 W to over 1,600 W, illustrating hardware scalability and design flexibility; and**
- **Uniform heating of soil to approximately 1,000°C at a kilogram scale without the use of biochar additives.**

To support pilot system development and as a step toward technical and operational validation, ECT is continuing laboratory-based scale-up testing in collaboration with Rice University and has expanded its technical team, including the appointment of an electrical engineer.

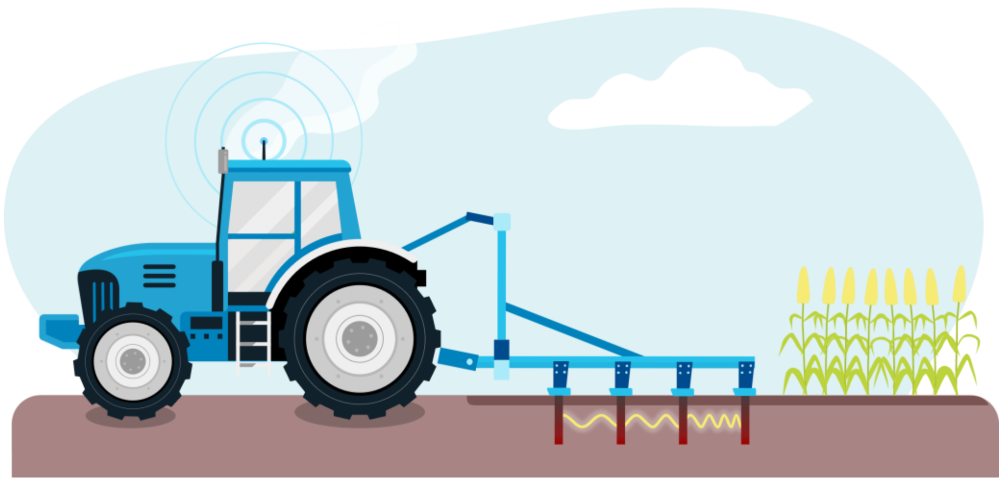

Figure 3: In-Situ REM Deployment

As noted above, some existing remediation methods involve simply digging, transporting, and storing contaminated soil elsewhere, effectively moving the problem from one place to another. The availability of locations to store containers and barrels of PFAS-contaminated soil will diminish over time, particularly as disposal, transport, and expensive high-temperature destruction capacity remain constrained. As such, the Company also intends to develop a modular REM unit which can be deployed to PFAS-contained soil currently stored in containers or barrels.

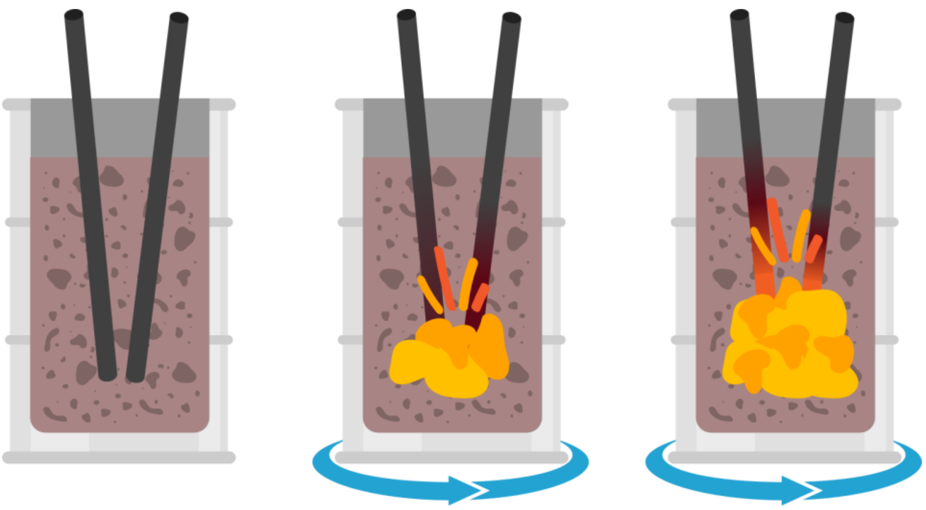

Figure 4: Ex-Situ REM Deployment

Development Roadmap

The development roadmap reflects a staged progression from laboratory validation to pilot-scale to commercial systems, with timelines indicative and subject to regulatory, safety, and engineering outcomes. The proposed pilot-scale system is intended to represent a single module of a future commercial system, enabling scalable deployment with a potential route to revenue. The Company is currently in the capacity build period (Phase 1) with the aim of entering the prototype validation and regulatory readiness phase (Phase 2).

Over the next three months, ECT will assess complementary technology from Rice University for PFAS remediation in water. Additionally in this time, the Company is collaborating with Rice University to hire an electrical engineer.

Completion of this complementary technology assessment, with the potential to license PFAS water remediation technology, and the hiring of an electrical engineer will initiate Phase 2 of the Company's technology development.

Over the next 3-6 months in Phase 2, the Company will focus on finalising the REM prototype, while commencing the permitting requirements for on-site soil remediation. Once the REM prototype has been completed and hardware safety validated, ECT will initiate Phase 3 of the technology development – deployment and pilot readiness.

In the following 6-9 months, the pilot system will be built to remediate PFAS contamination on-site in to demonstrate the capability of the technology in the field. The pilot system will use all the same hardware as the prototype, but will be a mobile unit rated for higher power output for use on-site of PFAS contaminated land.

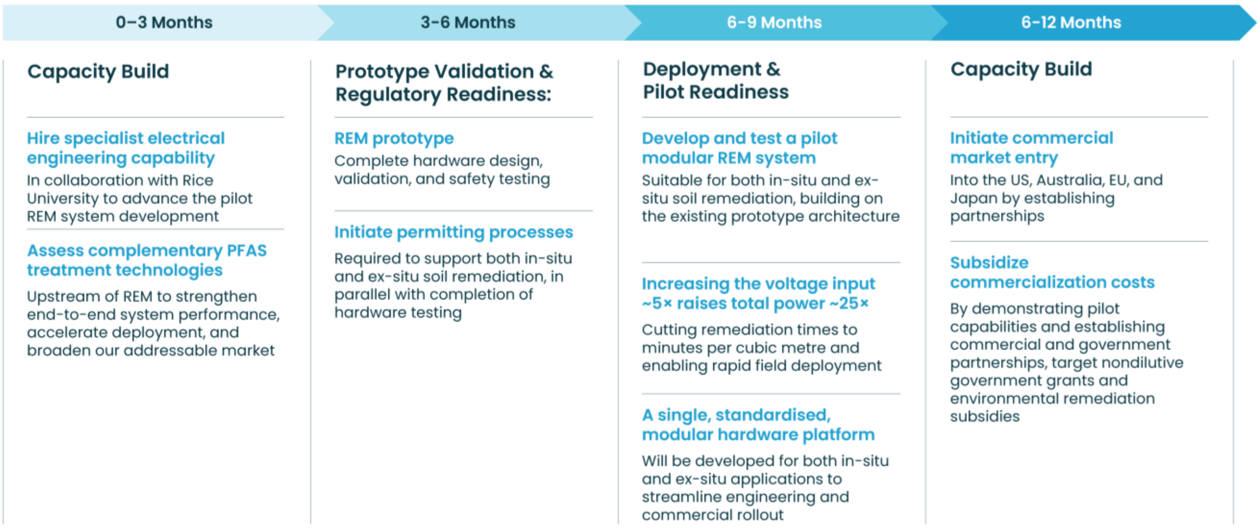

Figure 5: ECT's technology development roadmap

Commenting on the Company's progress, ECT Executive Chairman, Faldi Ismail, said, *"ECT has continued to build strong momentum following the acquisition of Terrajoule and its licence from Rice University to use the REM technology for PFAS remediation in soil. There is currently no scalable, in-situ solution for permanently destroying PFAS in soil. REM is being developed to address that precise challenge, and our progress over the past 12 months reflects a deliberate focus on solving a problem the market already recognises as critical.*

"Our CTO Justin Sharp has been working closely with Rice University to develop a high voltage/high frequency REM system capable of both in-situ and ex-situ PFAS remediation without the need (and cost) of any additives. By contrast, existing PFAS remediation pathways remain constrained by excavation, transport, long-term storage, and the limited availability of specialist high-temperature furnaces required to destroy PFAS concentrates, often at significant cost and logistical complexity. These structural limitations reinforce the need for on-site destruction technologies capable of addressing PFAS contamination directly, rather than relocating the problem elsewhere.

"Significant progress has been made on the development of this system, and we are now in the final stages of safety testing and hardware validation."

This announcement is authorised for release to the ASX by the Board.

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